4

Transportation

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

Introduction

The project area is located in the West Chelsea neighborhood of Manhattan and consists of the Starrett-Lehigh and Terminal Warehouse buildings (see **Figure 4-1**). The Proposed Actions would allow for a more diverse mix of tenants within the two existing buildings. The Starrett-Lehigh Building (601 West 26th Street) contains 1.8 million gross square feet (gsf) of space. Terminal Warehouse (261 Eleventh Avenue) contains 1.14 million gsf of space. **Table 4-1** summarizes the Reasonable Worst-Case Development Scenario (RWCDS) at each building under both No-Action and With-Action conditions. Overall, the RWCDS assumed in this EIS would result in a combined increase of 446,311 gsf of destination retail space, 29,756 gsf of medical office space, and 267,799 gsf of academic space; and a reduction of 424,371 gsf of office space, 136,000 gsf of local retail space, and 183,515 gsf of manufacturing space.

Table 4-1 Reasonable Worst-Case Development Scenario (in gsf)

	Starrett-Lehigh Building			Terminal Warehouse Building			
Land Use	**No-Action**	**With-Action**	**Increment**	**No-Action**	**With-Action**	**Increment**	**Total Increment**
Office	1,465,150	1,189,876	-275,274	1,004,387	855,290	-149,097	**-424,371**
Local Retail	43,000	43,000	0	136,000	0	-136,000	**-136,000**
Destination Retail	0	275,273	275,273	0	171,058	171,058	**446,331**
Medical Office	0	18,352	18,352	0	11,404	11,404	**29,756**
Academic Space	0	165,164	165,164	0	102,635	102,635	**267,799**
Manufacturing	327,000	143,485	-183,515	0	0	0	**-183,515**
Total	**1,835,150**	**1,835,150**	**0**	**1,140,387**	**1,140,387**	**0**	**0**

Figure 4-1 Project Area



Principal Conclusions

A detailed transportation analysis determined that the Proposed Actions would result in significant adverse impacts related to traffic, pedestrians, buses, and select subway station elements. The Proposed Actions would not result in bus or subway line-haul impacts. A parking analysis determined that there would be sufficient off-street parking availability to accommodate demand generated by the Proposed Actions.

Overall, of the 21 intersections analyzed, the Proposed Actions would result in significant adverse traffic impacts at nine intersections in the weekday PM peak hour and at seven intersections in the Saturday midday peak hour. Detailed weekday AM and midday peak hour analyses are not warranted as the volume of vehicle trips generated by the Proposed Actions during those hours fall below *CEQR* thresholds requiring detailed analyses. The identification and evaluation of traffic capacity improvements needed to mitigate weekday PM and Saturday midday impacts are presented in **Chapter 9, Mitigation**.

Subway elements were analyzed at the 34th Street-Hudson Yards Station at Eleventh Avenue and the 23rd Street Station at Eighth Avenue. It was determined that the Proposed Actions would result in significant adverse impacts to select elements at the 34th Street-Hudson Yards Station. During the weekday PM peak hour, a pair of mezzanine escalators operating in the down direction would be significantly impacted. No other elements analyzed at this station would be impacted. No subway elements analyzed at the 23rd Street Station at Eighth Avenue would be significantly impacted. The identification and evaluation of station improvements needed to mitigate the weekday PM escalator impacts are presented in **Chapter 9, Mitigation**.

The pedestrian analysis included 67 pedestrian elements (18 sidewalks, 17 crosswalks, and 32 corner areas). The Proposed Actions would result in significant adverse impacts at two elements in the weekday AM and midday peak hours, six in the weekday PM peak hour, and one in the Saturday peak hour. The identification and evaluation of improvements needed to mitigate these pedestrian impacts are presented in **Chapter 9, Mitigation**.

Bus analyses conducted for the M23-SBS and M34-SBS crosstown bus routes indicated that neither would be significantly impacted using CEQR-approved travel demand assumptions. Use of a more conservative set of assumptions specifically oriented toward greater use of the M23-SBS route via subway transfers indicated that a significant bus capacity impact could be expected with those assumptions in the weekday PM peak hour. Measures needed to mitigate this impact are presented in **Chapter 9, Mitigation**.

In addition to physical improvements currently being undertaken at the Starrett-Lehigh Building's loading docks, RXR SL Owner LLC has committed to exploring strategies in consultation with NYCDOT between the Draft EIS and Final EIS that will further improve loading operations management. These strategies will be part of a comprehensive freight and logistics management plan with a goal of minimizing conflicts with pedestrians and cyclists while balancing their feasibility, including, but not limited to, the demand for deliveries, the uses in and the limitations of the building and existing lease obligations. This commitment will be formalized in a letter to be signed by RXR SL Owner LLC.

Methodology

According to *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 Actions 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 Actions result 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*, American Association of State Highway and Transportation Officials (AASHTO) Census Transportation Planning Products Program (CTPP) reverse journey-to-work data, New York City Department of Transportation (NYCDOT) surveys, *Institute of Transportation Engineers (ITE) Trip Generation Manual - 10th Edition*, and from other New York City environmental impact studies such as the *2015 Vanderbilt Corridor and One Vanderbilt FEIS* and the *2004 No. 7 Subway Extension – Hudson Yards Rezoning and Development Program FGEIS*. **Table 4-2** summarizes the travel demand assumptions used for the weekday AM, midday and PM peak hours, and the Saturday peak hour.

Table 4-2 Travel Demand Assumptions

Rates	Office	Local Retail	Destination Retail	Medical Office	Academic Space	Manufacturing
Person Trip Gen Rate (Weekday/Saturday)	18.0/3.9[1] *per 1,000 SF*	205.0/240.0[1] *per 1,000 SF*	78.2/92.5[1] *per 1,000 SF*	See Note /39.0[5] *per 1,000 SF*	26.6/13.5[1] *per 1,000 SF*	5.2[9]/8.4[9] *per 1,000 SF*
Linked Trip Credit	0%	25%	0%	0%	0%	0%
Peak Temporal Distribution (%)						
Weekday AM	12.0[1]	3.0[1]	3.0[1]	11.0[5]	16.0[1]	15.8[9]
Weekday Midday	15.0[1]	19.0[1]	9.0[1]	13.0[5]	9.0[7]	13.0[10]
Weekday PM	14.0[1]	10.0[1]	9.0[1]	9.0[5]	26.0[1]	17.0[9]
Saturday	17.0[1]	10.0[1]	11.0[1]	17.0[5]	16.0[1]	13.0[11]
Modal Split (%)						
	AM & PM/ MD & SAT	**All Periods**	**AM & PM/ MD & SAT**	**All Periods**	**AM & PM/ MD & SAT**	**AM & PM/ MD & SAT**
Auto	12.6[3]/2.0[2]	6.0[4]	9.0/9.0[2]	1.0[5]	2.4/7.5[8]	12.6[3]/2.0[12]
Taxi	1.5[3]/3.0[2]	1.0[4]	4.0/4.0[2]	5.0[5]	3.6/6.3[8]	1.5[3]/3.0[12]
Bus	10.5[3]/6.0[2]	1.0[4]	8.0/8.0[2]	5.0[5]	8.6/7.5[8]	10.5[3]/6.0[12]
Subway	53.3[3]/6.0[2]	1.0[4]	26.5/20.0[2]	60.0[5]	59.9/61.6[8]	53.3[3]/6.0[12]
Rail	11.2[3]/0.0[2]	0.0[4]	2.0/0.0[2]	0.0[5]	0.0/0.0[8]	11.2[3]/0.0[12]
Walk	10.9[3]/83.0[2]	91.0[4]	50.5/59.0[2]	29.0[5]	25.5/17.1[8]	10.9[3]/83.0[12]
Vehicle Occupancy						
	All Periods	**All Periods**	**Weekday/ Saturday**	**All Periods**	**All Periods**	**All Periods**
Auto	1.12[3]	1.65[2]	1.40[2]/1.72[2]	1.53[5]	1.20[7]	1.12[3]
Taxi	1.40[2]	1.40[2]	1.65[2]/1.75[2]	1.53[5]	1.30[7]	1.40[12]
Directional Distribution (In/Out%)						
Weekday AM	96/4[2]	50/50[2]	61/39[2]	62/38[5]	95/5[7]	77/23[9]
Weekday Midday	48/52[2]	50/50[2]	55/45[2]	47/53[5]	50/50[7]	50/50[10]
Weekday PM	5/95[2]	50/50[2]	47/53[2]	35/65[5]	10/90[7]	31/69[9]
Saturday	57/43[2]	50/50[2]	52/48[2]	49/51[5]	50/50[7]	50/50[11]
Delivery Trip Directional Split (In/Out %) - 50/50						
Delivery Trip Gen Rate (Weekday/Saturday)	0.32/0.01[1] *per 1,000 SF*	0.35/0.04[1] *per 1,000 SF*	0.35/0.02[2] *per 1,000 SF*	0.4/0.0[6] *per 1,000 SF*	0.1/0.1[7] *per 1,000 SF*	0.52[10]/0.52[11] *per 1,000 SF*
Delivery Temporal Distribution (%)						
Weekday AM	10.0[1]	8.0[1]	8.0[2]	9.7[6]	9.7[7]	14.0[10]
Weekday Midday	11.0[1]	11.0[1]	11.0[2]	7.8[6]	9.1[7]	8.6[10]
Weekday PM	2.0[1]	2.0[1]	2.0[2]	5.1[6]	5.1[7]	1.0[10]
Saturday	11.0[1]	11.0[1]	11.0[2]	0.0[6]	9.1[7]	8.6[11]

[1] *2020 CEQR Technical Manual*

[2] *2015 Vanderbilt Corridor and One Vanderbilt FEIS*

[3] AASHTO CTPP reverse journey-to-work (2012-2016) data for Manhattan Census Tracts 79, 83, 89, 93, 97, 99, 103, 111, 115 and 117

[4] NYCDOT Manhattan transit-zone local retail survey data

[5] NYCDOT Trip Generation Rate and Mode Choice Survey – medical office in Manhattan transit zone. Weekday trips are calculated based on the following equation: 66.626X + 141.77 (where X represents size in gsf per 1,000 sq. ft.)

[6] *2017 East Harlem Rezoning FEIS*

[7] *2019 Industry City Redevelopment FEIS*

[8] *2013 Pier 57 Redevelopment Project FEIS* - Pier 57 Technical Arts School weekday PM modal split was applied to the Academic Space for weekday AM and PM; Technical Arts School weekday midday modal split applied to Academic Space for weekday midday and Saturday

[9] *ITE Trip Generation Manual, 10th Edition*; Land Use 140 (Manufacturing).

[10] *2004 No. 7 Subway Extension-Hudson Yards Rezoning and Development Program FGEIS*

[11] Assumed to be similar to rates applied to weekday midday peak hour

[12] Assumed to be similar to rates applied to the office use

Office

For the office use, trip generation rates of 18.0 daily person trips per 1,000 square feet (sf) for weekday and 3.9 daily person trips per 1,000 sf for Saturday were obtained from the *2020 CEQR Technical Manual*. Temporal distributions of 12.0 percent, 15.0 percent, 14.0 percent and 17.0 percent for the weekday AM, weekday midday, weekday PM and Saturday peak hours, respectively, were also obtained from the *2020 CEQR Technical Manual*. Modal splits of 12.6 percent by auto, 1.5 percent by taxi, 10.5 percent by bus, 53.3 percent by subway, 11.2 percent by commuter rail, and 10.9 percent by walking during the weekday AM and PM peak hours were based on AASHTO CTPP reverse journey-to-work data derived from 2012-2016 American Community Survey data for Manhattan census tracts 79, 83, 89, 93, 97, 99, 103, 111, 115 and 117. Modal splits of 2.0 percent by auto, 3.0 percent by taxi, 6.0 percent by bus, 6.0 percent by subway, and 83.0 percent by walking during the weekday midday and Saturday peak hours were based on the *2015 Vanderbilt Corridor and One Vanderbilt FEIS*. For all peak hours, the auto and taxi vehicle occupancy rates of 1.12 and 1.40 were based on the AASHTO CTPP reverse journey-to-work data and *Vanderbilt Corridor and One Vanderbilt FEIS*, respectively. The directional distributions of 96 percent "in" for the weekday AM peak hour, 48 percent "in" for the weekday midday peak hour, 5 percent "in" for the weekday PM peak hour, and 57 percent "in" for the Saturday peak hour were also based on the *Vanderbilt Corridor and One Vanderbilt FEIS*.

For office delivery trips, trip generation rates of 0.32 and 0.01 daily delivery trip per 1,000 sf for weekday and Saturday, respectively, and temporal distributions of 10 percent, 11 percent, 2 percent, and 11 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were obtained from the *2020 CEQR Technical Manual*.

Local Retail

For the local retail use, trip generation rates of 205 daily person trips per 1,000 sf for weekday and 240 daily person trips per 1,000 sf for Saturday were obtained from the *2020 CEQR Technical Manual*. A linked trip credit of 25 percent was assumed. Temporal distributions of 3.0 percent, 19.0 percent, 10.0 percent, and 10.0 percent, for the weekday AM, weekday midday, weekday PM, and Saturday peak hours, respectively, were also obtained from the *CEQR Technical Manual*. Modal splits of 6.0 percent by auto, 1.0 percent by taxi, 1.0 percent by bus, 1.0 percent by subway, and 91.0 percent by walking during the weekday AM, midday and PM peak hours and the Saturday peak hour were based on NYCDOT local retail survey data within the transit zone. For all peak hours, the auto and taxi vehicle occupancy rates of 1.65 and 1.40, respectively, as well as the directional distribution of 50% "in" were based on the *Vanderbilt Corridor and One Vanderbilt FEIS*.

For retail delivery trips, trip generation rates of 0.35 and 0.04 daily delivery trips per 1,000 sf for weekday and Saturday, respectively, and temporal distributions of 8 percent, 11 percent, 2 percent, and 11 percent for the weekday AM, midday, PM and Saturday peak hours, respectively, were obtained from the *2020 CEQR Technical Manual*.

Destination Retail

For the destination retail use, trip generation rates of 78.2 daily person trips per 1,000 sf for weekday and 92.5 daily person trips per 1,000 sf for Saturday were obtained from the *2020 CEQR Technical Manual*. Temporal distributions of 3.0 percent, 9.0 percent, 9.0 percent and 11.0 percent for the weekday AM, midday. PM, and Saturday peak hours, respectively, were

also obtained from the *2020 CEQR Technical Manual*. Modal splits of 9.0 percent by auto, 4.0 percent by taxi, 8.0 percent by bus, 26.5 percent by subway, 2.0 percent by commuter rail, and 50.5 percent by walking during the weekday AM and PM peak hours were based on the *Vanderbilt Corridor and One Vanderbilt FEIS*. Modal splits of 9.0 percent by auto, 4.0 percent by taxi, 8.0 percent by bus, 20.05 percent by subway, and 59.0 percent by walking during the weekday midday and Saturday peak hours were based on the *Vanderbilt Corridor and One Vanderbilt FEIS*. The auto and taxi vehicle occupancy rates of 1.40 and 1.65, respectively, for the weekday peak hours and the auto and taxi vehicle occupancy rates of 1.72 and 1.75 respectively, for the Saturday peak hour were based on the *Vanderbilt Corridor and One Vanderbilt FEIS*. The directional distributions of 61 percent "in" for the weekday AM peak hour, 55 percent "in" for the weekday midday peak hour, 47 percent "in" for the weekday PM peak hour, and 52 percent "in" for the Saturday peak hour were also based on the *Vanderbilt Corridor and One Vanderbilt FEIS*.

For destination retail delivery trips, trip generation rates of 0.35 and 0.02 daily delivery trip per 1,000 sf for weekday and Saturday, respectively, and temporal distributions of 8.0 percent, 11.0 percent, 2.0 percent, and 11.0 percent for the weekday AM, midday, PM, and Saturday peak hours, respectively, were obtained from the *Vanderbilt Corridor and One Vanderbilt FEIS*.

Medical Office

For the medical office use, the trip generation, temporal distribution, modal split, vehicle occupancy and directional distributions were based on NYCDOT medical office trip generation data and transit zone survey data. For weekday, the trip generation rate was determined by the following equation: 66.626X + 141.77 (where X represents size in gsf per 1,000 sf). For Saturday, a trip generation rate of 39.0 daily person trips per 1,000 sf was used. The temporal distributions were 11.0 percent, 13.0 percent, 9.0 percent, and 17.0 percent for the weekday AM, weekday midday, weekday PM, and Saturday peak hours, respectively. For both weekday and Saturday, modal splits of 1.0 percent by auto, 5.0 percent by taxi, 5.0 percent by bus, 60.0 percent by subway, and 29.0 percent by walking were used. For all periods, an auto and taxi vehicle occupancy rate of 1.53 was used. The directional distributions were 62 percent "in" for the weekday AM peak hour, 47 percent "in" for the weekday midday peak hour, 35 percent "in" for the weekday PM peak hour, and 49 percent "in" for the Saturday peak hour.

For medical office delivery trips, trip generation rates of 0.40 per 1,000 sf for the weekday, and temporal distributions of 9.7 percent, 7.8 percent and 5.1 percent for the weekday AM, midday, and PM peak hours, respectively, were obtained from the *2017 East Harlem Rezoning FEIS*. As was similarly reflected in the *East Harlem Rezoning FEIS*, no delivery trips are anticipated on Saturday.

Academic Space

For the academic space, trip generation rates of 26.6 daily person trips per 1,000 sf for weekday and 13.5 daily person trips per 1,000 sf for Saturday were obtained from the *2020 CEQR Technical Manual*. Temporal distributions of 16.0 percent, 26.0 percent, and 16.0 percent for the weekday AM, weekday PM and Saturday peak hours, respectively, were also obtained from the *CEQR Technical Manual*. The weekday midday peak hour temporal distribution rate of 9.0 percent was obtained from the *2019 Industry City Redevelopment*

FEIS. Modal splits were obtained from the *2013 Pier 57 Redevelopment Project FEIS*. Modal splits of 2.4 percent by auto, 3.6 percent by taxi, 8.65 percent by bus, 59.9 percent by subway, and 25.5 percent by walking were used for the weekday AM and PM peak hours. Modal splits of 7.5 percent by auto, 6.3 percent by taxi, 7.5 percent by bus, 61.6 percent by subway, and 17.1 percent by walking were used for the weekday midday and Saturday peak hours. Vehicle occupancy rates and directional distributions were also obtained from the *Industry City Redevelopment FEIS*. For all peak hours, an auto vehicle occupancy rate of 1.20 and taxi vehicle occupancy rate of 1.30 were used. The directional distributions were 95 percent "in" for the weekday AM peak hour, 50 percent "in" for the weekday midday peak hour, 10 percent "in" for the weekday PM peak hour, and 50 percent "in" for the Saturday peak hour.

For academic space delivery trips, trip generation rates of 0.10 daily delivery trips per 1,000 sf for weekday and Saturday, and temporal distributions of 9.7 percent, 9.1 percent, 5.1 percent, and 9.1 percent for the weekday AM, midday and PM; and Saturday peak hours, respectively, were obtained from the *Industry City Redevelopment DEIS*.

Manufacturing

For the manufacturing use, the weekday trip generation rate of 5.2 daily person trips per 1,000 sf and Saturday trip generation rate of 8.4 daily person trips per 1,000 sf were based on data from the *10th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual* for Land Use 140 (Manufacturing). The weekday trip generation rate was determined using a vehicle trip rate of 3.93 vehicles per hour, a 1.25 vehicle occupancy rate, and a 95 percent auto mode share. The Saturday trip generation rate was determined using the same occupancy rate and mode share, but with a trip generation rate of 6.4 vehicles per hour.

Temporal distributions of 15.8 percent and 17.0 percent for the weekday AM and PM peak hours, respectively, were obtained from the *ITE Trip Generation Manual*. The weekday midday peak hour temporal distribution of 13.0 percent was obtained from the *2004 No. 7 Subway Extension- Hudson Yards Rezoning and Development Program FGEIS*. The Saturday peak hour temporal distribution was assumed to be similar to the weekday midday peak hour rate of 13.0 percent. Modal splits of 12.6 percent by auto, 1.5 percent by taxi, 10.5 percent by bus, 53.5 percent by subway, 11.2 percent by commuter rail, and 10.9 percent by walking during the weekday AM and PM peak hours were based on AASHTO CTPP reverse journey-to-work data for Manhattan census tracts 79, 83, 89, 93, 97, 99 and 103. Modal splits of 2.0 percent by auto, 3.0 percent by taxi, 6.0 percent by bus, 6.0 percent by subway, and 83.0 percent by walking during the weekday midday and Saturday peak hours were based on the rates assumed for the office use. For all peak hours, the auto vehicle occupancy rate of 1.12 was based on AASHTO CTPP reverse journey-to-work data. For taxis, the vehicle occupancy rate of 1.40 was based on the rate assumed for the office use. The directional distributions of 77 percent "in" for the weekday AM peak hour and 31 percent "in" for the weekday PM peak hour were based on the *ITE Trip Generation Manual*. The directional distribution of 50 percent "in" for the weekday midday peak hour was based on the *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS* and was similarly assumed for the Saturday peak hour.

For manufacturing use delivery trips, the weekday trip generation rate of 0.52 daily delivery trips per 1,000 sf was based on the *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS*. For Saturday, a similar rate of 0.52 daily delivery trips per 1,000

sf was assumed. Temporal distributions of 14.0 percent, 8.6 percent, and 1.0 percent for the weekday AM, midday, and PM peak hours, respectively, were obtained from the *No. 7 Subway Extension - Hudson Yards Rezoning and Development Program FGEIS*. The same 8.6 percent temporal distribution applied to the weekday midday peak hour was similarly assumed for the Saturday peak hour.

Level 1 Screening Results

The estimated change in person and vehicle trips expected to result from the Proposed Actions was based on the reasonable worst-case development program shown in **Table 4-1** and the travel demand factors in **Table 4-2**. The estimated person trips by mode (i.e., auto, taxi, bus, subway, rail and walk-only) are provided in **Table 4-3** and are discussed in this section.

Table 4-3 Project Trip Generation Summary – Person Trips

	Weekday AM			Weekday Midday			Weekday PM			Saturday		
Mode	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	-60	12	-48	51	21	72	63	-14	49	156	140	296
Taxi	54	19	73	57	45	102	57	107	164	97	92	189
Bus	46	33	79	112	85	197	116	155	271	188	175	363
Subway	378	158	536	569	513	1,082	480	910	1,390	681	648	1,329
Rail	-99	0	-99	0	0	0	17	-93	-76	0	0	0
Walk	250	-44	206	-1,200	-1,420	-2,620	-149	230	81	141	68	209
Total	569	178	747	-411	-756	-1,167	584	1,295	1,879	1,263	1,123	2,386

Transit and Pedestrians

The total number of person trips generated by the Proposed Actions are provided in **Table 4-3**. The number of transit trips per peak hour is detailed below:

- During the weekday AM peak hour, the project would generate an increase of 79 bus trips and 536 subway trips, and a reduction of 99 rail trips.
- During the weekday midday peak hour, the project would generate an increase of 197 bus trips and 1,082 subway trips.
- During the weekday PM peak hour, the project would generate an increase of 271 bus trips and 1,390 subway trips, and a reduction of 76 rail trips.
- During the Saturday peak hour, the project would generate an increase of 363 bus trips and 1,329 subway trips.

Transit analyses generally examine conditions only during the commuter peak periods (weekday AM and PM) when overall transit demand and the potential for significant adverse impacts is typically highest. Therefore, as the project is expected to generate over 200 bus trips in the weekday PM peak hour, and over 200 subway trips in the weekday AM and PM peak hours, Level 2 trip assignments are necessary to determine if detailed analyses are warranted for those travel modes during those time periods per *CEQR Technical Manual* guidelines.

Pedestrian trips include walk-only trips to and from the project area plus walking connections between the project area to and from bus stops, subway and rail stations, and off-street parking facilities expected to be used by those who choose to drive. A net increase in pedestrian trips is expected for three of the four analysis hours – 674 in the weekday AM peak hour, 1,715 in the weekday PM peak hour, and 2,197 in the Saturday peak hour – and a reduction of 1,269 pedestrian trips is expected in the weekday midday peak hour

As the number of incremental pedestrian peak hour trips is expected to exceed the *CEQR* threshold of 200 pedestrian trips per hour, a Level 2 trip assignment is necessary to determine if detailed pedestrian analyses are warranted per *CEQR Technical Manual* guidelines.

Traffic and Parking

Table 4-4 summarizes peak hour vehicular volumes for the Proposed Actions under the With-Action condition. The volumes include trips via autos, taxis (balanced assuming a 50 percent overlap between inbound and outbound trips per *CEQR Technical Manual* guidelines), and commercial delivery vehicles. The hourly vehicle trips generated by the Proposed Actions would be 10 vehicles per hour (vph) during the weekday AM peak hour, 156 vph in the weekday midday peak hour, 211 vph in the weekday PM peak hour, and 331 vph in the Saturday peak hour. As the volume of vehicle trips generated by the Proposed Actions would exceed the 50-vehicle trip threshold during the weekday midday, weekday PM, and Saturday peak hours, a Level 2 trip assignment is necessary to determine if a detailed traffic and parking analysis is warranted per *CEQR Technical Manual* guidelines. As the number of project-generated vehicle trips would not exceed the threshold during the weekday AM peak hour, a Level 2 trip assignment, and consequently a detailed traffic and parking analysis, is not warranted for weekday AM peak hour conditions.

Table 4-4 Project Trip Generation Summary – Vehicle Trips

	Weekday AM			Weekday Midday			Weekday PM			Saturday		
Mode	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**	**In**	**Out**	**Total**
Auto	-60	8	-52	52	30	82	51	-22	29	93	84	177
Taxi	39	39	78	43	43	86	90	90	180	80	80	160
Delivery	-8	-8	-16	-6	-6	-12	1	1	2	-3	-3	-6
Total	-29	39	10	89	67	156	142	69	211	170	161	331

Level 2 Screening Assessment

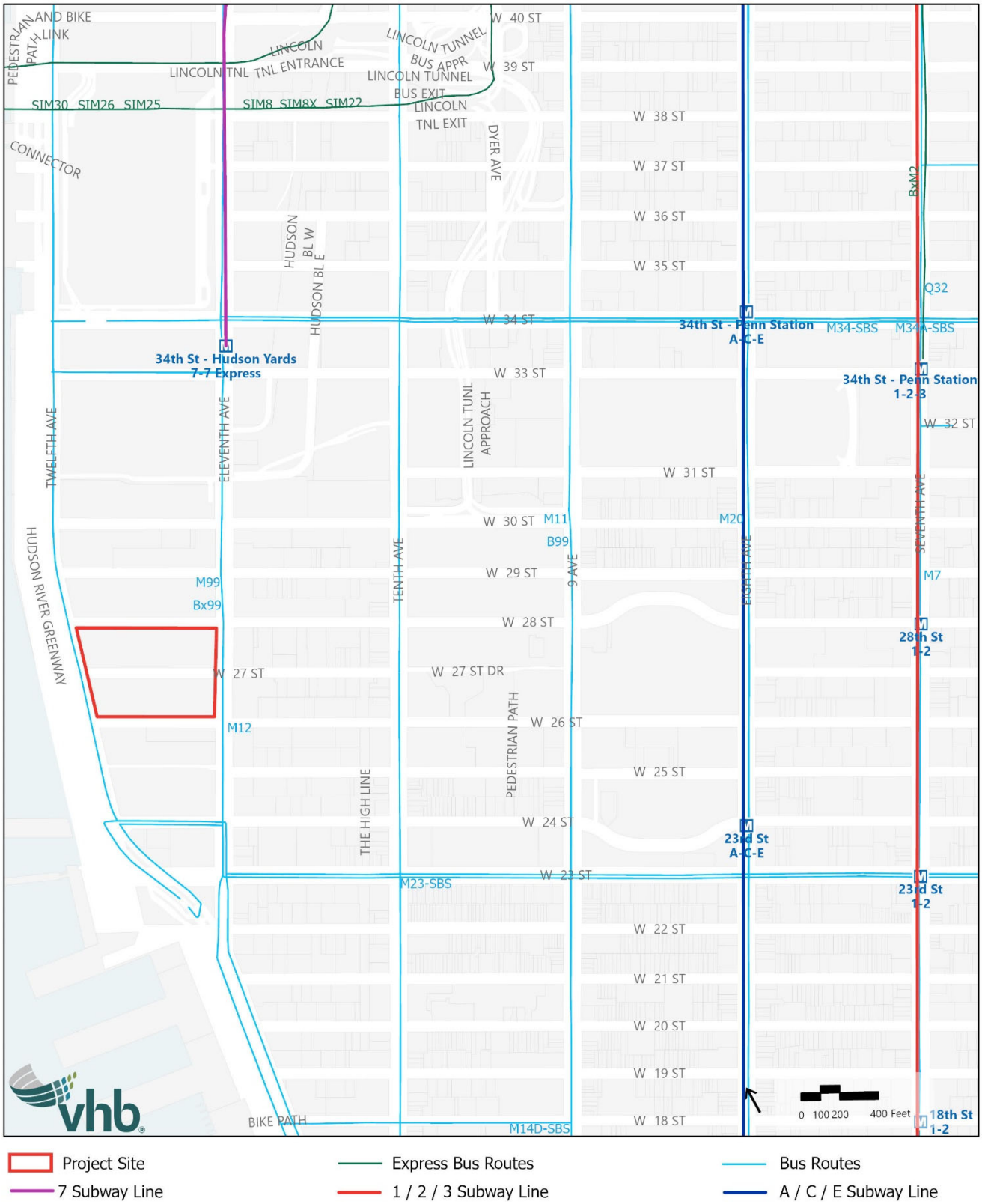
As described above, the number of trips expected to be generated by the Proposed Actions would exceed the *2020 CEQR Technical Manual* Level 1 screening thresholds for bus, subway, pedestrian, and vehicle trips. Project-generated trips were assigned through the surrounding transit and street networks based on existing transit services and routes to and from the project sites and nearby parking facilities, as there will be no on-site parking provided.

Transit and Pedestrians

The subway and bus routes serving the study area are shown in **Figure 4-2**. As shown, two subway stations are within an approximately half-mile radius of the project area. The 34th

Street – Hudson Yards Station located to the north along Eleventh Avenue is served by the No. 7 subway line (local and express) and the 23rd Street Station on Eighth Avenue to the east is served by the C and E subway lines (the A subway line serves this station during overnight hours). The distribution of these trips was based on average weekday subway ridership data - 44 percent of subway trips were assigned to the 34th Street – Hudson Yards Station and 56 percent to the 23rd Street Station. Subway pedestrian trips were assigned along direct routes between the project sites and station street entrances.

Figure 4-2 Transit Map



Bus transit options within the project area vicinity include the M11, M12, M23-SBS and M34-SBS. According to ridership data, the majority of bus trips are along the crosstown routes. Based on average weekday bus ridership data, it is assumed that 24 percent of weekday bus trips would be made via the M11 line, 1 percent would be made via the M12 line, 36 percent would be made via the M23-SBS, and 39 percent would be made via the M34-SBS.

Walk-only pedestrian trips were generally distributed across local avenues and cross streets. Trips to and from nearby off-street parking facilities were assigned along direct routes between the project area and the parking facilities.

Traffic

Project-generated auto and taxi trips shown in **Table 4-4** were assigned through the surrounding street network based on anticipated trip origins, the configuration of the street network, and expected routes to the project area and entrances to nearby off-street parking facilities. Delivery trips were assigned along truck routes (e.g., Dyer Avenue, West 34th Street and Route 9A). In general, the assignment street network limits were from Route 9A to the west, Tenth Avenue to the east, West 34th Street to the north, and West 23rd Street to the south.

Commercial and Academic Trips

Office, manufacturing, and academic space vehicle assignments were based on the AASHTO CTPP reverse-journey-to-work data for Manhattan Census Tracts 79, 83, 89, 93, 97, 99, 103, 111, 115 and 117. Based on the AASHTO CTPP data, 47 percent of the auto trips were assumed to originate from New York City – 8 percent from the Bronx, 12 percent from Brooklyn, 7 percent from Manhattan, 15 percent from Queens, and 5 percent from Staten Island. The remaining 53 percent of trips were distributed as follows - 8 percent from Long Island, 15 percent from Westchester County and Upstate New York, 23 percent from New Jersey, 3 percent from Connecticut, and 4 percent from outside of the Tri-State Area (e.g., Pennsylvania).

These trips were primarily assigned along major routes into the Midtown area. Approximately 14 percent of inbound trips were assigned via the Lincoln Tunnel, 35 percent via Route 9A in the southbound direction, 23 percent via Route 9A in the northbound direction, 25 percent via the Queens-Midtown Tunnel and the remaining 3 percent were assigned to the FDR Drive, Eleventh Avenue and other corridors. Outbound trips were assigned similarly - approximately 14 percent of outbound trips were assigned via the Lincoln Tunnel, 23 percent via Route 9A in the southbound direction, 36 percent via Route 9A in the northbound direction, 25 percent via the Queens-Midtown Tunnel and the remaining 2 percent split via the FDR Drive, West 24th Street and other corridors.

Local-Oriented Trips

Retail and medical office uses would generally serve the closer-in surrounding areas. Local retail trips were generally assigned based on population densities within the immediate surrounding areas (approximately a half-mile radius of the project area). Trips generated by destination retail and medical office uses were assigned based on population densities within a three-mile radius and were assigned to local streets and major north-south or east-west corridors, such as Eleventh and Twelfth Avenues and 34th Street, where appropriate.

Level 2 Screening Results

Transit

Per *CEQR Technical Manual* guidelines, a detailed analysis is required for bus routes, subway lines and subway stations that would exceed Level 2 thresholds during the weekday AM and PM peak hours.

Table 4-5 summarizes the volume of weekday AM and PM peak hour project-generated person trips assigned to bus routes. For buses, both, the M23-SBS and M34-SBS bus routes are expected to incur an increase of 50 or more riders in the eastbound direction during the weekday PM peak hour (55 and 60 bus trips, respectively). During the weekday AM peak hour, increases in bus ridership are not expected to exceed the Level 2 threshold for any bus route. Therefore, detailed bus line-haul analyses will be conducted for only the weekday PM peak hour for the M23-SBS and M34-SBS lines in the eastbound direction.

Table 4-5 Project-Generated Person Trips by Bus

		Weekday AM			Weekday PM		
Route	**Direction**	**To Site**	**From Site**	**Total**	**To Site**	**From Site**	**Total**
M11	*NB*	6	4	10	14	20	34
	SB	6	4	10	14	20	34
M12	*NB*	0	0	0	0	0	0
	SB	0	0	0	0	0	0
M23-SBS	*EB*	-	12	12	-	55	**55**
	WB	17	-	17	42	-	42
M34-SBS	*EB*	-	13	13	-	60	**60**
	WB	17	-	17	46	-	46

NB= Northbound; SB=Southbound; EB=Eastbound; WB=Westbound

Table 4-6 summarizes the volume of weekday AM and PM peak hour project-generated person trips assigned to subway lines nearest the project site. All No. 7 subway line trips were assigned to the 34th Street-Hudson Yards Station and all C/E subway line trips were assigned to the 23rd Street Station at Eighth Avenue. The 34th Street-Hudson Yards Station and the 23rd Street Station are expected to incur increases of 200 or more subway riders in both the weekday AM and PM peak hours. For both stations, key circulation elements (e.g., street stairs, escalators, and fare arrays) expected to attract concentrated levels of project-generated demand are analyzed below. These analysis elements include the following:

23rd Street Station Elements

- Downtown street staircase located at the northwest corner of the Eighth Avenue and West 25th Street intersection.
- Uptown street staircase located at the northeast corner of the Eighth Avenue and West 25th Street intersection.
- Fare control area at the West 25th Street end of the downtown platform
- Fare control area at the West 25th Street end of uptown platform

34th Street – Hudson Yards Station Elements

- Two street staircases located at the south entrance of the station
- Four street-level escalators (two up and two down) at the south entrance of the station
- Five mezzanine escalators (three up and two down) at the south end of the station
- Fare control areas at south end of the station
- Three platform-to-lower mezzanine staircases at the south end of the station

Table 4-6 Project-Generated Person Trips by Subway

Station	Subway Line	Direction	Weekday AM To Site	Weekday AM From Site	Weekday AM Total	Weekday PM To Site	Weekday PM From Site	Weekday PM Total
34th Street – Hudson Yards	7	*EB/WB*	166	69	**235**	212	398	**610**
23rd Street Station	C	*NB*	53	22	151	67	128	**390**
		SB	53	23		67	128	
	E	*NB*	53	22	150	67	128	**390**
		SB	53	22		67	128	

NB= Northbound; SB=Southbound; EB=Eastbound; WB=Westbound

For subways, the No. 7, C and E subway lines are expected to incur an increase of 200 or more riders during the weekday PM peak hour. During the weekday AM peak hour, increases in subway ridership are expected to exceed the Level 2 line-haul threshold on the No. 7 subway line. Therefore, detailed subway line-haul analyses are included for the weekday AM and PM peak hours on the No. 7 subway line and only the weekday PM peak hour for the C and E subway lines. As the No. 7 subway line is served by local and express trains, both routes are included in the line-haul analysis.

