Chapter 18: Transit and Pedestrians

A. INTRODUCTION

This chapter describes the existing transit and pedestrian characteristics of the study area, conditions that are projected in the Future without the Proposed Actions, conditions following implementation of the Proposed Actions, and identification of any associated significant adverse impacts. As described in Chapter 1, "Project Description," the Proposed Actions include zoning and other land use actions that would allow for the mix of land uses over the Development Site and development at two Additional Housing Sites ("Tenth Avenue Site" and "Ninth Avenue Site").

This chapter describes existing (2008) transit (subway station elements, No. 7 subway line haul and bus peak loads, and ferry service) and pedestrian (sidewalks, crosswalks, and corners) conditions and safety in the transit and pedestrian study areas. This is followed by a presentation of the analysis of the anticipated conditions in the Future without the Proposed Actions for 2019, the expected year of completion of the Proposed Actions. The Future without the Proposed Actions condition includes additional background transportation system demand and any changes in transit facilities and services and pedestrian facilities expected by 2019. Increases in travel demand resulting from the Proposed Actions are then added to the Future without the Proposed Actions condition to develop the projected conditions in the Future with the Proposed Actions for 2019.

An assessment of the Proposed Actions' potential transit and pedestrian impact for a 2017 interim year of development also was undertaken for the purposes of determining: (1) whether any significant adverse impact identified with the completion of the Proposed Actions in 2019 would occur prior to the project's completion; (2) the availability and feasibility of mitigation measures for any significant adverse impact projected to occur in 2017; and (3) the potential for any significant adverse impact to occur in 2017 that would be eliminated by the completion of the full development program for the Proposed Actions. In addition, an examination was undertaken to determine whether any significant adverse environmental impact identified in 2017 would occur in an earlier year. The chapter concludes with a summary of the significant transit and pedestrian impacts identified as a result of the Proposed Actions.

PRINCIPAL CONCLUSIONS

Analyses of transit elements included operations of subway lines (line-haul) and subway stations (turnstiles, High Entrance/Exit Turnstiles [HEETs], service gate, stairways, and escalators), bus service, and ferry service, as well as pedestrian elements (sidewalks, crosswalks, corners, and bicycle routes). The Proposed Actions would not cause any significant adverse impacts on subway line-haul, ferry operations, or bicycle routes. However, the Proposed Actions would cause significant adverse impacts on one subway station stairway, certain bus lines, and pedestrian elements. Most of these could be mitigated through implementation of the measures described in Chapter 24, "Mitigation."

TRANSIT

Subway Line

A line haul assessment was performed for the Flushing line in the peak direction (Manhattan bound) in the AM peak hour. The Proposed Actions would not result in any significant adverse impacts on the Flushing line during the AM peak hour.

Subway Stations

Of the 72 station elements studied for the Existing condition, congested operating conditions would occur at one stairway during the weekday AM peak period and at two stairways and one service gate during the weekday PM peak period.

For both 2017 and 2019, 113 subway station elements were analyzed for the weekday AM and PM peak periods, including 13 turnstiles, 6 HEETs, 13 service gates, 25 escalators, and 56 stairways. Congested operating conditions would occur in the Future without the Proposed Actions at six locations during the weekday AM peak period and seven locations during the weekday PM peak period.

The Proposed Actions condition would affect five subway station stairways during the AM peak period and six subway stations during the PM peak period. However, the Proposed Actions would not result in any significant adverse impact at the station elements evaluated, except for one subway stairway, M23/24 at Control Area N67 at the 34th Street-Penn Eighth Avenue Station.

Bus Routes

2019

Seven bus routes (M10, M11, M16, M20, M23, M34, and M42) currently provide service within a ½-mile radius of the redevelopment area. The Proposed Actions would add fewer than 200 new riders each to three of these routes (M16, M23, and M42) and, in accordance with *City Environmental Quality Review (CEQR)* methodology, these routes would not be required to be analyzed.[1] The remaining four routes (M10, M11, M20, and M34) were analyzed for existing service conditions and potential significant adverse impacts from increased utilization in the 2019 Future with the Proposed Actions.

For the Existing condition, all bus routes in the study area currently operate under capacity at their peak load points during both the AM and PM peak hours.

Based on the existing service plans, all four routes analyzed would not provide sufficient capacity in the future during both the AM and PM peak hours. Additional regular or articulated bus service for these routes would be required to meet the projected demand for the 2019 Future with the Proposed Actions. See Chapter 24, "Mitigation," for a description of this mitigation.

The general policy of New York City Transit (NYCT) is to provide additional bus service where demand warrants, taking into account financial and operational constraints. Based on NYCT's ongoing passenger monitoring program and as development is implemented throughout the study area, a comprehensive service plan would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally feasible and operationally

[1] The M16 nevertheless appears in the analysis because the M16 and M34 NYCT ridership data are collected together and cannot be disaggregated.

practicable. MTA-NYCT's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined, subject to operational and financial feasibility.

2017

The same four bus routes were analyzed in the 2019 Future with the Proposed Actions condition for potential significant adverse impacts from increased utilization in the 2017 Future with the Proposed Actions condition. Based on the existing service plans, all four routes analyzed would not provide sufficient capacity in the future during both the weekday AM and PM peak hours. Additional regular or articulated bus service for these routes would be necessary to meet the projected demand for the 2017 Interim condition. See Chapter 24, "Mitigation," for a description of this mitigation.

Pedestrians

Under the Existing Condition, a total of 293 pedestrian elements (148 sidewalks, 75 crosswalks, and 70 corners) were analyzed for the AM, midday and PM hours and 225 pedestrian elements (114 sidewalks, 57 crosswalks, and 54 corners) were analyzed for the Saturday peak hour. Congested operating conditions (LOS D or worse) occur at one sidewalk during the AM peak period, one sidewalk during the midday peak period, four sidewalks during the PM peak period, and one sidewalk during the Saturday midday peak period. Congested operating conditions occur at three crosswalks during the midday peak period, three crosswalks during PM peak period, and three crosswalks in the Saturday midday peak period. For corners, congested operating conditions occur at only one corner during the weekday PM peak period.

2019

Under the 2019 Future without the Proposed Actions, a total of 365 pedestrian elements (184 sidewalks, 95 crosswalks, and 86 corners) were analyzed for the weekday AM, midday and PM peak hours, and 281 pedestrian elements (142 sidewalks, 73 crosswalks, and 66 corners) were analyzed for the Saturday midday peak hour. Congested operating conditions would occur at 20 sidewalk locations during the AM peak period, 58 sidewalk locations during the midday peak period, and 32 sidewalk locations during the PM peak period, and 18 sidewalk locations during the Saturday midday peak period. Congested operating conditions would occur at 25 crosswalks during the AM peak period, 60 crosswalks during the midday peak period, and 39 crosswalks during the PM peak period, 29 crosswalks during the Saturday midday peak period. Congested operating conditions would occur at 22 corners during the AM peak period, 58 corners during the midday peak period, and 37 corners during the PM peak period, and 28 corners during the Saturday midday peak period.

Under the 2019 Future with the Proposed Actions, a total of 373 pedestrian elements (188 sidewalks, 95 crosswalks, and 90 corners) were analyzed for the weekday AM, midday and PM peak hours and 289 pedestrian elements (146 sidewalks, 73 crosswalks, and 70 corners) were analyzed for the Saturday midday peak hour. The 2019 Future with the Proposed Actions condition would have a total of nine sidewalk significant adverse impacts, 34 crosswalk significant adverse impacts, and 39 corner significant adverse impacts for all four peak periods analyzed.

Two significant adverse sidewalk impacts are anticipated during the AM peak hour, one during the midday peak hour, five sidewalk locations during the PM peak hour, and one during the Saturday peak hour.

Nine significant adverse crosswalk impacts are anticipated during the AM peak hour, seven crosswalk locations during the midday peak hour, ten crosswalk locations during the PM peak hour, and eight crosswalk locations during the Saturday peak hour.

Thirteen significant adverse corner impacts are anticipated during the AM peak hour, seven corner locations during the midday peak hour, 12 corner locations during the PM peak hour, and seven corner locations during the Saturday peak hour. See Chapter 24, "Mitigation," for a description of this mitigation.

2017

The same sidewalk, crosswalk, and corner locations analyzed for the 2019 Future Conditions Without and With the Proposed Actions were analyzed for the 2017 Future Conditions Without and With the Proposed Actions.

For sidewalks, the 2017 Future without the Proposed Actions LOS would be the same compared to the 2019 Future without the Proposed Actions condition. For crosswalks, the 2017 Future with the Proposed Actions condition would have one fewer location operating at LOS E during the AM peak period and one fewer location operating at LOS F during the midway peak period, compared to the 2019 Future without the Proposed Actions condition. For corners, the 2017 Future without the Proposed Actions condition would have one fewer location operating at LOS E during the AM peak period.

The 2017 Future with the Proposed Actions condition would have a total of six sidewalk significant adverse impacts, which would be three fewer impacts than the nine impacts projected for the 2019 Future with the Proposed Actions condition. The 2017 Future with the Proposed Actions condition is projected to have a total of 19 crosswalk significant adverse impacts, 15 fewer impacts as compared with the 34 impacts projected for the 2019 Future with the Proposed Actions condition. The 2017 Future with the Proposed Actions condition is projected to have a total of 31 corner significant adverse impacts, eight fewer impacts as compared with the 39 impacts projected for the 2019 Future with the Proposed Actions condition. See Chapter 24, "Mitigation," for a description of this mitigation.

B. METHODOLOGY

This section describes the transit and pedestrian analysis methodologies used to determine if the Proposed Actions would cause any potential significant adverse impacts, including a description of the analysis hours, study areas, capacity analysis methodology, trip generation, and criteria for the determination of significant adverse impacts.

ANALYSIS HOURS

Transit analyses for subway station elements were conducted at peak 15-minute intervals during the weekday AM (8:00 to 9:00) and PM (5:00 to 6:00) peak commuter hours. It is during these weekday commuter hours that peak demand generated by the residential and commercial components of the Proposed Actions would coincide with peak demand on the subway, local bus, and pedestrian systems.

The anticipated peak hours for pedestrians at street level are the same as the traffic peak hours for the traffic analysis (see Chapter 17, "Traffic and Parking"):

- Weekday AM (8:00 AM to 9:00 AM);
- Weekday Midday (12:00 PM to 1:00 PM);

- Weekday PM (5:00 PM to 6:00 PM); and
- Saturday Midday (1:00 PM to 2:00 PM).

STUDY AREAS

As explained more fully below, the study area defined for the transit analyses (subway and bus) includes subway stations and subway lines within approximately a one-mile walking distance of the Development Site, and bus routes within approximately a ½-mile walking distance of the Development Site. In addition, analyses of pedestrian elements were conducted for key locations along proposed pedestrian paths and near transit facilities.

TRANSIT

Subway Stations

The key elements (turnstiles, high exit/entrance turnstiles [HEETs], service gates, and stairways) analyzed within the transit study area for 2008 were located at the two subway stations closest to the Development Site (Figure 18-1):

- 34th Street-Penn Eighth Avenue Station (A, C, and E Routes)
- 34th Street-Penn Seventh Avenue Station (1, 2, and 3 Routes)

In recognition of the center island express platform configuration at these two stations, this chapter analyzes, in addition to the analyses undertaken in accordance with standard CEQR practice, the Proposed Actions' potential impacts on these platform stairways.

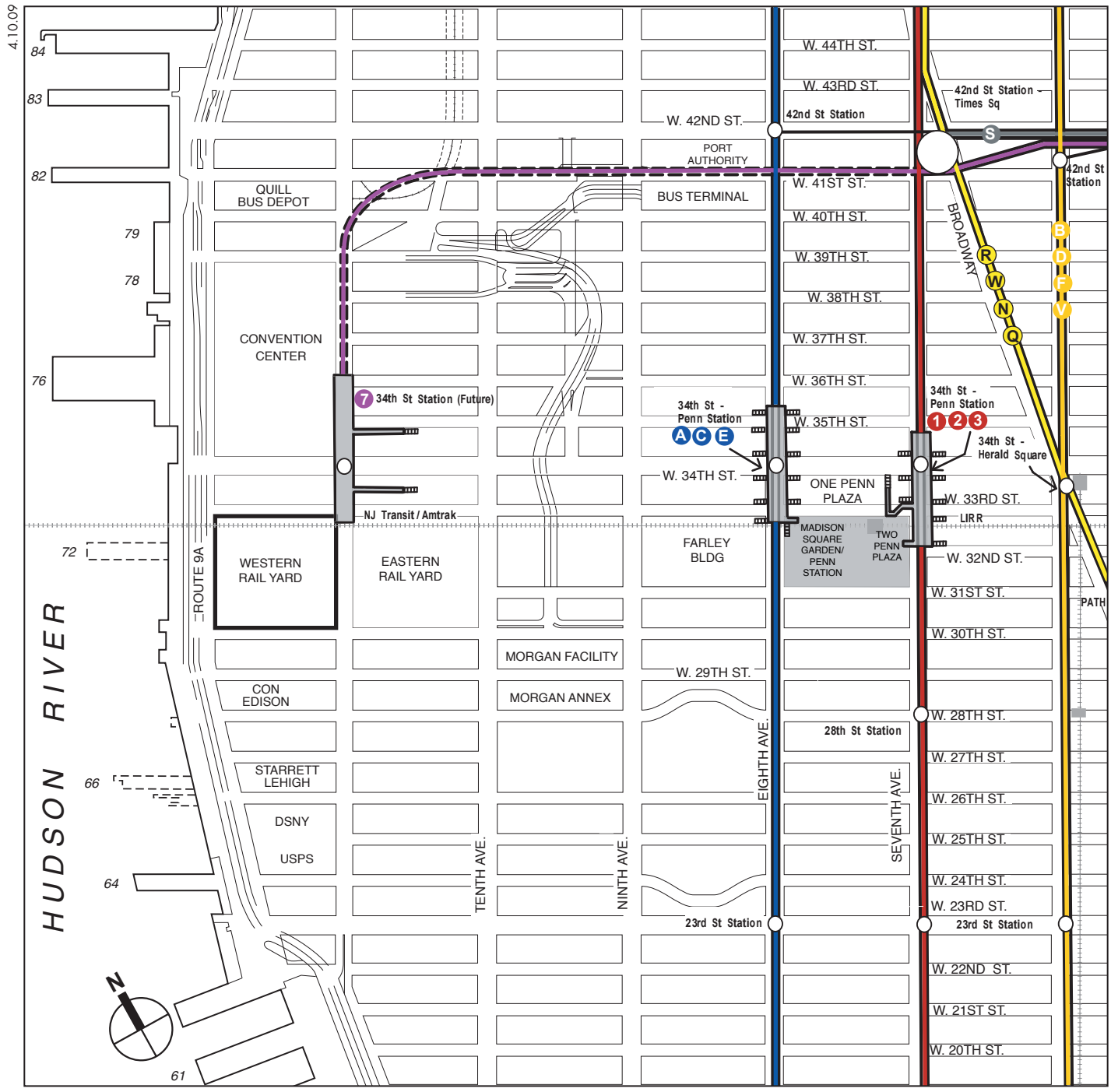
The two southernmost stairs serving the express platform at the 34th Street-Penn Eighth Avenue Station will be relocated and rebuilt in conjunction with the Moynihan Project. In addition, a new stairway is expected to be constructed at the southern end of the 34th Street-Penn Seventh Avenue Station's express platform. These changes are reflected in the analyses below for the Future without the Proposed Actions and the Future with the Proposed Actions.

A total of 72 subway station elements were analyzed at these stations during the AM and PM peak periods including: 11 turnstiles, 5 HEETs, 12 service gates, and 44 stairways.[1] (See Appendix E, "Transportation Technical Memos and Analyses," for a complete listing of the elements analyzed for the existing conditions.)

For the 2017 and 2019 analysis years, the transit analysis also includes the key elements (turnstiles, HEETs, service gates, escalators, and stairways) at the new No. 7 subway station at 34th Street and Eleventh Avenue and new escalators for the 34th Street Station associated with the Access to the Region's Core (ARC) Project.

A total of 113 subway station elements were analyzed for these stations during the AM and PM peak periods, including 13 turnstiles, 6 HEETs, 13 service gates, 25 escalators, and 56 stairways, for the 2017 and 2019 analysis years.

[1] A total of 44 stairways were analyzed in the existing conditions; 45 stairways were analyzed in the Future with and without the Proposed Actions, including a new stairway expected to be constructed at the south end of the 34th Street-Penn Seventh Avenue Station (Nos. 1, 2, 3) station's express platform.



Subway Lines
Figure 18-1

Bus Routes

The transit analysis includes a capacity analysis of bus routes within a ½-mile radius of the boundaries of the Proposed Actions and assesses bus load levels at the maximum load points along each route. The following bus routes were analyzed: M10, M20, M11, M34, M16, and M42 (Figure 18-2). A detailed description of these bus routes is provided below in the Existing Conditions section. Analysis of bus route capacity was based on the *CEQR Technical Manual* input criteria of 65 passengers per standard bus and 93 passengers per articulated bus (a bus composed of two bus sections connected by a "turntable" or an articulated joint).

PEDESTRIANS

The pedestrian analysis assesses sidewalks, crosswalks, and corners at intersections along key projected pedestrian paths and adjacent to subway stations entrances/exits serving the project components. The pedestrian locations selected are presented in Figure 18-3. A total of 21 intersections were analyzed for the weekday AM, midday, and PM peak hours and 16 intersections were analyzed for the Saturday midday peak hour. These locations were selected based upon the trip generation and assignment for the Development Site. Figure 18-4 identifies the sidewalk, corner, and crosswalk analysis locations at a typical intersection. A total of 293 pedestrian elements were analyzed for the weekday AM, midday, and PM peak hours, including 148 sidewalks, 75 crosswalks, and 70 corners. A total of 225 pedestrian elements were analyzed for the Saturday midday peak hour including 114 sidewalks, 57 crosswalks, and 54 corners.

CAPACITY ANALYSIS

TRANSIT

Subway Stations

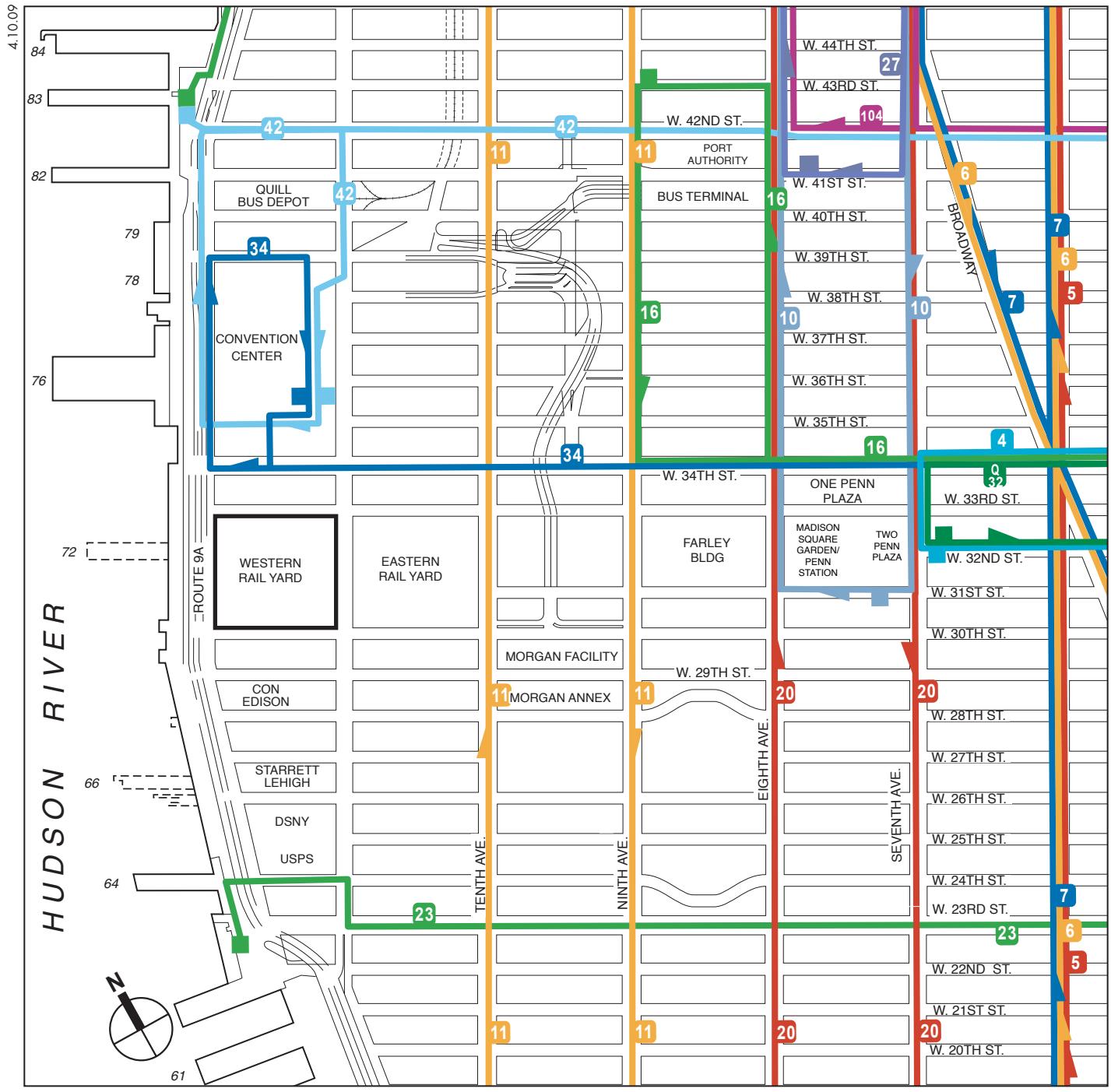
The subway station analysis was prepared using the design capacities for stairs, corridors/ passageways, escalators, turnstiles, and HEETs specified in the *NYCT Station Planning and Design Guidelines*[1], the procedures set forth in *Pedestrian Planning and Design*[2], and the *CEQR Technical Manual* for existing subway stations. As described in these sources, the effective widths of stairwells are assumed to be one foot less than the actual width to account for handrails and similar obstructions. The effective widths of corridors and passageways are based on the narrowest point minus two feet to account for a buffer between walls and obstructions. Additionally, a 10-percent reduction in capacity of station elements was applied to account for reverse flows when one-half to two-thirds of the pedestrian flow is in one direction. When more than two-thirds of the pedestrian flow is in one direction, a 20-percent reduction in capacity was incorporated to reflect reverse flow. No reduction is applied to the capacity when the pedestrian flow is essentially unidirectional.