Pedestrians

Per *CEQR Technical Manual* guidelines, a detailed level of service analysis is warranted for pedestrian elements that would exceed Level 2 thresholds of 200 or more project-generated pedestrian trips during analysis peak hours. Project-generated pedestrian trip increments for the weekday AM, weekday midday, weekday PM, and Saturday peak hours are shown in **Figure 4-3** through **Figure 4-6**, respectively. Overall, the concentration of pedestrian trips is expected to result in exceedance of the Level 2 threshold on 18 sidewalks, 32 corners and 17 crosswalks at key intersections near and around the project sites in one or more peak hours. The sidewalks, corners and crosswalks selected for analysis are listed below and shown in **Figure 4-7**.

Figure 4-3 Weekday AM Peak Hour Project-Generated Pedestrian Trips

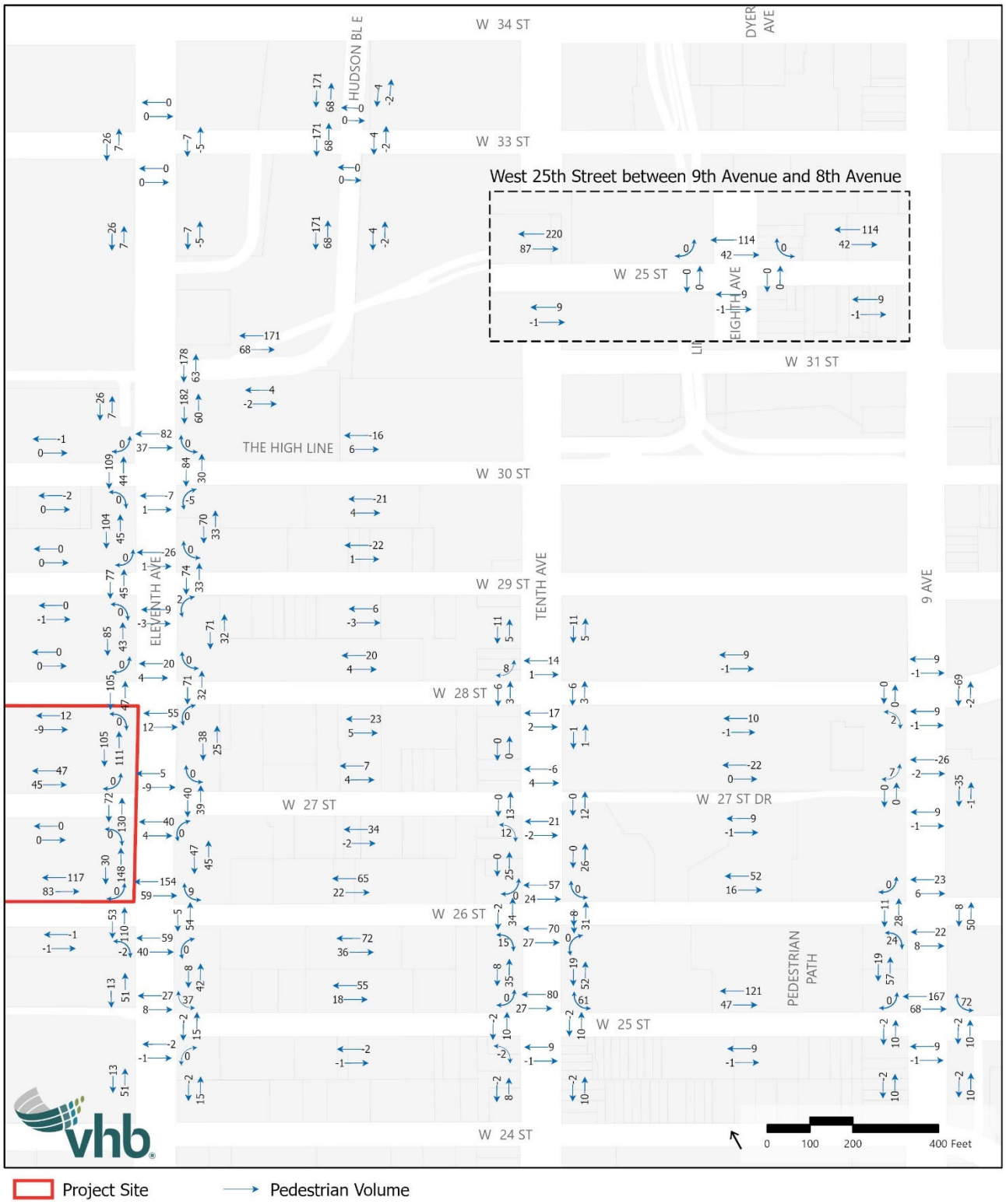


Figure 4-4 Weekday Midday Peak Hour Project-Generated Pedestrian Trips

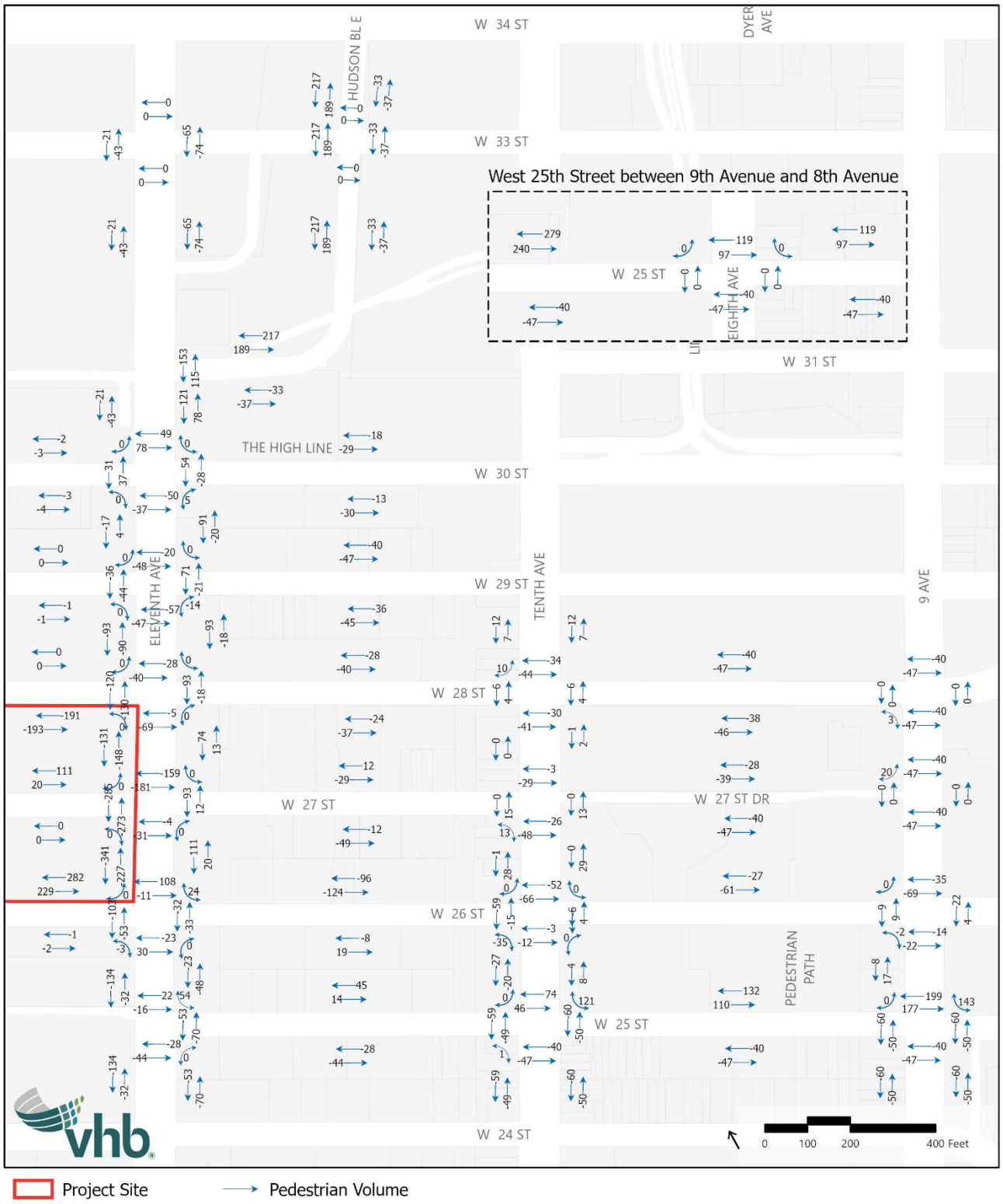


Figure 4-5 Weekday PM Peak Hour Project-Generated Pedestrian Trips

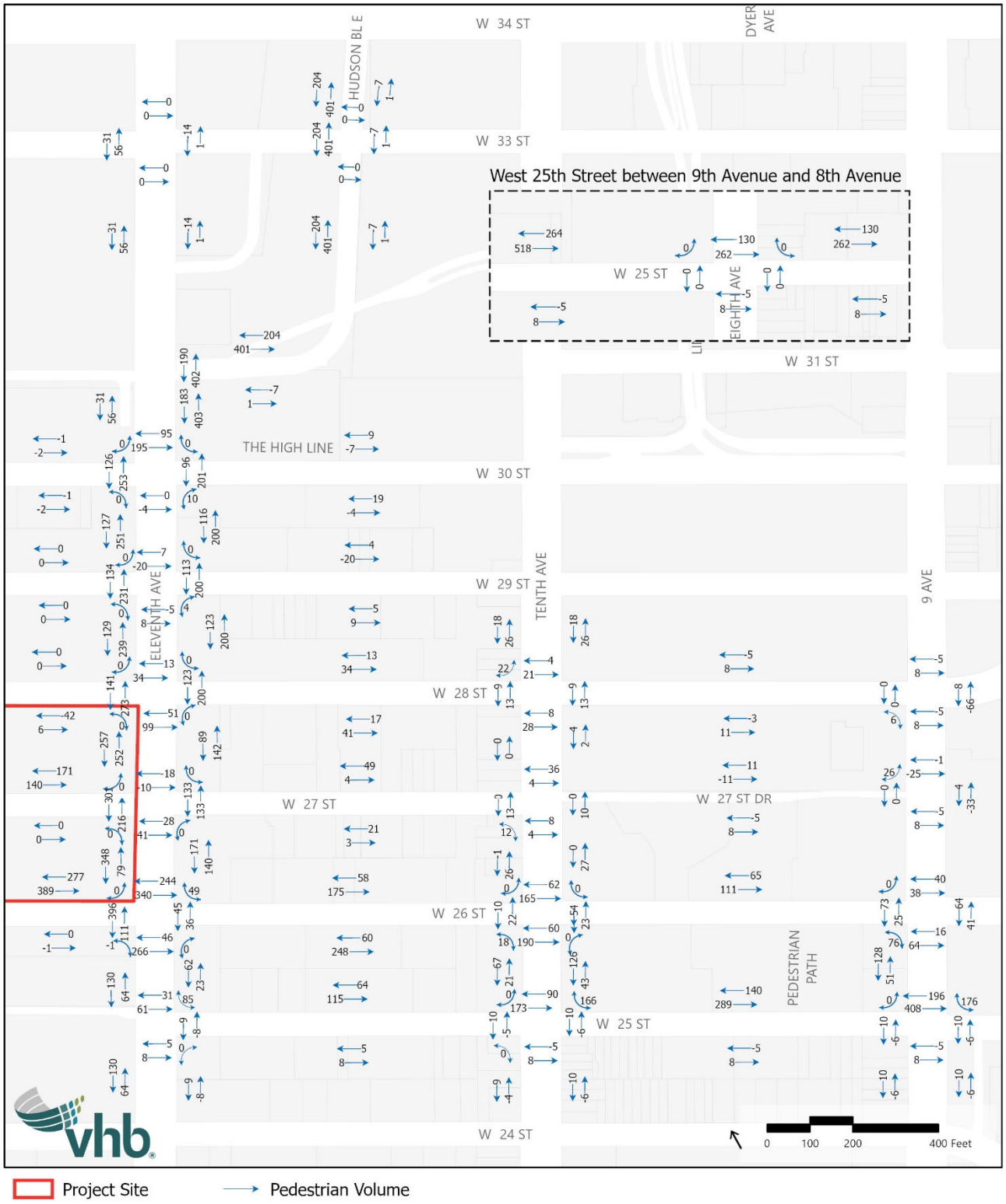


Figure 4-6 Saturday Peak Hour Project-Generated Pedestrian Trips

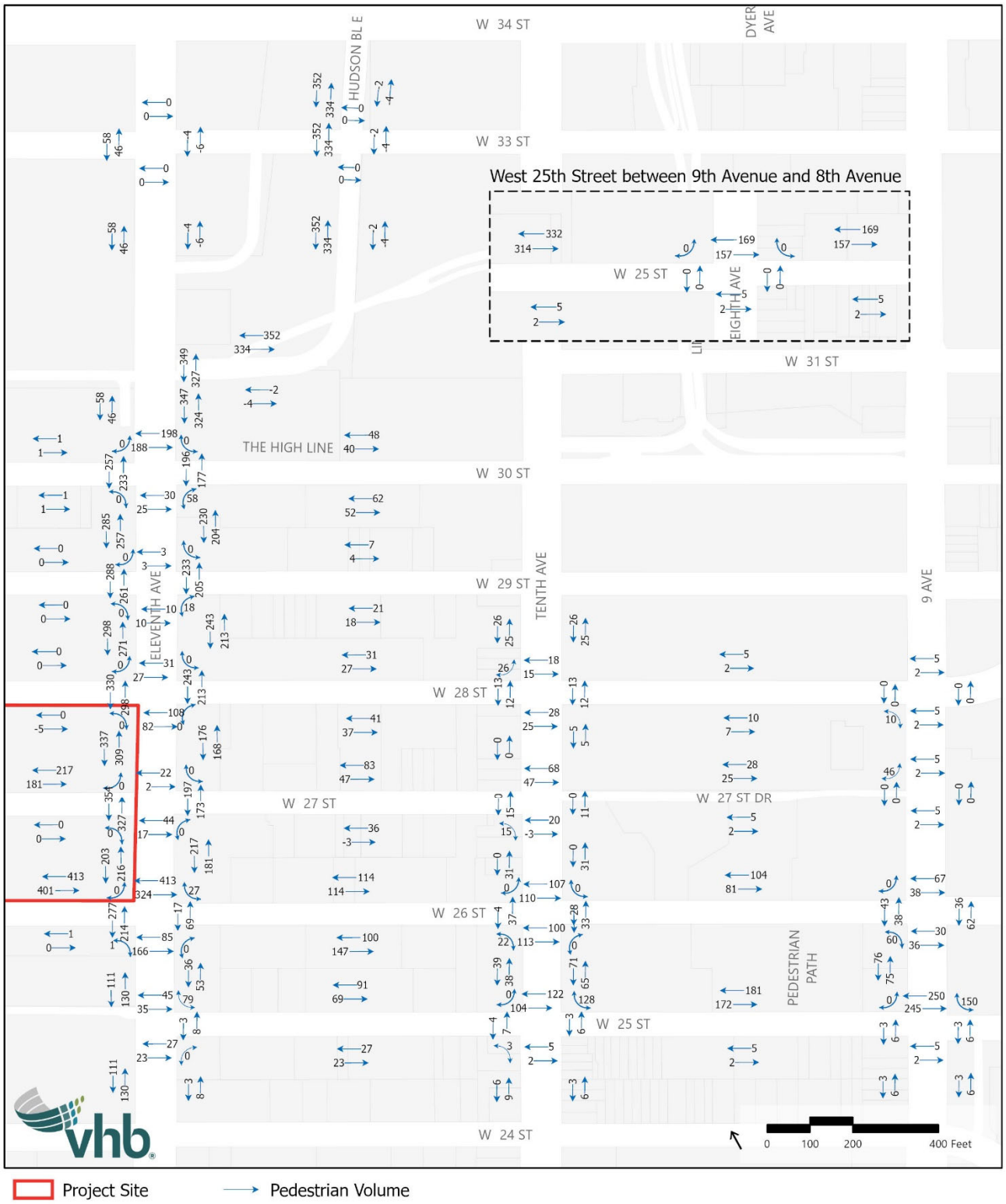
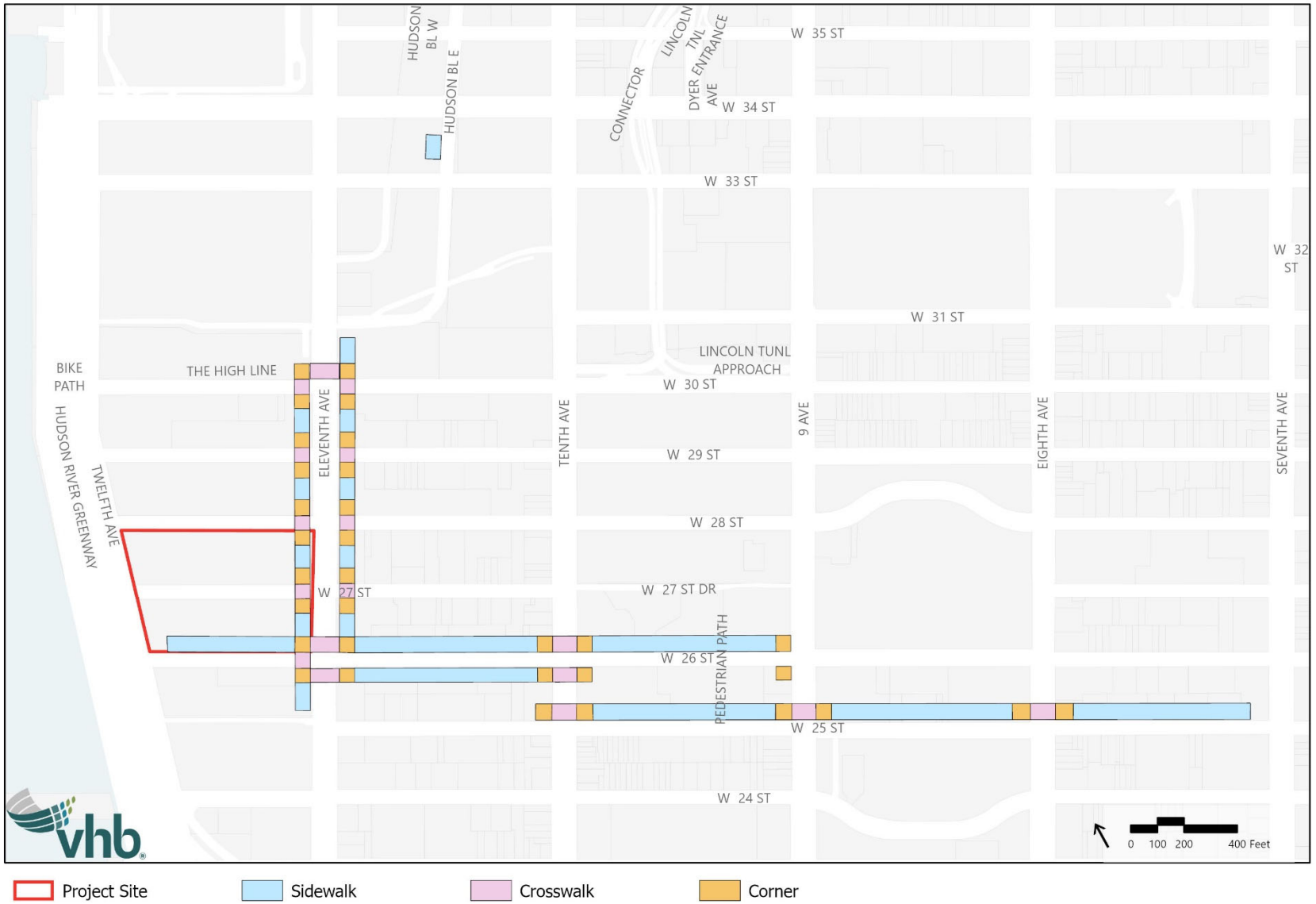


Figure 4-7 Pedestrian Analysis Locations



Sidewalks

- Eleventh Avenue – The five east sidewalks between West 26th Street and Hudson Boulevard; and the five west sidewalks between West 25th Street and West 30th Street
- Hudson Boulevard – The west sidewalk between West 33rd Street and West 34th Street
- West 25th Street – The three north sidewalks between Tenth Avenue and Seventh Avenue
- West 26th Street – The three north sidewalks between Twelfth Avenue and Ninth Avenue; and the south sidewalk between Eleventh Avenue and Tenth Avenue

Corners & Crosswalks

- Eleventh Avenue and West 26th Street – All four corners (northwest, southwest, northeast, and southeast); and north, south, and west crosswalks
- Eleventh Avenue and West 27th Street – All four corners (northwest, southwest, northeast, and southeast); and east and west crosswalks
- Eleventh Avenue and West 28th Street – All four corners (northwest, southwest, northeast, and southeast); and east and west crosswalks
- Eleventh Avenue and West 29th Street – All four corners (northwest, southwest, northeast, and southeast;) and east and west crosswalks
- Eleventh Avenue and West 30th Street – All four corners (northwest, southwest, northeast, and southeast); and north, east, and west crosswalks
- Tenth Avenue and West 25th Street – Northwest corner, northeast corner, and north crosswalk
- Tenth Avenue and West 26th Street – All four corners (northwest, southwest, northeast, and southeast); and north and south crosswalks
- Ninth Avenue and West 25th Street – Northwest corner, northeast corner, and north crosswalk
- Ninth Avenue and West 26th Street – Northwest corner and southwest corner
- Eighth Avenue and West 25th Street – Northwest corner, northeast corner, and north crosswalk

Traffic and Parking

Per *CEQR Technical Manual* guidelines, a detailed level of service analysis is warranted for study area traffic intersections that would exceed the Level 2 threshold of 50 or more project-generated vehicle trips during analysis peak hours. These locations are located within the traffic study area bounded by West 34th Street to the north, West 23rd Street to the south, Twelfth Avenue/Route 9A to the west, and Tenth Avenue to the east. Project-generated weekday midday, weekday PM, and Saturday peak hour traffic increments are shown in **Figure 4-8** through **Figure 4-10** Overall, the Level 2 threshold is expected to be exceeded at 20 intersections in the traffic study area during one or more peak hours and these intersections are included as analysis locations. In addition, the intersection of Twelfth Avenue and West 26th Street is also included in the traffic analysis due to the sensitivity of southbound left turns at this location. The 21 analysis locations are presented in **Figure 4-11** and are listed below:

Figure 4-8 Weekday Midday Peak Hour Project-Generated Vehicle Trips

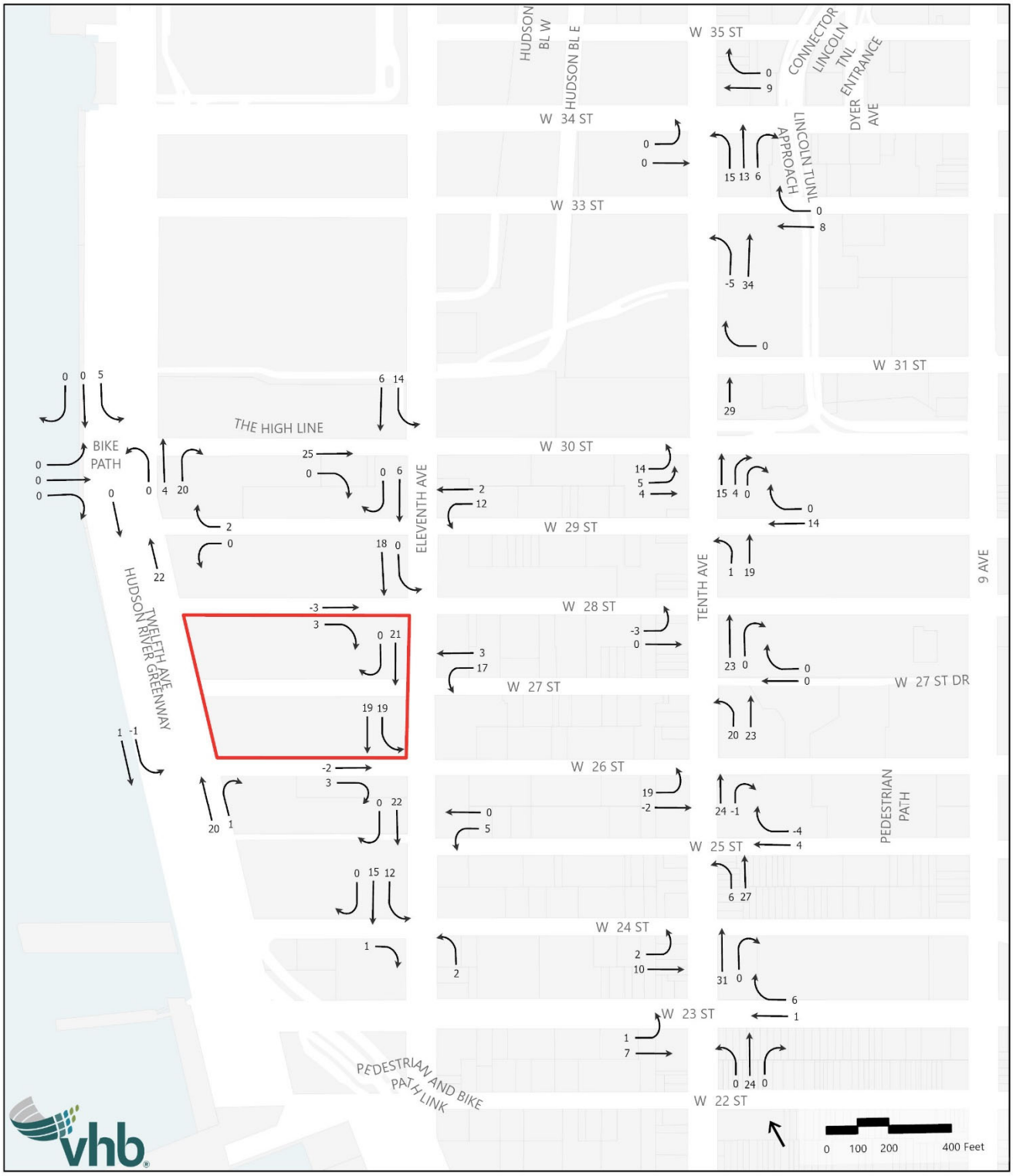


Figure 4-9 Weekday PM Peak Hour Project-Generated Vehicle Trips

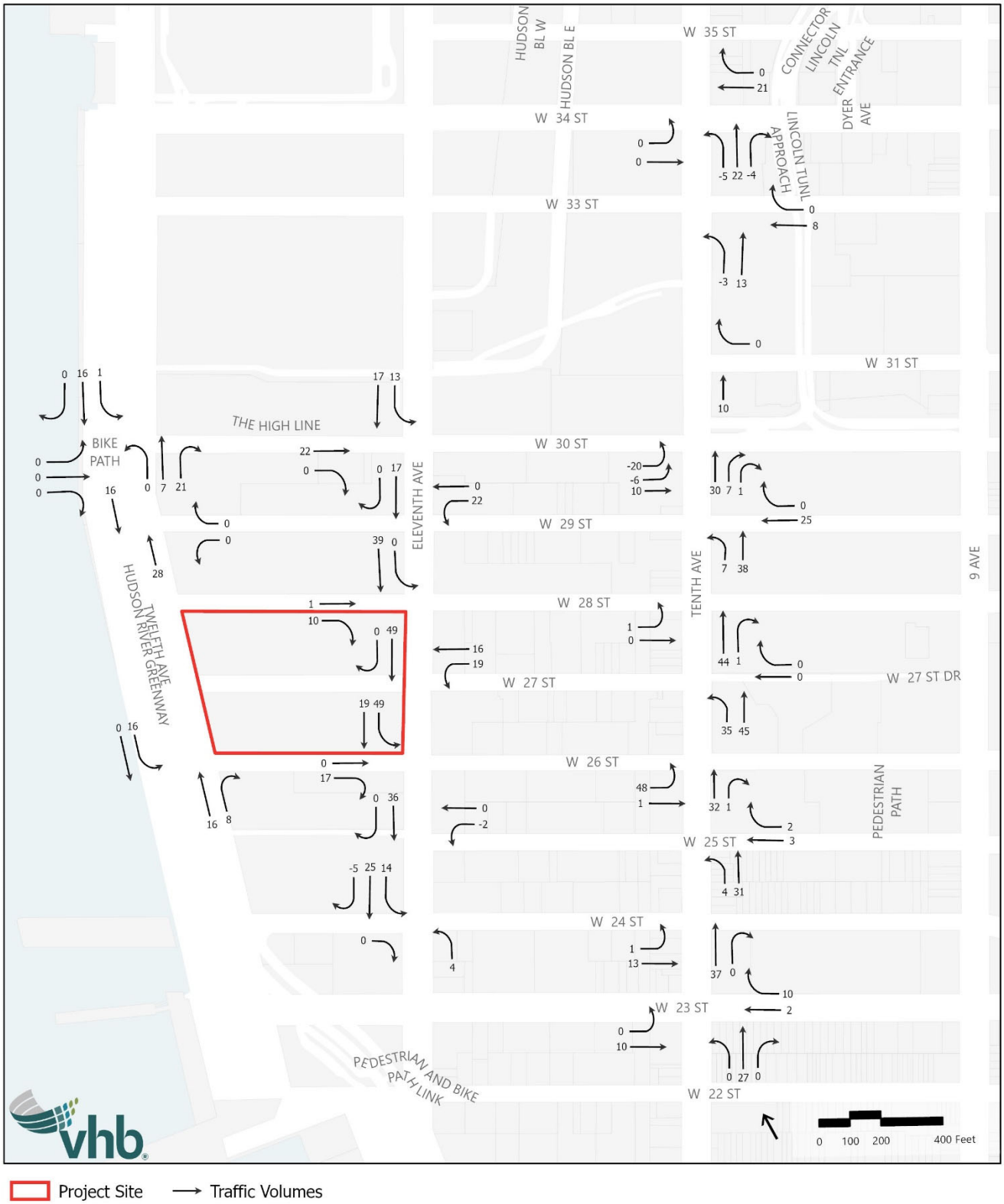
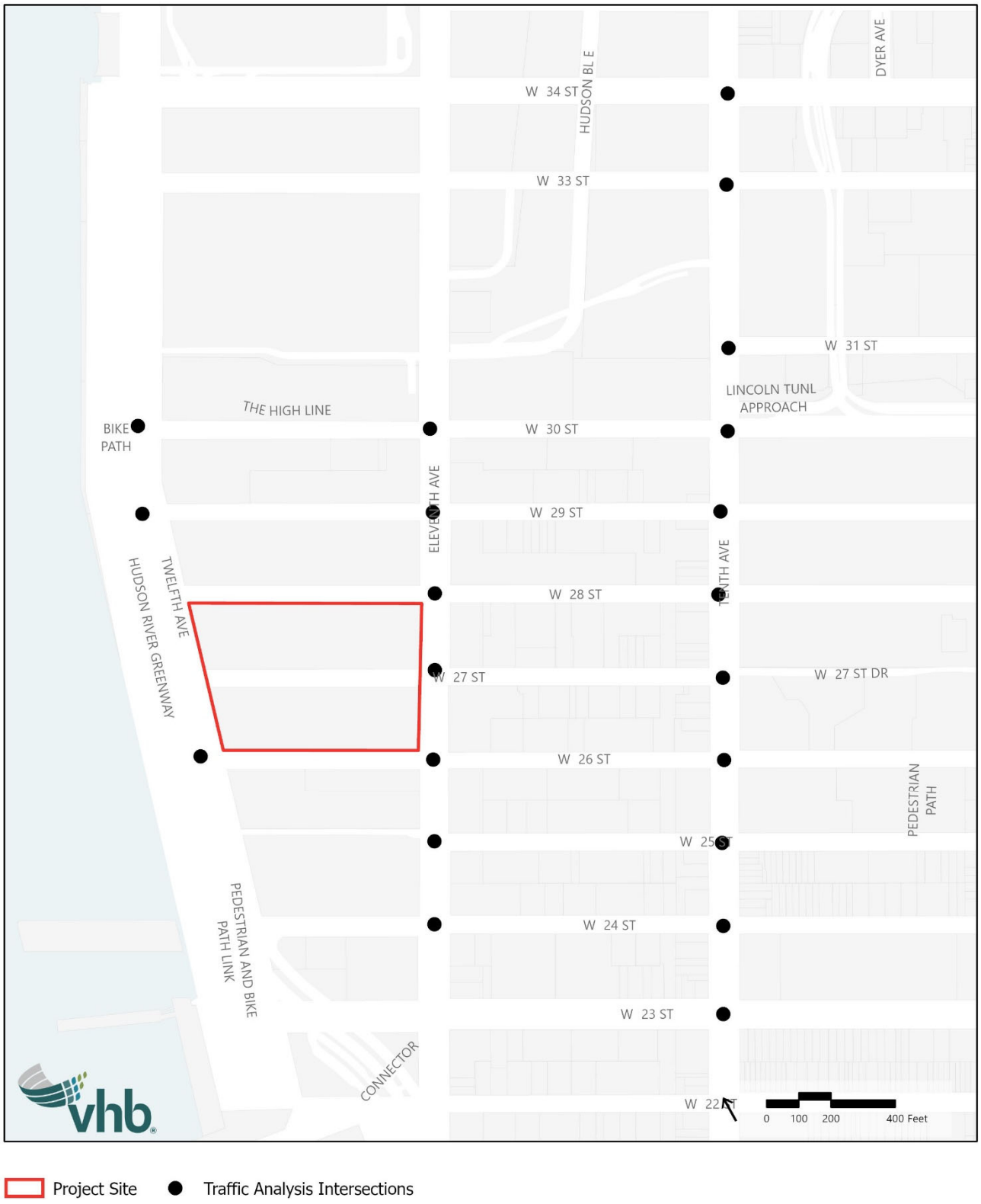


Figure 4-10 Saturday Midday Peak Hour Project-Generated Vehicle Trips



Figure 4-11 Traffic Analysis Locations



- Tenth Avenue and West 34th Street
- Tenth Avenue and West 33rd Street
- Tenth Avenue and West 31st Street
- Tenth Avenue and West 30th Street
- Tenth Avenue and West 29th Street
- Tenth Avenue and West 28th Street
- Tenth Avenue and West 27th Street
- Tenth Avenue and West 26th Street
- Tenth Avenue and West 25th Street
- Tenth Avenue and West 24th Street
- Tenth Avenue and West 23rd Street
- Eleventh Avenue and West 30th Street
- Eleventh Avenue and West 29th Street
- Eleventh Avenue and West 28th Street
- Eleventh Avenue and West 27th Street
- Eleventh Avenue and West 26th Street
- Eleventh Avenue and West 25th Street
- Eleventh Avenue and West 24th Street
- Twelfth Avenue and West 26th Street
- Twelfth Avenue and West 29th Street
- Twelfth Avenue and West 30th Street

As Level 2 threshold exceedances would take place during the weekday PM and Saturday peak hours, detailed analyses will be conducted at all 21 locations for these two peak hours. During the weekday midday peak hour, the project-generated traffic increments would not exceed the Level 2 threshold. Therefore, no detailed analysis is required for that period. Lastly, detailed analysis of the weekday AM peak hour is not required per *CEQR Technical Manual* Level 1 screening criteria.

Per *CEQR Technical Manual* guidelines, a detailed analysis of off-street parking is generally required if a detailed traffic analysis is warranted. As new project-generated auto trips are expected to utilize off-street parking facilities, a detailed parking analysis is included in this EIS. This parking analysis will focus on facilities within an approximate quarter-mile radius of the project area.

Detailed Analysis Methodologies

This section describes the detailed traffic, parking, transit, and pedestrian analyses, which were conducted using methodologies outlined in the *CEQR Technical Manual*.

Traffic

The operation of all signalized and unsignalized intersection analysis locations were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the

Synchro Version 11 software application. The *HCM* procedures evaluate the levels of service (LOS) for signalized 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 highly 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 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 lane groups 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; and LOS E, excess of 35.0 seconds up to 50.0 seconds per vehicle, which is considered to be the limit of acceptable delay. 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 street 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 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, in order to determine if a parking shortfall is likely to result from additional demand generated by or a reduction in capacity associated with the proposed project. This analysis typically encompasses a study area within a quarter mile of the project area. 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.

The neighboring area around the project area is located in an area designated as Parking Zone 1 and 2 as defined in Map 16-2 of the *2020 CEQR Technical Manual*. For proposed projects located in Zones 1 or 2, 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.

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]).

Buses

The operating conditions for bus service are measured in terms of the number of passengers carried per bus at the maximum load point for each route. This is determined by dividing the

peak hour passenger count by the number of buses during that hour. The bus load levels are compared with New York City Transit (NYCT) loading guidelines of 54 passengers for a 40-foot standard bus and 85 passengers for a 60-foot articulated bus. The bus analyses focus on the weekday AM and PM commuter peak hours as it is during these periods that overall demand on the bus system is usually highest.

Significant Impact Criteria

According to the *CEQR Technical Manual* and NYCT guidelines, additional bus service along a route is recommended when load levels exceed maximum capacity at the route's maximum load point. A significant impact is considered at the route's maximum load point where an increase in bus load levels would exceed the maximum capacity. NYCT's general policy is to provide additional bus service where demand warrants increased service, considering fiscal and operational constraints.

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 4-7**. 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 queueing. Severe congestion with constant queuing signifies that a station element is operating at LOS F.

Table 4-7 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 account for pedestrian surges as a result of 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 4-8** 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.

Table 4-8 Level of Service Criteria 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*

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.

Subway Line-Haul Capacity

Line-haul capacity analyses address the ability of a subway line to accommodate passenger loads at the maximum load point, or the point where the addition of project-generated passengers would be the highest. These analyses are needed when the With-Action increase in passengers surpasses the *CEQR Technical Manual* threshold. For subway cars, the threshold is five or more passengers per subway train car.

NYCT operates six different types of subway train cars with maximum peak period loading capacities ranging from 110 passengers to 175 passengers per car. The capacity of each car assumes full occupancy of all seats and approximately 3 square feet of standing room per passenger.

Significant Impact Criteria

For subway line-haul conditions, *CEQR Technical Manual* criteria specify that any increases in load levels that remain within practical capacity limits are generally not considered significant. However, significant adverse subway line-haul impacts can occur if a proposed project is expected to generate an increment averaging five or more riders per subway car on lines projected to carry loads at or exceeding guideline capacity. This is based on the general assumption that when subways are at or above practical capacity, the addition of even five or more riders per car is perceptible.

Pedestrians

Pedestrian levels of service standards are determined based on walking speed, pedestrian spacing, and probabilities of pedestrian and vehicular conflict, and are assessed based on the methodologies presented in the *2010 HCM* 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 are also 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 width[1]. 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 speed[2] 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 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 4-9** 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 project area is located in a CBD area, and the pedestrian analysis were analyzed assuming platoon pedestrian flow.

[1] 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).

[2] 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.

Table 4-9 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

Note: Units are provided in square feet of area per pedestrian (sf/ped)
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 4-10** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual* for CBD areas under platoon flow conditions.

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 4-11** provides a summary of the sliding-scale guidelines provided in the *CEQR Technical Manual* for CBD areas.

Table 4-10 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 4-11 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 project area is located, traffic volumes, crash types and severity, and other contributing factors. Where appropriate, potential measures to improve traffic and pedestrian safety are identified.

Existing Conditions

Traffic

Roadway Network

Tenth Avenue is a northbound one-way street ranging from approximately 60 to 70 feet in width within different sections of the traffic study area. The road originates at West Street (NY Route 9A) south of Gansevoort Street, and extends to the north, changing to Amsterdam Avenue north of West 59th Street. This principal arterial (non-expressway) typically has four dedicated moving lanes throughout the traffic study area, with several blocks where long-term construction causes a lane reduction, and curbside parking on both sides of the street depending on the time of day and block-specific restrictions. Parking restrictions on Tenth Avenue throughout the traffic study area consist of rush-hour and daytime parking restrictions, overnight regulations for special vehicles, as well as No Standing restrictions at bus stops which are typically spaced every two blocks. Tenth Avenue is a local truck route for its entirety through the study area.

Eleventh Avenue is a primarily southbound one-way street located through the center of the traffic study area. Eleventh Avenue ranges from approximately 55 to 70 feet in width within different sections of the traffic study area. The road originates north of the study area as West End Avenue before becoming Eleventh Avenue south of West 59th Street, and extends to the south, merging with Twelfth Avenue at West 22nd Street before becoming West Street south of West 14th Street. This principal arterial (non-expressway) has four dedicated moving lanes throughout the traffic study area, with several blocks where long-term construction causes a one-lane reduction, and curbside parking on both sides of the street depending on the time of day and block-specific restrictions. Parking restrictions on Eleventh Avenue throughout the traffic study area consist of rush-hour and daytime parking restrictions, overnight regulations for special vehicles, as well as No Standing restrictions at bus stops which are typically spaced every two blocks. Like Tenth Avenue, Eleventh Avenue is a designated local truck route.

Twelfth Avenue, also known as NY Route 9A, is a primary north-south two-way roadway ranging from approximately 100 to 110 feet in width within different sections of the traffic study area. The roadway extends to the south, becoming West Street south of Gansevoort Street and then entering the Hugh L. Carey Tunnel heading into Brooklyn. To the north, Twelfth Avenue becomes the Joe DiMaggio Highway between West 59th Street and West 72nd Street, and then the Henry Hudson Parkway north of West 72nd Street. Throughout the traffic study area this road is classified as a principal arterial (non-expressway). A raised and landscaped median ranging from 10 to 30 feet in width separates the northbound and southbound travel lanes and provides for left-turn pockets for the southbound direction; there are breaks in the median at cross-street intersections to allow for turning movements. In the northbound direction four moving lanes are provided while a minimum of three lanes are provided in the southbound direction (the number of lanes totals four when a left-turn pocket is present). Curbside parking is allowed on the northbound side (east curb) of the street depending on the time of day and block-specific restrictions. Parking restrictions on Twelfth Avenue throughout the traffic study area consist of street cleaning parking restrictions from midnight to 3 AM on Tuesday and Friday, as well as No Standing restrictions at bus stops. Lastly, Twelfth Avenue is a designated through truck route.

West 34th Street is a two-way east-west street on the northern edge of the traffic study area. West 34th Street traverses the width of Manhattan, changing to East 34th Street east of Fifth Avenue. There are two moving lanes in each direction and curbside parking, with the rightmost moving lane in each direction striped as a dedicated bus lane. West 34th Street is designated a through truck route.

West 23rd Street is a two-way east-west street on the southern edge of the traffic study area. West 23rd Street traverses the width of Manhattan, changing to East 23rd Street east of Fifth Avenue. There are two moving lanes in each direction and curbside parking, with the rightmost moving lane in each direction striped as a dedicated bus lane. Lastly, similarly to West 34th Street, West 23rd Street is designated a through truck route.

Other east-west streets passing through the traffic study area range from approximately 30 to 55 feet in width. All of these streets are one way, and several have curbside protected bike lanes separated from the moving lane by parking adjacent to the moving lane. All streets provide street parking with alternate-side parking restrictions, among other restrictions.

Traffic Volumes

To establish the existing conditions traffic network, traffic data for the weekday PM and Saturday peak periods were assembled using manual intersection counts and 24-hour Automatic Traffic Recorder (ATR) machine counts from several sources and recent data collection efforts. The weekday PM traffic analysis utilizes traffic data provided by NYCDOT. In addition, due to the Coronavirus pandemic, count data from the *2018 Block 675 FEIS*, *2017 Hudson Tunnel Project DEIS*, and *2021 Empire Station Complex Project DEIS* were also used to supplement the volume data cited above. The Saturday traffic analysis also utilized data from these sources as well as data collected in November 2020 for locations where pre-pandemic data were not available. With guidance from NYCDOT and concurrence from DCP, these November 2020 data were adjusted upward to reflect pre-pandemic levels based on a comparison of traffic volumes between normal pre-pandemic conditions and conditions during the pandemic. The year 2020 was established as the existing conditions year, so any volume data obtained from prior sources were adjusted upward to reflect one or more years of background traffic growth. These volumes were used along with signal timing plans obtained from NYCDOT and recently collected physical inventory data, to determine levels of service for the weekday PM and Saturday peak hours of 5:30 to 6:30 PM and 2:45 to 3:45 PM, respectively.

Traffic volumes along Tenth Avenue between West 23rd Street and West 34th Street range from approximately 1,385 to 2,070 vph during the weekday PM peak hour, and 1,045 to 1,630 vph during the Saturday peak hour.

Traffic volumes along Eleventh Avenue between West 24th Street and West 31st Street range from approximately 805 to 1,040 vph during the weekday PM peak hour, and 880 to 1,085 vph during the Saturday peak hour.

Traffic volumes along Twelfth Avenue between West 25th Street and West 33rd Street in the southbound direction range from approximately 2,370 to 2,755 vph during the weekday PM peak hour, and 2,135 to 2,235 vph during the Saturday peak hour. In the northbound direction, traffic volumes range from approximately 2,875 to 3,080 vph during the PM peak hour, and 1,960 to 2,205 vph during the Saturday peak hour.

Existing traffic volumes are shown in **Figure 4-12** and **Figure 4-13**.

Figure 4-12 Existing Weekday PM Peak Hour Traffic Volumes

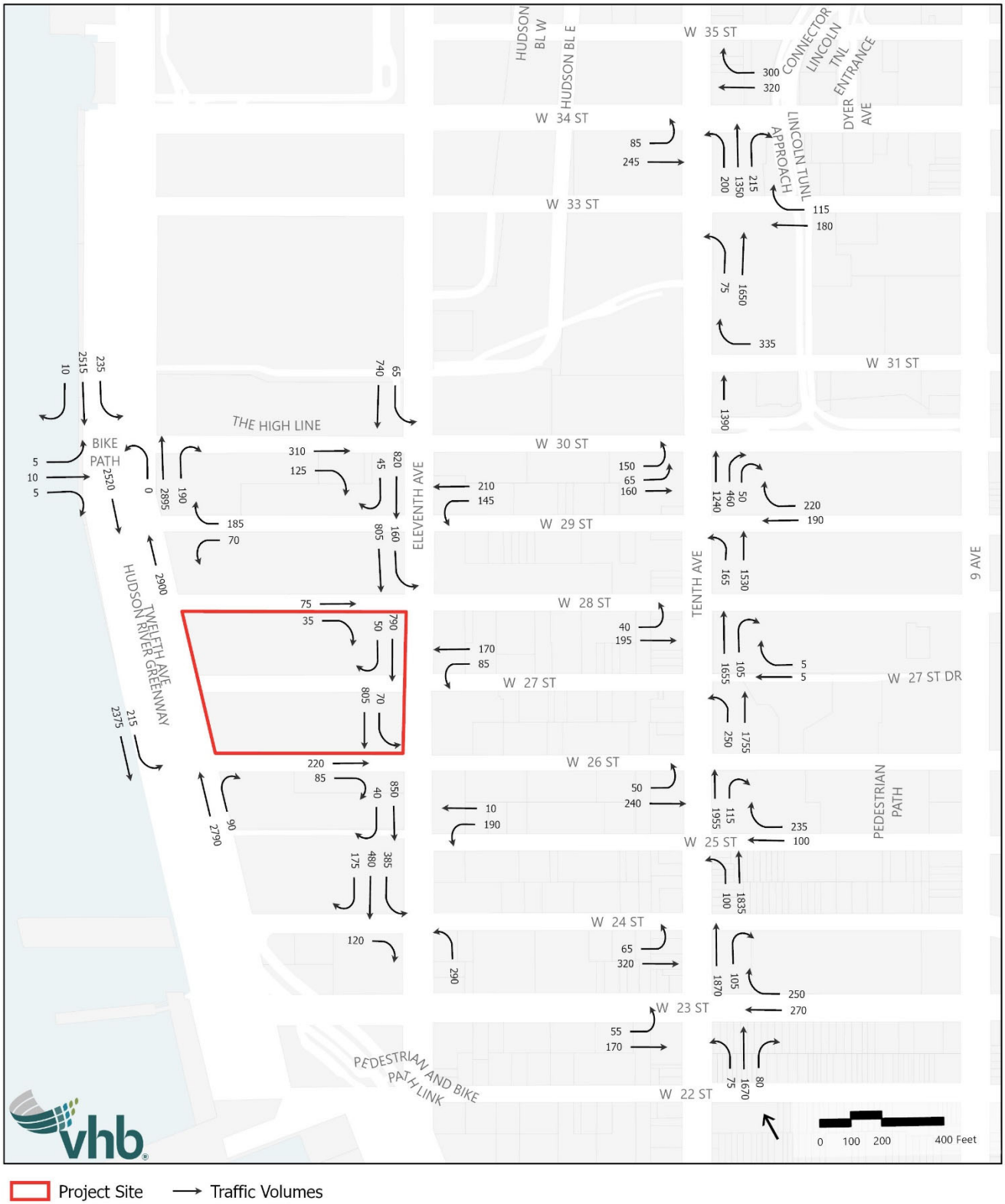


Figure 4-13 Existing Saturday Peak Hour Traffic Volumes



Levels of Service

Table 4-12 and **Table 4-13** provide an overview of the levels of service that characterize existing "overall" intersection conditions and individual traffic movements, respectively, during the weekday PM and Saturday peak traffic analysis hours. Detailed existing traffic levels of service are provided in **Table 4-14**.

Table 4-12 Existing Traffic Level of Service Summary – Overall Intersections

Level of Service	Weekday PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	20	20
Overall LOS D	1	1
Overall LOS E	0	0
Overall LOS F	0	0

Table 4-13 Existing Traffic Level of Service Summary – Traffic Movements

	Weekday PM Peak Hour	Saturday Peak Hour
Traffic Movements at LOS A/B/C and Acceptable LOS D	44	52
Traffic Movements at Unacceptable LOS D	3	3
Traffic Movements at LOS E	6	1
Traffic Movements at LOS F	6	3
Number of Individual Traffic Movements	59	59

Table 4-14 Existing Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
12th Avenue and West 30th Street									
30th Street	**EB**	LTR	0.14	64.5	E	LTR	0.00	0.0	A
12th Avenue	**NB**	LTR	0.85	11.0	B	LTR	0.67	7.3	A
	SB	L	1.03	127.4	F	L	0.59	40.5	D
		TR	1.01	45.9	D	TR	0.74	19.1	B
Overall Intersection		-	-	**31.0**	**C**	-	-	**14.1**	**B**
12th Avenue and West 29th Street									
West 29th Street	**WB**	L	0.25	55.2	E	L	0.19	42.5	D
		R	1.04	130.4	F	R	0.94	87.6	F
12th Avenue	**NB**	T	0.72	5.7	A	T	0.54	7.8	A
	SB	T	0.76	5.1	A	T	0.67	3.8	A
Overall Intersection		-	-	**10.9**	**B**	-	-	**11.4**	**B**
12th Avenue and West 26th Street									
12th Avenue	**NB**	TR	0.70	11.7	B	TR	0.51	10.2	B
	SB	L	0.79	57.2	E	L	0.45	46.2	D
		T	0.67	10.2	B	T	0.61	3.6	A
Overall Intersection		-	-	**13.0**	**B**	-	-	**8.5**	**A**
11th Avenue and West 30th Street									
West 30th Street	**EB**	T	0.91	54.2	D	T	0.38	22.9	C
		R	0.52	28.9	C	R	0.26	21.3	C
11th Avenue	**SB**	LT	0.42	19.0	B	LT	0.58	22.5	C
Overall Intersection		-	-	**29.0**	**C**	-	-	**22.5**	**C**
11th Avenue and West 29th Street									
West 29th Street	**WB**	L	0.40	19.8	B	L	0.29	13.4	B
		T	0.43	19.5	B	T	0.43	14.3	B
11th Avenue	**SB**	TR	0.46	6.6	A	TR	0.50	4.7	A
Overall Intersection		-	-	**10.6**	**B**	-	-	**7.3**	**A**
11th Avenue and West 28th Street									
West 28th Street	**EB**	TR	0.28	25.5	C	TR	0.49	30.3	C
11th Avenue	**SB**	LT	0.49	9.0	A	LT	0.50	7.0	A
Overall Intersection		-	-	**10.8**	**B**	-	-	**10.7**	**B**

Table 4-14 Existing Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
11th Avenue and West 27th Street									
West 27th Street	WB	LT	0.58	28.1	C	LT	0.72	28.1	C
11th Avenue	SB	TR	0.38	1.7	A	TR	0.41	3.0	A
Overall Intersection		-	-	**7.9**	**A**	-	-	**9.5**	**A**
11th Avenue and West 26th Street									
West 26th Street	EB	T	0.61	33.4	C	T	0.43	29.0	C
		R	0.35	28.2	C	R	0.34	28.8	C
11th Avenue	SB	LT	0.40	3.2	A	LT	0.43	3.4	A
Overall Intersection		-	-	**13.1**	**B**	-	-	**10.2**	**B**
11th Avenue and West 25th Street									
West 25th Street	WB	LT	0.50	29.7	C	LT	0.36	30.0	C
11th Avenue	SB	TR	0.40	4.4	A	TR	0.36	3.5	A
Overall Intersection		-	-	**9.2**	**B**	-	-	**7.5**	**A**
11th Avenue and West 24th Street									
West 24th Street	EB	R	0.27	27.8	C	R	0.21	26.9	C
11th Avenue	NB	L	0.45	29.7	C	L	0.22	26.7	C
	SB	L	0.46	6.6	A	L	0.32	4.7	A
		TR	0.95	44.0	D	TR	0.84	27.3	C
Overall Intersection		-	-	**29.5**	**C**	-	-	**21.5**	**C**
10th Avenue and West 34th Street									
West 34th Street	EB	L	1.05	140.3	F	L	1.04	107.9	F
		T	0.62	33.1	C	T	0.45	28.5	C
	WB	T	1.05	97.1	F	T	0.80	44.7	D
		R	1.05	95.1	F	R	0.54	32.6	C
10th Avenue	NB	LTR	0.71	5.0	A	LTR	0.60	5.9	A
Overall Intersection		-	-	**33.1**	**C**	-	-	**23.8**	**C**
10th Avenue and West 33rd Street									
West 33rd Street	WB	TR	0.46	27.0	C	TR	0.32	25.3	C
10th Avenue	NB	LT	0.63	8.5	A	LT	0.51	5.5	A
Overall Intersection		-	-	**11.5**	**B**	-	-	**7.9**	**A**
10th Avenue and West 31st Street									
West 31st Street	WB	R	0.80	43.7	D	R	0.57	33.0	C
10th Avenue	NB	T	0.54	3.5	A	T	0.42	2.6	A
Overall Intersection		-	-	**11.5**	**B**	-	-	**7.1**	**A**

Table 4-14 Existing Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
10th Avenue and West 30th Street									
West 30th Street	**EB**	L	0.92	78.8	E	L	0.39	44.3	D
		T	0.89	76.9	E	T	0.59	49.3	D
10th Avenue	**NB**	TR	1.05	5.9	A	TR	0.91	6.7	A
Overall Intersection		-	-	**18.5**	**B**	-	-	**14.4**	**B**
10th Avenue and West 29th Street									
West 29th Street	**WB**	T	0.54	31.7	C	T	0.72	38.6	D
		R	0.75	43.4	D	R	0.64	35.8	D
10th Avenue	**NB**	LT	0.62	1.5	A	LT	0.58	2.7	A
Overall Intersection		-	-	**8.8**	**A**	-	-	**12.0**	**B**
10th Avenue and West 28th Street									
West 28th Street	**EB**	LT	0.58	18.2	B	LT	0.76	24.1	C
10th Avenue	**NB**	TR	0.65	1.2	A	TR	0.54	0.9	A
Overall Intersection		-	-	**3.4**	**A**	-	-	**5.6**	**A**
10th Avenue and West 27th Street									
West 27th Street	**WB**	TR	0.03	21.6	C	TR	0.05	21.9	C
10th Avenue	**NB**	LT	0.75	2.8	A	LT	0.75	3.7	A
Overall Intersection		-	-	**2.9**	**A**	-	-	**4.0**	**A**
10th Avenue and West 26th Street									
West 26th Street	**EB**	LT	0.82	35.0	C	LT	0.80	44.6	D
10th Avenue	**NB**	TR	0.80	8.2	A	TR	0.66	6.6	A
Overall Intersection		-	-	**11.5**	**B**	-	-	**13.3**	**B**
10th Avenue and West 25th Street									
West 25th Street	**WB**	TR	0.79	42.7	D	TR	0.74	39.7	D
10th Avenue	**NB**	LT	0.69	2.6	A	LT	0.60	3.1	A
Overall Intersection		-	-	**8.3**	**A**	-	-	**9.5**	**A**
10th Avenue and West 24th Street									
West 24th Street	**EB**	LT	0.74	46.8	D	LT	0.74	45.3	D
10th Avenue	**NB**	TR	0.72	9.2	A	TR	0.64	10.9	B
Overall Intersection		-	-	**15.3**	**B**	-	-	**17.3**	**B**

Table 4-14 Existing Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
10th Avenue and West 23rd Street									
West 23rd Street	**EB**	LT	0.68	40.5	D	LT	0.72	40.3	D
	WB	T	1.01	92.2	F	T	1.02	98.0	F
		R	0.86	59.1	E	R	0.84	56.9	E
10th Avenue	**NB**	LTR	0.84	28.4	C	LTR	0.69	24.3	C
Overall Intersection		-	-	**38.9**	**D**	-	-	**38.6**	**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 existing conditions indicates that:

- In the weekday PM peak hour, none of the intersections analyzed operate at overall LOS E or LOS F. "Overall" LOS E or F means that serious congestion exists – either one specific major 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). Fifteen individual traffic movements out of 59 movements analyzed operate at unacceptable LOS D, LOS E, or LOS F (e.g. left turns from one street to another, through traffic on one street passing through the intersection, etc.).
- In the Saturday peak hour, none of the intersections analyzed operate at overall LOS E or LOS F, and seven individual traffic movements operate at unacceptable LOS D, LOS E, or LOS F.

Traffic movements operating at unacceptable levels of service (mid-LOS D to LOS F) are listed below.

- Twelfth Avenue and West 30th Street
  - Eastbound West 30th Street approach (weekday PM)
  - Southbound Twelfth Avenue left turn movement (weekday PM)
  - Southbound Twelfth Avenue through-right movement (weekday PM)
- Twelfth Avenue and West 29th Street
  - Westbound West 29th Street left turn movement (weekday PM)
  - Westbound West 29th Street right turn movement (weekday PM and Saturday)
- Twelfth Avenue and West 26th Street
  - Southbound 12th Avenue left turn movement (weekday PM and Saturday)
- Eleventh Avenue and West 30th Street
  - Eastbound West 30th Street through movement (weekday PM)
- Tenth Avenue and West 34th Street
  - Eastbound West 34th Street left turn movement (weekday PM and Saturday)
  - Westbound West 34th Street left turn movement (weekday PM)

- Westbound West 34th Street right turn movement (weekday PM)

› Tenth Avenue and West 30th Street
  - Eastbound West 30th Street left turn movement (weekday PM)
  - Eastbound West 30th Street through movement (weekday PM and Saturday)

› Tenth Avenue and West 24th Street
  - Eastbound West 24th Street approach (weekday PM and Saturday)

› Tenth Avenue and West 23rd Street
  - Westbound West 23rd Street through movement (weekday PM and Saturday)
  - Westbound West 23rd Street right turn movement (weekday PM and Saturday)

Parking

A detailed inventory of off-street parking facilities within a quarter-mile radius (i.e., approximately a five-minute walk) of the project area was conducted in February 2020 and March 2021. Weekday data are based on the February 2020 data which reflects condition before the start of COVID-19 conditions and related stay-at-home orders. The Saturday data are based on surveys conducted in March 2021 which were adjusted upward to account for reduced with-COVID traffic activity levels as was done for the Saturday existing traffic volumes described above. This quarter-mile distance is considered an acceptable walking distance to and from parking, per the *CEQR Technical Manual*. There are ten public parking garages within or close to this quarter-mile area, as shown in **Figure 4-14**. All garages are open on weekdays and Saturdays. **Table 4-15** presents the capacity and occupancy of the off-street parking facilities during the weekday midday and Saturday midday periods (i.e., the typical peak parking occupancy period on weekdays and Saturdays). The total capacity of the ten parking garages is 1,106 parking spaces, and they are approximately 71 percent occupied during the weekday midday peak period and 59 percent occupied during the Saturday midday peak period.

Figure 4-14 Off-Street Parking Facilities

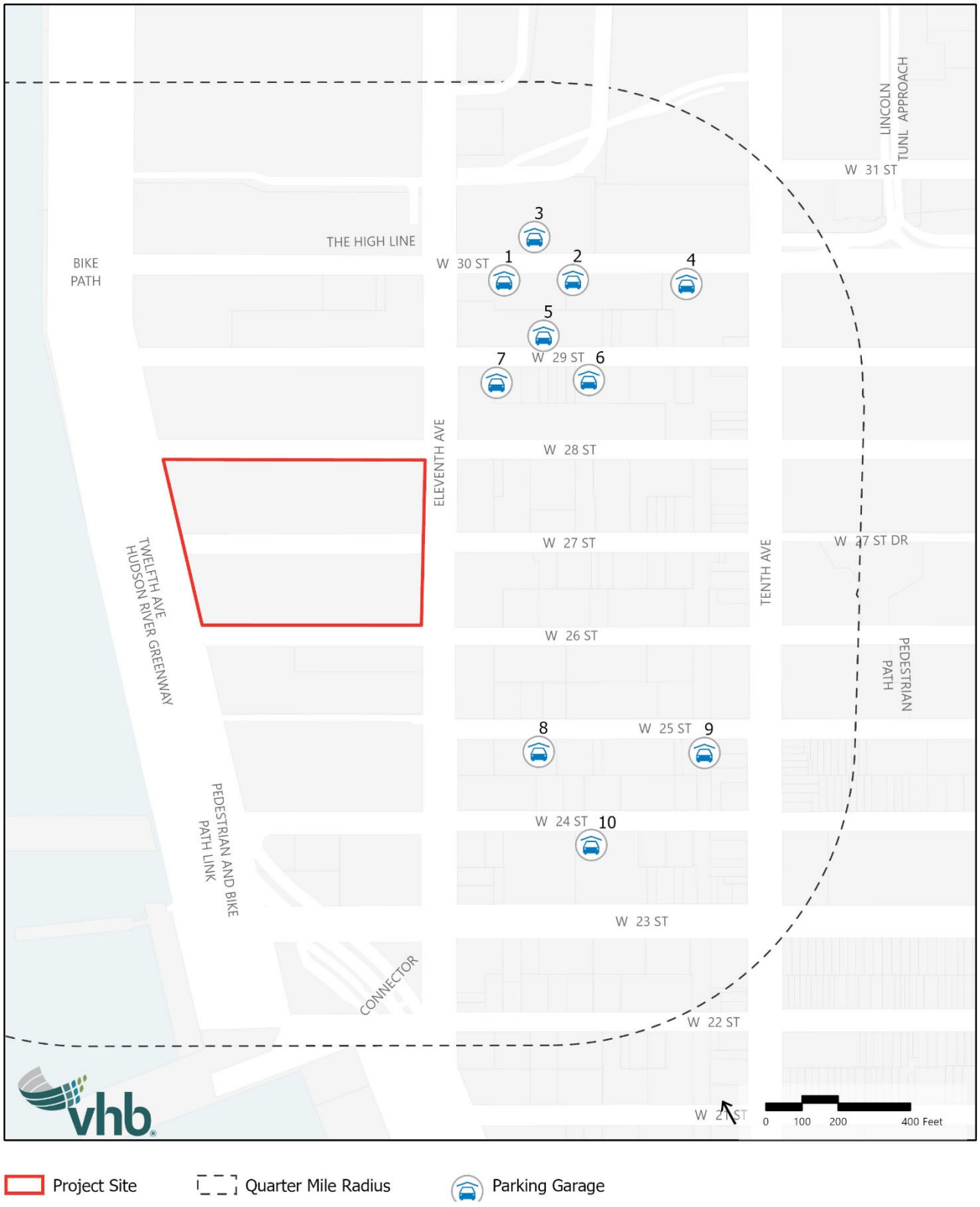


Table 4-15 Off-Street Parking Inventory

Map No.	Location	License Capacity	Weekday Midday Occupancy	Saturday Midday Occupancy[1]
1	iPark (Imperial Parking Systems) 552 West 30th Street (314 Eleventh Avenue)	181	101 56%	110 67%
2	Manhattan Parking Group 530 West 30th Street (1 Hudson Yard)	40	20 50%	27 67%[2]
3	Manhattan Parking Group 545 West 30th Street	240	144 60%	162 67%[2]
4	Manhattan Parking Group 500 West 30th Street	79	50 63%	53 67%[2]
5	Manhattan Parking Group 529 West 29th Street	29	23 79%	12 41%[3]
6	iPark (Imperial Parking Systems) 518 West 29th Street (507 West 28th Street)	41	21 51%	15 41%
7	Icon Parking Systems LLC/ Avalon West Chelsea Garage 525 West 28th Street	143	125 87%	93 65%
8	GGMC Parking, LLC 550 West 25th Street	163	120 74%	116 71%[4]
9	Park-It Management/249 Parking Corp 249 Tenth Avenue	120	110 92%	10 8%
10	iPark (Imperial Parking Systems) 546-549 West 24th Street	70	67 95%	50 71%
Total		**1,106**	**781** **71%**	**648** **59%**

Note:
[1] As Saturday parking data were collected during the COVID pandemic, the data were normalized to pre-COVID conditions by applying an upward adjustment as was applied to the traffic analysis' existing Saturday volume network
[2] Utilization rate assumed to be the same as that used for Garage 1.
[3] Utilization rate assumed to be the same as that used for Garage 6.
[4] Utilization rate assumed to be the same as that used for Garage 10.

Buses

As discussed in the **Level 2 Screening Results** section, project-generated trips are expected to exceed the 50-trip *CEQR Technical Manual* analysis threshold on the M23-SBS and M34-SBS bus routes in the eastbound direction during the weekday PM peak hour.

The M23-SBS bus route utilizes 65-foot articulated buses and operates between a terminus at West 22nd Street and Twelfth Avenue and a terminus at East 20th Street and Avenue C, operating along West 23rd Street in the vicinity of the project area. The M34-SBS bus route utilizes 65-foot articulated buses and operates between a terminus at West 34th Street and Twelfth Avenue and a terminus at East 34th Street and Marginal Street (underneath the FDR Drive), operating along West 34th Street in the vicinity of the project area. Maximum load

point data for 2019 for the two analyzed routes were provided by NYCT and were increased to reflect a 2020 base year by applying the 0.25 percent annual background growth rate recommended by the *CEQR Technical Manual* for one year.

Table 4-16 summarizes the existing number of buses, passengers, and available capacity at the maximum load point for the M23-SBS and M34-SBS routes in the eastbound direction during the weekday PM peak hour. As shown in **Table 4-16**, both the M23-SBS route and M34-SBS route currently operate below capacity through their respective maximum load points – the M23-SBS can accommodate 244 additional passengers while the M34-SBS can accommodate 106 additional passengers.

Table 4-16 Existing Bus Line-Haul Capacity

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Peak Hour Passengers[1]	Average Passengers per Bus	Available Capacity[2]
PM	M23-SBS	EB	W 23 St-9 Av	4	436	55	244
	M34-SBS	EB	W 34 St-5 Av	3	404	67	106

Notes:
[1]Based on most currently available data from NYCT (May 2019). Passengers demand increased to 2020 based on CEQR annual background growth rate of 0.25 percent
[2]Available capacity based on MTA loading guidelines of 85 passengers per 65-foot articulated bus
EB=Eastbound

Subways

Subway Station Elements

As discussed in the **Level 2 Screening Results** section, project-generated trips at both the 34th Street-Hudson Yards Station and the 23rd Street Station at Eighth Avenue are expected to exceed the 200-trip *CEQR Technical Manual* analysis threshold in the AM and PM commuter peak hours.

34th Street-Hudson Yards Station (7 Express and Local)

The 34th Street-Hudson Yards Station is served by the No. 7 express and local trains operating along the Flushing Line. The No. 7 local service operates at all times while the express service operates during rush hours in the peak direction.

The 34th Street-Hudson Yards Station is a single-platform station with an entrance at either end. Both entrances are located off of Hudson Boulevard with the main entrance located to the south at the mid-block between West 33rd and 34th Streets; and a secondary north entrance located between West 34th and 35th Streets.

Due to the depth of the platform, the station consists of two mezzanine levels – upper and lower levels. At the main entrance, the upper level consists of a fare control area, escalators, street stairs, one vertical street elevator and two intermediary inclined elevators. At the north entrance, the upper level consists of a fare control area, escalators, and street stairs. Between the upper mezzanine level and platform level is a lower mezzanine level that extends to either end of the station. From above, this level is accessed via escalators from the fare control areas on the north and south upper mezzanine levels and a set of inclined elevators just serving the south main entrance level. From this lower level, the platform level is accessible via eight platform stairs and one elevator.

All station elements identified for detailed analysis are located at the main entrance and towards the south end of the station. These elements are as follows:

- Two street-to-upper mezzanine stairs (S1 and S2)
- One pair of down escalators (ES626/ES627) and one pair of up escalators (ES628/ES629) connecting the street level and the upper mezzanine fare control level
- Fare control area (R550) split into two fare arrays- one 4-turnstile array and one 12-turnstile array
- A single up escalator (ES625), a pair of down escalators (ES623/ES624), and a pair of up escalators (ES623/ES624) connecting the upper mezzanine fare control level to the lower mezzanine level
- Three platform stairways (P1/P2, P3/P4, and P5/P6)

23rd Street Station (A, C and E)

The 23rd Street Station is served by the A, C and E trains along the Eighth Avenue Line. The C operates during most of the day but is replaced by the A train during late night periods; the E serves the station at all times.

This station consists of two side platforms – one uptown, one downtown. At the north and south ends of the station – West 25th Street and West 23rd Street – access is controlled by a fare control area consisting of High Entry Exit Turnstiles (HEETs), emergency doors, and street stairs. Due to elevation differences, an array of intermediary stairs connects the platform and fare control area. Lastly, on both platforms, a single High Exit Turnstile (HXT), located in the middle, allows direct access to West 24th Street via a street stair.