Stairways

The analysis was conducted using pedestrian Level of Service (LOS) which equates pedestrian flow per minute per foot of width with qualitative measures of pedestrian comfort. The LOS criteria for pedestrian stairways are defined in Table 18-1. LOS A represents free flow conditions without pedestrian conflicts and LOS F represents significant capacity limitations and inconvenience.

[1] Station Planning and Design Guidelines, NYCT, 2004.

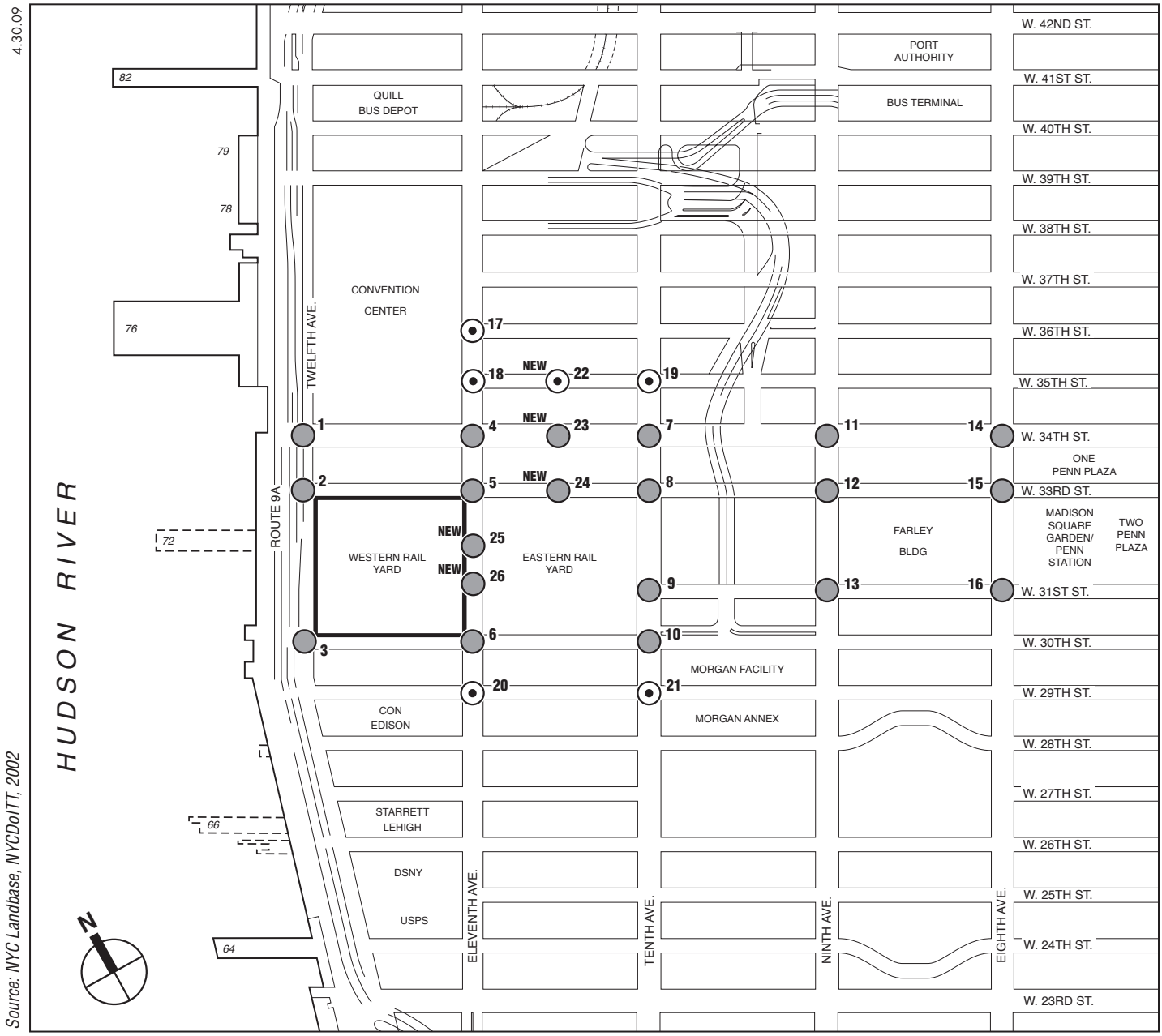
[2] John J. Fruin, Pedestrian Planning and Design, Revised Edition, 1987.



Legend

- *Project Site Boundary*
- # *Local Bus Routes*
- *Local Bus Routes and Terminus*

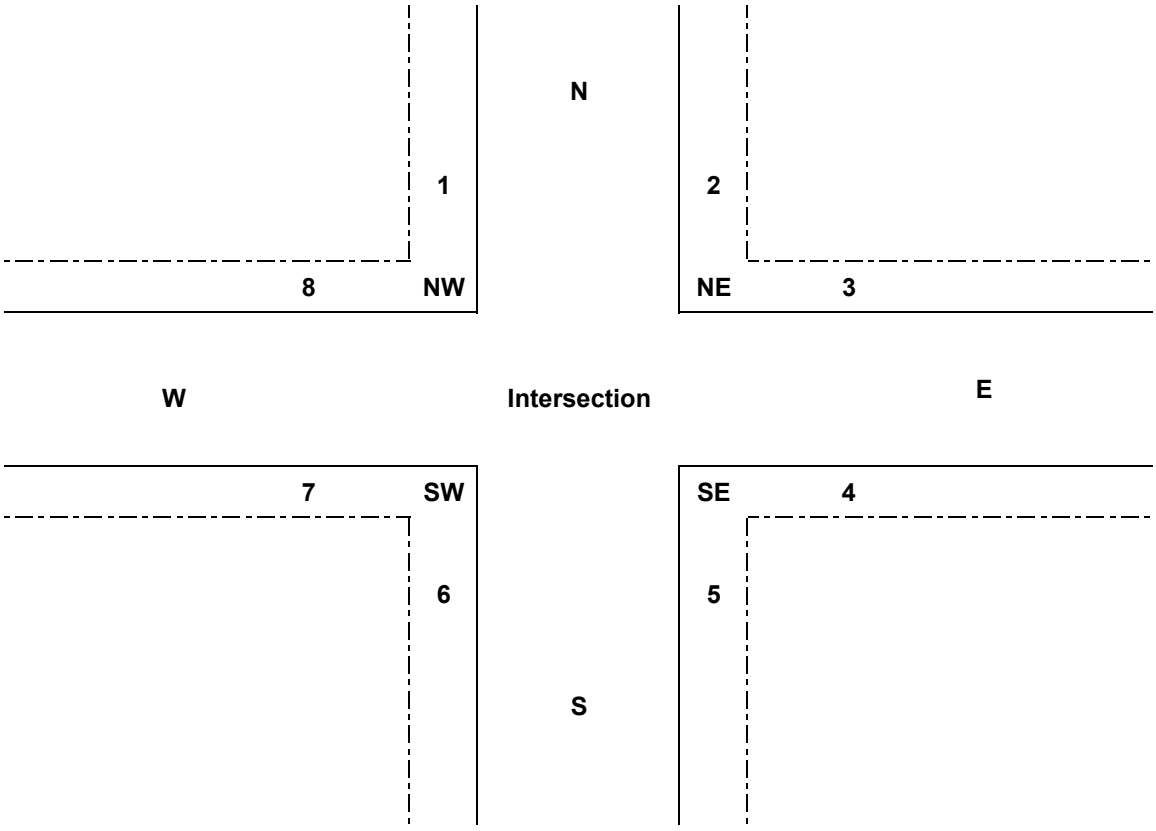
Bus Routes
Figure 18-2



Pedestrian Analysis Locations

- *Weekday AM, Midday, PM, and Saturday Peak Hours*
- *Weekday AM, Midday, and PM Peak Hours*
- **NEW** *New Future Intersections*

Pedestrian Analysis Locations
Figure 18-3



Sidewalks: 1, 2, 3, 4, 5, 6, 7, 8

Corners: NE - Northeast, SE - Southeast, SW - Southwest, NW - Northwest

Crosswalks: N - North, E - East, S - South, W - West

Sidewalk, Corner, and Crosswalk Location Key

Figure 18-4

The LOS for stairways was evaluated based on the Volume/SVCD or "v/svcd" (service volume between LOS C and D) capacity ratio. The breakpoint between LOS C and LOS D at a volume-to-capacity (v/c) ratio of 1.00 has been established as the design standard for pedestrian conditions by NYCT.

Table 18-1
LOS Criteria for Stairways

LOS	Pedestrians per Foot of Width per Minute (PFM)	Volume/SVCD Ratio	Comments
A	5 or fewer	< 0.45	Unrestricted
B	5 – 7	0.46 to 0.70	Slightly restricted, no impact on speed
C	7 – 10	0.71 to 1.00	Speeds reduced, difficult to pass
D	10 – 13	1.01 to 1.33	Restricted, reverse flow conflicts
E	13 – 17	1.34 to 1.67	Severely restricted
F	17 or more	> 1.67	Many stoppages, no discernible flow
Source: *CEQR Technical Manual*, Page 3P-6			

Therefore, LOS C/D was used to determine the design capacity of the critical station stairways during each peak 15-minute period in the peak hour. Stairway capacities at LOS C/D were decreased by either 10 or 20 percent (depending on flow conditions) to account for pedestrians traveling in both directions. This is known as a friction factor.

Turnstiles, Escalators, and HEETs

The capacity of an escalator is based upon the speed and the width of the steps. The nominal capacities of two types of escalators with an incline speed of 100 feet per minute, which are typical of the new escalators proposed for the new 34th Street-Eleventh Avenue Station (No. 7 Route) and ARC Project are presented in Table 18-2. The nominal capacity for HEETs is 20 persons per minute.

Table 18-2
Escalator Capacity

Width at Hip (Inches)	Width at Tread (Inches)	Nominal Capacity (Persons/Minute)
32	24	51
48	40	85
Source: NYCT, Division of Operations Planning		

The v/c ratios were calculated to determine the levels of service of each escalator for the peak 15-minute conditions during each peak hour.

The volume of passengers processed through a turnstile, service gate, escalator, or HEET was compared with that element's capacity to determine its v/c ratio. Any v/c ratio greater than 1.00 signified that volumes were beyond capacity and would result in extended queues. In addition, an element (turnstile, escalator, or HEET) that is approaching capacity (v/c ratio between 0.9 and 1.00) will be identified.

Subway Line Haul

Subway line haul assessment is based on the NYCT subway car loading guidelines (guideline capacity) applied to the number of cars per hour. The guideline capacities of subway cars utilized in the analysis are presented in Table 18-3 and are intended for rush hours at peak frequencies.

Table 18-3
Subway Car Guideline Capacity

Train Type/Car Length	Guideline Capacity per Car	Number of Cars Per Train	Maximum Rush Hour Guideline Capacity per Train
No. 7 route Cars (A Division)/51 feet	110	11	1,210
Source: NYCT, Division of Operation Planning			

The line haul capacity of a given subway line is determined by first multiplying the number of trains per hour by the number of cars per train, and then the result is multiplied by the guideline capacity per car. The volume of riders passing a given point can be compared with the line-haul capacity of the subway line. The results of the analyses determine whether there is sufficient capacity per car per train to accommodate the existing and future transit loads at the maximum load point of the subway line.

For the Future without the Proposed Actions, the No. 7 line extension will have been completed with a station at 34th Street and Eleventh Avenue, providing direct subway access to the Hudson Yards area and the Development Site.