All station elements identified for detailed analysis are located at the West 25th Street end of the station. These elements are as follows:

- The northeast corner street stair (S10) at West 25th Street and Eighth Avenue
- The north platform stair (P10A/B) connecting uptown fare control area to the northeast corner street stairs (S10 and S11) at West 25th Street and Eighth Avenue
- The northwest corner street stairway (S9/P9) at West 25th Street and Eighth Avenue
- Uptown platform fare control area (N074)
- Downtown platform fare control area (N075)

Levels of Service

Table 4-17 through **Table 4-19** show the results of the level of service analyses at the analyzed stairs, escalators, and fare control areas, respectively. This analysis was based on count data collected during the COVID-19 pandemic that was then adjusted to pre-pandemic levels by comparing the recent pandemic period turnstile data with NYCT-provided turnstile data collected before the pandemic. As shown in **Table 4-17** through **Table 4-19**, all analyzed elements operate at LOS C or better during the weekday AM and PM peak hours under existing conditions.

Table 4-17 Existing Subway Station Level of Service – Stairs

Peak Hour	Stair	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	S1	4.0	8	2	0.9	0.9/1.0	0.02	A
	S2	4.0	6	7	0.9	0.9/1.0	0.03	A
	P1/P2	7.8	98	1	1.0	0.75/1.0	0.11	A
	P3/P4	13.6	251	37	0.9	0.75/1.0	0.20	A
	P5/P6	13.6	346	112	0.9	0.75/1.0	0.31	A
PM	S1	4.0	2	4	0.9	0.9/1.0	0.01	A
	S2	4.0	1	54	1.0	0.9/1.0	0.09	A
	P1/P2	7.8	27	8	0.9	0.75/1.0	0.04	A
	P3/P4	13.6	38	307	0.9	0.75/1.0	0.19	A
	P5/P6	13.6	57	691	0.9	0.75/1.0	0.42	A
23rd Street Station								
AM	S10	3.3	172	69	0.9	0.8/1.0	0.64	B
	P10A/B	8.7	200	79	0.9	0.8/1.0	0.28	A
	S9/P9	3.3	170	112	0.9	0.8/1.0	0.73	C
PM	S10	3.3	69	101	0.9	0.8/1.0	0.42	A
	P10A/B	8.7	79	127	0.9	0.8/1.0	0.19	A
	S9/P9	3.3	73	195	0.9	0.8/1.0	0.64	B

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

Table 4-18 Existing Subway Station Level of Service – Escalators

Peak Hour	Escalator	Tread Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity (ped/15-min)[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	ES626/ES627	40	-	141	1.00	2,340	0.06	A
	ES628/ES629	40	850	-	0.90	2,340	0.40	A
	ES625	40	116	-	0.80	1,170	0.12	A
	ES623/ES624	40	755	-	0.80	2,340	0.40	A
	ES621/ES622	40	-	145	1.00	2,340	0.06	A
PM	ES626/ES627	40	-	956	1.00	2,340	0.41	A
	ES628/ES629	40	150	-	0.90	2,340	0.07	A
	ES625	40	23	-	0.80	1,170	0.02	A
	ES623/ES624	40	129	-	0.80	2,340	0.07	A
	ES621/ES622	40	-	1,022	1.00	2,340	0.44	A

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

[1] All escalators operate at a speed of 120 feet per minute

Table 4-19 Existing Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control Area	Control Elements	Entry Volume (15-min)	Exit Volume (15-min)	Friction Factor (In/Out)	Surging Factor[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	R550 (Left)	4 turnstiles	7	127	0.9	0.9	0.07	A
	R550 (Right)	12 turnstiles	144	321	0.9	0.9	0.08	A
PM	R550 (Left)	4 turnstiles	39	25	0.9	0.9	0.04	A
	R550 (Right)	12 turnstiles	1,004	315	0.9	0.9	0.27	A
23rd Street Station								
AM	N074	2 HEET, 1 HXT	113	239	0.9	0.75	0.46	B
	N075	2 HEET, 2 HXT	143	229	0.9	0.75	0.47	B
PM	N074	2 HEET, 1 HXT	186	97	0.9	0.75	0.49	B
	N075	2 HEET, 2 HXT	243	94	0.9	0.75	0.59	B

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines
HEET = High entry/exit turnstile, HXT = high exit turnstile
[1]Surging factors only apply to exiting volumes. The surge factor for entry volumes is 1.0.

Subway Line-Haul

As discussed above, the project area is served by the No. 7 local and express trains operating on the Flushing Line; and the A train (overnight periods only), C train and the E train operating on the Eighth Avenue Line. As summarized above, per the *CEQR Technical Manual* level 2 line-haul screening guidelines, the No. 7 subway line (local and express routes) has been identified for weekday AM and PM peak hour analyses, while the C and E subway lines have been identified for analyses for only the weekday PM peak hour. Maximum load point data for 2017-2018 for these routes were provided by NYCT and were increased to reflect a 2020 base year by applying the 0.25 percent annual background growth rate recommended by the *CEQR Technical Manual* for two years.

Table 4-20 summarizes existing line-haul conditions in the peak direction at the maximum load points for each subway route during the weekday AM and PM analysis peak hours. As shown in **Table 4-20**, all analyzed routes operate below capacity (v/c ratio of less than 1.0) in the peak direction in each peak hour.

Table 4-20 Existing Subway Line - Haul Capacity

Peak Hour	Route (Direction)	Maximum Load Point	Average Trains Per Hour[1]	Average Cars Per Hour[1]	Average Passengers[1]		Guideline Passengers per Car[2]	v/c Ratio[3]
					Per Hour	Per Car		
AM	7 Local (SB)	40 St	14.6	161	14,468	90	110	0.82
	7 Express (SB)	Woodside – 61 St	12.0	132	13,745	104	110	0.95
PM	7 Local (NB)	Queensboro Plaza	12.0	133	10,781	81	110	0.74
	7 Express (NB)	Queensboro Plaza	11.9	131	12,170	93	110	0.85
	C (NB)	59 St – Columbus Circle	6.3	50	3,886	77	115	0.67
	C (SB)	Jay St – MetroTech	6.7	54	6,068	113	115	0.98
	E (NB)	Lexington Av/53 St	14.6	147	18,910	129	145	0.89

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines

[1] Based on 2017-2018 ridership and train throughput data from NYCT. Passenger demand increased to year 2020 based on *CEQR* 0.25 percent per year background growth rate

[2] Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.

[3] Volume to guideline capacity ratio

Pedestrians

The pedestrian analysis utilizes counts conducted in November 2020. With the guidance of NYCDOT, these 2020 data were adjusted upward to represent pre-COVID conditions. These adjustments were determined based on a comparison of the 2020 data and of historic data that were sourced from previous EISs. The pedestrian peak hours of 8:15 AM to 9:15 AM, 1:30 PM, to 2:30 PM, 5:00 PM to 6:00 PM, and 3:00 PM to 4:00 PM were selected for weekday AM, midday, PM, and Saturday in the existing analysis year of 2020. Existing condition peak hour volumes for each pedestrian element analyzed are presented in **Figure 4-15** through **Figure 4-18**.

As shown in **Table 4-21**, all analyzed pedestrian elements except one operate at an acceptable level of service (LOS A, LOS B, LOS C, or acceptable LOS D) during all peak hours.

The levels of service, as well as existing peak hour volumes, for each pedestrian element analyzed are presented in **Table 4-22** through **Table 4-24**.

Figure 4-15 Existing Weekday AM Peak Hour Pedestrian Volumes

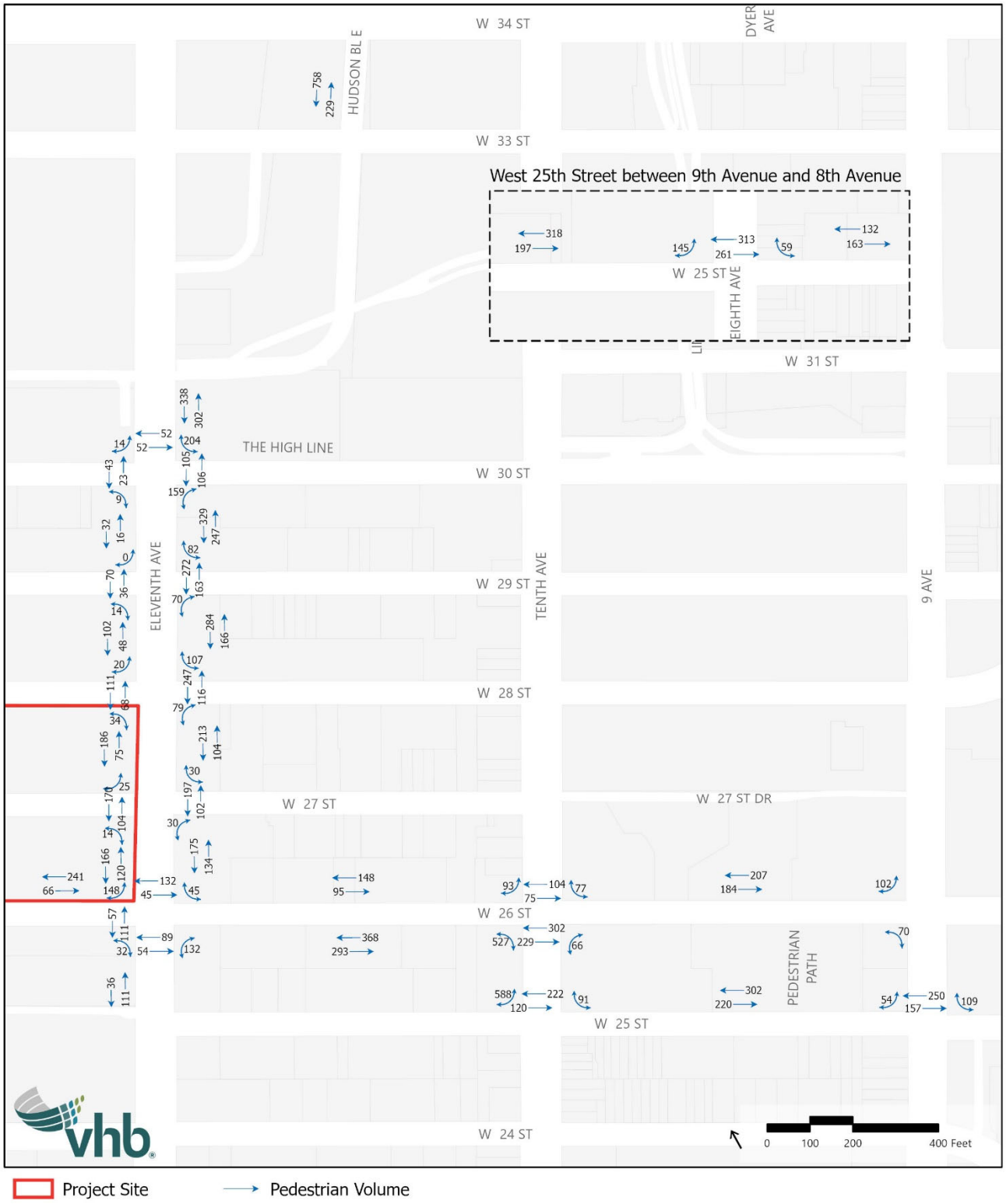


Figure 4-16 Existing Weekday Midday Peak Hour Pedestrian Volumes

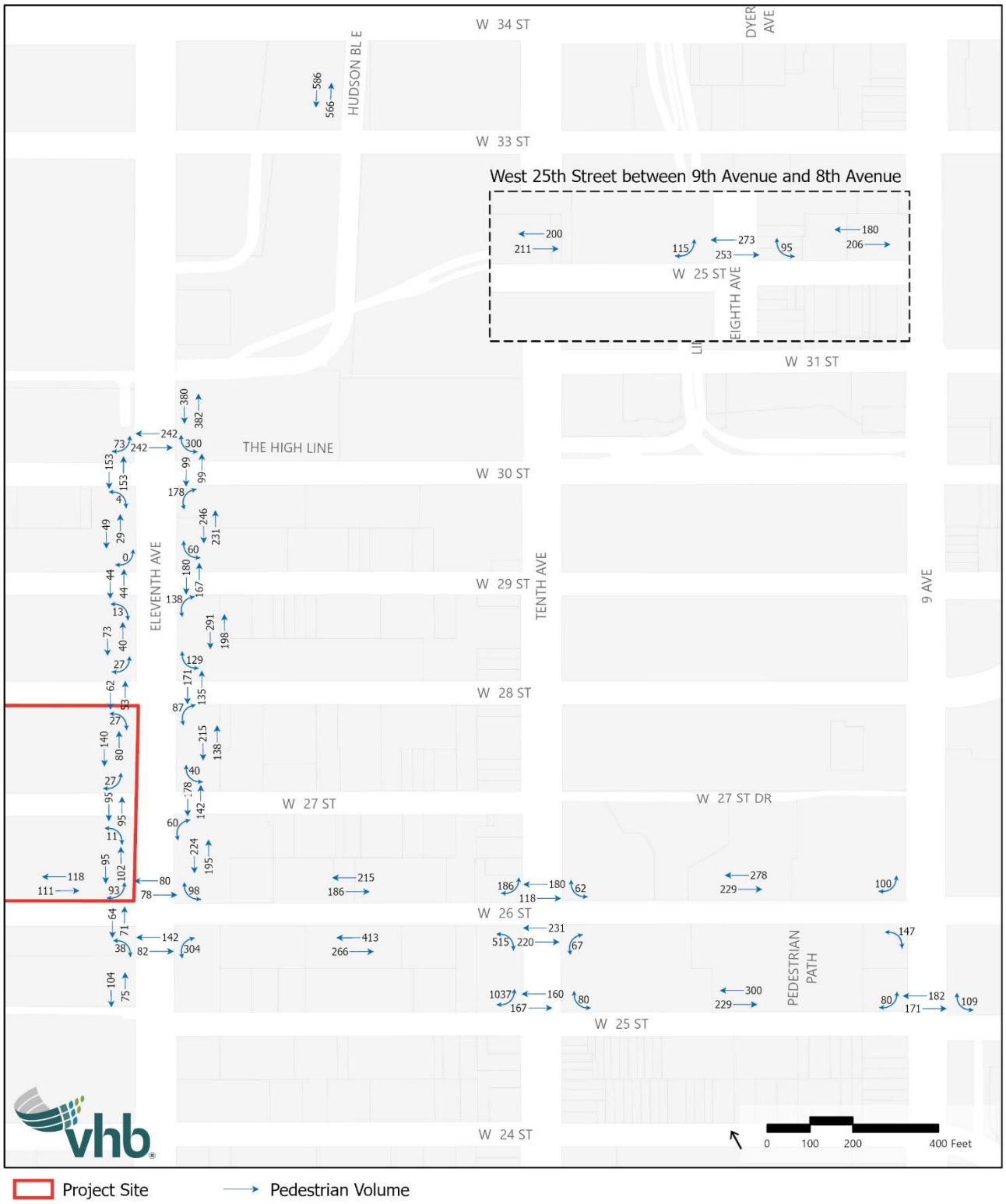


Figure 4-17 Existing Weekday PM Peak Hour Pedestrian Volumes

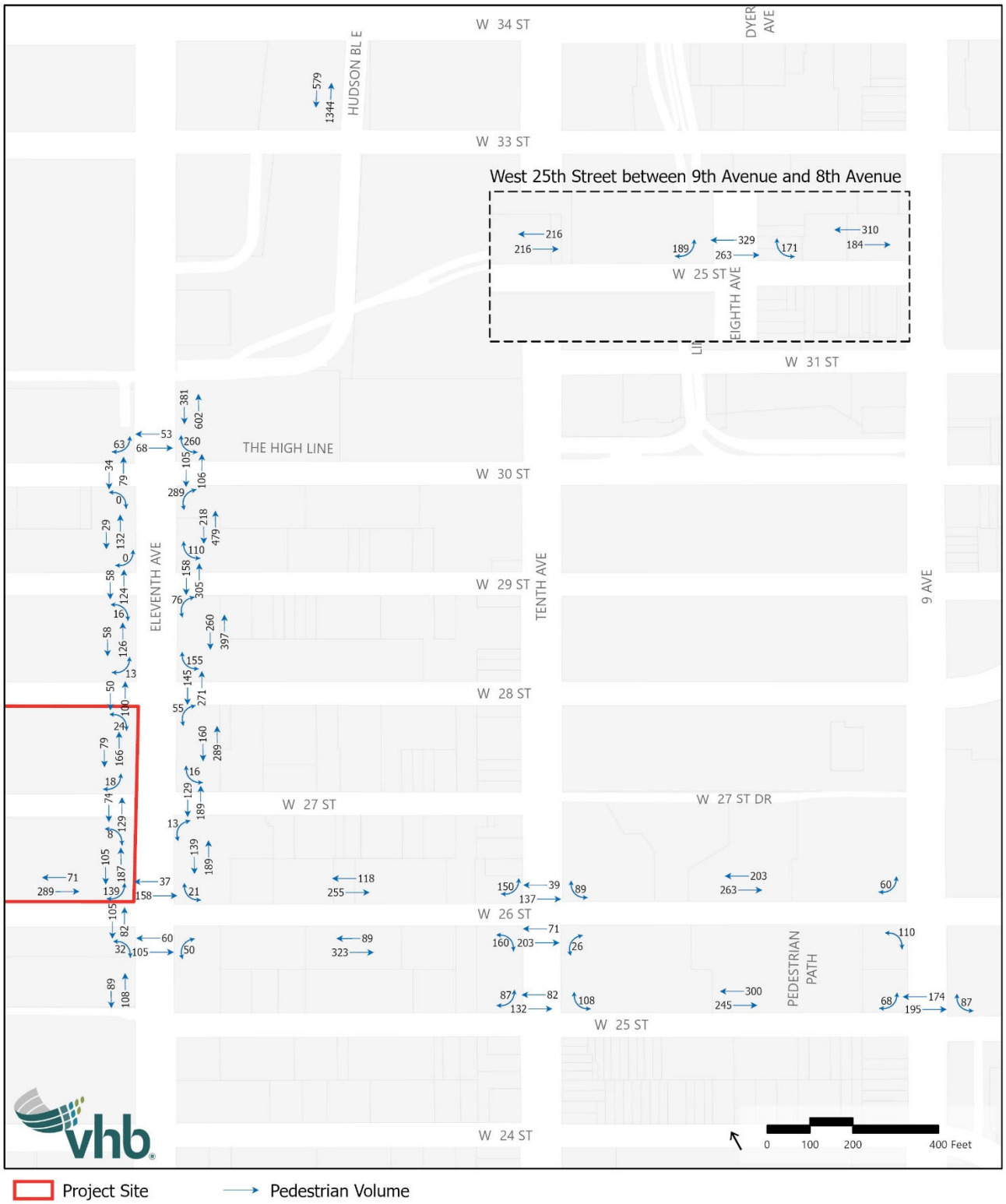


Figure 4-18 Existing Saturday Midday Peak Hour Pedestrian Volumes

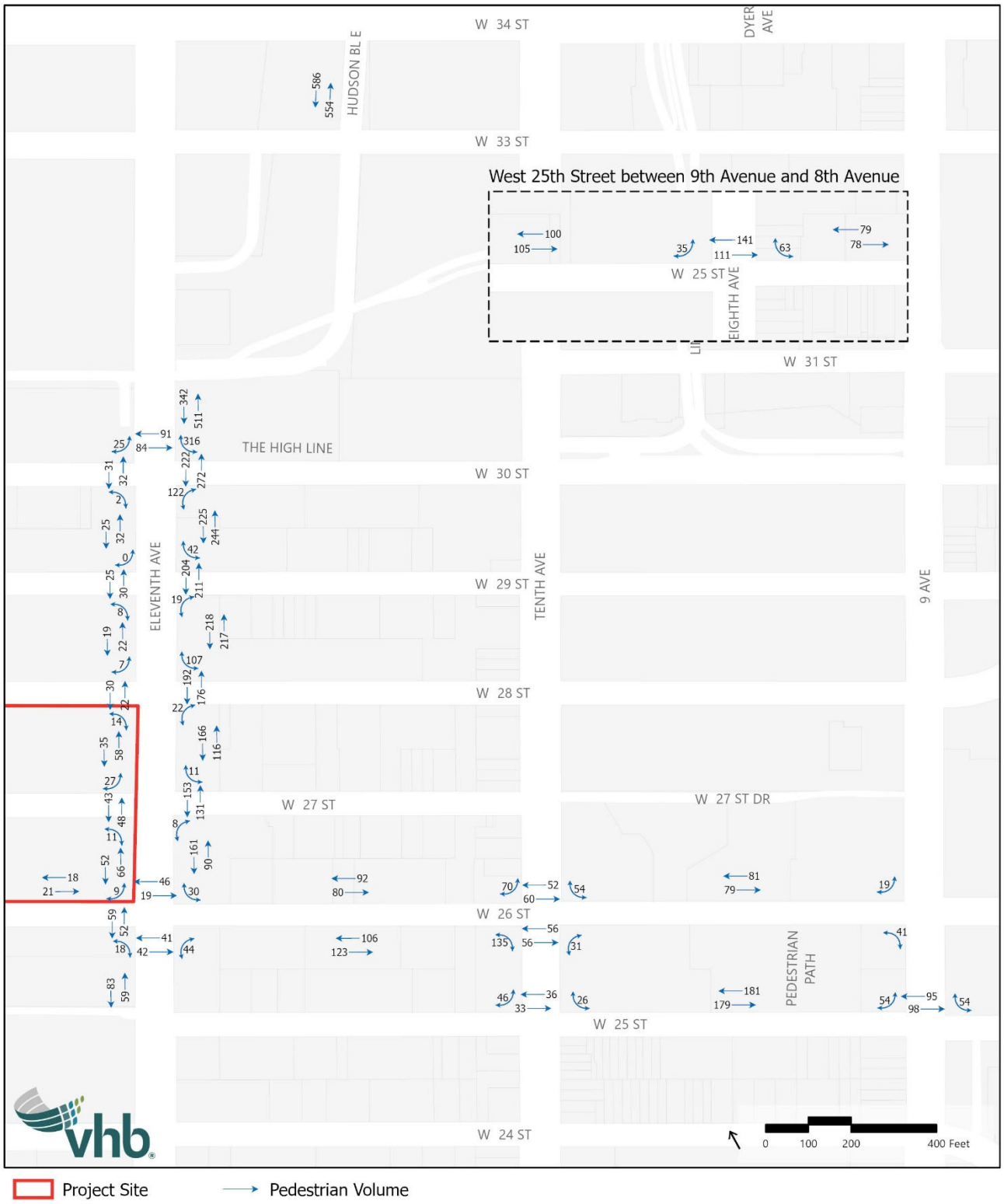


Table 4-21 Existing Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Sidewalk Elements				
LOS A/B/C and Acceptable LOS D	18	18	18	18
Unacceptable LOS D	0	0	0	0
LOS E	0	0	0	0
LOS F	0	0	0	0
Crosswalk Elements				
LOS A/B/C and Acceptable LOS D	17	17	17	17
Unacceptable LOS D	0	0	0	0
LOS E	0	0	0	0
LOS F	0	0	0	0
Corner Elements				
LOS A/B/C and Acceptable LOS D	32	32	32	32
Unacceptable LOS D	0	0	0	0
LOS E	0	0	0	0
LOS F	0	0	0	0

Note: Includes 18 sidewalk, 17 crosswalk, and 32 corner analysis locations

Table 4-22 Existing Pedestrian Levels of Service – Sidewalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
West 25th Street between 7th Avenue and 8th Avenue (north side)	6.0	295	187.7	B	386	134.1	B	494	110.0	B	157	330.1	B
West 25th Street between 8th Avenue and 9th Avenue (north side)	4.0	515	75.2	C	411	95.1	B	432	84.7	C	205	172.3	B
West 25th Street between 9th Avenue and 10th Avenue (north side)	5.0	522	85.9	C	529	89.0	C	545	92.9	B	360	139.2	B
West 26th Street between 9th Avenue and 10th Avenue (north side)	10.0	391	220.9	B	507	170.3	B	466	185.3	B	160	576.2	A
West 26th Street between 10th Avenue and 11th Avenue (north side)	5.0	243	177.6	B	401	107.5	B	373	117.0	B	172	251.1	B
West 26th Street between 10th Avenue and 11th Avenue (south side)	4.0	661	52.4	C	679	50.4	C	412	88.8	C	229	150.7	B
West 26th Street between 11th Avenue and 12th Avenue (north side)	8.0	307	256.6	B	229	303.5	B	360	191.9	B	39	1,772.3	A
11th Avenue between West 25th Street and West 26th Street (west side)	8.0	147	477.5	B	179	386.1	B	197	372.7	B	142	486.7	B
11th Avenue between West 26th Street and West 27th Street (east side)	9.0	309	251.6	B	419	185.4	B	328	237.0	B	251	309.7	B

Table 4-22 Existing Pedestrian Levels of Service – Sidewalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue between West 26th Street and West 27th Street (west side)	9.5	286	313.8	B	197	416.6	B	292	281.0	B	118	807.4	A
11th Avenue between West 27th Street and West 28th Street (east side)	7.5	317	207.9	B	353	198.2	B	449	147.8	B	282	229.7	B
11th Avenue between West 27th Street and West 28th Street (west side)	4.5	261	157.3	B	220	176.6	B	245	158.5	B	93	465.7	B
11th Avenue between West 28th Street and West 29th Street (east side)	7.0	450	159.8	B	489	134.8	B	657	109.1	B	435	149.0	B
11th Avenue between West 28th Street and West 29th Street (west side)	6.5	150	386.0	B	113	496.9	B	184	305.1	B	41	1,369.7	A
11th Avenue between West 29th Street and West 30th Street (east side)	7.5	576	127.4	B	477	147.0	B	697	102.0	B	469	146.5	B
11th Avenue between West 29th Street and West 30th Street (west side)	4.5	48	810.0	A	78	498.4	B	161	241.4	B	57	682.1	A
11th Avenue between West 30th Street and Hudson Boulevard (east side)	11.0	640	155.6	B	762	125.9	B	983	102.5	B	853	125.0	B
Hudson Boulevard between West 33rd Street and West 34th Street (west side)	10.0	987	100.6	B	1,152	74.7	C	1,923	47.2	C	1,140	89.4	C

Table 4-23 Existing Pedestrian Levels of Service – Crosswalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	**Crosswalk**	**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**	**Volume, ped/hr**	**Avg Ped Space, SF/P**	**LOS**
11th Avenue and West 26th Street	*North*	177	113.4	A	158	133.4	A	195	105.5	A	65	327.1	A
	South	143	125.8	A	224	88.0	A	165	110.2	A	83	248.6	A
	West	168	253.2	A	135	289.2	A	187	206.1	A	111	332.7	A
11th Avenue and West 27th Street	*East*	299	141.9	A	320	118.0	A	318	122.4	A	284	132.4	A
	West	274	143.5	A	190	206.8	A	203	197.1	A	91	452.6	A
11th Avenue and West 28th Street	*East*	363	127.3	A	306	123.2	A	416	95.9	A	368	104.1	A
	West	179	242.8	A	115	357.3	A	150	286.6	A	52	795.7	A
11th Avenue and West 29th Street	*East*	435	91.4	A	347	101.3	A	463	78.0	A	415	83.3	A
	West	106	403.2	A	88	435.9	A	182	231.3	A	55	694.6	A
11th Avenue and West 30th Street	*North*	104	256.8	A	484	57.2	B	121	221.9	A	175	170.5	A
	East	211	140.6	A	198	140.0	A	211	140.6	A	494	50.9	B
	West	66	419.3	A	306	81.9	A	113	242.6	A	63	424.8	A
10th Avenue and West 25th Street	*North*	342	43.5	B	327	43.0	B	214	68.9	A	69	222.1	A
10th Avenue and West 26th Street	*North*	179	98.3	A	298	58.3	B	176	114.9	A	112	157.0	A
	South	531	33.3	C	451	39.6	C	274	66.7	A	112	172.7	A
9th Avenue and West 25th Street	*North*	407	67.2	A	353	88.5	A	369	81.8	A	193	155.1	A
8th Avenue and West 25th Street	*North*	574	31.0	C	526	35.2	C	592	30.4	C	252	82.3	A

Table 4-24 Existing Pedestrian Levels of Service – Corners

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	**Corner**	**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**	**Volume, ped/hr**	**Avg Ped Space, SF/P**	**LOS**
11th Avenue and West 26th Street	*Northeast*	45	172.3	A	98	150.1	A	21	196.8	A	30	312.4	A
	Southeast	132	183.3	A	304	119.9	A	50	221.8	A	44	330.5	A
	Southwest	32	318.4	A	38	266.1	A	32	268.0	A	18	500.9	A
	Northwest	148	223.8	A	93	274.2	A	139	199.0	A	9	571.3	A
11th Avenue and West 27th Street	*Northeast*	30	193.9	A	40	199.0	A	16	217.7	A	11	252.3	A
	Southeast	30	240.8	A	60	205.5	A	13	233.1	A	8	296.9	A
	Southwest	14	264.7	A	11	357.8	A	8	342.9	A	11	781.4	A
	Northwest	25	236.8	A	27	372.9	A	18	360.6	A	27	657.9	A
11th Avenue and West 28th Street	*Northeast*	107	198.9	A	129	210.9	A	155	164.3	A	107	200.3	A
	Southeast	79	215.3	A	87	219.7	A	55	190.1	A	22	232.9	A
	Southwest	34	350.5	A	27	499.1	A	24	453.2	A	14	820.0	A
	Northwest	20	275.4	A	27	423.3	A	13	350.5	A	7	710.0	A
11th Avenue and West 29th Street	*Northeast*	82	191.3	A	60	243.6	A	110	172.6	A	42	219.3	A
	Southeast	70	190.4	A	138	186.0	A	76	164.4	A	19	225.8	A
	Southwest	14	684.3	A	13	724.6	A	16	495.3	A	8	1331.2	A
	Northwest	0	681.8	A	0	922.0	A	0	519.5	A	0	1225.8	A
11th Avenue and West 30th Street	*Northeast*	204	334.4	A	300	164.4	A	260	293.1	A	316	176.4	A
	Southeast	159	153.1	A	178	146.0	A	289	131.2	A	122	199.1	A
	Southwest	9	40.5	B	4	23.6	D	0	35.3	C	2	216.6	A
	Northwest	14	906.8	A	73	186.7	A	63	562.7	A	25	656.6	A
10th Avenue and West 25th Street	*Northeast*	91	96.1	A	80	80.7	A	108	89.0	A	26	185.6	A
	Northwest	588	52.4	B	1037	34.3	C	87	93.4	A	46	105.9	A
10th Avenue and West 26th Street	*Northeast*	77	161.3	A	62	113.6	A	89	148.2	A	54	199.8	A
	Southeast	66	92.3	A	67	93.0	A	26	136.1	A	31	213.2	A
	Southwest	527	41.6	B	515	41.2	B	160	76.0	A	135	106.6	A
	Northwest	93	88.6	A	186	60.8	A	150	92.0	A	70	107.7	A
9th Avenue and West 25th Street	*Northeast*	109	142.8	A	109	142.9	A	87	138.4	A	54	199.4	A
	Northwest	54	122.0	A	80	122.9	A	68	104.4	A	54	176.5	A
9th Avenue and West 26th Street	*Southwest*	70	120.6	A	147	115.4	A	110	96.7	A	41	205.5	A
	Northwest	102	125.6	A	100	129.1	A	60	108.7	A	19	207.6	A
8th Avenue and West 25th Street	*Northeast*	59	81.7	A	95	71.2	A	171	54.7	B	63	128.2	A
	Northwest	145	113.9	A	115	98.5	A	189	85.5	A	35	196.3	A

Note: Volumes shown are "rounding the corner" volumes.

Vehicular and Pedestrian Safety

Crash data were obtained for the study area intersections from NYCDOT for the most recent three-year period for which such data are available (2016 through 2018). 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 the 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 4-25 presents a summary of total crashes at the study area intersections during the three-year period of 2016 through 2018, and shows total fatalities, injuries, and pedestrian and bicycle crashes. One intersection, Tenth Avenue and West 23rd Street, is considered a high-crash location by the NYCDOT criteria; this intersection has at least five pedestrian/bicyclist injury crashes within a consecutive 12-month period (June 2016 to 2017 and September 2016 to 2017). Vehicular and pedestrian thresholds are not exceeded at any of the other analysis intersections.

Table 4-25 Vehicle, Pedestrian, and Bicycle Crash Data

Intersection		Total Crashes by Year					Pedestrian Crashes			Bicycle Crashes		
North-South Roadway	East-West Roadway	2016	2017	2018	Total Fatalities	Total Injuries	2016	2017	2018	2016	2017	2018
10th Avenue*	West 23rd Street*	9	7	8	0	20	3	1	1	1	1	0
10th Avenue	West 24th Street	3	6	3	0	7	3	1	1	0	0	0
10th Avenue	West 25th Street	3	2	6	0	5	1	0	1	0	2	1
10th Avenue	West 26th Street	0	7	7	0	5	0	1	1	0	0	0
10th Avenue	West 27th Street	4	2	9	0	6	0	2	0	0	0	1
10th Avenue	West 28th Street	2	5	11	0	11	0	0	2	0	1	0
10th Avenue	West 29th Street	4	7	13	0	6	1	0	0	1	0	0
10th Avenue	West 30th Street	0	0	0	0	0	0	0	0	0	0	0
10th Avenue	West 31st Street	1	1	7	0	5	1	0	0	0	0	1
10th Avenue	West 33rd Street	2	2	8	0	6	0	0	1	0	0	0
10th Avenue	West 34th Street	12	12	18	1	27	2	1	3	0	0	0
11th Avenue	West 24th Street	2	2	6	0	5	1	0	0	0	0	1
11th Avenue	West 25th Street	0	1	0	0	1	0	0	0	0	0	0
11th Avenue	West 26th Street	4	1	7	0	7	0	1	0	2	0	0
11th Avenue	West 27th Street	1	1	3	0	3	0	0	1	1	0	0
11th Avenue	West 28th Street	0	1	2	0	1	0	1	0	0	0	0
11th Avenue	West 29th Street	0	0	0	0	0	0	0	0	0	0	0
11th Avenue	West 30th Street	3	7	7	1	9	0	0	0	1	2	0
12th Avenue	West 26th Street	4	6	4	0	17	0	0	0	0	0	0
12th Avenue	West 29th Street	2	3	2	0	3	0	0	1	0	0	0
12th Avenue	West 30th Street	7	7	6	0	20	0	0	0	0	0	0

*Intersection has five or more pedestrian-/bicyclist-related crashes in a consecutive 12-month period
Note: Shading denotes a high crash location
Source: NYSDOT/NYSDMV (2016-2018)

During the three-year period mentioned above, a total of 24 crashes no fatalities, 20 injuries, and 7 pedestrian/bicyclist-related crashes occurred at the intersection of Tenth Avenue and West 23rd Street. Based on a review of the crash data, of the 7 pedestrian/bicycle crashes that occurred during the three-year period between 2016 and 2018, two crashes involved pedestrians crossing against the signal. Four of the crashes took place in the night or early morning under dark conditions. One of the crashes involved conflicts with turning vehicles. This intersection is signalized and operates in four phases (including a leading pedestrian interval phase) with pedestrian countdown signals and high visibility crosswalks striped along each approach. Tenth Avenue is a one-way roadway, while West 23rd Street is a two-way roadway. In late 2018, signal timing and phasing modifications were implemented to eliminate eastbound vehicular turning conflicts with pedestrians; additional crossing time was also provided for pedestrians crossing Tenth Avenue. As a result of these changes, the overall level of pedestrian safety is likely to have improved at this intersection.

While the intersections adjacent to the project area are not classified as high-crash locations, there are concerns associated with existing sidewalk obstructions and conflicts between

vehicles, pedestrians, and cyclists due to current loading activity. Due to the design of the loading dock at the historic Starrett-Lehigh Building, loading dock vehicles encroach on the north sidewalk on the western portion of West 26th Street near Twelfth Avenue. In addition, the extent of the loading dock and its frequent use produces conflicts, primarily during business hours, between vehicles and cyclists using the bicycle lane established by NYCDOT.