Usually, subway line haul usage in the future without the proposed action condition is calculated by adding new riders generated by known developments to existing ridership. However, since subway ridership data does not yet exist for the No. 7 line extension, which is under construction, the subway line haul analysis for the Future without the Proposed Actions condition was based on subway line haul forecasts for future conditions developed in the *No. 7 Subway Extension – Hudson Yards Rezoning and Development Program Final Generic Environmental Impact Statement* ("*Hudson Yards FGEIS*"). This Future without the Proposed Actions line haul analysis is conservative because the *Hudson Yards FGEIS* forecasts included riders generated by the full build out of the Hudson Yards area. However, since the Jacob K. Javits Convention Center ("Convention Center") expansion and the Multi-Use Facility as proposed in the *Hudson Yards FGEIS* are no longer assumed, subway trips associated with these facilities in the *Hudson Yards FGEIS* were removed from the Future without the Proposed Actions line haul analysis.

It is expected that the Proposed Action would generate less than 200 subway riders for the No. 7 route at the existing peak load points in Queens. A line haul assessment was performed for the Flushing Line (No. 7 route) because more than 50 percent of the Proposed Actions' generated subway trips would use this subway line when it is extended. As in the *Hudson Yards FGEIS*, the subway line haul assessment was performed for the AM peak hour.

Bus Routes

The operating conditions for bus service are measured in terms of the number of passengers carried per bus in the peak direction at the peak 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 were compared with the NYCT loading guidelines of 65 passengers per standard bus and 93 people per articulated bus at the peak load point during the AM and PM peak hours.

PEDESTRIAN

Peak 15-minute pedestrian flow conditions are analyzed for the peak hours using the *2000 Highway Capacity Manual* methodology. Under this methodology, the congestion level of pedestrian facilities is determined by considering pedestrian volume, measuring the sidewalk or crosswalk width, determining the available pedestrian capacity and developing a ratio of existing volume flows to capacity conditions. The resulting ratio is then compared with LOS standards for pedestrian flow, which define a qualitative relationship at a certain pedestrian traffic concentration level.

The analysis of sidewalk conditions includes a "platoon" factor in the calculation of pedestrian flow to more accurately estimate the dynamics of walking. "Platooning" is the tendency of pedestrians to move in bunched groups or "platoons" once they cross a street where cross traffic requires them to wait. Platooning generally results in a level of service one level lower than that determined for average flow rates.

The evaluation of street crosswalks and corners is more complicated as these spaces cannot be treated as corridors due to the time incurred waiting for traffic lights. To effectively evaluate these facilities a "time-space" analysis methodology is employed which takes into consideration the traffic light cycle at intersections.

LOS standards are based on the average area available per pedestrian during the analysis period, typically expressed as a 15-minute peak period. LOS 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 18-4 defines the LOS criteria for pedestrian sidewalk conditions, crosswalk, and corner area conditions for signalized intersections, and crosswalk conditions for unsignalized intersections based on the *Highway Capacity Manual* methodology.

Table 18-4
LOS for Criteria for Sidewalk, Crosswalk, and Corner Area Conditions*

Levels of Service		Platoon Adjusted Sidewalk Flow Rate (ped./min./ft.)	Crosswalk and Corner Areas at Signalized Intersections (sq. ft./ped.)	Crosswalk Delays at Unsignalized Intersections (sq. ft./ped.)
A	Unrestricted	≤ 0.5	≥ 60	< 5
B	Slightly Restricted	> 0.5 and <3	≥ 40	≥ 5 and < 10
C	Restricted but fluid	> 3 and <6	≥ 24	≥ 10 and < 20
D	Restricted, necessary to continuously alter walking stride and direction	> 6 and <11	≥ 15	≥ 20 and < 30
E	Severely restricted	> 11 and<18	≥ 8	≥ 30 and < 45
F	Forward progress only by shuffling; no reverse movement possible	> 18	< 8	> 45

Note: * Based on average conditions for 15 minutes.
Source: Highway Capacity Manual, 2000.

TRIP GENERATION

In order to analyze the potential impact of the Proposed Actions on transit and pedestrian conditions, it was necessary to identify the additional vehicular, transit, and pedestrian trips that would be generated by the Proposed Actions. A combination of standard references, observed data collected specifically for this project, and other planning assumptions were used to forecast travel demand.

The total number of daily person-trips to and from the project sites through the study areas was calculated by multiplying the daily trip generation rate of each project component by its size; this result was then split into peak hour trips by applying the percent of the daily total occurring in individual hours of the days (known as temporal distribution) and their associated directional distributions ("ins" versus "outs"). The temporal distribution for each land use was then further sorted by the various available modes of transportation, which include auto, taxi, bus, subway, commuter railroad, walk-only, and other modes. This distribution of travel modes is referred to as the modal split. For persons expected to use auto or taxi modes, person-trip estimates were subsequently converted into vehicle trips by applying average vehicle occupancy rates in order to determine vehicle trips generated by each land use type. A similar methodology was used to calculate the total number of daily truck trips associated with individual project components. A series of detailed technical memoranda detailing the process used to select trip generation rates for each land use analyzed in the study area is included in Appendix E, "Transportation Technical Memos and Analyses," and is discussed in Chapter 17, "Traffic and Parking."

Trip generation was projected for the Proposed Actions for three development scenarios for the Development Site: the Maximum Commercial Scenario, the Maximum Residential Scenario-Office Option, and the Maximum Residential Scenario-Hotel Option. The total person trips projected for each of these scenarios is presented on Tables 17-4 through 17-6 in Chapter 17, "Traffic and Parking." A comparison of person trip levels was made between these three scenarios to determine which scenario would be analyzed for the Proposed Actions. Based on the comparison results, person trip levels would be highest during the weekday AM, midday, and PM peak hours with the Maximum Commercial Scenario. Therefore, weekday transit and pedestrian analysis was performed for the Maximum Commercial Scenario for the Proposed Actions. For the Saturday peak hour, the Saturday person trip generation is comparable for all scenarios. To be consistent with the Saturday traffic analysis (especially with regard to the walk portion of vehicle trips) in Chapter 17, "Traffic and Parking," the Saturday pedestrian analysis was conducted for the Maximum Residential Scenario-Hotel Option. A summary of person trips by mode projected for each of the analyzed peak hours is presented in Table 18-5.

Table 18-5
2019 Future Peak Hour Person Trips – Generated by Development Site

Peak Hour	In/Out	Person Trips							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Ferry	Total
Weekday AM Peak Hour	In	510	160	863	2,206	908	1,741	36	**6,424**
	Out	217	205	251	1,200	95	1,937	38	**3,943**
	Total	**727**	**365**	**1,114**	**3,406**	**1,003**	**3,678**	**74**	**10,367**
Weekday MD Peak Hour	In	191	230	398	709	18	5,008	11	**6,565**
	Out	191	235	408	713	18	5,174	11	**6,750**
	Total	**382**	**465**	**806**	**1,422**	**36**	**10,182**	**22**	**13,315**
Weekday PM Peak Hour	In	259	237	304	1,309	115	2,371	37	**4,632**
	Out	638	251	984	2,841	1,059	2,115	32	**7,920**
	Total	**897**	**488**	**1,288**	**4,150**	**1,174**	**4,486**	**69**	**12,552**
Saturday Midday Peak Hour	In	217	248	233	**960**	39	2,319	25	**4,041**
	Out	208	233	229	**936**	39	2,269	25	**3,939**
	Total	**425**	**481**	**462**	**1,896**	**78**	**4,588**	**50**	**7,980**

TRANSIT

Transit trips were assigned to various transit facilities including bus routes, subway stations, and commuter rail stations in the study area. The subway and railroad trip assignment is presented on

Table 18-6 and the bus trip assignment is presented on Table 18-7. Transit trip distributions were based on the 2000 Census Data. Residential transit trips were assigned based on 2000 Census Journey-to-Work origin-destination data while trips for office and other land uses were assigned based on 2000 Census Reverse Journey-to-Work origin-destination data. Detailed assumptions for each of the transit facilities are provided in Appendix E, "Transportation Technical Memos and Analyses."

Table 18-6
Subway and Railroad Trip Assignment

Station	AM (In)	AM (Out)	AM (Total)	PM (In)	PM (Out)	PM (Total)
Subway Stations						
No. 7 Line New Station[1]	1,401	656	**2,115**	717	1,736	**2,453**
Eighth Ave Line (A, C, E Routes)	788	454	**1,241**	491	1,020	**1,510**
Seventh Ave Line (1, 2, 3 Routes)	241	112	**353**	125	307	**432**
Sixth Ave Line	102	53	**156**	58	132	**190**
Railroad Stations						
Metro-North (GCT)	15	13	**27**	12	20	**32**
LIRR (GCT)[2]	54	9	**64**	10	64	**75**
LIRR (Penn Station)	100	8	**108**	10	116	**125**
NJ TRANSIT (Penn Station)	282	26	**308**	31	329	**360**
NJ TRANSIT (NYPSE)[3]	387	35	**422**	43	451	**494**
PATH	69	5	**74**	7	80	**87**

Notes:
1. No. 7 Line New Station – a new station at 34th Street and Eleventh Avenue.
2. LIRR (GCT) – a new LIRR station at the Grand Central Terminal as part of the East Side Access Project.
3. New York Penn Station Expansion (NYPSE) – a new station on 34th Street as part of the ARC Project.
4. Detailed transit analysis is not required for the highlighted stations based on CEQR criteria.

Source:
Person trips are based on trip generation forecasts for the Development Site
Distribution is based on 2000 Census Data

Table 18-7
Bus Trip Assignment

Total Bus Trips						
Bus Routes	**AM (In)**	**AM (Out)**	**AM (Total)**	**PM (In)**	**PM (Out)**	**PM (Total)**
M23	6	13	19	6	21	27
M34	842	239	1,081	299	940	1,238
M42	19	11	30	17	16	33
M11	171	88	259	75	259	333
M10/M20	60	43	142	46	127	173
Total	1,445	433	1,918	513	1,734	2,246

Note:
1. Detailed transit analysis is not required for the highlighted bus routes based on CEQR criteria.

Source:
Person trips were based on trip generation forecasts for the Development Site.
Distribution was based on 2000 Census Data

PEDESTRIAN

Pedestrian traffic generated by the Proposed Actions would be routed along the most likely paths between the Development Site and connecting transit service/adjacent neighborhoods. Sidewalk,

crosswalk, and corner condition analyses were conducted focusing on major pedestrian corridors such as West 34th Street, Eleventh Avenue, Tenth Avenue, and other key locations where high pedestrian activity has been projected. The projected net increment in pedestrian trips at each of the analyzed sidewalks, corners, and crosswalks are provided in Appendix E, "Transportation Technical Memos and Analyses."

ADDITIONAL HOUSING SITES

Pursuant to the *CEQR Technical Manual*, no potential for significant adverse transit impacts are anticipated since neither the Ninth nor Tenth Avenue Sites are projected to generate 200 bus or subway trips during peak hours (as indicated in Tables 18-8 and 18-9). Also pursuant to the *CEQR Technical Manual*, no potential for significant adverse pedestrian impacts is anticipated since the number of person trips projected for the Additional Housing Sites is anticipated to be less than the threshold of 200 pedestrian trips at any of the pedestrian elements at intersections in the immediate vicinity of each of these sites.