The Starrett-Lehigh Building's West 26th Street loading dock is located near the southwest corner of the building, from approximately 100 feet to 250 feet east of Twelfth Avenue. It consists of seven berths, each of which accommodates two loading vehicles (14 total spaces); the internal loading area also includes capacity for two additional vehicles via entry from Twelfth Avenue. There is one loading berth on West 27th Street, closer to Eleventh Avenue, that is separate from this loading dock. Loading and unloading activity along West 26th Street is performed at the property line, as the loading dock is raised, and the berths are not recessed into the building. Loading vehicles park perpendicular to the building, extending across the full width of the sidewalk and into the West 26th Street roadbed. The loading dock accommodates vehicles of varying size and type, including automobiles, cargo vans, and box trucks. Recent changes in operations direct vehicles of up to 32 to 34 feet in length to utilize the berths along West 26th Street, whereas larger vehicles are instructed to park along Twelfth Avenue or utilize the entries off Twelfth Avenue, which allow vehicles to pull directly into the building.

Terminal Warehouse does not experience the same conditions noted above at the Starrett-Lehigh Building. Existing loading activities are typically performed at the building's ground floor entrances on West 27th and 28th Streets. This type of loading is not atypical and occasionally results in short-term obstructions of limited portions of the sidewalks, particularly at curb cuts to loading access points.

No-Action Conditions

This section establishes the baseline (No-Action) condition against which potential impacts of the Proposed Actions can be identified. Future year conditions were analyzed for the year 2024. No-Action traffic and pedestrian volumes, transit ridership (bus and subway), and off-street parking demand were established by applying a background growth rate of 0.25 percent per year in accordance with *CEQR Technical Manual* guidelines for Manhattan projects. This background growth was applied to existing volumes and accounts for small projects and general increases in travel demand.

In addition to the above described annual background growth rate, travel demand from new moderate to large-scale generators within an approximate half-mile radius of the project area were reflected in the future 2024 No-Action traffic and pedestrian networks, projected transit ridership, and off-street parking demand. In consultation with DCP, these developments were selected based on size, expected completion dates, and an assessment of whether appreciable levels of trips associated with these sites would be expected to travel through the traffic analysis intersections or utilize pedestrian elements, subway station elements, and bus routes and subway lines analyzed in this EIS.

As shown in **Figure 4-19**, 16 moderate-to-large-sized developments were identified for inclusion. The address, anticipated completion year, and assumed development program for each of these projects are shown in **Table 4-26.** In total, these developments would introduce approximately 8.39 million sf of office, 194,200 sf of local retail, 58,900 sf of

destination retail, 2,925 residential dwelling units, 130,000 sf of community facility, 680 hotel rooms, 228,200 sf of train hall space at the Moynihan Train Hall, and 320 parking spaces. It is conservatively assumed that all of these No-Action developments, which include new buildings at Hudson Yards and the remainder of the Manhattan West project, are completed and fully occupied by 2024.

Lastly, the No-Action condition vehicle, pedestrian, transit, and parking demand volumes also reflect incremental demand associated with ongoing renovations and land use changes at Terminal Warehouse that would take place independent of the Proposed Actions. In the No-Action condition, the building would be altered: approximately 200,000 gsf would be carved out of the center of the building to create a double height space and a courtyard. That square footage would be added back as penthouse floors on the western portion of the building. Compared to the existing condition, this renovation will result in an increment of 430,003 sf of office space and 41,220 sf of local retail, and the displacement of 445,967 sf of public storage space.

In terms of loading improvements at the Starrett-Lehigh Building, the Applicant is currently modifying the loading dock configuration. Specifically, the two existing loading berths on Twelfth Avenue are being modified to accommodate three large trucks in the interior of the building (rather than two). The loading dock capacity along West 26th Street is being reduced from 14 spaces to 10 spaces and their use will be limited to small- or medium-sized commercial vehicles. No modification is being made to the loading berth on West 27th Street. Overall, with the proposed modifications, the Starrett-Lehigh Building will provide 14 total spaces.

As part of the building repositioning at the Terminal Warehouse, a new centralized loading dock will be constructed on West 28th Street. This loading dock will include five loading berths and allow vehicles to fully pull into the building. The existing level of on-street loading activity is anticipated to be significantly reduced with introduction of this loading dock.

Figure 4-19 No-Action Development Sites

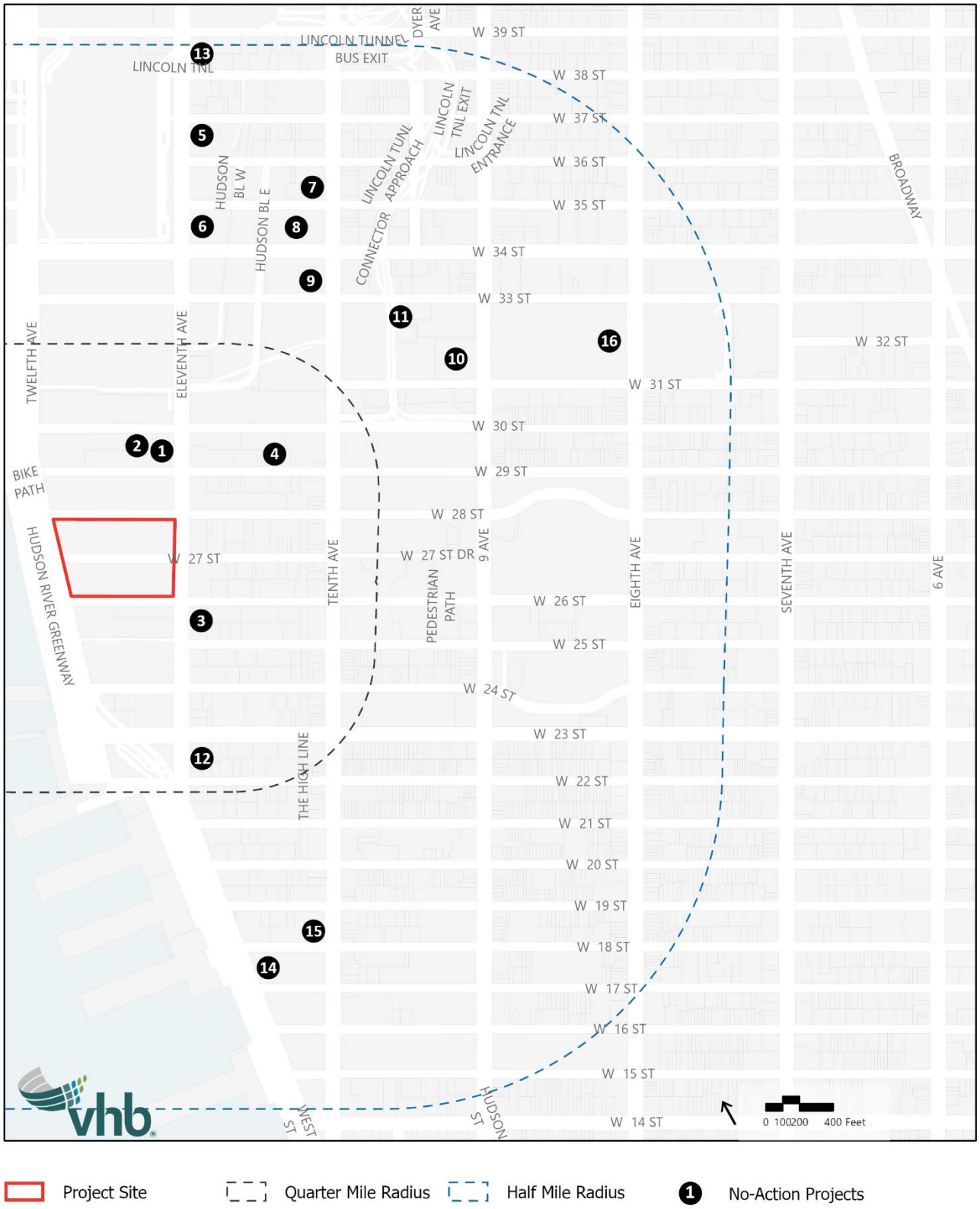


Table 4-26 No-Action Development Projects

Map No.	Project Address	Projected Completion Year	Anticipated Development Program
1	601 West 29th Street	2023	931 residential units, 10,920 sf of local retail,186 parking spaces
2	606 West 30th Street	2022	252 residential units, 25,028 sf of local retail, 54 parking spaces
3	220 Eleventh Avenue	2022	170,331 of office
4	517 West 29th Street	2021	60 residential units, 10 parking spaces
5	450 Eleventh Avenue	2023	379 hotel rooms
6	400 Eleventh Avenue	2023	520,740 sf of office
7	451 Tenth Avenue	2022	526 residential units, 130,150 sf of community facility, 33,379 sf of local retail
8	509 West 34th Street (66 Hudson Boulevard)	2022	2,549,052 sf of office
9	415 Tenth Avenue (50 Hudson Yards)	2022	2,581,748 sf of office
10	401 West 31st Street (Two Manhattan West)	2022	1.9 million sf of office
11	442 West 33rd Street (Four Manhattan West)	2021	164 hotel rooms
12	555 West 22nd Street	2021	144 residential units, 29 parking spaces
13	555 West 38th Street	2022	591 residential units, 1,886 sf of local retail
14	76 Eleventh Avenue	2022	236 residential units, 137 hotel rooms, 58,862 sf of destination retail
15	515 West 18th Street	2021	185 residential units, 41 parking spaces
16	Farley/Moynihan Train Hall	2021	672,524 sf of office, 123,000 sf of local retail, 228,242 sf train hall

Traffic

Traffic Network

No-Action condition traffic volumes for the weekday PM and Saturday peak hours are shown in **Figure 4-20** and **Figure 4-21**, respectively.

Changes to the Study Street Network

No planned physical change to the street network has been identified for implementation at any analysis intersection in the 2021 through 2024 period. The No-Action traffic analysis, however, does reflect a weekday PM period signal timing change at the intersection of Twelfth Avenue and West 30th Street proposed as a mitigation measure in the *2018 Block 675 East FEIS* – a shift of two seconds of green time from the northbound/southbound phase to the southbound left-turn-only phase.

Figure 4-20 No-Action Weekday PM Peak Hour Traffic Volumes



Figure 4-21 No-Action Saturday Midday Peak Hour Traffic Volumes



Levels of Service

Table 4-27 and **Table 4-28** provide an overview of the levels of service that characterize "overall" intersection conditions and individual traffic movements, respectively, during the weekday PM and Saturday peak traffic analysis hours under No-Action conditions. Detailed No-Action traffic levels of service are provided in **Table 4-29**.

Table 4-27 No-Action Traffic Level of Service Summary – Overall Intersections

	Existing		No-Action	
Level of Service	Weekday PM Peak Hour	Saturday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	20	20	13	19
Overall LOS D	1	1	5	2
Overall LOS E	0	0	1	0
Overall LOS F	0	0	2	0

Table 4-28 No-Action Traffic Level of Service Summary – Traffic Movements

	Existing		No-Action	
Level of Service	PM	SAT	PM	SAT
Traffic Movements at LOS A/B/C and Acceptable LOS D	44	52	35	45
Traffic Movements at Unacceptable LOS D	3	3	5	8
Traffic Movements at LOS E	6	1	6	3
Traffic Movements at LOS F	6	3	13	3
Number of Individual Traffic Movements	59	59	59	59

PM = Weekday PM Peak Hour; SAT = Saturday Midday Peak Hour

Table 4-29 No-Action Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
12th Avenue and West 30th Street									
30th Street	EB	LTR	0.14	64.5	E	LTR	0.00	0.0	A
12th Avenue	NB	LTR	0.93	16.6	B	LTR	0.73	8.6	A
	SB	L	1.06	129.4	F	L	0.69	47.7	D
		TR	1.05	59.9	E	TR	0.75	19.5	B
Overall Intersection		-	-	**39.8**	**D**	-	-	**15.2**	**B**
12th Avenue and West 29th Street									
West 29th Street	WB	L	0.30	56.1	E	L	0.24	43.3	D
		R	1.45	270.2	F	R	1.20	161.6	F
12th Avenue	NB	T	0.75	6.2	A	T	0.56	8.0	A
	SB	T	0.78	5.4	A	T	0.68	3.8	A
Overall Intersection		-	-	**19.2**	**B**	-	-	**17.3**	**B**
12th Avenue and West 26th Street									
12th Avenue	NB	TR	0.73	12.4	B	TR	0.54	10.5	B
	SB	L	0.80	57.0	E	L	0.41	44.6	D
		T	0.69	10.7	B	T	0.63	3.8	A
Overall Intersection		-	-	**13.5**	**B**	-	-	**8.5**	**A**
11th Avenue and West 30th Street									
West 30th Street	EB	T	1.07	94.7	F	T	0.48	24.8	C
		R	0.71	40.0	D	R	0.45	26.1	C
11th Avenue	SB	LT	0.57	21.1	C	LT	0.62	23.2	C
Overall Intersection		-	-	**40.4**	**D**	-	-	**23.8**	**C**
11th Avenue and West 29th Street									
West 29th Street	WB	L	0.55	20.4	C	L	0.32	11.4	B
		T	0.54	18.6	B	T	0.48	12.3	B
11th Avenue	SB	TR	0.63	7.7	A	TR	0.57	6.0	A
Overall Intersection		-	-	**11.1**	**B**	-	-	**7.7**	**A**
11th Avenue and West 28th Street									
West 28th Street	EB	TR	0.27	25.5	C	TR	0.39	28.5	C
11th Avenue	SB	LT	0.65	10.5	B	LT	0.55	7.2	A
Overall Intersection		-	-	**11.6**	**B**	-	-	**9.6**	**A**

Table 4-29 No-Action Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
11th Avenue and West 27th Street									
West 27th Street	WB	LT	0.61	28.9	C	LT	0.74	30.5	C
11th Avenue	SB	TR	0.50	1.6	A	TR	0.43	2.8	A
Overall Intersection		-	-	**6.8**	**A**	-	-	**9.9**	**A**
11th Avenue and West 26th Street									
West 26th Street	EB	T	0.62	33.6	C	T	0.44	29.2	C
		R	0.44	31.8	C	R	0.40	30.7	C
11th Avenue	SB	LT	0.53	2.9	A	LT	0.48	3.5	A
Overall Intersection		-	-	**11.9**	**B**	-	-	**10.3**	**B**
11th Avenue and West 25th Street									
West 25th Street	WB	LT	0.85	47.4	D	LT	0.41	30.2	C
11th Avenue	SB	TR	0.51	4.2	A	TR	0.38	3.2	A
Overall Intersection		-	-	**13.6**	**B**	-	-	**7.2**	**A**
11th Avenue and West 24th Street									
West 24th Street	EB	R	0.28	27.9	C	R	0.22	27.0	C
11th Avenue	NB	L	0.45	29.8	C	L	0.23	26.8	C
	SB	L	0.48	6.1	A	L	0.33	4.7	A
		TR	1.48	245.1	F	TR	0.92	34.9	C
Overall Intersection		-	-	**141.7**	**F**	-	-	**25.9**	**C**
10th Avenue and West 34th Street									
West 34th Street	EB	L	3.00	500.0+	F	L	1.37	229.8	F
		T	1.03	81.3	F	T	0.66	35.0	C
	WB	T	1.44	242.2	F	T	0.83	47.8	D
		R	2.49	500.0+	F	R	0.82	56.6	E
10th Avenue	NB	LTR	1.13	72.7	E	LTR	0.74	9.9	A
Overall Intersection		-	-	**228.7**	**F**	-	-	**38.5**	**D**
10th Avenue and West 33rd Street									
West 33rd Street	WB	TR	0.99	51.5	D	TR	0.96	29.8	C
10th Avenue	NB	LT	0.81	34.7	C	LT	0.57	7.3	A
Overall Intersection		-	-	**38.0**	**D**	-	-	**11.2**	**B**
10th Avenue and West 31st Street									
West 31st Street	WB	R	1.24	156.8	F	R	0.84	50.9	D
10th Avenue	NB	T	0.64	5.8	A	T	0.45	2.7	A
Overall Intersection		-	-	**41.8**	**D**	-	-	**12.1**	**B**

Table 4-29 No-Action Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
10th Avenue and West 30th Street									
West 30th Street	EB	L	1.51	272.9	F	L	0.71	63.8	E
		T	1.27	178.6	F	T	0.69	54.1	D
10th Avenue	NB	TR	1.12	6.8	A	TR	1.00	7.1	A
Overall Intersection		-	-	**56.6**	**E**	-	-	**17.5**	**B**
10th Avenue and West 29th Street									
West 29th Street	WB	T	0.72	39.8	D	T	0.83	47.9	D
		R	0.82	51.9	D	R	0.71	41.3	D
10th Avenue	NB	LT	0.70	1.5	A	LT	0.60	1.9	A
Overall Intersection		-	-	**10.6**	**B**	-	-	**14.0**	**B**
10th Avenue and West 28th Street									
West 28th Street	EB	LT	0.60	22.9	C	LT	0.69	19.4	B
10th Avenue	NB	TR	0.75	1.6	A	TR	0.59	1.0	A
Overall Intersection		-	-	**4.1**	**A**	-	-	**4.2**	**A**
10th Avenue and West 27th Street									
West 27th Street	WB	TR	0.03	21.6	C	TR	0.05	21.9	C
10th Avenue	NB	LT	0.84	5.4	A	LT	0.80	4.3	A
Overall Intersection		-	-	**5.5**	**A**	-	-	**4.5**	**A**
10th Avenue and West 26th Street									
West 26th Street	EB	LT	0.89	43.8	D	LT	0.87	53.5	D
10th Avenue	NB	TR	0.89	9.6	A	TR	0.70	6.7	A
Overall Intersection		-	-	**13.6**	**B**	-	-	**14.8**	**B**
10th Avenue and West 25th Street									
West 25th Street	WB	TR	1.05	90.4	F	TR	0.87	53.6	D
10th Avenue	NB	LT	0.77	3.5	A	LT	0.65	3.2	A
Overall Intersection		-	-	**17.2**	**B**	-	-	**11.9**	**B**
10th Avenue and West 24th Street									
West 24th Street	EB	LT	0.79	49.9	D	LT	0.77	47.0	D
10th Avenue	NB	TR	0.81	15.9	B	TR	0.69	11.4	B
Overall Intersection		-	-	**21.1**	**C**	-	-	**17.7**	**B**

Table 4-29 No-Action Traffic Level of Service Summary

Intersection & Approach		Weekday PM Peak Hour				Saturday Peak Hour			
		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
10th Avenue and West 23rd Street									
West 23rd Street	**EB**	LT	0.74	44.6	D	LT	0.75	42.4	D
	WB	T	1.04	98.7	F	T	1.04	104.6	F
		R	0.89	63.7	E	R	0.87	61.8	E
10th Avenue	**NB**	LTR	0.93	47.6	D	LTR	0.74	25.9	C
Overall Intersection		-	-	**53.6**	**D**	-	-	**40.7**	**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 No-Action conditions indicates that:

- In the Weekday PM peak hour, three of the 21 intersections analyzed would operate at LOS E or F compared to none in the existing condition; and 24 of the 59 individual traffic movements analyzed would operate at unacceptable LOS D, LOS E, or LOS F compared to 15 movements in the existing condition.
- In the Saturday peak hour, similar to the existing condition, under No-Action conditions, no intersection would operate at LOS E or F. As for individual traffic movements analyzed, 14 would operate at unacceptable LOS D, LOS E, or LOS F compared to seven in the existing condition.

Overall, in the weekday PM peak hour, under No-Action conditions, the following intersections would operate at LOS E or F:

- Eleventh Avenue and West 24th Street
- Tenth Avenue and West 34th Street
- Tenth Avenue and West 30th Street

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 following intersections would have at least one movement operate at unacceptable levels of service (mid-LOS D or worse) during at least one analysis peak hour:

- Twelfth Avenue and West 30th Street
  - Eastbound West 30th Street approach (weekday PM)
  - Southbound Twelfth Avenue left turn movement (weekday PM and Saturday)
  - Southbound Twelfth Avenue through-right movement (weekday PM)
- Twelfth Avenue and West 29th Street
  - Westbound West 29th Street left turn movement (weekday PM)
  - Westbound West 29th Street right turn movement (weekday PM and Saturday)
- Twelfth Avenue and West 26th Street
  - Southbound Twelfth Avenue left turn movement (weekday PM)
- Eleventh Avenue and West 30th Street

- Eastbound West 30th Street through movement (weekday PM)

› Eleventh Avenue and West 25th Street
- Westbound West 25th Street approach (weekday PM)

› Eleventh Avenue and West 24th Street
- Southbound Eleventh Avenue through-right movement (weekday PM)

› Tenth Avenue and West 34th Street
- Eastbound West 34th Street left turn movement (weekday PM and Saturday)
- Eastbound West 34th Street through movement (weekday PM)
- Westbound West 34th Street through movement (weekday PM and Saturday)
- Westbound West 34th Street right turn movement (weekday PM and Saturday)
- Northbound Tenth Avenue approach (weekday PM)

› Tenth Avenue and West 33rd Street
- Westbound West 33rd Street approach (weekday PM)

› Tenth Avenue and West 31st Street
- Westbound West 31st Street approach (weekday PM and Saturday)

› Tenth Avenue and West 30th Street
- Eastbound West 30th Street left turn movement (weekday PM and Saturday)
- Eastbound West 30th Street through movement (weekday PM and Saturday)

› Tenth Avenue and West 29th Street
- Westbound West 29th Street through movement (Saturday)
- Westbound West 29th Street right turn movement (weekday PM)

› Tenth Avenue and West 26th Street
- Eastbound West 26th Street approach movement (Saturday)

› Tenth Avenue and West 25th Street
- Westbound West 25th Street approach (weekday PM and Saturday)

› Tenth Avenue and West 24th Street
- Eastbound West 25th Street approach movement (weekday PM and Saturday)

› Tenth Avenue and West 23rd Street
- Westbound West 23rd Street through movement (weekday PM and Saturday)
- Westbound West 23rd Street right turn movement (weekday PM and Saturday)
- Northbound Tenth Avenue approach (weekday PM)

Parking

Between 2020 and 2024, demand for off-street parking is expected to increase due to background growth and demand generated by other development projects. In addition, there would be an increase in demand as a result of planned land use changes at Terminal Warehouse - this demand represents the project's incremental No-Action off-street parking demand.

Table 4-30 and **Table 4-31** present the weekday and Saturday off-street parking demand generated by the project under the No-Action condition. No credit is taken for the displacement of parking demand associated with the self-storage facility as this demand would occur on-street where storage transfer activity occurs.

Table 4-30 No-Action Project Increment – Weekday Off-Street Parking Demand

Hour	Office	Local Retail	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	8	1	**9**
8 AM – 9 AM	104	1	**105**
9 AM – 10 AM	174	2	**176**
10 AM – 11 AM	177	3	**180**
11 AM – 12 AM	172	3	**175**
12 AM – 1 PM	171	3	**174**
1 PM – 2 PM	176	1	**177**
2 PM – 3 PM	178	0	**178**
3 PM – 4 PM	176	0	**176**
4 PM – 5 PM	124	0	**124**
5 PM – 6 PM	14	0	**14**
6 PM – 7 PM	2	0	**2**
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 PM	0	0	**0**

Table 4-31 No-Action Project Increment – Saturday Off-Street Parking Demand

Hour	Office	Local Retail	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	1	0	**1**
8 AM – 9 AM	4	1	**5**
9 AM – 10 AM	7	3	**10**
10 AM – 11 AM	10	11	**21**
11 AM – 12 AM	12	11	**23**
12 AM – 1 PM	13	13	**26**
1 PM – 2 PM	13	16	**29**
2 PM – 3 PM	14	16	**30**
3 PM – 4 PM	10	18	**28**
4 PM – 5 PM	5	16	**21**
5 PM – 6 PM	3	16	**19**
6 PM – 7 PM	1	14	**15**
7 PM – 8 PM	0	13	**13**
8 PM – 9 PM	0	10	**10**
9 PM – 10 PM	0	0	**0**
10 PM – 11 PM	0	0	**0**
11 PM – 12 PM	0	0	**0**

Table 4-32 summarizes the peak weekday midday and Saturday off-street parking demand anticipated under the future No-Action condition. The No-Action demand includes existing demand, annual background growth, demand generated by No-Action development sites assumed to utilize the study area parking facilities, and the project's No-Action incremental demand. The No-Action total capacity includes existing capacity as well as additional parking spaces planned at No-Action development sites. As shown in **Table 4-32**, approximately 146 and 452 off-street parking spaces would be available in the weekday midday and Saturday periods, respectively, in the future No-Action condition.

Table 4-32 No-Action Off-Street Parking Utilization

	Weekday	Saturday
Existing Demand	781	648
Existing Capacity	1,106	1,106
Existing Availability	**325**	**458**
No-Action Demand - Background Growth[1]	8	7
No-Action Demand - Other Developments[2,3]	244	230
No-Action Demand - Project Increment[2]	177	19
Change in No-Action Capacity[4]	250	250
No-Action Total Demand	1,210	904
No-Action Capacity	1,356	1,356
No-Action Availability	**146**	**452**

[1] Reflects annual background growth rate of 0.25% per year (2021 to 2024)

[2] Conservatively based on 1:00 - 2:00 PM weekday period and 5:00 - 6:00 PM Saturday period when the combined incremental demand from No-Action developments and from the project (under both No-Action and With-Action conditions) would be greatest

[3] Includes demand from No-Action sites 1, 2, 3, 4 and 12 which are assumed to utilize, in some capacity, parking facilities included in the parking study area.

[4] Reflects new parking spaces at No-Action sites 1, 2 and 4

Buses

Bus service demand is expected to increase in the future as a result of background growth as well as demand from No-Action development. As shown in **Table 4-33**, existing bus trip frequencies would not be sufficient to accommodate the projected demand under 2024 No-Action conditions on the eastbound M34-SBS route in the weekday PM peak hour through its maximum load point. Based on a loading guideline of 85 passengers per articulated bus, 11 additional articulated buses per hour (for a total of 17 per hour) would be needed to accommodate projected No-Action weekday PM demand on the M34-SBS route in the eastbound direction. Per *CEQR* guidelines, service changes should be assumed such that future No-Action demand would not exceed capacity on any given route. Therefore, it is anticipated that in the No-Action condition, the MTA would increase service frequency on the eastbound M34-SBS route in the weekday PM peak hour to address this shortfall. Overall, under No-Action conditions, the M23-SBS and the M34-SBS routes in the eastbound directions would be able to accommodate 191 and 49 additional passengers, respectively, during the weekday PM period.

Table 4-33 No-Action Bus Line-Haul Capacity

					No-Action at Current Bus Frequency Levels			No-Action with Potential Service Adjustments		
Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Passengers[1]	Peak Hour Buses[1]	Average Passengers per Bus	Available Capacity[2]	Peak Hour Buses[3]	Average Passengers per Bus	Available Capacity[2,3]
PM	M23-SBS	EB	W 23 St-9 Av	489	8	61	191	8	61	191
	M34-SBS	EB	W 34 St-5 Av	1396	6	233	-886	17	82	49

Notes:

[1]No-Action passenger volumes are based on 0.25% per year background growth from 2020 through 2024 period plus demand from No-Action developments.

[2]Available capacity based on MTA loading guidelines of 85 passengers per 65-foot articulated bus

[3]Assumes service levels adjusted to address capacity shortfalls under No-Action conditions.

EB=Eastbound

Subways

Subway Station Elements

Under No-Action conditions, demand at the 34th Street-Hudson Yards Station and 23rd Street Station is expected to increase as a result of general background growth and demand associated with No-Action developments. No changes to existing pedestrian circulation elements are planned at either station.

The levels of service for stairs, escalators and fare control areas analyzed under No-Action conditions are shown in **Table 4-50**, **Table 4-35**, and **Table 4-36**, respectively.

As shown in **Table 4-34** through **Table 4-36**, all fare control areas, stairways, and escalators analyzed are expected to operate at acceptable LOS C or better and would be under capacity at both stations during both the weekday AM and PM peak hours.

Table 4-34 No-Action Subway Station Level of Service – Stairs

Peak Hour	Stair	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	S1	4.0	18	3	0.9	0.9/1.0	0.04	A
	S2	4.0	13	11	0.9	0.9/1.0	0.05	A
	P1/P2	7.8	254	1	1.0	0.75/1.0	0.29	A
	P3/P4	13.6	648	55	0.9	0.75/1.0	0.50	B
	P5/P6	13.6	893	166	0.9	0.75/1.0	0.74	C
PM	S1	4.0	3	9	0.9	0.9/1.0	0.02	A
	S2	4.0	1	119	1.0	0.9/1.0	0.20	A
	P1/P2	7.8	46	17	0.9	0.75/1.0	0.07	A
	P3/P4	13.6	279	620	0.9	0.75/1.0	0.54	B
	P5/P6	13.6	96	1,523	0.9	0.75/1.0	0.90	C
23rd Street Station								
AM	S10	3.3	233	77	0.9	0.8/1.0	0.83	C
	P10A/B	8.7	261	87	0.9	0.8/1.0	0.35	A
	S9/P9	3.3	231	120	0.9	0.8/1.0	0.92	C
PM	S10	3.3	77	171	0.9	0.8/1.0	0.60	B
	P10A/B	8.7	87	197	0.9	0.8/1.0	0.26	A
	S9/P9	3.3	81	266	0.9	0.8/1.0	0.82	C

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

Table 4-35 No-Action Subway Station Level of Service – Escalators

Peak Hour	Escalator	Tread Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity (ped/15-min)[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	ES626/ES627	40	-	208	1.00	2,340	0.09	A
	ES628/ES629	40	1,934	-	0.90	2,340	0.92	C
	ES625	40	262	-	0.80	1,170	0.28	A
	ES623/ES624	40	1,709	-	0.80	2,340	0.91	C
	ES621/ES622	40	-	217	1.00	2,340	0.09	A
PM	ES626/ES627	40	-	2,097	1.00	2,340	0.90	C
	ES628/ES629	40	234	-	0.90	2,340	0.11	A
	ES625	40	36	-	0.80	1,170	0.04	A
	ES623/ES624	40	201	-	0.80	2,340	0.11	A
	ES621/ES622	40	-	2,232	1.00	2,340	0.95	C

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

[1] All escalators are assumed to continue operating at a speed of 120 feet per minute

Table 4-36 No-Action Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control Area	Control Elements	Entry Volume (15-min)	Exit Volume (15-min)	Friction Factor (In/Out)	Surging Factor[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	R550 (Left)	4 turnstiles	10	288	1.0	0.9	0.13	A
	R550 (Right)	12 turnstiles	213	1,258	0.9	0.9	0.25	A
PM	R550 (Left)	4 turnstiles	84	38	0.9	0.9	0.07	A
	R550 (Right)	12 turnstiles	2,170	388	0.9	0.9	0.54	B
23rd Street Station								
AM	N074	2 HEET, 1 HXT	121	300	0.9	0.75	0.54	B
	N075	2 HEET, 2 HXT	151	290	0.9	0.75	0.53	B
PM	N074	2 HEET, 1 HXT	256	105	0.9	0.75	0.65	B
	N075	2 HEET, 2 HXT	314	102	0.9	0.75	0.75	C

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines
HEET = High entry/exit turnstile, HXT = high exit turnstile
[1] Surging factor only applies to exiting volumes. The surge factor for entry volumes is 1.0.

Subway Line-Haul

Under No-Action conditions, demands on the No. 7 local, No. 7 express, and C and E subways are expected to increase as a result of general background growth and demands associated with No-Action developments.

Table 4-37 summarizes projected No-Action line-haul conditions in the peak direction at the maximum load points for each subway route analyzed for the weekday AM and PM peak hours. As shown in **Table 4-37**, both No. 7 local and express trains would operate below capacity through their respective maximum load points during the weekday AM peak hour. During the weekday PM peak hour, all of the routes analyzed, with the exception of the C subway line, would operate below capacity through their maximum load points.

Table 4-37 No-Action Subway Line-Haul Capacity

Peak Hour	Route (Direction)	Maximum Load Point	Average Trains Per Hour	Average Cars Per Hour	Average Passengers		Guideline Passengers per Car[1]	v/c Ratio[2]
					Per Hour	Per Car		
AM	7 Local (WB)	40 St	14.6	161	14,775	92	110	0.84
	7 Express (WB)	Woodside – 61 St	12.0	132	14,092	107	110	0.97
PM	7 Local (EB)	Queensboro Plaza	12.0	133	11,113	83	110	0.76
	7 Express (EB)	Queensboro Plaza	11.9	131	12,534	96	110	0.87
	C (SB)	Jay St – MetroTech	6.7	54	6,610	123	115	1.07
	E (NB)	Lexington Av/53 St	14.6	147	20,049	137	145	0.94

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines
[1] Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
[2] Volume to guideline capacity ratio

Pedestrians

The 2024 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 additional pedestrian volumes from projects expected to be completed and operating by then – these include demand generated by No-Action developments and planned land use changes in the project area. No-Action peak hour volumes for each pedestrian element analyzed are presented in **Figure 4-22** through **Figure 4-25**.

Table 4-38 provides an overview of the pedestrian levels of service for the analyzed peak hours. This analysis was performed using the existing conditions analysis as a base and reflects the No-Action pedestrian volumes, No-Action conflicting vehicle volumes, and changes to sidewalk obstruction assumptions. At two sidewalk locations – the west sidewalks on Eleventh Avenue between West 27th Street and West 28th Street; and between West 29th Street and West 30th Street – it is assumed that the existing construction/scaffolding obstructions would no longer be in place under the future No-Action condition. The levels of service, as well as No-Action peak hour volumes, for each pedestrian element analyzed are presented in **Table 4-39** through **Table 4-41**.

The summary of No-Action conditions indicates that all pedestrian elements during the weekday AM and Saturday peak hours would operate at acceptable levels of service (LOS A, LOS B, LOS C, or acceptable LOS D). During the weekday midday and PM peak hours, all but the following elements would operate at acceptable level of service:

- During the weekday midday peak hour, the east crosswalk at the intersection of Eleventh Avenue and West 29th Street would operate at unacceptable LOS D; and the east crosswalk at Eleventh Avenue and West 30th Street would operate at LOS E.
- During the weekday PM peak hour, the west sidewalk of Hudson Boulevard between West 33rd Street and West 34th Street would operate at LOS E; and the north crosswalk at 8th Avenue and West 25th Street would operate at unacceptable LOS D.

Figure 4-22 No-Action Weekday AM Peak Hour Pedestrian Volumes

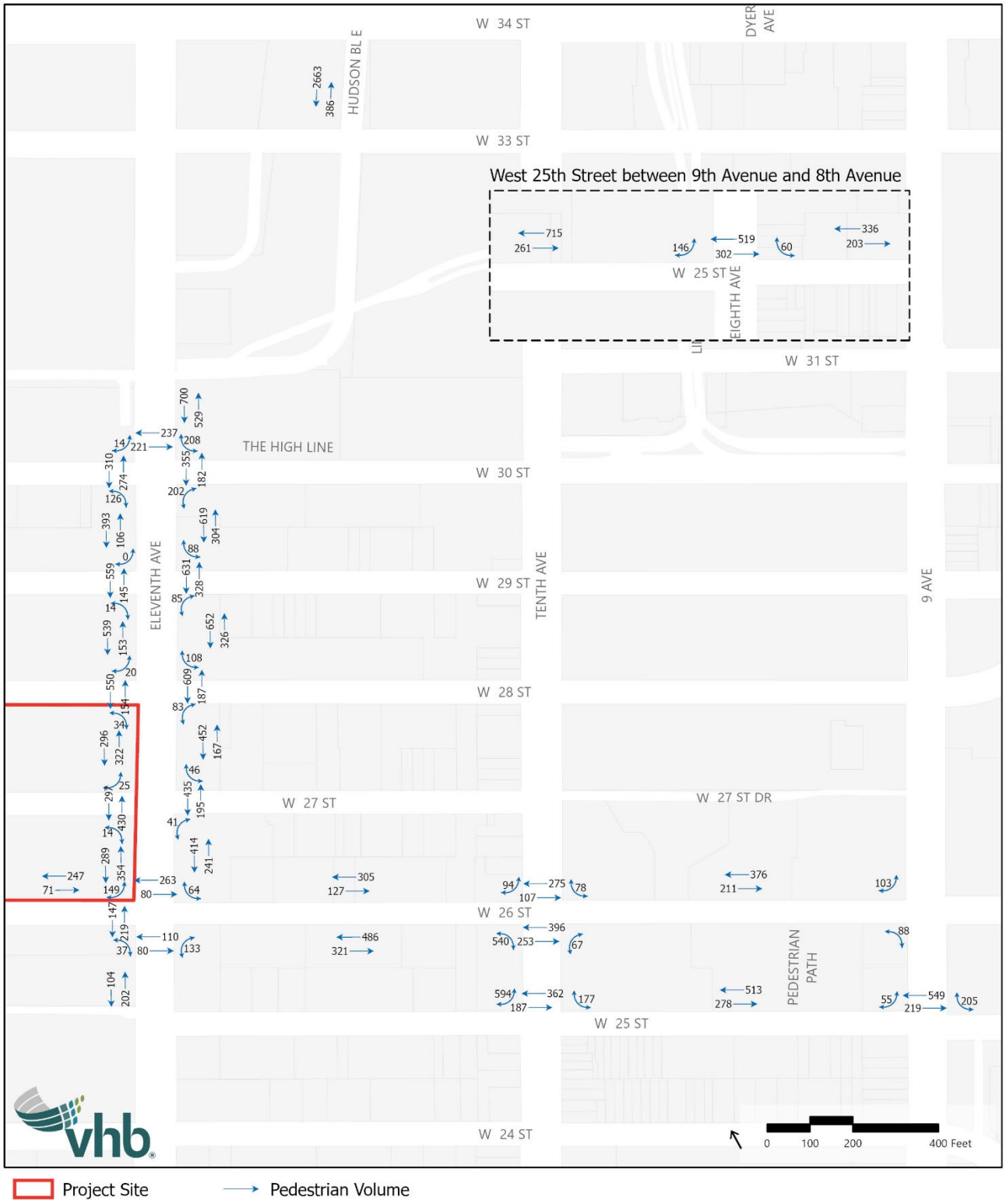


Figure 4-23 No-Action Weekday Midday Peak Hour Pedestrian Volumes

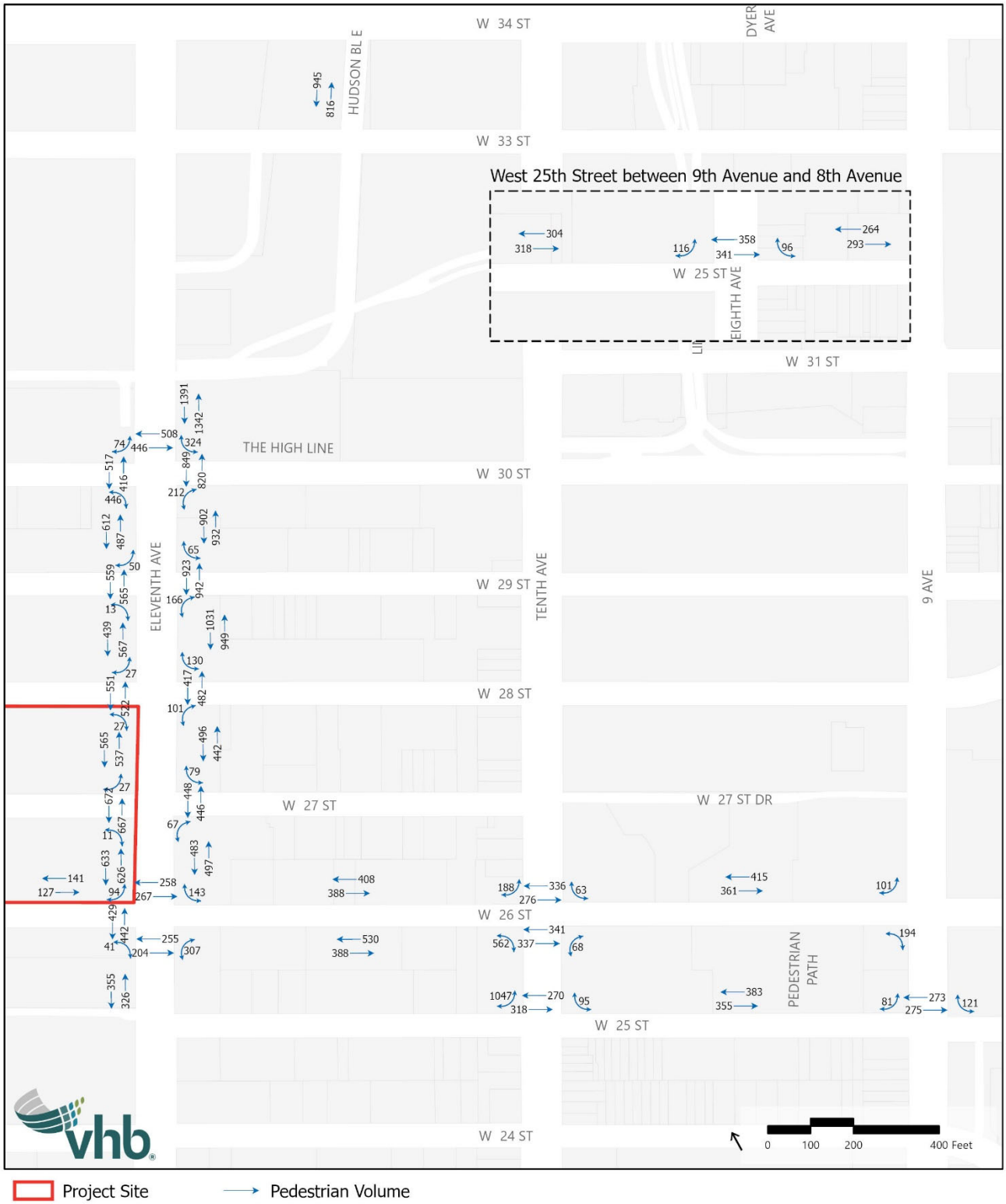


Figure 4-24 No-Action Weekday PM Peak Hour Pedestrian Volumes

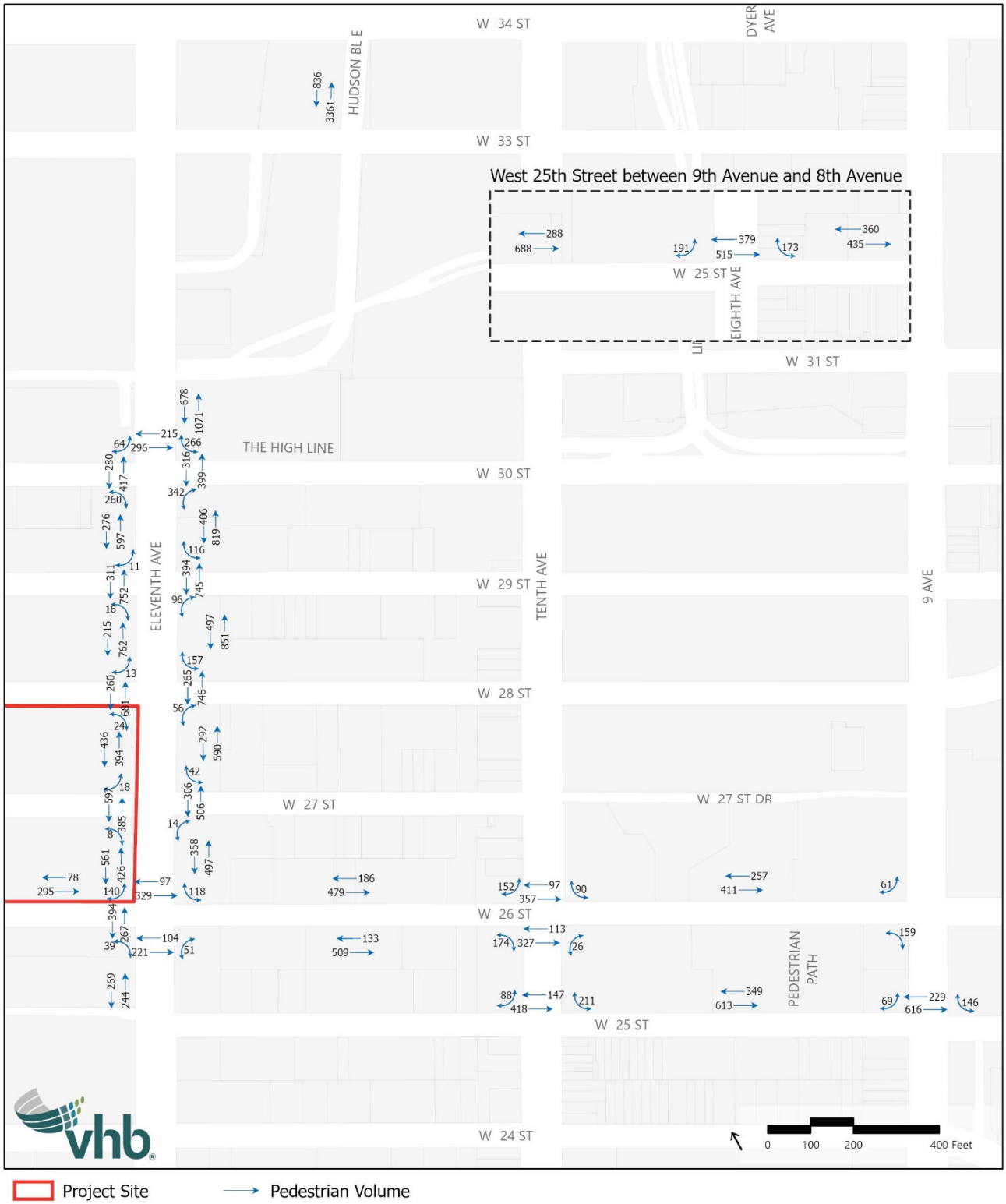


Figure 4-25 No-Action Saturday Midday Peak Hour Pedestrian Volumes

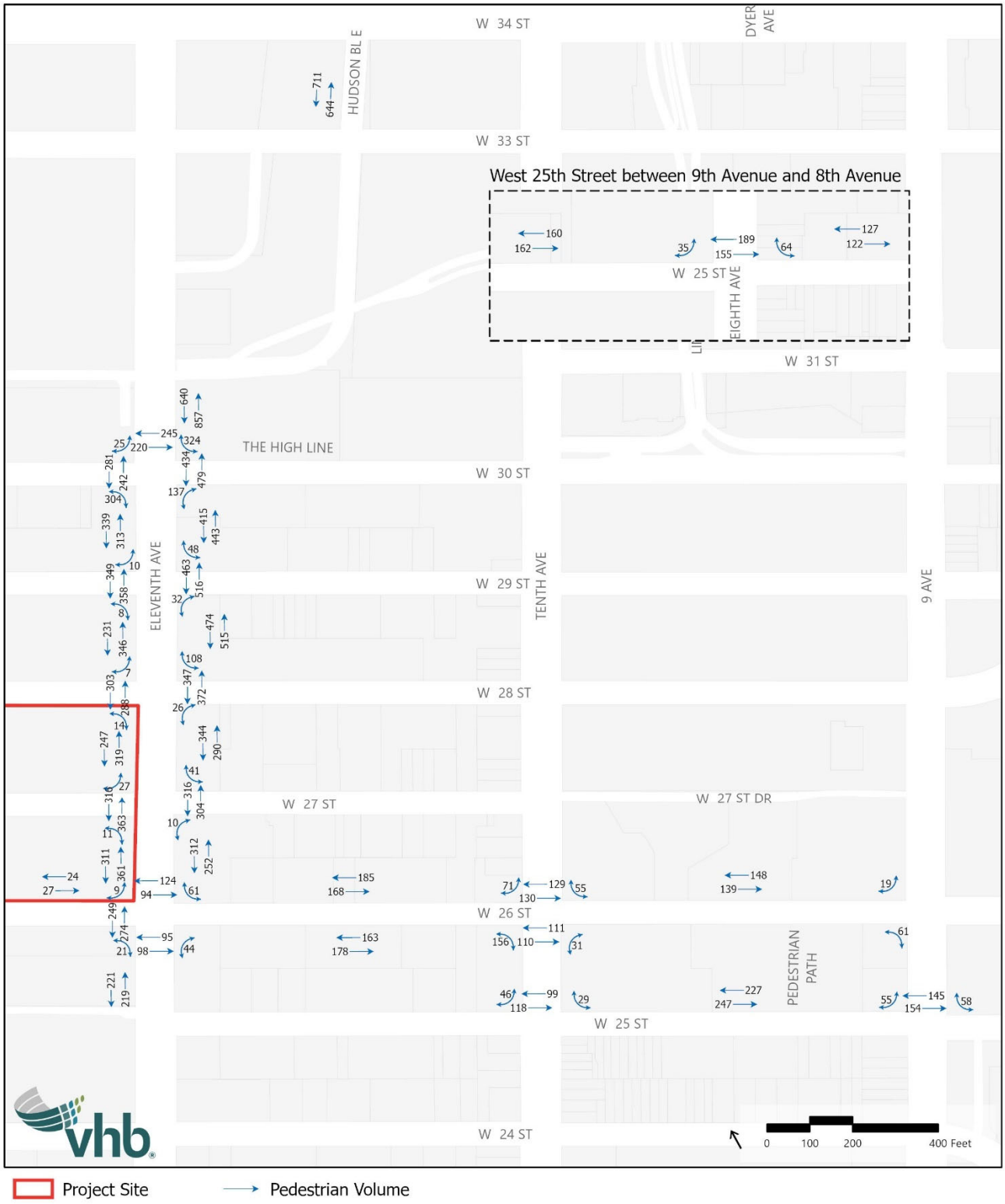


Table 4-38 No-Action Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Sidewalk Elements				
LOS A/B/C and Acceptable LOS D	18	18	17	18
Unacceptable LOS D	0	0	0	0
LOS E	0	0	1	0
LOS F	0	0	0	0
Crosswalk Elements				
LOS A/B/C and Acceptable LOS D	17	15	16	17
Unacceptable LOS D	0	1	1	0
LOS E	0	1	0	0
LOS F	0	0	0	0
Corner Elements				
LOS A/B/C and Acceptable LOS D	32	32	32	32
Unacceptable LOS D	0	0	0	0
LOS E	0	0	0	0
LOS F	0	0	0	0

Note: Includes 18 sidewalk, 17 crosswalk, and 32 corner analysis locations

Table 4-39 No-Action Pedestrian Levels of Service – Sidewalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
West 25th Street between 7th Avenue and 8th Avenue (north side)	6.0	539	102.6	B	557	92.8	B	795	68.1	C	249	208.4	B
West 25th Street between 8th Avenue and 9th Avenue (north side)	4.0	976	39.2	D	622	62.6	C	976	36.9	D	322	109.5	B
West 25th Street between 9th Avenue and 10th Avenue (north side)	5.0	791	56.4	C	738	63.6	C	962	52.3	C	474	105.7	B
West 26th Street between 9th Avenue and 10th Avenue (north side)	10.0	587	147.0	B	776	111.1	B	668	129.2	B	287	321.6	B
West 26th Street between 10th Avenue and 11th Avenue (north side)	5.0	432	99.6	B	796	53.8	C	665	65.4	C	353	122.3	B
West 26th Street between 10th Avenue and 11th Avenue (south side)	4.0	807	42.7	C	918	37.0	D	642	56.7	C	341	101.0	B
West 26th Street between 11th Avenue and 12th Avenue (north side)	8.0	318	247.7	B	268	259.0	B	373	185.4	B	51	1,345.0	A
11th Avenue between West 25th Street and West 26th Street (west side)	8.0	306	228.9	B	681	101.3	B	513	143.0	B	439	157.1	B
11th Avenue between West 26th Street and West 27th Street (east side)	9.0	655	118.5	B	980	79.0	C	855	90.6	B	564	137.8	B

Table 4-39 No-Action Pedestrian Levels of Service – Sidewalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue between West 26th Street and West 27th Street (west side)	9.5	643	139.5	B	1,259	64.8	C	987	82.9	C	671	141.8	B
11th Avenue between West 27th Street and West 28th Street (east side)	7.5	619	106.2	B	939	74.2	C	882	75.0	C	634	102.0	B
11th Avenue between West 27th Street and West 28th Street (west side)	8.5	618	125.5	B	1,102	66.3	C	829	88.3	C	566	144.4	B
11th Avenue between West 28th Street and West 29th Street (east side)	7.0	978	73.3	C	1,980	32.6	D	1,348	52.8	C	989	65.2	C
11th Avenue between West 28th Street and West 29th Street (west side)	6.5	693	83.3	C	1,006	55.4	C	977	57.1	C	577	97.0	B
11th Avenue between West 29th Street and West 30th Street (east side)	7.5	924	79.2	C	1,835	37.6	D	1,225	57.8	C	859	79.8	C
11th Avenue between West 29th Street and West 30th Street (west side)	7.5	499	129.5	B	1,100	58.5	C	874	73.8	C	653	99.0	B
11th Avenue between West 30th Street and Hudson Boulevard (east side)	11.0	1,229	80.8	C	2,733	34.5	D	1,749	57.3	C	1,498	71.0	C
Hudson Boulevard between West 33rd Street and West 34th Street (west side)	10.0	3,049	31.9	D	1,761	48.6	C	4,197	20.72	E	1,354	75.2	C

Table 4-40 No-Action Pedestrian Levels of Service – Crosswalks

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Crosswalk	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*North*	344	57.2	B	525	38.7	C	426	46.9	B	219	95.8	A
	South	189	94.0	A	459	41.8	B	325	54.7	B	194	105.2	A
	West	366	114.1	A	870	41.3	B	661	55.2	B	522	67.4	A
11th Avenue and West 27th Street	*East*	630	64.5	A	894	39.4	C	812	45.2	B	620	58.3	B
	West	727	51.5	B	1,339	26.4	C	982	37.7	C	680	58.1	B
11th Avenue and West 28th Street	*East*	797	55.2	B	899	39.3	C	1,011	36.2	C	719	50.9	B
	West	704	57.7	B	1,072	34.7	C	941	41.6	B	592	66.1	A
11th Avenue and West 29th Street	*East*	958	38.9	C	1,864	16.1	D	1,139	29.3	C	979	33.0	C
	West	704	56.0	B	1,125	30.1	C	1,063	34.9	C	708	49.4	B
11th Avenue and West 30th Street	*North*	457	56.4	B	955	27.7	C	510	50.6	B	465	62.5	A
	East	537	51.0	B	1,669	13.3	E	715	38.1	C	913	25.9	C
	West	585	43.7	B	932	24.4	C	697	35.9	C	524	47.6	B
10th Avenue and West 25th Street	*North*	549	25.8	C	587	22.5	D	565	23.8	D	218	67.6	A
10th Avenue and West 26th Street	*North*	382	43.6	B	612	26.4	C	455	41.4	B	258	65.8	A
	South	649	26.5	C	679	25.2	C	440	39.9	C	220	85.9	A
9th Avenue and West 25th Street	*North*	767	34.2	C	548	56.0	B	845	33.2	C	299	99.2	A
8th Avenue and West 25th Street	*North*	821	21.2	D	698	26.0	C	894	19.0	D	345	59.7	B

Table 4-41 No-Action Pedestrian Levels of Service – Corners

		Weekday AM Peak Hour			Weekday Midday Peak Hour			Weekday PM Peak Hour			Saturday Peak Hour		
Intersection	Corner	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*Northeast*	64	77.6	A	143	51.7	B	118	70.6	A	61	118.7	A
	Southeast	133	106.1	A	307	57.6	B	51	90.8	A	44	148.2	A
	Southwest	37	181.9	A	41	70.7	A	39	93.4	A	21	135.7	A
	Northwest	149	126.7	A	94	63.2	A	140	75.7	A	9	133.1	A
11th Avenue and West 27th Street	*Northeast*	46	83.9	A	79	54.9	B	42	73.0	A	41	94.3	A
	Southeast	41	111.9	A	67	78.2	A	14	90.3	A	10	132.9	A
	Southwest	14	101.0	A	11	60.9	A	8	79.8	A	11	134.3	A
	Northwest	25	95.0	A	27	50.5	B	18	70.0	A	27	112.7	A
11th Avenue and West 28th Street	*Northeast*	108	99.7	A	130	71.0	A	157	72.7	A	108	95.0	A
	Southeast	83	92.5	A	101	68.0	A	56	63.4	A	26	102.8	A
	Southwest	34	100.5	A	27	62.7	A	24	64.6	A	14	117.9	A
	Northwest	20	80.7	A	27	50.4	B	13	66.8	A	7	91.6	A
11th Avenue and West 29th Street	*Northeast*	88	68.9	A	65	38.8	C	116	59.9	B	48	72.3	A
	Southeast	85	94.7	A	166	40.3	B	96	68.3	A	32	88.0	A
	Southwest	14	176.4	A	13	96.6	A	16	109.0	A	8	165.5	A
	Northwest	0	101.3	A	50	70.1	A	11	78.4	A	10	105.2	A
11th Avenue and West 30th Street	*Northeast*	208	135.0	A	324	48.1	B	266	108.2	A	324	94.7	A
	Southeast	202	94.2	A	212	39.6	C	342	67.7	A	137	92.8	A
	Southwest	126	42.9	B	446	22.2	D	260	31.6	C	304	56.1	B
	Northwest	14	148.1	A	74	74.6	A	64	122.4	A	25	161.2	A
10th Avenue and West 25th Street	*Northeast*	177	59.8	B	95	49.6	B	211	54.0	B	29	118.1	A
	Northwest	594	42.5	B	1047	23.4	D	88	47.0	B	46	73.1	A
10th Avenue and West 26th Street	*Northeast*	78	101.4	A	63	70.6	A	90	96.2	A	55	144.9	A
	Southeast	67	69.6	A	68	66.4	A	26	100.1	A	31	164.1	A
	Southwest	540	33.9	C	562	28.9	C	174	53.1	B	156	82.2	A
	Northwest	94	62.6	A	188	37.0	C	152	54.9	B	71	78.2	A
9th Avenue and West 25th Street	*Northeast*	205	84.4	A	121	103.4	A	146	83.0	A	58	156.0	A
	Northwest	55	83.8	A	81	89.2	A	69	63.9	A	55	136.5	A
9th Avenue and West 26th Street	*Southwest*	88	104.1	A	194	89.4	A	159	79.3	A	61	166.7	A
	Northwest	103	99.6	A	101	92.4	A	61	85.1	A	19	161.9	A
8th Avenue and West 25th Street	*Northeast*	60	63.8	A	96	61.3	A	173	45.6	B	64	113.5	A
	Northwest	146	95.1	A	116	86.0	A	191	67.7	A	35	174.1	A

Note: Volumes shown are "rounding the corner" volumes.

With-Action Conditions

The Proposed Actions would allow for a more diverse mix of tenants within the two existing buildings. The Starrett-Lehigh Building contains 1.8 million gross square feet (gsf) of space. Terminal Warehouse contains 1.14 million gsf of space. The Proposed Actions will not result in changes to the gross square footage at either building.

As described above, at Terminal Warehouse, as part of the as-of-right building repositioning, a new centralized loading dock with five loading berths will be constructed on West 28th Street, allowing vehicles to fully pull into the building. At the Starrett-Lehigh Building, the Applicant is currently modifying the loading dock configuration to improve loading at the site. In addition to these physical improvements at the Starrett-Lehigh Building, RXR SL Owner LLC will explore strategies between the Draft EIS and Final EIS that will further improve loading operations management as part of a comprehensive freight and logistics management plan. These strategies could include but are not limited to the following:

- Shifting a portion of building deliveries to the off-peak hours (7 PM – 6 AM) to distribute peak delivery demand.
- Consolidating deliveries to tenants through vendor procurement.
- Establishing centralized receiving/storage areas (lockers) to reduce dwell time.
- Promoting or incentivizing the use of cargo bike deliveries for parcel carriers that deliver to the buildings.
- Investing in delivery scheduling system to manage flow of deliveries.
- Reducing the number of loading bays along West 26th Street.
- Investigating the feasibility of implementing a midblock crosswalk east of the loading bays on West 26th Street to facilitate a safe pedestrian route from the north curb to the south curb, around the truck bays.

RXR SL Owner LLC has committed to work with NYCDOT to identify the appropriate strategies for its building for inclusion in the freight and logistics management plan with a goal of minimizing conflicts with pedestrians and cyclists while balancing their feasibility, including, but not limited to, the demand for deliveries, the uses in and the limitations of the building and existing lease obligations. This plan will be developed in consultation with NYCDOT and may include pedestrian circulation improvements to be approved or implemented by NYCDOT. RXR SL Owner LLC will be responsible for all costs associated with the study and design of the freight and logistics management plan and for the implementation of appropriate strategies. The foregoing will be formalized in a letter to be signed by RXR SL Owner LLC.

Traffic

Traffic Volumes

Overall, the Proposed Actions would generate 211 vph in the weekday PM peak hour and 331 vph in the Saturday peak hour. These trips were distributed through the traffic study area as described in the Level 2 screening assessment. The total With-Action traffic volumes for the weekday PM and Saturday peak hours are shown in **Figure 4-26** and **Figure 4-27**, respectively.

Figure 4-26 With-Action Weekday PM Peak Hour Traffic Volumes

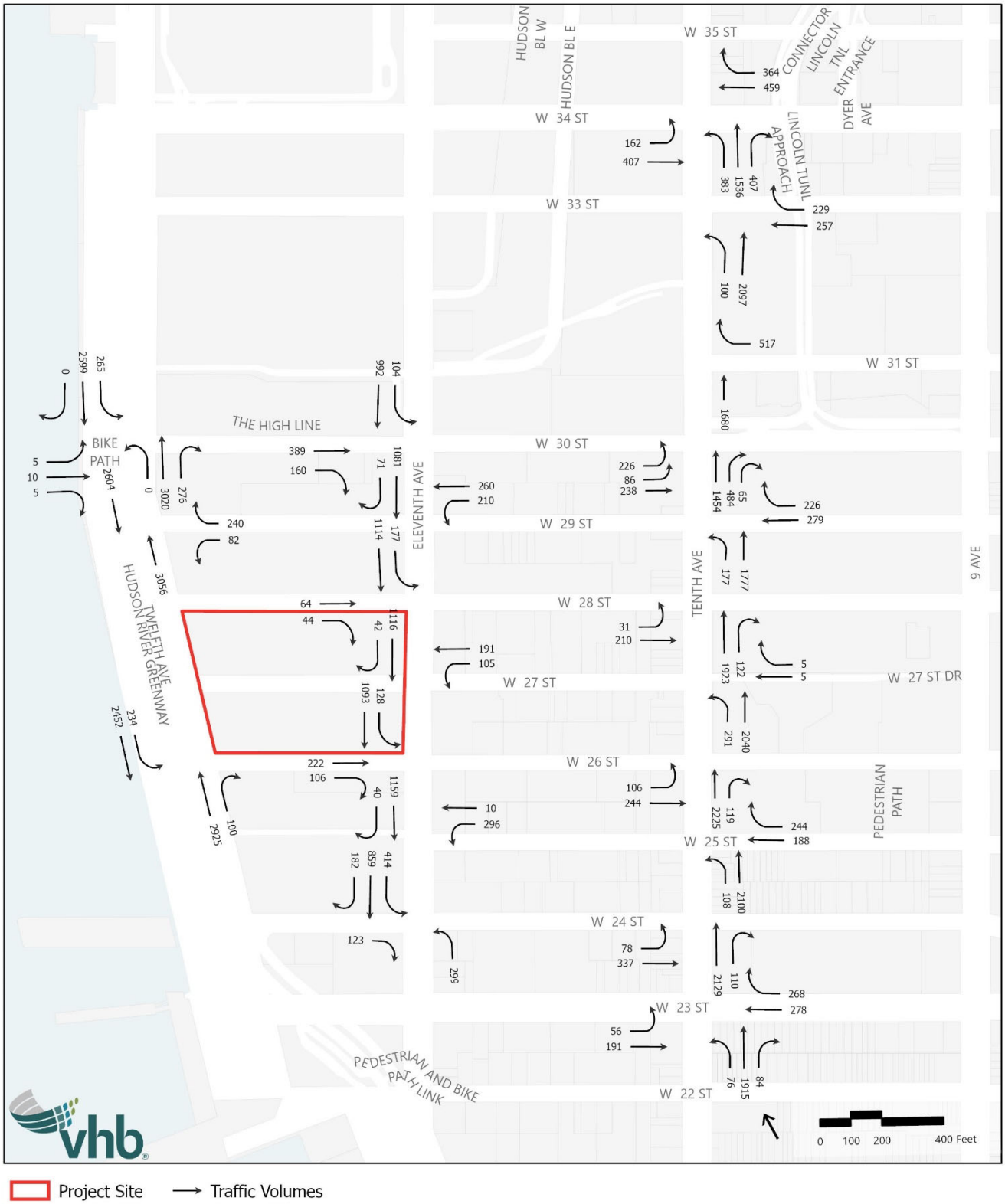
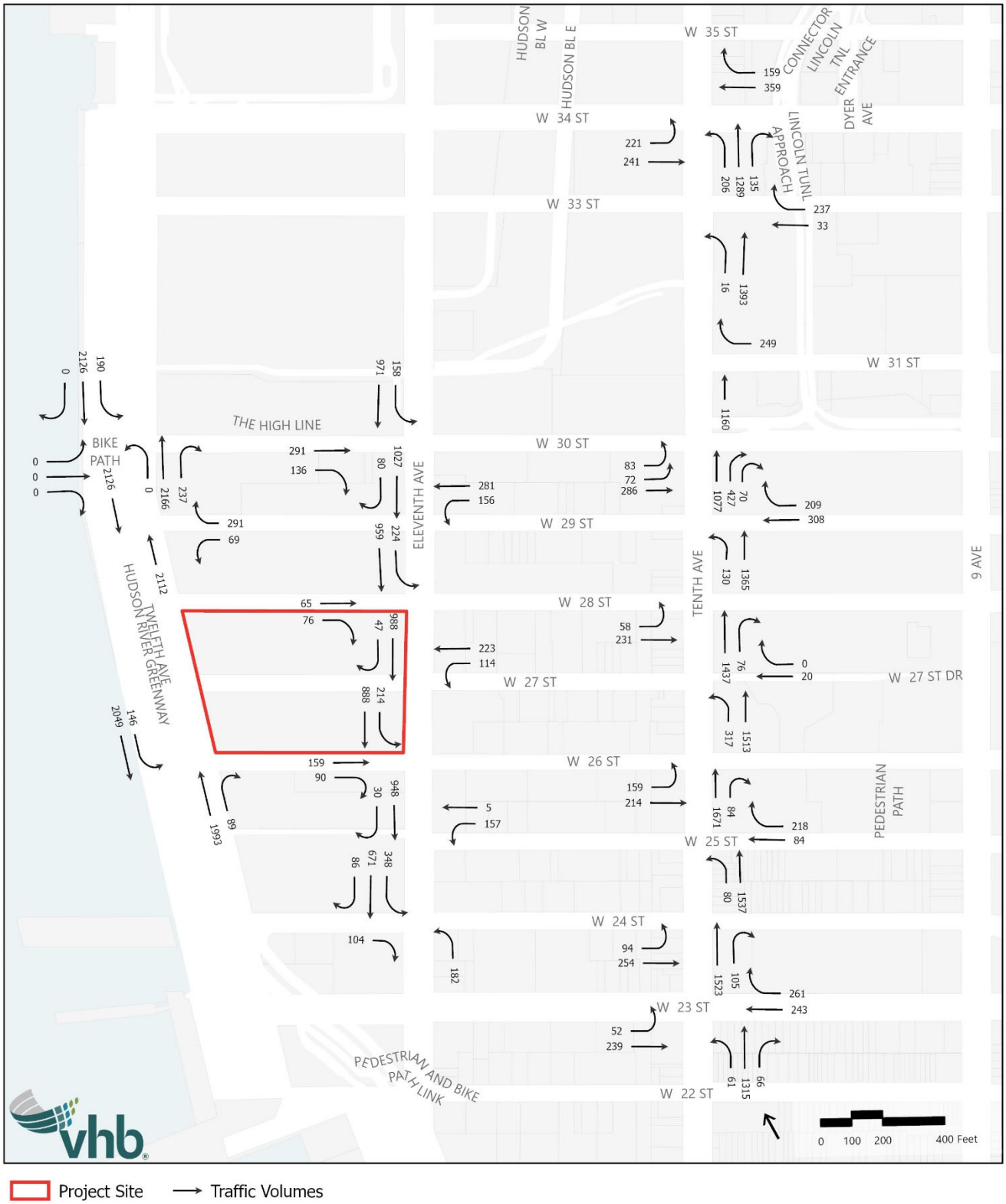


Figure 4-27 With-Action Saturday Midday Peak Hour Traffic Volumes



Levels of Service

Based on the traffic volumes illustrated above, the 2024 With-Action traffic levels of service were determined for the 21 analysis locations. **Table 4-42** and **Table 4-43** provide an overview of the levels of service that are expected to characterize 2024 With-Action "overall" intersection conditions and individual traffic movements, respectively, during the weekday PM and Saturday peak hours. Detailed traffic level of service comparisons between the No-Action and With-Action conditions during the weekday PM and Saturday peak hours are provided in **Table 4-44** and **Table 4-45**, respectively.