Table 18-8
2019 Future Peak Hour Person Trips – Generated by Ninth Avenue Site

Peak Hour	In/Out	Person Trips							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Ferry	Total
Weekday AM Peak Hour	In	7	3	13	31	12	23	0	**89**
	Out	4	6	12	20	1	42	0	**85**
	Total	**11**	**9**	**25**	**51**	**13**	**65**	**0**	**174**
Weekday MD Peak Hour	In	4	6	12	14	0	123	0	**159**
	Out	4	6	12	14	0	126	0	**162**
	Total	**8**	**12**	**24**	**28**	**0**	**249**	**0**	**321**
Weekday PM Peak Hour	In	5	7	14	22	2	69	0	**119**
	Out	9	6	19	41	14	58	0	**147**
	Total	**14**	**13**	**33**	**63**	**16**	**127**	**0**	**266**
Saturday Midday Peak Hour	In	3	5	10	14	0	71	0	**103**
	Out	3	5	10	14	0	69	0	**101**
	Total	**6**	**10**	**20**	**28**	**0**	**140**	**0**	**204**

Table 18-9
2019 Future Peak Hour Person Trips – Generated by Tenth Avenue Site

Peak Hour	In/Out	Person Trips							
		Auto	Taxi	Bus	Subway	Railroad	Walk	Ferry	Total
Weekday AM Peak Hour	In	2	3	5	8	0	31	0	**49**
	Out	7	11	22	36	2	75	0	**153**
	Total	**9**	**14**	**27**	**44**	**2**	**106**	**0**	**202**
Weekday MD Peak Hour	In	5	8	16	20	1	148	0	**198**
	Out	5	8	16	20	1	148	0	**198**
	Total	**10**	**16**	**32**	**40**	**2**	**296**	**0**	**396**
Weekday PM Peak Hour	In	8	13	25	38	2	119	0	**205**
	Out	4	7	13	19	1	89	0	**133**
	Total	**12**	**20**	**38**	**57**	**3**	**208**	**0**	**338**
Saturday Midday Peak Hour	In	5	9	17	24	1	106	0	**162**
	Out	5	9	17	24	1	106	0	**162**
	Total	**10**	**18**	**34**	**48**	**2**	**212**	**0**	**324**

IMPACT CRITERIA

TRANSIT

Subway Stations

Stairways

As described in the *CEQR Technical Manual*[1], significant adverse stairway impacts are defined in terms of the width needed to restore Future with the Proposed Actions to Future without the Proposed Actions conditions based on the location of a stair in the station. An affected stairway is one that operates with longer queues in the Future with the Proposed Actions compared to the Future without the Proposed Actions. A significant impact is determined where a minimum threshold for widening that stairway would be necessary to bring the affected operations back to the LOS for the Future without the Proposed Actions. Significant adverse stairway impacts occur under the following conditions if the following widening thresholds are exceeded:

- Build LOS D: widening of six inches or more;
- Build LOS E: widening of three to six inches;
- Build LOS F: widening of one to three inches;
- For all conditions: if widening of less than one inch is required, an impact is not considered significant.

Stairways projected to operate at LOS D or worse in the Future without the Proposed Actions were analyzed in this Environmental Impact Statement (EIS) based on the standard CEQR methodology.

Turnstiles, Escalators, and HEETs

According to the *CEQR Technical Manual*[2], proposed actions that cause a turnstile, escalator, service gate, or HEET to increase from a v/c ratio below 1.00 to a v/c of 1.00 or greater are considered to create a significant impact. Where a facility would already have a v/c ratio of 1.00 or greater, a 0.01 increase in v/c ratio is also considered significant.

Subway Line Haul

Increases in per car load levels that remain within NYCT subway car loading guidelines ("guideline capacity") are not considered a significant adverse impact. A projected increase from a condition in the future without the proposed action within guideline capacity, to a condition in the future with the proposed action that exceeds guideline capacity is considered a significant impact. The *CEQR Technical Manual* specifies that a significant impact is considered to occur if the v/c ratio would be over capacity in the future without the proposed action and the proposed action generates five or more transit riders per car or if the route is projected to operate under capacity in the future without the proposed action and over capacity in the future with the proposed action.

[1] Page 3P-14.

[2] Page 3P-14.

Bus Routes

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 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, taking into account financial and operational constraints.

PEDESTRIAN OPERATIONS

Sidewalks

For sidewalks within the Manhattan Central Business District (CBD), a significant impact is considered to occur if a pedestrian flow rate of 15 or more pedestrians per foot per minute (PFM) under the future without the proposed actions (the threshold of LOS D and E) is projected to increase by 2 PFM in the future with the proposed actions. Platoon conditions are assumed during the assessment of significant adverse impacts.

Crosswalks and Corners

For crosswalks and corners within the Manhattan CBD, a significant adverse impact is considered to occur for decreases in pedestrian area occupancies of one square foot (sf) or more per person under the future without the proposed action condition when the future with the proposed action condition has average occupancies under 15 sf per pedestrian (the threshold of LOS D and E). For crosswalks, maximum surge conditions are used for assessing significant adverse impacts. A projected pedestrian volume increase of fewer than 200 pedestrians per hour is not considered a significant impact, since that level of increase is not generally noticeable.

C. DATA COLLECTION

TRANSIT NETWORK

SUBWAY STATIONS

Pedestrian counts were collected for the stairways and fare arrays for the 34th Street-Penn Eighth Avenue Station during the weekday AM (7:00 to 9:30) and PM (4:00 to 6:30) peak periods in 2007. For the 34th Street-Penn Seventh Avenue Station, pedestrian volumes were based on data collected as part of the ongoing *Expanded Moynihan/Penn Station Redevelopment Project Supplemental Environmental Impact Statement (SEIS)* in 2007. These counts were summarized into 15-minute intervals during each peak period. Turnstile registration data for these two stations were provided by NYCT for 2007 and 2008. The turnstile registration data from 2007 and 2008 were used to adjust the 2007 station element count data to 2008 conditions. Measurements were taken of all of these elements and the effective widths were calculated based upon the reduction of six inches on either side of any obstructions (walls, handrails, etc.).

SUBWAY LINE HAUL

The most recent available (2007) subway peak load point data for the No. 7 route were obtained from NYCT, including peak hour passenger volume, trains per hour, and capacity per train for

the weekday AM and PM peak hours. (The 2008 subway peak load point data will be incorporated into the FEIS, if it is available prior to the time of publication.)

BUS ROUTES

Bus ridership data (the most recent data available) were provided by NYCT for the M10, M11, M16, M20, M34, and M42 routes based on 2004-2007 Ride-Check survey results. These data were utilized as the baseline for existing bus ridership conditions. Year 2008 bus ridership data that becomes available prior to the time of publication will be incorporated into the FEIS.

PEDESTRIAN ELEMENTS

Pedestrian (sidewalk, corner, and crosswalk) counts for the weekday AM (7:00 to 9:30), midday (11:00 to 2:00), and PM (4:00 to 6:30) peak periods were collected for the 21 analyzed intersections in 2008. These pedestrian counts included principal sidewalks, crosswalks, and corner areas providing access to the Proposed Actions. These counts were collected after restriping of traffic lanes on 34th Street to allow implementation by NYCT of a bus priority corridor. Pedestrian counts for the Saturday midday (12:00 to 5:00) were collected for the 16 analyzed intersections also in 2008. These counts were summarized into 15-minute intervals during each peak period.

A physical inventory of each key intersection was performed. Field reconnaissance surveys were conducted at these intersections to establish the existing physical characteristics including sidewalk width, effective sidewalk width, crosswalk widths, crosswalk lengths (roadway width from curb to curb), and corner radius. The official signal timing data current as of 2008 were obtained from the New York City Department of Transportation (NYCDOT).

D. EXISTING CONDITIONS

This section describes the existing subway, bus, and ferry operations currently serving the study area. Existing pedestrian conditions are also described.

TRANSIT

SUBWAY LINES

While the *CEQR Technical Manual* recommends that subway stations within ½-mile of a project site be analyzed, there are no existing subway stations within that distance from the Development Site. The two closest stations are 34th Street-Penn Eighth Avenue Station, which is just over ½-mile away, and the 34th Street-Penn Seventh Avenue Station, which is approximately 0.7 miles away.[1] The 34th Street-Penn Eighth Avenue Station is served by the A, C, and E routes and the 34th Street-Penn Seventh Avenue Station is served by the 1, 2, and 3 routes. Figure 18-1 shows the locations of these subway stations. Since there is currently no subway service west of Eighth Avenue, subway riders must transfer to a cross-town bus route, take a taxi, or walk to access the Development Site. The following is a brief description of the

[1] The 34th Street-Herald Square station (Sixth Avenue and Broadway lines) is located approximately 0.85 miles from the Development Site, but since the Proposed Actions are projected to generate fewer than 200 subway trips at this station, no detailed analysis of it is required.

subway lines serving the 34th Street-Eighth Avenue and 34th Street-Seventh Avenue subway stations, as well as a description of the Flushing Line:

Eighth Avenue Line (A, C, and E Routes)

The Eighth Avenue Line (A, C, and E routes) provides service to the west side of Manhattan, Queens, and Brooklyn. The A and E routes also provide access to the John F. Kennedy International Airport AirTrain. Within the study area, the line operates north/south under Eighth Avenue. The A route operates as an express service through the study area while the C and E routes operate as local service through the study area. All of these subway routes stop at the station for 34th Street-Penn Eighth Avenue Station. It should be noted that transfers are provided at the 42nd Street Station to access the Seventh Avenue, Flushing, and Broadway Lines.

Seventh Avenue Line (Nos. 1, 2, and 3 Routes)

The Seventh Avenue Line provides service between the study area and the Bronx, Upper West Side of Manhattan, downtown Manhattan, and western and central Brooklyn, including access to South Ferry and the Financial District. Within the study area, the line operates north/south under Seventh Avenue. The Nos. 2 and 3 routes operate as express service through the study area while the No. 1 route operates as local service through the study area. All of these subway routes stop at the station at 34th Street-Penn Seventh Avenue Station. The Seventh Avenue Line also stops at the Times Square-42nd Street Station where passengers can transfer to the Eighth Avenue, Flushing, and Broadway Lines.

Flushing Line (No. 7 Route)

Currently, the Flushing Line does not serve the transit study area. The Flushing Line connects central and northeastern Queens with Midtown Manhattan. Although the Flushing Line offers both local and express service in Queens, both services stop at all stations along the line in Manhattan. Transfers are available at the Times Square-42nd Street Station for the Eighth Avenue, Broadway, and Seventh Avenue Lines and the 42nd Street Shuttle. For the Future without the Proposed Actions condition (below), the new No. 7 Station would be located at Eleventh Avenue and West 34th Street. Since more than 50 percent of the project generated subway trips would use the Flushing line, the Flushing Line operating conditions are also included in this EIS.

For the Flushing Line, the number of trains per hour, capacity per train, peak hour capacity, peak hour volume and v/c ratio at the peak load point in the peak direction during the weekday AM and PM peak hours are shown in Table 18-10. As indicated in the table, the inbound express No. 7 route currently operates at loading capacity with a v/c ratio of 1.05 at the Woodside-61st Street Station during the AM peak hour. The inbound local No. 7 route operates below the loading capacity with a v/c ratio of 0.85 at the 40th Street Station. The outbound local and express No. 7 routes operate below the loading capacity with a v/c ratio of 0.75 during the PM peak hour.