Table 4-42 With-Action Traffic Level of Service Summary – Overall Intersections

	No-Action		With-Action	
Level of Service	Weekday PM Peak Hour	Saturday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Overall LOS A/B/C	13	19	14	19
Overall LOS D	5	2	4	2
Overall LOS E	1	0	1	0
Overall LOS F	2	0	2	0
Number of Significantly Impacted Intersections	-	-	9	7

Table 4-43 With-Action Traffic Level of Service Summary – Traffic Movements

	No-Action		With-Action	
Level of Service	PM	SAT	PM	SAT
Traffic Movements at LOS A/B/C and Acceptable LOS D	35	45	32	44
Traffic Movements at Unacceptable LOS D	5	8	6	3
Traffic Movements at LOS E	6	3	7	8
Traffic Movements at LOS F	13	3	14	4
Number of Individual Traffic Movements	59	59	59	59
Number of Significantly Impacted Movements	-	-	11	9

PM = Weekday PM Peak Hour; SAT = Saturday Midday Peak Hour

Table 4-44 With-Action Traffic Level of Service Summary – Weekday PM Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
12th Avenue and West 30th Street									
30th Street	**EB**	LTR	0.14	64.5	E	LTR	0.14	64.5	E
12th Avenue	**NB**	LTR	0.93	16.6	B	LTR	0.94	17.2	B
	SB	L	1.06	129.4	F	L	1.06	130.3	F
		TR	1.05	59.9	E	TR	1.06	62.2	E
Overall Intersection		-	-	**39.8**	**D**	-	-	**41.1**	**D**
12th Avenue and West 29th Street									
West 29th Street	**WB**	L	0.30	56.1	E	L	0.30	56.1	E
		R	1.45	270.2	F	R	1.46	273.1	F
12th Avenue	**NB**	T	0.75	6.2	A	T	0.75	6.4	A
	SB	T	0.78	5.4	A	T	0.79	5.7	A
Overall Intersection		-	-	**19.2**	**B**	-	-	**19.4**	**B**
12th Avenue and West 26th Street									
12th Avenue	**NB**	TR	0.73	12.4	B	TR	0.74	12.6	B
	SB	L	0.80	57.0	E	L	0.86	62.3	E
		T	0.69	10.7	B	T	0.69	10.8	B
Overall Intersection		-	-	**13.5**	**B**	-	-	**14.0**	**B**
11th Avenue and West 30th Street									
West 30th Street	**EB**	T	1.07	94.7	F	T	1.14	115.6	F
		R	0.71	40.0	D	R	0.71	40.0	D
11th Avenue	**SB**	LT	0.57	21.1	C	LT	0.60	21.6	C
Overall Intersection		-	-	**40.4**	**D**	-	-	**46.1**	**D**
11th Avenue and West 29th Street									
West 29th Street	**WB**	L	0.55	20.4	C	L	0.61	21.2	C
		T	0.54	18.6	B	T	0.54	17.8	B
11th Avenue	**SB**	TR	0.63	7.7	A	TR	0.64	7.7	A
Overall Intersection		-	-	**11.1**	**B**	-	-	**11.2**	**B**
11th Avenue and West 28th Street									
West 28th Street	**EB**	TR	0.27	25.5	C	TR	0.32	26.4	C
11th Avenue	**SB**	LT	0.65	10.5	B	LT	0.67	11.5	B
Overall Intersection		-	-	**11.6**	**B**	-	-	**12.7**	**B**

Table 4-44 With-Action Traffic Level of Service Summary – Weekday PM Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
11th Avenue and West 27th Street									
West 27th Street	**WB**	LT	0.61	28.9	C	LT	0.71	31.1	C
11th Avenue	**SB**	TR	0.50	1.6	A	TR	0.52	1.8	A
Overall Intersection		-	-	**6.8**	**A**	-	-	**7.8**	**A**
11th Avenue and West 26th Street									
West 26th Street	**EB**	T	0.62	33.6	C	T	0.62	33.6	C
		R	0.44	31.8	C	R	0.57	38.0	D
11th Avenue	**SB**	LT	0.53	2.9	A	LT	0.58	3.5	A
Overall Intersection		-	-	**11.9**	**B**	-	-	**12.8**	**B**
11th Avenue and West 25th Street									
West 25th Street	**WB**	LT	0.85	47.4	D	LT	0.86	46.5	D
11th Avenue	**SB**	TR	0.51	4.2	A	TR	0.53	4.5	A
Overall Intersection		-	-	**13.6**	**B**	-	-	**13.4**	**B**
11th Avenue and West 24th Street									
West 24th Street	**EB**	R	0.28	27.9	C	R	0.28	27.9	C
11th Avenue	**NB**	L	0.45	29.8	C	L	0.46	30.0	C
	SB	L	0.48	6.1	A	L	0.49	6.3	A
		TR	1.48	245.1	F	TR	1.53	265.2	F
Overall Intersection		-	-	**141.7**	**F**	-	-	**152.6**	**F**
10th Avenue and West 34th Street									
West 34th Street	**EB**	L	3.00	500.0+	F	L	3.00	500.0+	F
		T	1.03	81.3	F	T	1.03	81.3	F
	WB	T	1.44	242.2	F	T	1.51	271.3	F
		R	2.49	500.0+	F	R	2.49	500.0+	F
10th Avenue	**NB**	LTR	1.13	72.7	E	LTR	1.13	72.3	E
Overall Intersection		-	-	**228.7**	**F**	-	-	**242.1**	**F**
10th Avenue and West 33rd Street									
West 33rd Street	**WB**	TR	0.99	51.5	D	TR	0.98	52.7	D
10th Avenue	**NB**	LT	0.81	34.7	C	LT	0.81	33.5	C
Overall Intersection		-	-	**38.0**	**D**	-	-	**37.3**	**D**

Table 4-44 With-Action Traffic Level of Service Summary – Weekday PM Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
10th Avenue and West 31st Street									
West 31st Street	**WB**	R	1.24	156.8	F	R	1.24	156.8	F
10th Avenue	**NB**	T	0.64	5.0	A	T	0.65	4.7	A
Overall Intersection		-	-	**41.8**	**D**	-	-	**41.4**	**D**
10th Avenue and West 30th Street									
West 30th Street	**EB**	L	1.51	272.9	F	L	1.39	217.4	F
		T	1.27	178.6	F	T	1.33	189.9	F
10th Avenue	**NB**	TR	1.12	6.8	A	TR	1.14	7.1	A
Overall Intersection		-	-	**56.6**	**E**	-	-	**49.3**	**D**
10th Avenue and West 29th Street									
West 29th Street	**WB**	T	0.72	39.8	D	T	0.79	45.2	D
		R	0.82	51.9	D	R	0.82	51.9	D
10th Avenue	**NB**	LT	0.70	1.5	A	LT	0.72	1.6	A
Overall Intersection		-	-	**10.6**	**B**	-	-	**11.4**	**B**
10th Avenue and West 28th Street									
West 28th Street	**EB**	LT	0.60	22.9	C	LT	0.60	23.9	C
10th Avenue	**NB**	TR	0.75	1.6	A	TR	0.77	1.7	A
Overall Intersection		-	-	**4.1**	**A**	-	-	**4.3**	**A**
10th Avenue and West 27th Street									
West 27th Street	**WB**	TR	0.03	21.6	C	TR	0.03	21.7	C
10th Avenue	**NB**	LT	0.84	5.4	A	LT	0.88	6.9	A
Overall Intersection		-	-	**5.5**	**A**	-	-	**7.0**	**A**
10th Avenue and West 26th Street									
West 26th Street	**EB**	LT	0.89	43.8	D	LT	1.12	106.2	F
10th Avenue	**NB**	TR	0.89	9.6	A	TR	0.90	10.2	B
Overall Intersection		-	-	**13.6**	**B**	-	-	**22.9**	**C**
10th Avenue and West 25th Street									
West 25th Street	**WB**	TR	1.05	90.4	F	TR	1.10	107.1	F
10th Avenue	**NB**	LT	0.77	3.5	A	LT	0.79	3.6	A
Overall Intersection		-	-	**17.2**	**B**	-	-	**19.9**	**B**

Table 4-44 With-Action Traffic Level of Service Summary – Weekday PM Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
10th Avenue and West 24th Street									
West 24th Street	**EB**	LT	0.79	49.9	D	LT	0.81	51.2	D
10th Avenue	**NB**	TR	0.81	15.9	B	TR	0.82	19.7	B
Overall Intersection		-	-	**21.1**	**C**	-	-	**24.6**	**C**
10th Avenue and West 23rd Street									
West 23rd Street	**EB**	LT	0.74	44.6	D	LT	0.76	46.4	D
	WB	T	1.04	98.7	F	T	1.04	100.6	F
		R	0.89	63.7	E	R	0.92	69.5	E
10th Avenue	**NB**	LTR	0.93	47.6	D	LTR	0.94	54.3	D
Overall Intersection		-	-	**53.6**	**D**	-	-	**59.3**	**E**

[1] Control delay is measured in seconds per vehicle,
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
Shading denotes a significantly impacted movement

Table 4-45 With-Action Traffic Level of Service Summary – Saturday Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
12th Avenue and West 30th Street									
30th Street	**EB**	LTR	0.00	0.0	A	LTR	0.00	0.0	A
12th Avenue	**NB**	LTR	0.73	8.6	A	LTR	0.75	9.3	A
	SB	L	0.69	47.7	D	L	0.72	50.3	D
		TR	0.75	19.5	B	TR	0.75	19.5	B
Overall Intersection		-	-	**15.2**	**B**	-	-	**15.7**	**B**
12th Avenue and West 29th Street									
West 29th Street	**WB**	L	0.24	43.3	D	L	0.24	43.3	D
		R	1.20	161.6	F	R	1.28	189.5	F
12th Avenue	**NB**	T	0.56	8.0	A	T	0.57	8.0	A
	SB	T	0.68	3.8	A	T	0.69	3.8	A
Overall Intersection		-	-	**17.3**	**B**	-	-	**19.9**	**B**

Table 4-45 With-Action Traffic Level of Service Summary – Saturday Peak Hour

		No-Action				With-Action			
Intersection & Approach		Lane Group	V/C	Delay[1]	LOS	Lane Group	V/C	Delay[1]	LOS
12th Avenue and West 26th Street									
12th Avenue	NB	TR	0.54	10.5	B	TR	0.55	10.7	B
	SB	L	0.41	44.6	D	L	0.43	45.1	D
		T	0.63	3.8	A	T	0.63	3.8	A
Overall Intersection		-	-	**8.5**	**A**	-	-	**8.7**	**A**
11th Avenue and West 30th Street									
West 30th Street	EB	T	0.48	24.8	C	T	0.59	27.4	C
		R	0.45	26.1	C	R	0.48	27.2	C
11th Avenue	SB	LT	0.62	23.2	C	LT	0.66	24.1	C
Overall Intersection		-	-	**23.8**	**C**	-	-	**25.0**	**C**
11th Avenue and West 29th Street									
West 29th Street	WB	L	0.32	11.4	B	L	0.39	11.6	B
		T	0.48	12.3	B	T	0.51	12.2	B
11th Avenue	SB	TR	0.57	6.0	A	TR	0.59	5.9	A
Overall Intersection		-	-	**7.7**	**A**	-	-	**7.7**	**A**
11th Avenue and West 28th Street									
West 28th Street	EB	TR	0.39	28.5	C	TR	0.46	30.4	C
11th Avenue	SB	LT	0.55	7.2	A	LT	0.58	8.2	A
Overall Intersection		-	-	**9.6**	**B**	-	-	**10.8**	**B**
11th Avenue and West 27th Street									
West 27th Street	WB	LT	0.74	30.5	C	LT	0.85	36.8	D
11th Avenue	SB	TR	0.43	2.8	A	TR	0.45	3.0	A
Overall Intersection		-	-	**9.9**	**A**	-	-	**12.1**	**B**
11th Avenue and West 26th Street									
West 26th Street	EB	T	0.44	29.2	C	T	0.43	29.0	C
		R	0.40	30.7	C	R	0.52	36.7	D
11th Avenue	SB	LT	0.48	3.5	A	LT	0.53	4.4	A
Overall Intersection		-	-	**10.3**	**B**	-	-	**11.3**	**B**
11th Avenue and West 25th Street									
West 25th Street	WB	LT	0.41	30.2	C	LT	0.46	30.4	C
11th Avenue	SB	TR	0.38	3.2	A	TR	0.39	3.3	A
Overall Intersection		-	-	**7.2**	**A**	-	-	**7.4**	**A**

Table 4-45 With-Action Traffic Level of Service Summary – Saturday Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
11th Avenue and West 24th Street									
West 24th Street	**EB**	R	0.22	27.0	C	R	0.22	27.0	C
11th Avenue	**NB**	L	0.23	26.8	C	L	0.24	26.9	C
	SB	L	0.33	4.7	A	L	0.35	4.6	A
		TR	0.92	34.9	C	TR	0.97	41.8	D
Overall Intersection		-	-	**25.9**	**C**	-	-	**29.5**	**C**
10th Avenue and West 34th Street									
West 34th Street	**EB**	L	1.37	229.8	F	L	1.47	270.9	F
		T	0.66	35.0	C	T	0.66	35.0	C
	WB	T	0.83	47.8	D	T	0.88	53.7	D
		R	0.82	56.6	E	R	0.82	56.6	E
10th Avenue	**NB**	LTR	0.74	9.9	A	LTR	0.78	10.6	B
Overall Intersection		-	-	**38.5**	**D**	-	-	**42.3**	**D**
10th Avenue and West 33rd Street									
West 33rd Street	**WB**	TR	0.96	29.8	C	TR	0.95	30,0	C
10th Avenue	**NB**	LT	0.57	7.3	A	LT	0.59	7.5	A
Overall Intersection		-	-	**11.2**	**B**	-	-	**11.4**	**B**
10th Avenue and West 31st Street									
West 31st Street	**WB**	R	0.84	50.9	D	R	0.84	50.9	D
10th Avenue	**NB**	T	0.45	2.7	A	T	0.47	3.4	A
Overall Intersection		-	-	**12.1**	**B**	-	-	**12.3**	**B**
10th Avenue and West 30th Street									
West 30th Street	**EB**	L	0.71	63.8	E	L	0.94	90.9	F
		T	0.69	54.1	D	T	0.76	56.8	E
10th Avenue	**NB**	TR	1.00	7.1	A	TR	1.02	7.1	A
Overall Intersection		-	-	**17.5**	**B**	-	-	**21.5**	**C**
10th Avenue and West 29th Street									
West 29th Street	**WB**	T	0.83	47.9	D	T	0.92	59.9	E
		R	0.71	41.3	D	R	0.71	41.3	D
10th Avenue	**NB**	LT	0.60	1.9	A	LT	0.62	2.0	A
Overall Intersection		-	-	**14.0**	**B**	-	-	**16.4**	**B**

Table 4-45 With-Action Traffic Level of Service Summary – Saturday Peak Hour

		No-Action				With-Action			
Intersection & Approach		**Lane Group**	**V/C**	**Delay[1]**	**LOS**	**Lane Group**	**V/C**	**Delay[1]**	**LOS**
10th Avenue and West 28th Street									
West 28th Street	**EB**	LT	0.69	19.4	B	LT	0.70	20.6	C
10th Avenue	**NB**	TR	0.59	1.0	A	TR	0.61	1.1	A
Overall Intersection		-	-	**4.2**	**A**	-	-	**4.5**	**A**
10th Avenue and West 27th Street									
West 27th Street	**WB**	TR	0.05	21.9	C	TR	0.05	21.9	C
10th Avenue	**NB**	LT	0.80	4.3	A	LT	0.85	5.7	A
Overall Intersection		-	-	**4.5**	**A**	-	-	**5.9**	**A**
10th Avenue and West 26th Street									
West 26th Street	**EB**	LT	0.87	53.5	D	LT	1.06	95.9	F
10th Avenue	**NB**	TR	0.70	6.7	A	TR	0.72	6.7	A
Overall Intersection		-	-	**14.8**	**B**	-	-	**23.3**	**C**
10th Avenue and West 25th Street									
West 25th Street	**WB**	TR	0.87	53.6	D	TR	0.99	78.8	E
10th Avenue	**NB**	LT	0.65	3.2	A	LT	0.67	3.4	A
Overall Intersection		-	-	**11.9**	**B**	-	-	**16.4**	**B**
10th Avenue and West 24th Street									
West 24th Street	**EB**	LT	0.77	47.0	D	LT	0.82	51.5	D
10th Avenue	**NB**	TR	0.69	11.4	B	TR	0.71	12.0	B
Overall Intersection		-	-	**17.7**	**B**	-	-	**19.2**	**B**
10th Avenue and West 23rd Street									
West 23rd Street	**EB**	LT	0.75	42.4	D	LT	0.78	44.8	D
	WB	T	1.04	104.6	F	T	1.05	108.0	F
		R	0.87	61.8	E	R	0.92	69.3	E
10th Avenue	**NB**	LTR	0.74	25.9	C	LTR	0.76	26.7	C
Overall Intersection		-	-	**40.7**	**D**	-	-	**42.8**	**D**

[1] Control delay is measured in seconds per vehicle,
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
Shading denotes a significantly impacted movement

The summary overview of 2024 With-Action conditions indicates that:

- In the weekday PM peak hour, similar to the No-Action condition, under With-Action conditions, three intersections would operate at overall LOS E or F. As for individual traffic movements analyzed, 27 movements would operate at unacceptable LOS D, LOS E, or LOS F compared to 24 movements under the No-Action condition.
- In the Saturday peak hour, as was the case under the No-Action condition, no intersection would operate at overall LOS E or F under the With-Action condition. Fifteen

individual traffic movements would operate at unacceptable LOS D, LOS E, or LOS F compared to 14 under the No-Action condition.

Overall, in the weekday PM peak hour, under With-Action conditions, the following intersections would operate at LOS E or F:

- Eleventh Avenue and West 24th Street
- Tenth Avenue and West 34th Street
- Tenth Avenue and West 23rd Street

Based on the analysis results, the majority of traffic movements would continue to operate at acceptable levels of service in the With-Action condition. The following intersections would have at least one movement operate at unacceptable levels of service (mid-LOS D or worse) during at least one analysis peak hour:

- Twelfth Avenue and West 30th Street
  - Eastbound West 30th Street approach (weekday PM)
  - Southbound Twelfth Avenue left turn movement (weekday PM and Saturday)
  - Southbound Twelfth Avenue through-right movement (weekday PM)
- Twelfth Avenue and West 29th Street
  - Westbound West 29th Street left turn movement (weekday PM)
  - Westbound West 29th Street right turn movement (weekday PM and Saturday)
- Twelfth Avenue and West 26th Street
  - Southbound Twelfth Avenue left turn movement (weekday PM and Saturday)
- Eleventh Avenue and West 30th Street
  - Eastbound West 30th Street through movement (weekday PM)
- Eleventh Avenue and West 25th Street
  - Westbound West 25th Street approach (weekday PM)
- Eleventh Avenue and West 24th Street
  - Southbound Eleventh Avenue through-right movement (weekday PM)
- Tenth Avenue and West 34th Street
  - Eastbound West 34th Street left turn movement (weekday PM and Saturday)
  - Eastbound West 34th Street through movement (weekday PM)
  - Westbound West 34th Street through movement (weekday PM and Saturday)
  - Westbound West 34th Street right turn movement (weekday PM and Saturday)
  - Northbound Tenth Avenue approach (weekday PM)
- Tenth Avenue and West 33rd Street
  - Westbound West 33rd Street approach (weekday PM)
- Tenth Avenue and West 31st Street
  - Westbound West 31st Street approach (weekday PM and Saturday)
- Tenth Avenue and West 30th Street
  - Eastbound West 30th Street left turn movement (weekday PM and Saturday)
  - Eastbound West 30th Street through movement (weekday PM and Saturday)

- Tenth Avenue and West 29th Street
  - Westbound West 29th Street through movement (weekday PM and Saturday)
  - Westbound West 29th Street right turn movement (weekday PM)
- Tenth Avenue and West 26th Street
  - Eastbound West 26th Street approach movement (weekday PM and Saturday)
- Tenth Avenue and West 25th Street
  - Westbound West 25th Street approach (weekday PM and Saturday)
- Tenth Avenue and West 24th Street
  - Eastbound West 25th Street approach movement (weekday PM and Saturday)
- Tenth Avenue and West 23rd Street
  - Eastbound West 23rd Street approach (weekday PM)
  - Westbound West 23rd Street through movement (weekday PM and Saturday)
  - Westbound West 23rd Street right turn movement (weekday PM and Saturday)
  - Northbound Tenth Avenue approach (weekday PM)

Overall, of the 21 intersections analyzed, the Proposed Actions would result in significant adverse traffic impacts at nine intersections (at 11 movements) during the weekday PM peak hour and seven intersections (at nine movements) during the Saturday peak hour. The significantly impacted traffic movements are identified below:

- Twelfth Avenue and West 29th Street
  - Westbound West 29th Street right turn movement (Saturday)
- Twelfth Avenue and West 26th Street
  - Southbound Twelfth Avenue left turn movement (weekday PM)
- Eleventh Avenue and West 30th Street
  - Eastbound West 30th Street through movement (weekday PM)
- Eleventh Avenue and West 24th Street
  - Southbound Eleventh Avenue through-right movement (weekday PM)
- Tenth Avenue and West 34th Street
  - Eastbound West 34th Street left turn movement (weekday PM and Saturday)
  - Westbound West 34th Street through movement (weekday PM and Saturday)
- Tenth Avenue and West 30th Street
  - Eastbound West 30th Street left turn movement (Saturday)
  - Eastbound West 30th Street through movement (weekday PM)
- Tenth Avenue and West 29th Street
  - Westbound West 29th Street through turn movement (weekday PM and Saturday)
- Tenth Avenue and West 26th Street
  - Eastbound West 26th Street approach (weekday PM and Saturday)
- Tenth Avenue and West 25th Street
  - Westbound West 25th Street approach (weekday PM and Saturday)
- Tenth Avenue and West 23rd Street

- Westbound West 23rd Street through movement (Saturday)
- Westbound West 23rd Street right turn movement (weekday PM and Saturday)
- Northbound Tenth Avenue approach (weekday PM)

The identification and evaluation of traffic capacity improvements needed to mitigate potential significant adverse traffic impacts created by the Proposed Actions are presented in **Chapter 9, Mitigation**.

Parking

Table 4-46 and **Table 4-47** present the weekday and Saturday off-street parking demand expected to be generated by the Proposed Actions under the With-Action condition, respectively. The project area's overall weekday parking demand would be expected to decrease as a result of the Proposed Actions except during the late afternoon/early evening period (from 5 PM to 11 PM), as a result of its changed mix of uses. Saturday parking demands would be higher with the Proposed Actions as a result of the destination retail space component and its trip generation from midday through late afternoon. As a result of the hourly vehicle trip "ins" and "outs" projected in **Table 4-46** and **Table 4-47** the peak weekday parking demand was determined to be 63 spaces during the 6 PM to 7 PM hour while, for Saturday, the peak project-generated parking demand was determined to be 110 spaces from 5 PM to 6 PM.

Table 4-48 summarizes the project area peak weekday and Saturday parking demand, off-street parking capacity, and off-street parking availability under the With-Action condition. The With-Action demand includes demand associated with the Proposed Actions as well as the total future No-Action demand. No change in parking capacity would occur due to the Proposed Actions since the Proposed Actions would not be providing increased parking.

Table 4-46 With-Action Project Increment – Weekday Off-Street Parking Demand

Hour	Office	Destination Retail	Local Retail	Manufacturing	Medical Office	Academic Space	Total
12 AM – 1 AM	0	0	0	0	0	0	**0**
1 AM – 2 AM	0	0	0	0	0	0	**0**
2 AM – 3 AM	0	0	0	0	0	0	**0**
3 AM – 4 AM	0	0	0	0	0	0	**0**
4 AM – 5 AM	0	0	0	0	0	0	**0**
5 AM – 6 AM	0	0	0	0	0	0	**0**
6 AM – 7 AM	0	0	0	-1	0	0	**-1**
7 AM – 8 AM	-8	0	-3	-3	0	3	**-11**
8 AM – 9 AM	-102	15	-3	-12	1	22	**-79**
9 AM – 10 AM	-173	34	-5	-17	1	30	**-130**
10 AM – 11 AM	-178	56	-9	-17	2	37	**-109**
11 AM – 12 AM	-176	74	-8	-18	2	45	**-81**
12 AM – 1 PM	-175	95	-8	-18	2	45	**-59**
1 PM – 2 PM	-181	99	-7	-17	2	42	**-62**
2 PM – 3 PM	-183	87	-5	-18	2	36	**-81**
3 PM – 4 PM	-180	98	-3	-18	3	36	**-64**
4 PM – 5 PM	-126	89	-2	-15	2	35	**-17**
5 PM – 6 PM	-18	77	-2	-7	0	6	**56**
6 PM – 7 PM	-4	60	0	-4	0	6	**58**
7 PM – 8 PM	0	60	0	-1	0	4	**63**
8 PM – 9 PM	0	49	0	0	0	3	**52**
9 PM – 10 PM	0	0	0	0	0	3	**3**
10 PM – 11 PM	0	0	0	0	0	1	**1**
11 PM – 12 PM	0	0	0	0	0	0	**0**

Table 4-47 With-Action Project Increment – Saturday Off-Street Parking Demand

Hour	Office	Destination Retail	Local Retail	Manufacturing	Medical Office	Academic Space	Total
12 AM – 1 AM	0	0	0	0	0	0	**0**
1 AM – 2 AM	0	0	0	0	0	0	**0**
2 AM – 3 AM	0	0	0	0	0	0	**0**
3 AM – 4 AM	0	0	0	0	0	0	**0**
4 AM – 5 AM	0	0	0	0	0	0	**0**
5 AM – 6 AM	0	0	0	0	0	0	**0**
6 AM – 7 AM	0	0	0	-1	0	0	**-1**
7 AM – 8 AM	-1	11	0	-9	0	2	**3**
8 AM – 9 AM	-2	31	-4	-24	0	7	**8**
9 AM – 10 AM	-4	48	-11	-31	0	11	**13**
10 AM – 11 AM	-6	74	-39	-32	0	16	**13**
11 AM – 12 AM	-6	152	-40	-33	0	16	**89**
12 AM – 1 PM	-6	165	-50	-32	0	17	**94**
1 PM – 2 PM	-6	165	-59	-31	0	12	**81**
2 PM – 3 PM	-6	174	-59	-31	0	12	**90**
3 PM – 4 PM	-5	187	-69	-32	0	11	**92**
4 PM – 5 PM	-3	182	-62	-26	0	9	**100**
5 PM – 6 PM	-2	182	-63	-12	0	5	**110**
6 PM – 7 PM	-1	162	-57	-5	0	3	**102**
7 PM – 8 PM	0	104	-50	-1	0	1	**54**
8 PM – 9 PM	0	52	-32	0	0	0	**20**
9 PM – 10 PM	0	0	0	0	0	0	**0**
10 PM – 11 PM	0	0	0	0	0	0	**0**
11 PM – 12 PM	0	0	0	0	0	0	**0**

Table 4-48 With-Action Off-Street Parking Utilization

	Weekday	Saturday
No-Action Availability	146	452
With-Action Change in Capacity	0	0
With-Action Project Increment Demand[1]	-62	110
With-Action Availability	**208**	**342**

Note: [1] Conservatively based on 1:00 - 2:00 PM weekday period and 5:00 - 6:00 PM Saturday period when the combined incremental demand from No-Action developments and from the project (under both No-Action and With-Action conditions) would be greatest

As shown in **Table 4-48**, parking demand would decrease by 62 spaces and availability would increase to 208 spaces during the project area's peak weekday midday period. During the project area's peak Saturday period, project-generated parking demand was determined to be 110 spaces and availability would decrease to 342 spaces. Overall, the Proposed

Actions' parking demand would be fully accommodated by the off-street parking in the project vicinity.

Buses

The Proposed Actions are expected to generate a total of 271 new bus trips on the bus routes operating in proximity to the project area in the weekday PM peak hour (the potential for AM peak hour impacts were previously screened out). As shown **Table 4-49**, under With-Action conditions, weekday PM peak hour eastbound direction demand through the maximum load points on the M23-SBS and M34-SBS are expected to increase by 54 and 49 passengers, respectively. With these modest increases in demand, both bus routes would continue to operate at or below capacity. Therefore, based on *CEQR Technical Manual* impact criteria, no significant impacts to bus service are expected to occur as a result of the Proposed Actions.

Table 4-49 With-Action Bus Line-Haul Capacity Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No-Action Available Capacity[2]	Project Increment Through Load Point	Available Capacity[2]
PM	M23-SBS	EB	W 23 ST-9 AV	8	191	54	137
	M34-SBS	EB	E 34 ST-5 AV	17	49	49	0

Notes:
[1]Assumes service levels adjusted to address capacity shortfalls under No-Action conditions.
[2]Available capacity based on MTA loading guidelines of 85 passengers per 65-foot articulated bus
EB=Eastbound

An additional, more conservative, analysis was conducted of the M23-SBS bus line, at the request of NYCT. This analysis reflects a shift of some subway trips from the 34th Street-Hudson Yards Station to stations primarily on West 23rd Street and transferring to the M23-SBS bus to reach the project area. For these transfers, subway riders were assumed to exit at the southerly end of West 23rd Street stations (at Sixth, Seventh and Eighth Avenues), transfer to the M23-SBS bus heading westbound toward the project area, and disembark at bus stops near Eleventh Avenue on West 23rd and West 24th Streets. A bus line haul analysis using this approach was conducted in accordance with *CEQR Technical Manual* guidelines.

Based on the more conservative bus ridership assumptions – conservative from the perspective of potential bus ridership impacts – project-generated demand (bus-only trips plus subway-to-bus transfers) in the eastbound direction would total 45 riders and 245 riders in the weekday AM and PM peak hours, respectively. In the westbound direction, weekday AM and PM peak hour project-generated ridership would total 97 and 142 riders, respectively. With these ridership projections, there would be a significant impact to M23-SBS service during the weekday PM peak hour in the eastbound direction. Mitigation for this impact is identified within **Chapter 9, Mitigation.**

Subways

The Proposed Actions are expected to generate a total of 536 and 1,390 new subway trips in the weekday AM and PM peak hours, respectively. Conditions at stairs, escalators, fare control areas, and subway lines analyzed in the With-Action condition are discussed below.

Subway Station Elements

The levels of service for analyzed stairs, escalators and fare control areas under With-Action conditions are shown in **Table 4-50**, **Table 4-51**, and **Table 4-52**, respectively.

As shown in **Table 4-50** through **Table 4-52**, the following station elements are expected to operate over capacity at LOS D under With-Action conditions:

- 23rd Street Station
  - The northwest corner street stairway (S9/P9) at West 25th Street and Eighth Avenue (weekday AM and PM)
- 34th Street-Hudson Yards Station
  - The pair of down mezzanine escalators (ES621/ES622) (weekday PM)

While the 23rd Street Station northwest corner street stairway (S9/P9) at West 25th Street and Eighth Avenue would operate over capacity in both the weekday AM and PM peak hours, this element would not be considered significantly impacted as it would not exceed the width increment threshold for significant impacts per *CEQR* guidelines.

Per *CEQR Technical Manual* guidelines, the increase in demand associated with the Proposed Actions would result in significant impacts to the pair of down mezzanine escalators (ES621/ES622) during the weekday PM peak hour as the projected v/c ratio would exceed 1.0. The identification and evaluation of improvements needed to mitigate these significant escalator impacts are presented in **Chapter 9, Mitigation**.

Table 4-50 With-Action Subway Station Level of Service – Stairs

Peak Hour	Stair	Effective Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Friction Factor	Surging Factor (Up/Down)	v/c Ratio	LOS	WIT
34th Street-Hudson Yards Station									
AM	S1	4.0	18	4	0.9	0.9/1.0	0.04	A	---
	S2	4.0	14	12	0.9	0.9/1.0	0.05	A	---
	P1/P2	7.8	261	2	1.0	0.75/1.0	0.30	A	---
	P3/P4	13.6	667	60	0.9	0.75/1.0	0.52	B	---
	P5/P6	13.6	919	182	0.9	0.75/1.0	0.77	C	---
PM	S1	4.0	4	9	0.9	0.9/1.0	0.02	A	---
	S2	4.0	2	125	1.0	0.9/1.0	0.21	A	---
	P1/P2	7.8	61	18	0.9	0.75/1.0	0.09	A	---
	P3/P4	13.6	300	658	0.9	0.75/1.0	0.58	B	---
	P5/P6	13.6	127	1,608	0.9	0.75/1.0	0.97	C	---
23rd Street Station									
AM	S10	3.3	266	90	0.9	0.8/1.0	0.95	C	---
	P10A/B	8.7	294	101	0.9	0.8/1.0	0.40	A	---
	S9/P9	3.3	264	134	0.9	0.8/1.0	1.04	D	1.63[1]
PM	S10	3.3	119	251	0.9	0.8/1.0	0.90	C	---
	P10A/B	8.7	129	277	0.9	0.8/1.0	0.37	A	---
	S9/P9	3.3	123	346	0.9	0.8/1.0	1.12	D	4.74[1]

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

[1] Per *CEQR* impact guidelines, these elements would not exceed the width increment threshold (WIT) for significant impacts at the projected v/c ratios and therefore would not be significantly impacted

Table 4-51 With-Action Subway Station Level of Service – Escalators

Peak Hour	Escalator	Tread Width (ft)	Pedestrian Volume Up (15-min)	Pedestrian Volume Down (15-min)	Surging Factor	Capacity (ped/15-min)[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	ES626/ES627	40	-	228	1.00	2,340	0.10	A
	ES628/ES629	40	1,985	-	0.90	2,340	0.94	C
	ES625	40	269	-	0.80	1,170	0.29	A
	ES623/ES624	40	1,754	-	0.80	2,340	0.94	C
	ES621/ES622	40	-	239	1.00	2,340	0.10	A
PM	ES626/ES627	40	-	2,215	1.00	2,340	0.95	C
	ES628/ES629	40	299	-	0.90	2,340	0.14	A
	ES625	40	46	-	0.80	1,170	0.05	A
	ES623/ES624	40	257	-	0.80	2,340	0.14	A
	ES621/ES622	40	-	2,357	1.00	2,340	1.01	D

Note: Methodology based on *2020 CEQR Technical Manual* guidelines

[1] All escalators are assumed to continue operating at a speed of 120 feet per minute

Shading denotes significantly impacted escalator

Table 4-52 With-Action Subway Station Level of Service – Fare Control Area

Peak Hour	Fare Control Area	Control Elements	Entry Volume (15-min)	Exit Volume (15-min)	Friction Factor (In/Out)	Surging Factor[1]	v/c Ratio	LOS
34th Street-Hudson Yards Station								
AM	R550 (Left)	4 turnstiles	11	295	1.0	0.9	0.13	A
	R550 (Right)	12 turnstiles	233	1,302	0.9	0.9	0.26	A
PM	R550 (Left)	4 turnstiles	88	49	0.9	0.9	0.08	A
	R550 (Right)	12 turnstiles	2,290	444	0.9	0.9	0.58	B
23rd Street Station								
AM	N074	2 HEET, 1 HXT	135	333	0.9	0.75	0.60	B
	N075	2 HEET, 2 HXT	165	323	0.9	0.75	0.58	B
PM	N074	2 HEET, 1 HXT	336	147	0.9	0.75	0.87	C
	N075	2 HEET, 2 HXT	394	144	0.9	0.75	0.96	C

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines
HEET = High entry/exit turnstile, HXT = high exit turnstile
[1] Surging factor only applies to exiting volumes. The surge factor for entry volumes is 1.0.

Subway Line-Haul

Under With-Action conditions, demands on the No. 7 local, No. 7 express, C and E subway are expected to increase as a result of incremental demand associated with the Proposed Actions.

Table 4-53 summarizes With-Action line-haul conditions in the peak direction at the maximum load points for each subway route analyzed for the weekday AM and PM peak hours. As shown in **Table 4-53**, both No. 7 local and express trains would operate below capacity through their respective maximum load points during the weekday AM peak hour. During the weekday PM peak hour, the routes analyzed, with the exception of the C train, would operate below capacity through their respective maximum load points. The C train would operate over capacity with a 1.07 v/c ratio under With-Action conditions. However, as the increment in passengers per car would not exceed the *CEQR Technical Manual* impact threshold of five passengers per car, the project-related increase in passengers would not result in a significant impact to the C train in the weekday PM peak hour. Therefore, the Proposed Actions would not significantly impact any subway line analyzed.

Table 4-53 With-Action Subway Line-Haul Capacity

Peak Hour	Route (Direction)	Maximum Load Point	Average Trains Per Hour	Average Cars Per Hour	Average Passengers[1]		Guideline Passengers per Car[1]	v/c Ratio[2]	Incremental Passengers Per Car
					Per Hour	Per Car			
AM	7 Local (WB)	40 St	14.6	161	14,777	92	110	0.84	0.01
	7 Express (WB)	Woodside – 61 St	12.0	132	14,095	107	110	0.97	0.02
PM	7 Local (EB)	Queensboro Plaza	12.0	133	11,121	84	110	0.76	0.06
	7 Express (EB)	Queensboro Plaza	11.9	131	12,543	96	110	0.87	0.07
	C (SB)	Jay St – MetroTech	6.7	54	6,627	123	115	1.07	0.32
	E (NB)	Lexington Av/53 St	14.6	147	20,081	137	145	0.94	0.22

Notes: Methodology based on *2020 CEQR Technical Manual* guidelines
[1] Guideline capacities are based on NYCT rush hour loading guidelines, which vary by car type, line, and location based on frequency and type of service.
[2] Volume to guideline capacity ratio

Pedestrians

The project-generated pedestrian volumes were distributed through the pedestrian network and added to the 2024 No-Action volumes to develop 2024 With-Action pedestrian volumes. With-Action pedestrian volumes are shown in **Figure 4-28** through **Figure 4-31**.