Table 18-10
Existing Subway Line Haul Conditions (Flushing Line)

Subway Line	Peak Load Point	Trains per Hour	Capacity per Train	Peak Hourly Capacity	Peak Hour Volume	V/C ratio
AM Peak Hour (Manhattan-bound)						
Local	40th Street	13	1,210	15,730	13,380	0.85
Express	Woodside-61st Street	13	1,210	15,730	16,472	1.05
PM Peak Hour (Queens-bound)						
Local	74 Street-Broadway	12	1,210	14,520	9,452	0.65
Express & Local	Queensboro Plaza	25	1,210	30,250	22,630	0.75

Source: NYCT 2008

SUBWAY STATIONS

This section describes the 34th Street-Penn Eighth Avenue Station and the 34th Street-Penn Seventh Avenue Station. The results of the analysis of station elements for the existing conditions during the weekday AM and PM peak 15-minutes are provided in Appendix E. The analysis indicates that most of station elements currently operate at or below capacity. For station elements that currently operate near or above capacity, the results including pedestrian volumes and v/c ratios are presented in Table 18-11. For station stairways that would operate near or above capacity, the results including pedestrian volumes, v/svcd ratio, and LOS are presented in Table 18-12. Of the 72 station elements studied, congested operating conditions occur at stairway ML14 near Control Area R138 in the 34th Street-Penn Seventh Avenue Station during the weekday AM peak period and at stairway ML14, the service gate for Control Area R138, and at stairway U3 near Control Area R135 in the 34th Street-Penn Seventh Avenue Station during the weekday PM peak period. The following provides details relating to operations at these subway stations in 2008.

Table 18-11
Existing Conditions:
Subway Station Elements Operating Above Capacity

Control Area	Station Elements	AM Peak 15-Minute		PM Peak 15-Minute	
		Volume	V/C Ratio	Volume	V/C Ratio
34th Street–Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)					
R138 (33rd Street Sub passage to Penn Station)	Service Gate	-	-	622	1.04

Table 18-12
Existing Conditions:
Subway Station Stairways Operating at LOS D or Worse

Control Area	Station Elements	AM Peak 15-Minute			PM Peak 15-Minute		
		Volume	V/SVCD Ratio	LOS	Volume	V/SVCD Ratio	LOS
34th Street-Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)							
R135	Stairway U3	1082	0.90	C	1213	1.13	D
R138	StairwayML14	1165	1.14	D	1171	1.02	D

34th Street-Penn Eighth Avenue Station (A, C, and E Routes)

The 34th Street-Penn Eighth Avenue Station is located between West 33rd and West 35th Streets, below Eighth Avenue, and provides a direct connection to the west side of Penn Station. There is no direct, free transfer between this station and 34th Street-Penn Seventh Avenue Station.

The majority of the subway walk trips projected for this station would be assigned to stairways at the 33rd Street access points at control areas N72 and N73. For passengers that would use bus service along 34th Street, the 34th Street access point at control areas N70 and N71 would most likely be used by passengers to access these subway lines from the M34 bus. Since the access points at 35th Street are the furthest access points from the Development Site, no project generated trips are assigned to control areas N69 or N68.

All analyzed elements at this station operate at or below capacity during both the weekday AM and PM peak periods (see Appendix E, "Transportation Technical Memos and Analyses").

34th Street-Penn Seventh Avenue Station (Nos. 1, 2, and 3 Routes)

The 34th Street-Penn Seventh Avenue Station is located between West 31st and West 33rd Streets. There is no direct, free transfer between this station and 34th Street-Penn Eighth Avenue Station. The 34th Street-Penn Seventh Avenue Station consists of a track level, mezzanine level, and street level. The mezzanine level connects to the Long Island Rail Road (LIRR) concourse of Penn Station.

For this station, all elements operate at or below capacity with the exception of the following elements (Table 18-11 and Table 18-12):

- Control Area R135 - Staircase (U3) located near the southern end of the express (Nos. 2 and 3 routes) platform operates at LOS D with a v/svcd ratio of 1.13 during the PM peak 15 minutes.
- Control Area R138 - The northern staircase (ML14) serving the control area serving this control area from the express (Nos.2 and 3 routes) platform operates at LOS D during both the AM and PM peak 15 minute periods, with v/svcd ratios of 1.14 and 1.02 respectively.
- Control Area R138 – The service gate located at the West 33rd Street passageway to Penn Station operates at LOS F with a v/svcd ratio of 1.04 during the PM peak period.

RAILROAD STATIONS

The existing Penn Station serves as the western terminal for the Long Island Rail Road, the eastern terminal for NJ TRANSIT, and a major station stop for Amtrak. Penn Station contains multiple levels, providing access to 21 tracks and 11 platforms, and connections to the Seventh and Eighth Avenue subway lines.

It is anticipated that the Expanded Moynihan/Penn Station Redevelopment Project (Moynihan Project) would be in operation by 2014 and the Access to the Region's Core (ARC) project would in operation by 2016. Since the new access points at the Expanded Moynihan/Penn Station would be closer to the Development Site, it is expected that majority of the project generated NJ TRANSIT trips at Penn Station would use the new access points at West 31st and 33rd Streets between Eighth and Ninth Avenues and at Ninth Avenue between 31st and 33rd Streets. The 308 project generated NJ TRANSIT trips for the Penn Station is less than 2 percent of the 18,589 existing (2005) NJ TRANSIT trips or the 17,157 NJ TRANSIT trips projected for the 2030 condition as the ARC Project during the AM. The 422 project generated NJ TRANSIT trips for the ARC station is also less than 2 percent of the 23,525 NJ TRANSIT trips projected for the 2030 condition as the ARC Project during the AM. In addition, it is expected that both the Moynihan Station and the ARC Project would be designed and built in accordance with relevant MTA, LIRR, NJ TRANSIT, and Amtrak standards to acceptably process the projected number of users of these facilities and that these two projects would be in operation by 2017 to relieve severely overcrowded conditions at the existing Penn Station.

The existing Metro-North station and the new LIRR station proposed as part of the East Side Access project would be located at Grand Central Terminal. It is expected that persons would travel between the Project Site and Grand Central Terminal (Metro-North and LIRR trips) on the No. 7 route. Since the Proposed Actions are projected to generate fewer than 200 trips at each of these stations, no detailed analysis is required for these stations. Similarly, since the Proposed Actions are projected to generate fewer than 200 trips at the 34th Street PATH Station, no detailed analysis is required.

BUS ROUTES

There are seven NYCT local bus routes currently serving the study area as shown in Figure 18-2. These routes are: M10/M20, M11, M23, M16/M34, and M42. Northbound and southbound bus service is provided in the study area on the M10 and M20 bus routes along Seventh and Eighth Avenues and the M11 bus route along Ninth and Tenth Avenues. The M16 and M34 bus routes provide eastbound and westbound bus service along 34th Street. These bus routes provide connections to north-south bus routes and to the subway lines with stations along the 34th Street corridor.

The following is a brief description of the bus routes that provide service within a ½-mile radius of the study area.

M10/M20

M10

The M10 bus operates daily between West 31st Street at Seventh Avenue (Penn Station) and West 155th Street/Frederick Douglass Boulevard. The major streets of operation are Eighth Avenue, Central Park West, Frederick Douglass Boulevard, and Seventh Avenue. The frequency of service is every 9 minutes in both the northbound and southbound directions during both the AM and PM rush hours

The maximum load point in the northbound direction occurs at Frederick Douglass Boulevard and 125th Street and at Eighth Avenue and 42nd Street during the AM peak hour and Frederick Douglass Boulevard and 125th Street during the PM peak hour. In the southbound direction, the maximum load point occurs at Frederick Douglass Boulevard and 145th Street and at Frederick Douglass Boulevard and 125th Street during both the AM and PM peak hours.

M20

The M20 bus operates daily between Battery Park City and West 63rd Street at Broadway (Lincoln Center). The major streets of operation are Battery Place, West Street, South End Avenue, Hudson Street, Eighth Avenue, West 66th Street, Broadway, Seventh Avenue, Varick Street, West Broadway, and Chambers Street. The frequency of service is every 13 minutes in both the northbound and southbound directions during the AM rush hour. During the PM rush hour, the bus operates every 12 minutes in both directions.

The maximum load point in the northbound direction occurs at Eighth Avenue and West 14th Street and at Eighth Avenue and West 34th Street during the AM peak hour and Eighth Avenue and West 14th Street and at Eighth Avenue and West 42nd Street during the PM peak hour. In the southbound direction, the maximum load point occurs at Seventh Avenue and West 23rd Street and at Seventh Avenue and West 14th Street during the AM peak hour and at Seventh Avenue and 14th Street during the PM peak hour.

M11

The M11 bus operates daily between Bethune/Hudson Streets (Abingdon Square) and West 135th Street at Broadway from approximately 5:00 AM until midnight. Daily service is extended to Riverbank State Park at West 145th Street/Riverside Drive from 8:00 AM to 9:00 PM. The major streets of operation are Greenwich Street, Tenth (Amsterdam) Avenue, Riverside Drive, and Ninth (Columbus) Avenue. The frequency of service is every 9 minutes in both the northbound and southbound directions during the AM rush hour. During the PM rush hour, the bus operates every 10 minutes in both directions.

The maximum load point in the northbound direction occurs at the Amsterdam Avenue and 99th Street intersection during the AM peak hour and the Amsterdam Avenue and 77th Street intersection during the PM peak hour. In the southbound direction, the maximum load point occurs at the Columbus Avenue and 79th Street intersection during the AM peak hour; the maximum load point occurs at Columbus Avenue and 66th Street intersection and the Ninth Avenue and 54th Street intersection during the PM peak hour.

Northbound M11 bus passengers walking to or from the Development Site would most likely use the two bus stops located along the east side of Eleventh Avenue (one north of West 30th Street and the other south of West 34th Street). Conversely, southbound M11 bus passengers walking to or from the Development Site would most likely use the two bus stops located along the west side of Ninth Avenue (one south of West 30th Street and the other south of West 34th Street).

M23

The M23 bus operates daily between West 23rd Street at Twelfth Avenue (Chelsea Piers) and Avenue C at East 20th Street (Peter Cooper Village). Major streets of operation are 23rd Street, Avenue C, and 20th Street. The bus operates with a frequency of service of every 6 minutes in both directions during the AM and PM rush hours.

The Proposed Actions are projected to generate fewer than 200 bus trips on this bus route during the AM and PM peak hours. Therefore, no detailed bus capacity analysis is required for the M23 bus.

M34/M16

M34

The M34 bus provides cross-town service between the Convention Center (Eleventh Avenue between 34th and 39th Streets) and East 34th Street at FDR Drive daily. Customers traveling cross-town on 34th Street between Eighth Avenue and FDR Drive (westbound) and Ninth and Second Avenues (eastbound) can reduce their waiting time by traveling on either the M16 or M34 bus. The major street of operation for this service is 34th Street. The frequency of service is every 8 minutes in both eastbound and westbound directions during the AM rush hour. During the PM rush hour, the bus operates every 10 minutes in both directions.

In the eastbound direction, the maximum load point occurs at the intersection of West 34th Street and Seventh Avenue and at the intersection of East 34th Street and Fifth Avenue during both the AM and PM peak hours. The maximum load point in the westbound direction occurs at the intersection of West 34th Street and Fifth Avenue and at the intersection of East 34th Street and Second Avenue during both the AM and PM peak hours.

Eastbound M34 bus passengers traveling to or from the project site would most likely use the bus stop located along Eleventh Avenue on the south side of West 34th Street. Conversely, westbound M34 bus passengers traveling to or from the Development Site would most likely use the bus stop located along the north side of West 34th Street to the west of Eleventh Avenue.

M16

The M16 bus provides cross-town service between West 43rd Street at Ninth Avenue (Port Authority Bus Terminal) and FDR Drive/Waterside Plaza via 34th Street daily. The major street of operation for this service is 34th Street. The frequency of service is every 8 minutes in both eastbound and westbound directions during the AM rush hour. During the PM rush hour, the bus operates every 10 minutes in both directions.

In the eastbound direction, the maximum load point occurs at the intersection of West 34th Street and Seventh Avenue and at the intersection of East 34th Street and Fifth Avenue during both the AM and PM peak hours. The maximum load point in the westbound direction occurs at the intersection of West 34th Street and Fifth Avenue and at the intersection of East 34th Street and Second Avenue during both the AM and PM peak hours

Since the closest bus stop to the project site for the M16 bus is located at the intersection of Eighth Avenue and West 34th Street, that project generated bus trips would most likely use the M34 bus. The Proposed Actions are projected to generate fewer than 200 bus trips on this bus route during the AM and PM peak hours. Therefore, no detailed bus capacity analysis is required for the M16 bus. However, the M16 nevertheless appears in the analysis because the M16 and M34 Ride-Check data are collected together and cannot be disaggregated.

M42

The M42 bus operates between East 42nd Street at First Avenue (United Nations) and select service to the Convention Center (Eleventh Avenue between West 34th and West 39th Streets) and West 42nd Street at Twelfth Avenue (Circle Line Pier) via 42nd Street. The frequency of service during the AM rush hour is every 9 minutes between West 42nd Street and East 42nd Street and every 13 minutes between the Convention Center and East 42nd Street. During the PM rush hours frequency is every 10 minutes between West 42nd Street and East 42nd Street and every 11 minutes between the Convention Center and East 42nd Street.

In the eastbound direction, the maximum load point occurs at the intersection of West 42nd Street and Eighth Avenue and at the intersection of West 42nd Street and Sixth Avenue during the AM peak hour and at the intersection of West 42nd Street and Sixth Avenue during the PM peak hour. The maximum load point in the westbound direction occurs at the intersection of West 42nd Street and Seventh Avenue and at the intersection of West 42nd Street and Eighth Avenue during the AM peak hour and at the intersection of West 42nd Street and Seventh Avenue during the PM peak hour.

The Proposed Actions are projected to generate fewer than 200 bus trips during the AM and PM peak hours. Therefore, no detailed bus capacity analysis is required for the M42 bus.

Bus Conditions

NYCT Ride-Check survey results were used to determine the peak hour bus service during the AM and PM peak hours within the study area.

Table 18-14 summarizes the existing bus conditions, including the number of buses per hour, maximum passenger volume at the peak load point, average volume per bus, and utilized and available capacity on each route by direction during the peak hours.

As presented in Table 18-13, the data indicates that all bus routes in the study area currently operate under capacity at their peak load points during both the AM and PM peak hours. Existing available capacity during the AM peak hour ranges from 94 on the southbound M11 bus to 411 on the northbound M10/M20 buses. Existing available capacity during the PM peak hour ranges from 166 on the westbound M34/M16 buses to 391 on the northbound M10/M20 buses.

Table 18-13
Existing Bus Operating Conditions

Bus Route	Direction	Buses per Hour[1]	Per Bus Capacity	Hourly Capacity[2]	Hourly Volume[1]	Average Volume per Bus	Hourly Available Capacity (Capacity – Volume)
AM Peak Hour							
M10	NB	9	65	585	174	19	411
M20	SB	12	65	780	371	31	409
	NB	5	65	325	231	46	94
M11	SB	6	65	390	281	47	109
M34	EB	17	65	1,105	931	55	174
M16	WB	15	65	975	610	41	365
PM Peak Hour							
M10	NB	12	65	780	426	36	354
M20	SB	11	65	715	324	29	391
	NB	6	65	390	195	33	295
M11	SB	6	65	390	164	27	226
M34	EB	12	65	780	548	46	232
M16	WB	12	65	780	614	51	166

Source: NYCT Ride-Check Surveys (2005-2007)
1 All data is for peak load points in 2005, 2006, and 2007, 1 year of the most recent NYCT data available.
2 Hourly capacity based on NYCT guideline of 65 passengers per bus.
3 Data include both routes.

Table 18-14
Existing Sidewalk Conditions – LOS D or Worse

Intersection	Sidewalk Location	Effective width (ft)	Peak 15-min Volumes	Pedestrian Flow Rate (p/min/ft)	Platoon-Adjusted LOS
AM Peak Period					
14. Eighth Avenue and West 34th Street	2	7.1	773	7.3	D
Midday Peak Period					
14. Eighth Avenue and West 34th Street	2	7.1	701	6.6	D
PM Peak Period					
11. Ninth Avenue and West 34th Street	2	3.0	281	6.2	D
14. Eighth Avenue and West 34th Street	2	7.1	806	7.6	D
15. Eighth Avenue and West 33rd Street	1	5.4	564	7.0	D
15. Eighth Avenue and West 33rd Street	2	10.5	968	6.2	D
Saturday Peak Period					
14. Eighth Avenue and West 34th Street	6	5.5	611	7.4	D

34TH STREET BUS LANES

In 2008, bus lanes were installed along 34th Street between First and Eleventh Avenues in Manhattan, and 34th Street was re-striped from six lanes to five with the two curbside lanes striped wide enough to accommodate buses. In addition, overhead gantry signs were installed over the bus lanes, clearly marking the lanes painted bright terra cotta for exclusive bus use. A turn-signal priority system was installed at the West 34th Street and Seventh Avenue intersection giving the M4 and Q32 buses priority to turn left onto southbound Seventh Avenue.

FERRY SERVICE

Currently, a privately owned ferry operator (New York Waterway) is the sole operator of commuter ferry service within a ½-mile of the Development Site. New York Waterway operates scheduled ferry routes between Pier 78, located at West 39th Street, and seven New Jersey ports: Belford/Harbor Way, Edgewater Ferry Landing, Hoboken/14th Street, Lincoln Harbor/Weehawken, Newport, Paulus Hook, and Port Imperial/Weehaken. New York Waterway also provides free shuttle buses that serve to transport passengers between the ferry terminal at Pier 78 and various locations in Midtown and Lower Manhattan.

The Proposed Actions are projected to generate fewer than 200 ferry trips during the AM and PM peak hours. Consistent with the *CEQR Technical Manual*, no detailed ferry analysis is required.

PEDESTRIAN ELEMENTS

SIDEWALKS

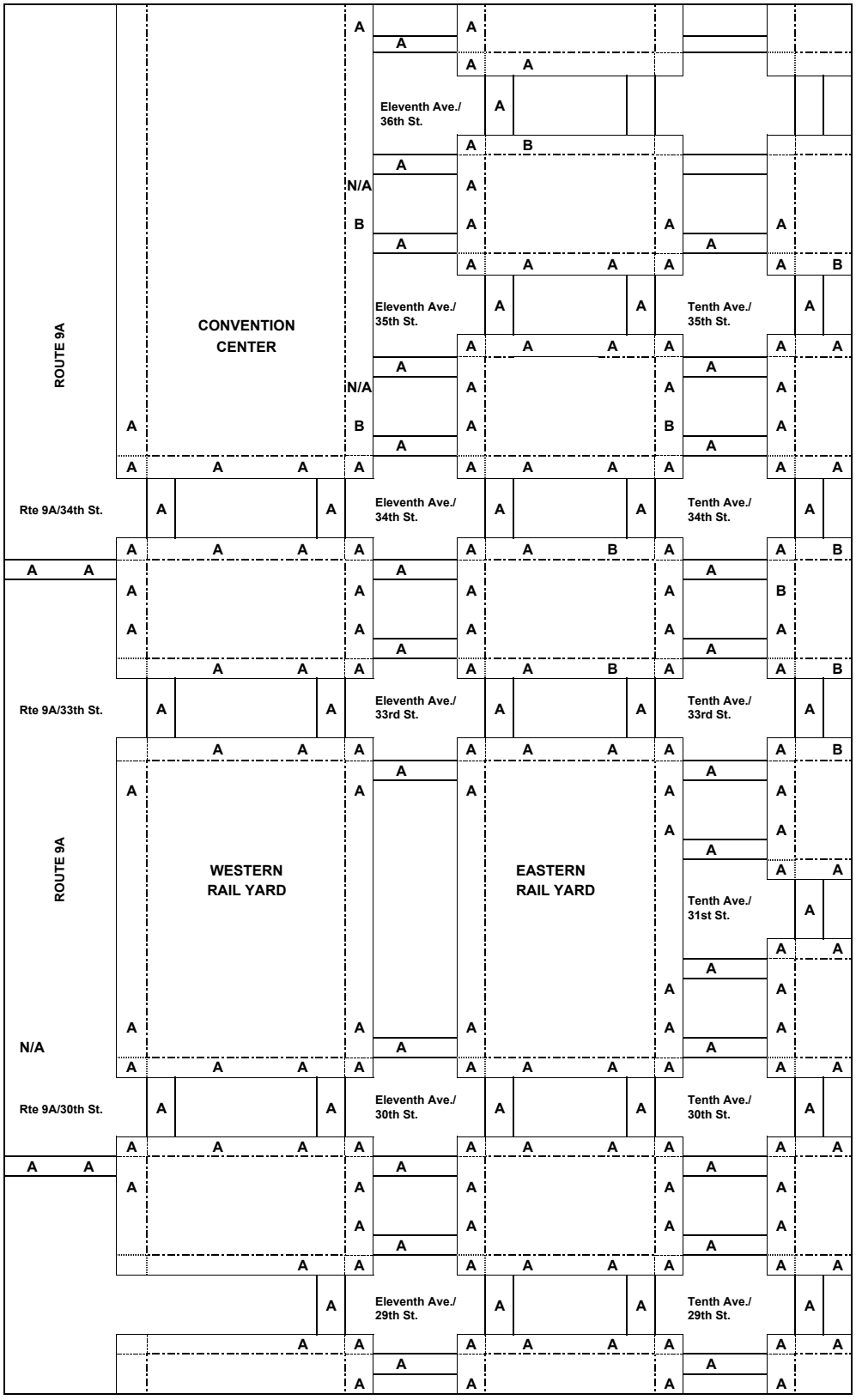
Most sidewalk locations currently operate at an acceptable LOS C or better (minimum standard for acceptable operating conditions). Existing sidewalk LOS results are presented in Figures 18-5.1 through 18-8.2. Copies of the individual sidewalk analysis worksheets are provided in Appendix E, "Transportation Technical Memos and Analyses." For all sidewalk conditions currently operating at LOS D or worse, the results including effective sidewalk width, pedestrian volumes, flow rate, and LOS are presented in Table 18-14. Of the 148 sidewalk locations at the 21 intersections studied in the weekday peak periods, congested operating conditions occur at one sidewalk during the AM peak period, one sidewalk during the midday peak period, and four sidewalks during the PM peak period. Of the 114 sidewalk locations at the 16 intersections studied in the Saturday peak period, congested operating conditions occur at one sidewalk during the Saturday midday peak period (Table 18-14). Two sidewalks operate at LOS D or worse in multiple peak periods.