Pedestrian analyses were performed based on these volumes and the With-Action pedestrian levels of service were determined for the analysis locations. No change in the physical street network is proposed as part of the project. **Table 4-54** provides an overview of the pedestrian levels of service for the analyzed peak hours. The levels of service, as well as With-Action peak hour volumes, for each pedestrian element analyzed are presented in **Table 4-55** through **Table 4-60.**

The summary of the With-Action condition indicates that all analyzed corners would operate at acceptable level of service (LOS A, LOS B, LOS C, or acceptable LOS D) during all analyzed peak hours. The majority of sidewalks and crosswalks would operate at acceptable levels of service as well. The following summarizes the number of sidewalks and crosswalks elements that would operate at unacceptable levels of service during the analyzed peak hours:

- During the weekday AM peak hour, two sidewalks and one crosswalk would operate at mid-LOS D or worse, compared to none under No-Action conditions.
- During the weekday midday peak hour, one sidewalk and four crosswalks would operate at mid-LOS D or worse, compared to zero sidewalks and two crosswalks under No-Action conditions.
- During the weekday PM peak hour, two sidewalks and four crosswalks would operate at mid-LOS D or worse, compared to one sidewalk and one crosswalk under No-Action conditions.

› During the Saturday peak hour, one crosswalk would operate at mid-LOS D or worse, compared to none under No-Action conditions.

As shown in **Table 4-54**, the number of analyzed elements that would be significantly impacted by the Proposed Actions is two in the weekday AM peak hour, two in the weekday midday peak hour, six in the weekday PM peak hour, and one in the Saturday peak hour out of the total of 67 pedestrian elements analyzed. These impacted elements are listed below:

› North sidewalk of West 25th street between Eighth Avenue and Ninth Avenue (weekday AM and PM)

› West sidewalk of Hudson Boulevard between West 33rd Street and West 34th Street (weekday PM)

› North crosswalk at the intersection of Eleventh Avenue and West 26th Street (weekday PM)

› East crosswalk at the intersection of Eleventh Avenue and West 30th Street (Saturday)

› North crosswalk at the intersection of Tenth Avenue and West 25th Street (weekday midday and PM)

› North crosswalk at the intersection of Ninth Avenue and West 25th Street (weekday PM)

› North crosswalk at the intersection of Eighth Avenue and West 25th Street (weekday AM, midday, and PM)

The identification and evaluation of improvements needed to mitigate these significant pedestrian impacts are presented in **Chapter 9, Mitigation**.

Figure 4-28 With-Action Weekday AM Peak Hour Pedestrian Volumes

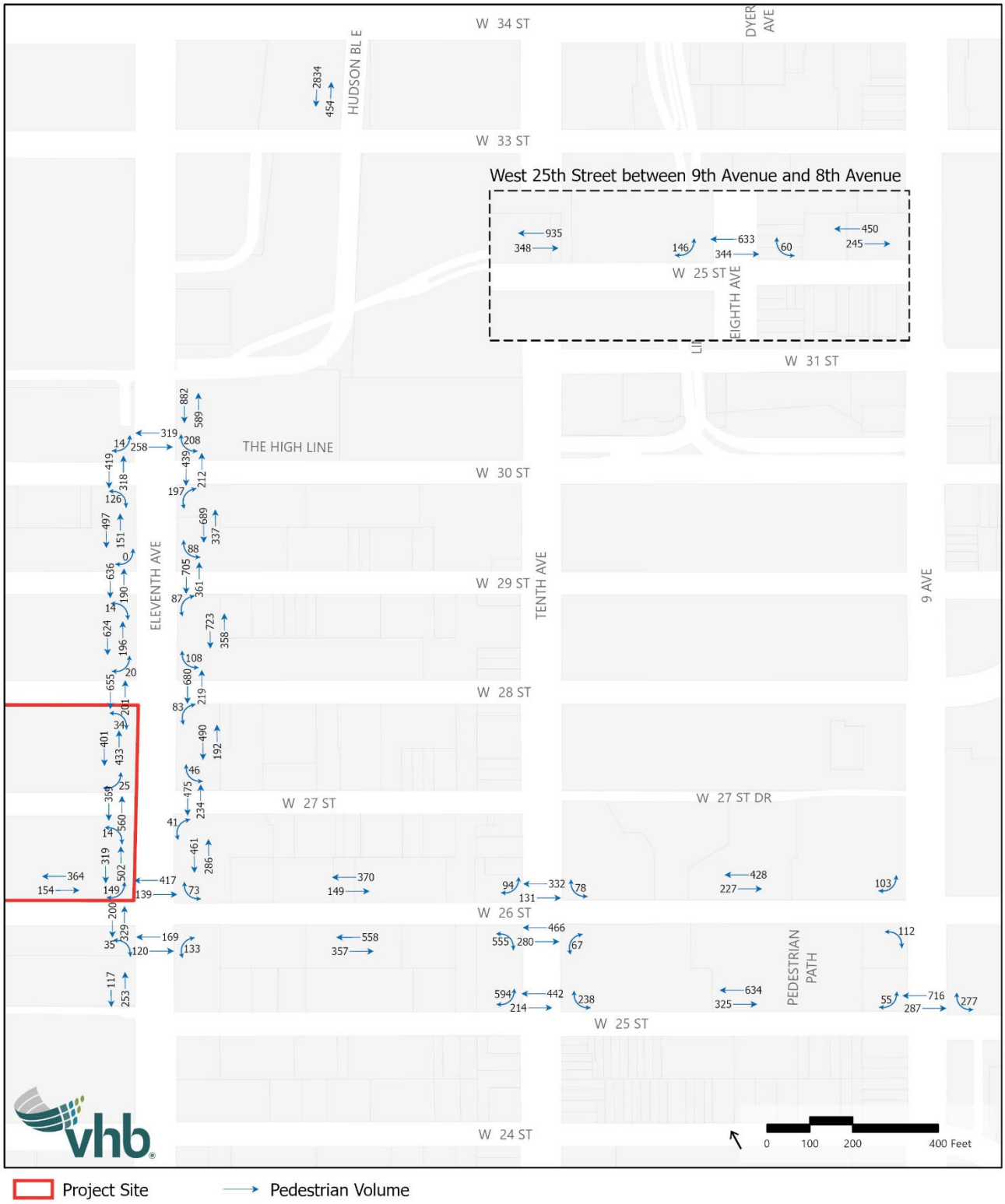


Figure 4-29 With-Action Weekday Midday Peak Hour Pedestrian Volumes

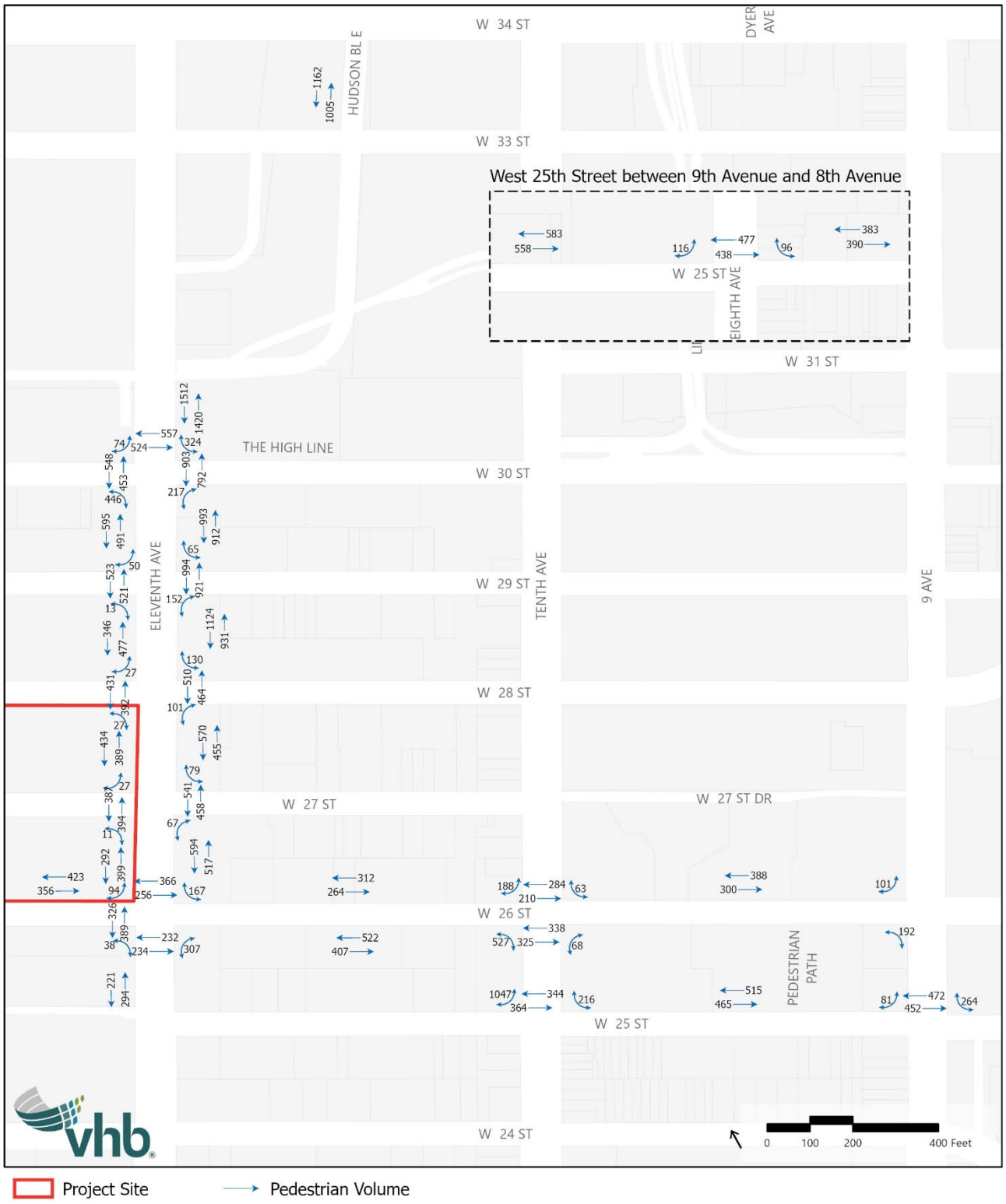


Figure 4-30 With-Action Weekday PM Peak Hour Pedestrian Volumes

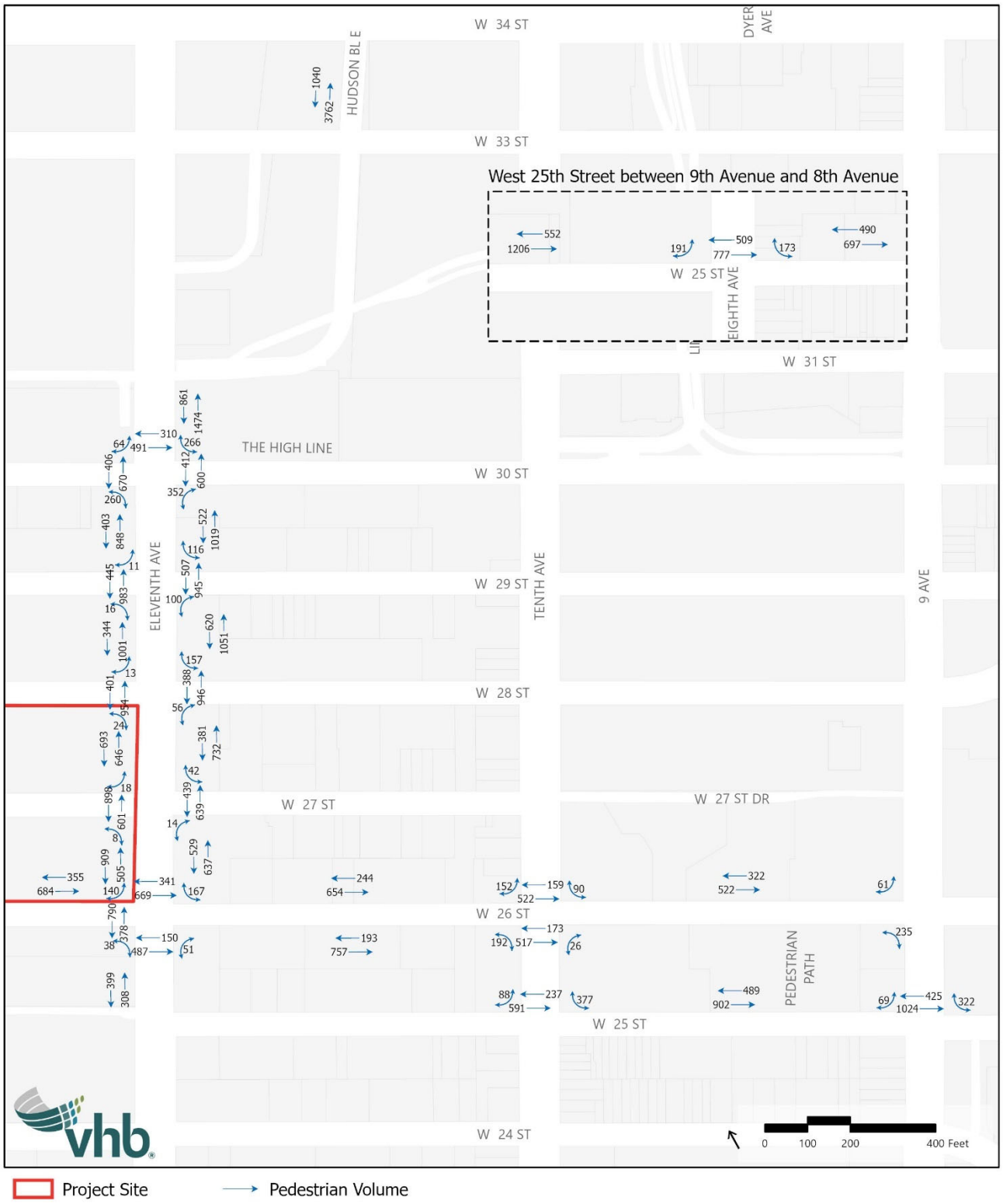


Figure 4-31 With-Action Saturday Midday Peak Hour Pedestrian Volumes

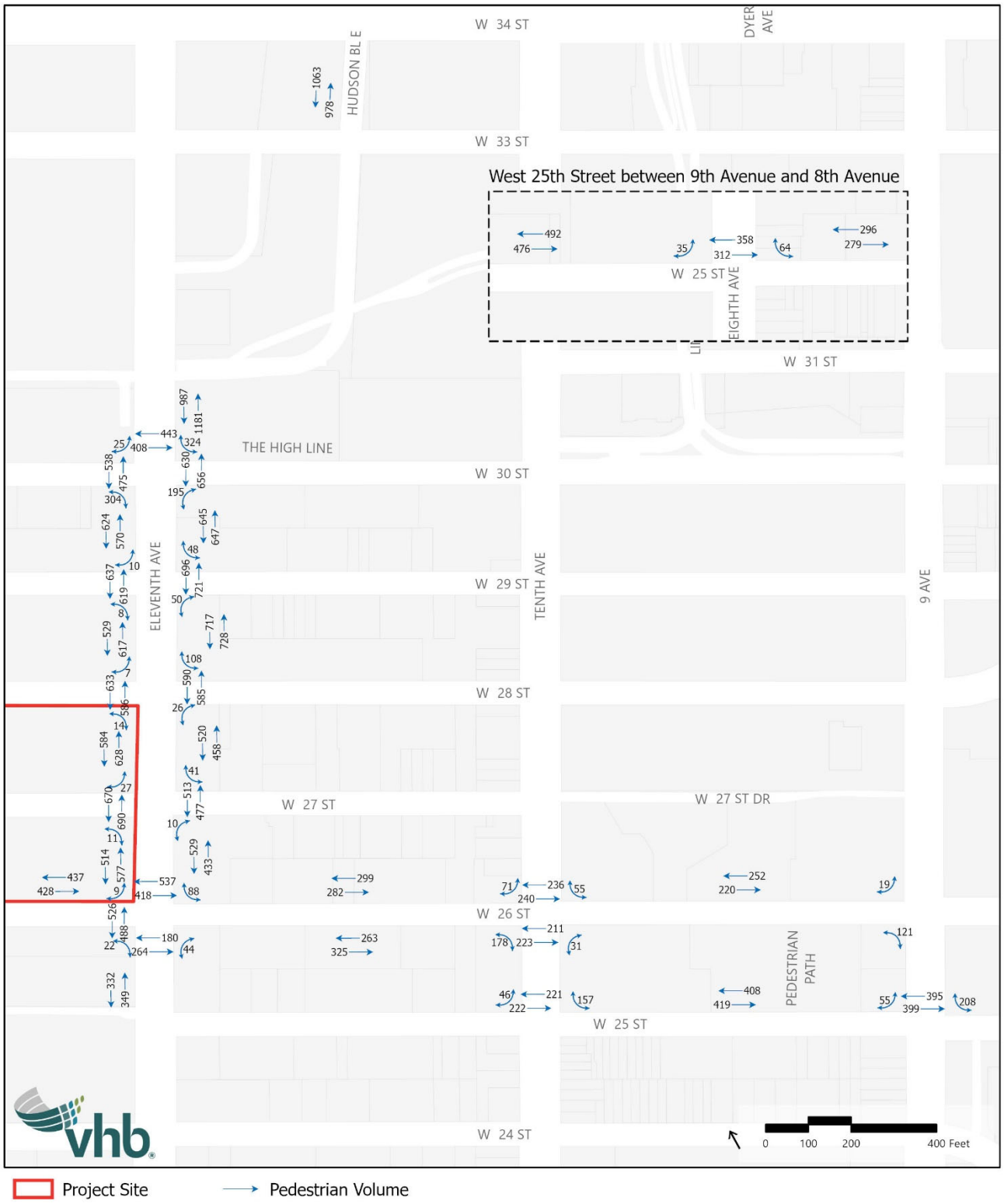


Table 4-54 With-Action Pedestrian Levels of Service Summary

	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour
Sidewalk Elements				
LOS A/B/C and Acceptable LOS D	16	17	16	18
Unacceptable LOS D	2	1	0	0
LOS E	0	0	2	0
LOS F	0	0	0	0
Significant Sidewalk Impacts	**1**	**0**	**2**	**0**
Crosswalk Elements				
LOS A/B/C and Acceptable LOS D	16	13	13	16
Unacceptable LOS D	1	3	3	1
LOS E	0	1	1	0
LOS F	0	0	0	0
Significant Crosswalk Impacts	**1**	**2**	**4**	**1**
Corner Elements				
LOS A/B/C and Acceptable LOS D	32	32	32	32
Unacceptable LOS D	0	0	0	0
LOS E	0	0	0	0
LOS F	0	0	0	0
Significant Corner Impacts	**0**	**0**	**0**	**0**

Note: Includes 18 sidewalk, 17 crosswalk, and 32 corner analysis locations

Table 4-55 With-Action Pedestrian Levels of Service – Sidewalks (Weekday AM and Midday)

		Weekday AM Peak Hour						Weekday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
West 25th Street between 7th Avenue and 8th Avenue (north side)	6.0	539	102.6	B	695	79.4	C	557	92.8	B	773	66.7	C
West 25th Street between 8th Avenue and 9th Avenue (north side)	4.0	976	39.2	D	1,283	29.5	D	622	62.6	C	1,141	33.6	D
West 25th Street between 9th Avenue and 10th Avenue (north side)	5.0	791	56.4	C	959	46.4	C	738	63.6	C	980	47.7	C
West 26th Street between 9th Avenue and 10th Avenue (north side)	10.0	587	147.0	B	655	131.7	B	776	111.1	B	688	125.4	B
West 26th Street between 10th Avenue and 11th Avenue (north side)	5.0	432	99.6	B	519	82.9	C	796	53.8	C	576	74.7	C
West 26th Street between 10th Avenue and 11th Avenue (south side)	4.0	807	42.7	C	915	37.5	D	918	37.0	D	929	36.5	D
West 26th Street between 11th Avenue and 12th Avenue (north side)	8.0	318	247.7	B	518	152.0	B	268	259.0	B	779	88.9	C
11th Avenue between West 25th Street and West 26th Street (west side)	8.0	306	228.9	B	370	189.4	B	681	101.3	B	515	134.1	B
11th Avenue between West 26th Street and West 27th Street (east side)	9.0	655	118.5	B	747	103.8	B	980	79.0	C	1,111	69.6	C

Table 4-55 With-Action Pedestrian Levels of Service – Sidewalks (Weekday AM and Midday)

		Weekday AM Peak Hour						Weekday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue between West 26th Street and West 27th Street (west side)	9.5	643	139.5	B	821	109.1	B	1,259	64.8	C	691	118.6	B
11th Avenue between West 27th Street and West 28th Street (east side)	7.5	619	106.2	B	682	96.4	B	939	74.2	C	1,026	67.9	C
11th Avenue between West 27th Street and West 28th Street (west side)	8.5	618	125.5	B	834	92.8	B	1,102	66.3	C	823	88.9	C
11th Avenue between West 28th Street and West 29th Street (east side)	7.0	978	73.3	C	1,081	66.2	C	1,980	32.6	D	2,055	31.3	D
11th Avenue between West 28th Street and West 29th Street (west side)	6.5	693	83.3	C	821	70.2	C	1,006	55.4	C	823	67.9	C
11th Avenue between West 29th Street and West 30th Street (east side)	7.5	924	79.2	C	1,027	71.2	C	1,835	37.6	D	1,906	36.2	D
11th Avenue between West 29th Street and West 30th Street (west side)	7.5	499	129.5	B	648	99.7	B	1,100	58.5	C	1,087	59.2	C
11th Avenue between West 30th Street and Hudson Boulevard (east side)	11.0	1,229	80.8	C	1,471	67.4	C	2,733	34.5	D	2,932	32.0	D
Hudson Boulevard between West 33rd Street and West 34th Street (west side)	10.0	3,049	31.9	D	3,288	29.4	D	1,761	48.6	C	2,167	39.2	D

Note: Shading denotes significantly impacted sidewalk

Table 4-56 With-Action Pedestrian Levels of Service – Sidewalks (Weekday PM and Saturday)

		Weekday PM Peak Hour						Saturday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
West 25th Street between 7th Avenue and 8th Avenue (north side)	6.0	795	68.1	C	1,187	45.3	C	249	208.4	B	575	89.9	C
West 25th Street between 8th Avenue and 9th Avenue (north side)	4.0	976	36.9	D	1,758	19.7	E	322	109.5	B	968	35.8	D
West 25th Street between 9th Avenue and 10th Avenue (north side)	5.0	962	52.3	C	1,391	35.8	D	474	105.7	B	827	60.3	C
West 26th Street between 9th Avenue and 10th Avenue (north side)	10.0	668	129.2	B	844	102.2	B	287	321.6	B	472	195.4	B
West 26th Street between 10th Avenue and 11th Avenue (north side)	5.0	665	65.4	C	898	48.2	C	353	122.3	B	581	74.0	C
West 26th Street between 10th Avenue and 11th Avenue (south side)	4.0	642	56.7	C	950	38.0	D	341	101.0	B	588	58.3	C
West 26th Street between 11th Avenue and 12th Avenue (north side)	8.0	373	185.4	B	1,039	66.2	C	51	1,345.0	A	865	79.6	C
11th Avenue between West 25th Street and West 26th Street (west side)	8.0	513	143.0	B	707	103.6	B	439	157.1	B	680	101.3	B
11th Avenue between West 26th Street and West 27th Street (east side)	9.0	855	90.6	B	1,166	66.3	C	564	137.8	B	962	80.6	C

Table 4-56 With-Action Pedestrian Levels of Service – Sidewalks (Weekday PM and Saturday)

		Weekday PM Peak Hour						Saturday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Sidewalk	Effective Width, ft	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue between West 26th Street and West 27th Street (west side)	9.5	987	82.9	C	1,414	57.6	C	671	141.8	B	1,090	87.1	C
11th Avenue between West 27th Street and West 28th Street (east side)	7.5	882	75.0	C	1,113	59.3	C	634	102.0	B	978	65.9	C
11th Avenue between West 27th Street and West 28th Street (west side)	8.5	829	88.3	C	1,338	54.4	C	566	144.4	B	1,212	67.1	C
11th Avenue between West 28th Street and West 29th Street (east side)	7.0	1,348	52.8	C	1,671	42.4	C	989	65.2	C	1,445	44.3	C
11th Avenue between West 28th Street and West 29th Street (west side)	6.5	977	57.1	C	1,345	41.2	C	577	97.0	B	1,146	48.5	C
11th Avenue between West 29th Street and West 30th Street (east side)	7.5	1,225	57.8	C	1,541	45.7	C	859	79.8	C	1,293	52.7	C
11th Avenue between West 29th Street and West 30th Street (west side)	7.5	874	73.8	C	1,252	51.3	C	653	99.0	B	1,195	53.8	C
11th Avenue between West 30th Street and Hudson Boulevard (east side)	11.0	1,749	57.3	C	2,335	42.7	C	1,498	71.0	C	2,169	48.7	C
Hudson Boulevard between West 33rd Street and West 34th Street (west side)	10.0	4,197	20.72	E	4,802	17.8	E	1,354	75.2	C	2,040	49.6	C

Note: Shading denotes significantly impacted sidewalk

Table 4-57 With-Action Pedestrian Levels of Service – Crosswalks (Weekday AM and Midday)

		Weekday AM Peak Hour						Weekday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Intersection	Crosswalk	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*North*	344	57.2	B	557	34.4	C	525	38.7	C	622	32.3	C
	South	189	94.0	A	288	60.8	A	459	41.8	B	466	41.1	B
	West	366	114.1	A	529	77.5	A	870	41.3	B	714	51.3	B
11th Avenue and West 27th Street	*East*	630	64.5	A	709	57.0	B	894	39.4	C	999	35.0	C
	West	727	51.5	B	929	39.4	C	1,339	26.4	C	781	47.9	B
11th Avenue and West 28th Street	*East*	797	55.2	B	900	48.4	B	899	39.3	C	974	36.0	C
	West	704	57.7	B	856	46.6	B	1,072	34.7	C	822	46.4	B
11th Avenue and West 29th Street	*East*	958	38.9	C	1,065	34.6	C	1,864	16.1	D	1,914	15.5	D
	West	704	56.0	B	826	47.2	B	1,125	30.1	C	1,045	32.7	C
11th Avenue and West 30th Street	*North*	457	56.4	B	576	44.2	B	955	27.7	C	1,082	24.2	C
	East	537	51.0	B	651	41.8	B	1,669	13.3	E	1,695	12.8	E
	West	585	43.7	B	738	33.8	C	932	24.4	C	1,000	22.5	D
10th Avenue and West 25th Street	*North*	549	25.8	C	656	21.0	D	587	22.5	D	707	18.3	D
10th Avenue and West 26th Street	*North*	382	43.6	B	463	34.8	C	612	26.4	C	494	32.9	C
	South	649	26.5	C	746	22.6	D	679	25.2	C	664	25.8	C
9th Avenue and West 25th Street	*North*	767	34.2	C	1,002	25.6	C	548	56.0	B	924	32.3	C
8th Avenue and West 25th Street	*North*	821	21.2	D	977	17.6	D	698	26.0	C	914	19.5	D

Note: Shading denotes significantly impacted crosswalk

Table 4-58 With-Action Pedestrian Levels of Service – Crosswalks (Weekday PM and Saturday)

		Weekday PM Peak Hour						Saturday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Intersection	Crosswalk	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*North*	426	46.9	B	1,010	18.6	D	219	95.8	A	956	20.4	D
	South	325	54.7	B	637	26.2	C	194	105.2	A	445	44.6	B
	West	661	55.2	B	1,168	29.2	C	522	67.4	A	1,013	32.8	C
11th Avenue and West 27th Street	*East*	812	45.2	B	1,078	33.2	C	620	58.3	B	990	35.1	C
	West	982	37.7	C	1,499	23.5	D	680	58.1	B	1,361	27.2	C
11th Avenue and West 28th Street	*East*	1,011	36.2	C	1,334	26.7	C	719	50.9	B	1,175	30.0	C
	West	941	41.6	B	1,355	27.7	C	592	66.1	A	1,220	30.1	C
11th Avenue and West 29th Street	*East*	1,139	29.3	C	1,452	22.2	D	979	33.0	C	1,417	21.8	D
	West	1,063	34.9	C	1,428	25.2	C	708	49.4	B	1,257	26.4	C
11th Avenue and West 30th Street	*North*	510	50.6	B	800	31.3	C	465	62.5	A	851	33.0	C
	East	715	38.1	C	1,012	25.7	C	913	25.9	C	1,286	17.2	D
	West	697	35.9	C	1,076	21.9	D	524	47.6	B	1,014	22.9	D
10th Avenue and West 25th Street	*North*	565	23.8	D	828	15.4	D	218	67.6	A	444	31.6	C
10th Avenue and West 26th Street	*North*	455	41.4	B	682	25.3	C	258	65.8	A	475	33.1	C
	South	440	39.9	C	690	23.9	D	220	85.9	A	433	41.8	B
9th Avenue and West 25th Street	*North*	845	33.2	C	1,449	18.4	D	299	99.2	A	794	35.9	C
8th Avenue and West 25th Street	*North*	894	19.0	D	1,286	12.6	E	345	59.7	B	671	29.8	C

Note: Shading denotes significantly impacted crosswalk

Table 4-59 With-Action Pedestrian Levels of Service – Corners (Weekday AM and Midday)

		Weekday AM Peak Hour						Weekday Midday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Intersection	Corner	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*Northeast*	64	77.6	A	73	58.4	B	143	51.7	B	167	48.2	B
	Southeast	133	106.1	A	133	89.5	A	307	57.6	B	307	60.5	A
	Southwest	37	181.9	A	35	122.6	A	41	70.7	A	38	79.4	A
	Northwest	149	126.7	A	149	85.9	A	94	63.2	A	94	67.2	A
11th Avenue and West 27th Street	*Northeast*	46	83.9	A	46	77.1	A	79	54.9	B	79	69.5	A
	Southeast	41	111.9	A	41	95.7	A	67	78.2	A	67	73.7	A
	Southwest	14	101.0	A	14	77.8	A	11	60.9	A	11	105.6	A
	Northwest	25	95.0	A	25	78.6	A	27	50.5	B	27	117.0	A
11th Avenue and West 28th Street	*Northeast*	108	99.7	A	108	88.0	A	130	71.0	A	130	70.0	A
	Southeast	83	92.5	A	83	79.0	A	101	68.0	A	101	68.3	A
	Southwest	34	100.5	A	34	82.1	A	27	62.7	A	27	84.9	A
	Northwest	20	80.7	A	20	66.0	A	27	50.4	B	27	68.2	A
11th Avenue and West 29th Street	*Northeast*	88	68.9	A	88	65.0	A	65	38.8	C	65	38.6	C
	Southeast	85	94.7	A	87	85.8	A	166	40.3	B	152	42.3	B
	Southwest	14	176.4	A	14	152.7	A	13	96.6	A	13	112.8	A
	Northwest	0	101.3	A	0	92.1	A	50	70.1	A	50	78.9	A
11th Avenue and West 30th Street	*Northeast*	208	135.0	A	208	110.1	A	324	48.1	B	324	44.8	B
	Southeast	202	94.2	A	197	87.8	A	212	39.6	C	217	41.1	B
	Southwest	126	42.9	B	126	38.1	C	446	22.2	D	446	22.4	D
	Northwest	14	148.1	A	14	115.2	A	74	74.6	A	74	66.6	A
10th Avenue and West 25th Street	*Northeast*	177	59.8	B	238	47.7	B	95	49.6	B	216	43.0	B
	Northwest	594	42.5	B	594	39.4	C	1047	23.4	D	1047	22.9	D
10th Avenue and West 26th Street	*Northeast*	78	101.4	A	78	86.3	A	63	70.6	A	63	81.4	A
	Southeast	67	69.6	A	67	58.2	B	68	66.4	A	68	67.3	A
	Southwest	540	33.9	C	555	30.2	C	562	28.9	C	527	31.3	C
	Northwest	94	62.6	A	94	56.5	B	188	37.0	C	188	46.0	B
9th Avenue and West 25th Street	*Northeast*	205	84.4	A	277	65.3	A	121	103.4	A	264	74.4	A
	Northwest	55	83.8	A	55	70.0	A	81	89.2	A	81	71.8	A
9th Avenue and West 26th Street	*Southwest*	88	104.1	A	112	94.1	A	194	89.4	A	192	91.5	A
	Northwest	103	99.6	A	103	92.8	A	101	92.4	A	101	102.9	A
8th Avenue and West 25th Street	*Northeast*	60	63.8	A	60	55.6	B	96	61.3	A	96	51.8	B
	Northwest	146	95.1	A	146	85.9	A	116	86.0	A	116	74.4	A

Note: Volumes shown are "rounding the corner" volumes.

Table 4-60 With-Action Pedestrian Levels of Service – Corners (Weekday PM and Saturday)

		Weekday PM Peak Hour						Saturday Peak Hour					
		No-Action			With-Action			No-Action			With-Action		
Intersection	Corner	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	Volume, ped/hr	Avg Ped Space, SF/P	LOS
11th Avenue and West 26th Street	*Northeast*	118	70.6	A	167	41.5	B	61	118.7	A	88	48.1	B
	Southeast	51	90.8	A	51	66.1	A	44	148.2	A	44	98.1	A
	Southwest	39	93.4	A	38	46.1	B	21	135.7	A	22	61.6	A
	Northwest	140	75.7	A	140	32.6	C	9	133.1	A	9	42.7	B
11th Avenue and West 27th Street	*Northeast*	42	73.0	A	42	58.7	B	41	94.3	A	41	60.9	A
	Southeast	14	90.3	A	14	64.8	A	10	132.9	A	10	78.4	A
	Southwest	8	79.8	A	8	49.8	B	11	134.3	A	11	63.7	A
	Northwest	18	70.0	A	18	47.3	B	27	112.7	A	27	59.0	B
11th Avenue and West 28th Street	*Northeast*	157	72.7	A	157	56.0	B	108	95.0	A	108	61.2	A
	Southeast	56	63.4	A	56	45.0	B	26	102.8	A	26	56.9	B
	Southwest	24	64.6	A	24	41.1	B	14	117.9	A	14	54.2	B
	Northwest	13	66.8	A	13	45.9	B	7	91.6	A	7	45.9	B
11th Avenue and West 29th Street	*Northeast*	116	59.9	B	116	49.5	B	48	72.3	A	48	52.2	B
	Southeast	96	68.3	A	100	53.4	B	32	88.0	A	50	59.2	B
	Southwest	16	109.0	A	16	81.3	A	8	165.5	A	8	94.8	A
	Northwest	11	78.4	A	11	62.6	A	10	105.2	A	10	65.4	A
11th Avenue and West 30th Street	*Northeast*	266	108.2	A	266	75.0	A	324	94.7	A	324	60.9	A
	Southeast	342	67.7	A	352	56.3	B	137	92.8	A	195	66.1	A
	Southwest	260	31.6	C	260	23.3	D	304	56.1	B	304	34.6	C
	Northwest	64	122.4	A	64	76.0	A	25	161.2	A	25	81.0	A
10th Avenue and West 25th Street	*Northeast*	211	54.0	B	377	38.5	C	29	118.1	A	157	70.6	A
	Northwest	88	47.0	B	88	31.7	C	46	73.1	A	46	54.3	B
10th Avenue and West 26th Street	*Northeast*	90	96.2	A	90	72.6	A	55	144.9	A	55	97.1	A
	Southeast	26	100.1	A	26	73.4	A	31	164.1	A	31	108.4	A
	Southwest	174	53.1	B	192	34.2	C	156	82.2	A	178	58.1	B
	Northwest	152	54.9	B	152	38.8	C	71	78.2	A	71	55.9	B
9th Avenue and West 25th Street	*Northeast*	146	83.0	A	322	52.3	B	58	156.0	A	208	79.6	A
	Northwest	69	63.9	A	69	42.3	B	55	136.5	A	55	80.7	A
9th Avenue and West 26th Street	*Southwest*	159	79.3	A	235	64.1	A	61	166.7	A	121	123.7	A
	Northwest	61	85.1	A	61	71.5	A	19	161.9	A	19	122.7	A
8th Avenue and West 25th Street	*Northeast*	173	45.6	B	173	37.0	C	64	113.5	A	64	80.8	A
	Northwest	191	67.7	A	191	53.1	B	35	174.1	A	35	125.2	A

Note: Volumes shown are "rounding the corner" volumes.