CROSSWALKS

The analysis indicates that most crosswalks currently operate at an acceptable LOS C or better (minimum standard for acceptable operating conditions). Existing crosswalk LOS results are presented in Figures 18-5.1 through 18-8.2. Copies of the individual crosswalk analysis worksheets are provided in Appendix E, "Transportation Technical Memos and Analyses." For crosswalks currently operating at LOS D or worse, the results including effective sidewalk width, pedestrian volumes, flow rate, and LOS are presented in Table 18-15. Of the 75 crosswalks at the 21 intersections studied in the weekday peak periods, congested operating conditions occur at three crosswalks at one intersection in the midday peak period and three crosswalks at three intersections during the PM peak period. Of the 57 crosswalks at the 16 intersections studied in the Saturday peak period, congested operating conditions occur at three crosswalks at three intersections in the Saturday midday peak period (see Table 18-15). Crosswalks at two intersections operate at LOS D or worse in multiple peak hours.

CORNERS

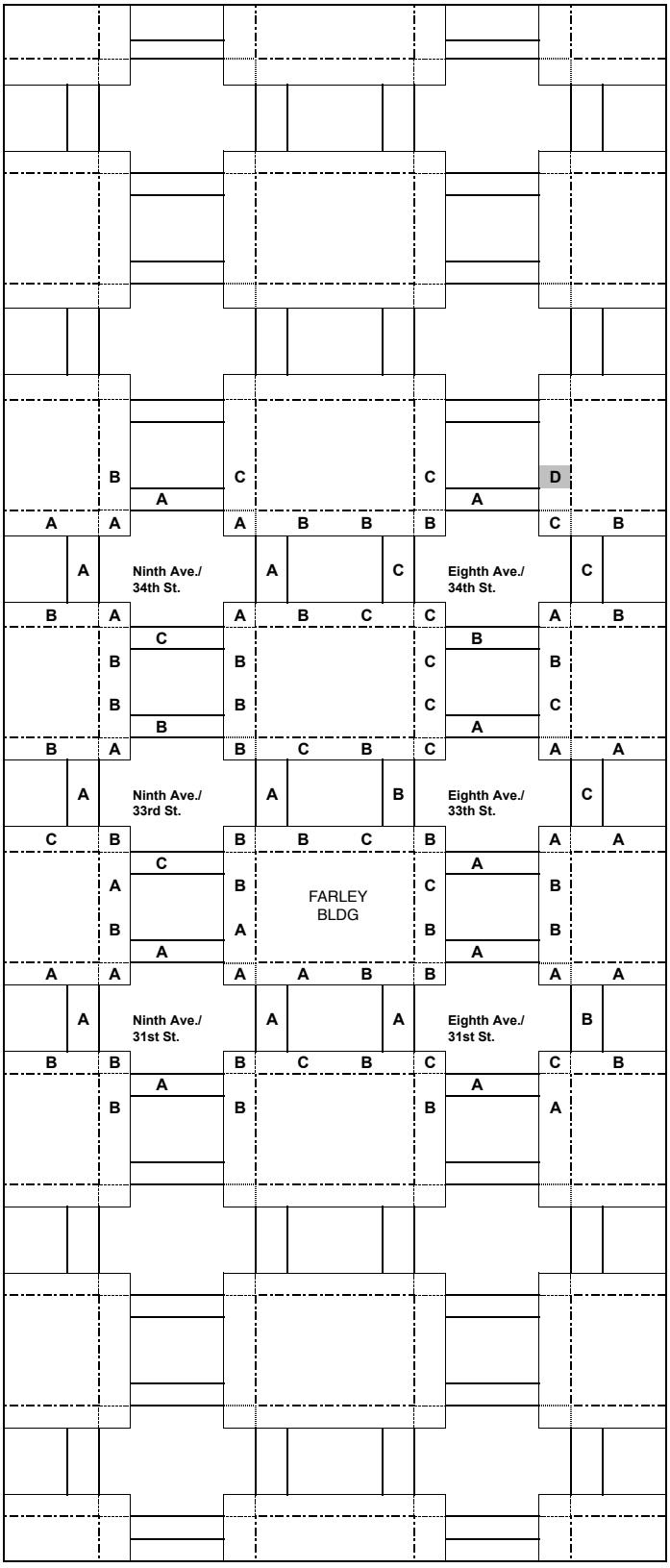
The analysis indicates that most corners currently operate at acceptable LOS C or better (minimum standard for acceptable operating conditions). Existing corner LOS are presented in Figures 18-5.1 through 18-8.2. Copies of the individual corner analysis worksheets are provided in Appendix E, "Transportation Technical Memos and Analyses." For all corners currently operating under LOS D or worse, the results including pedestrian volumes, circulation area per



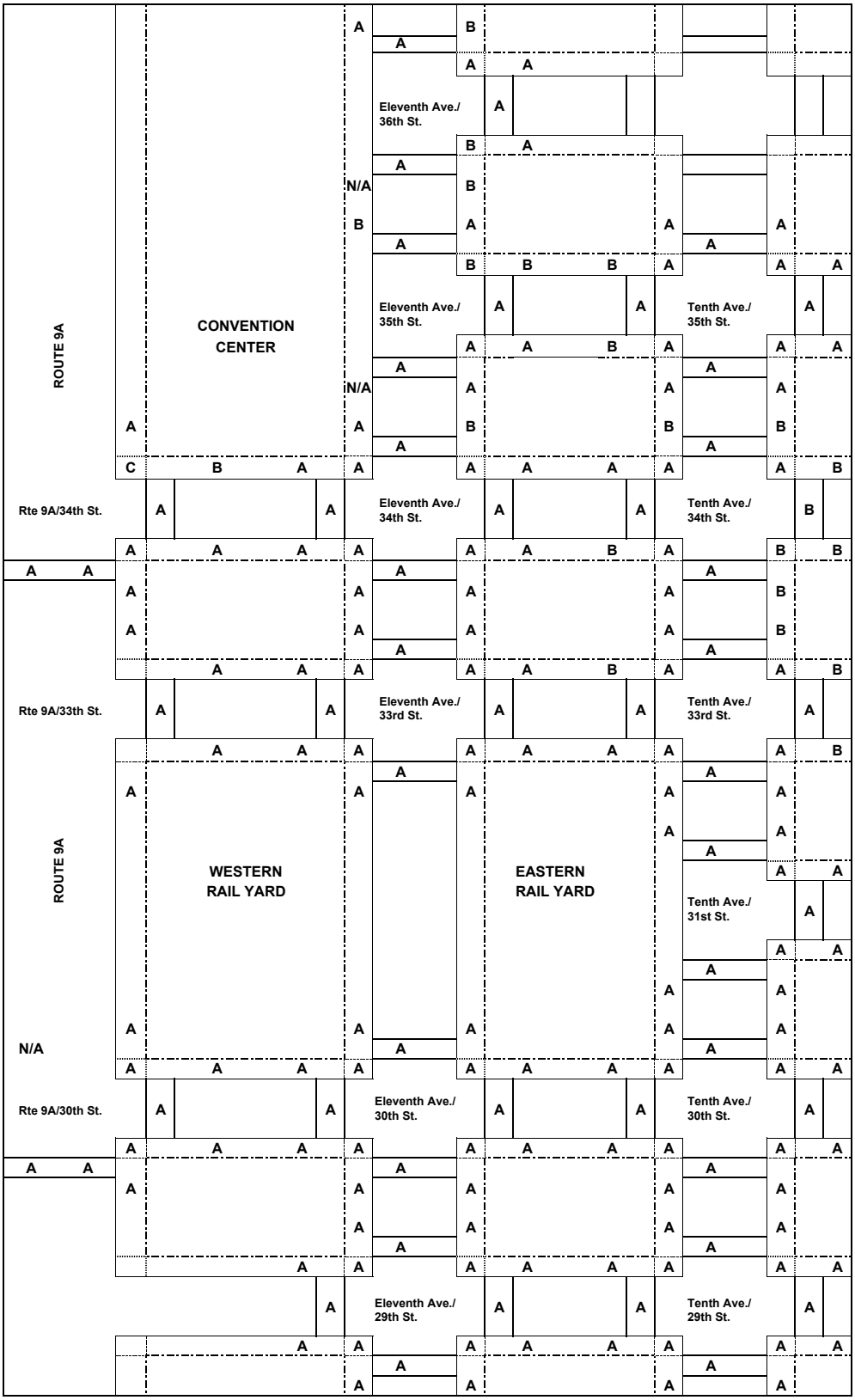
Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2008 Existing Condition - AM Peak
Figure 18-5.1



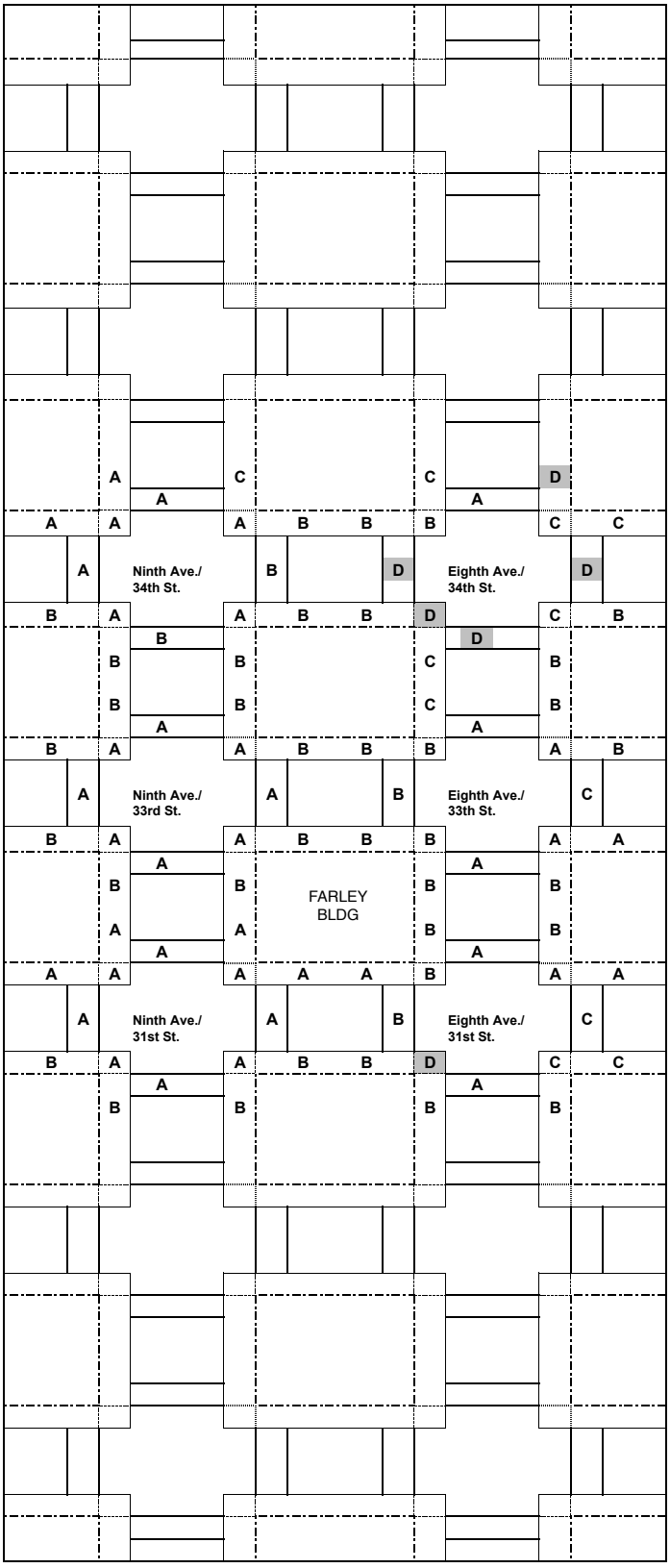
Pedestrian LOS
2008 Existing Condition - AM Peak
Figure 18-5.2



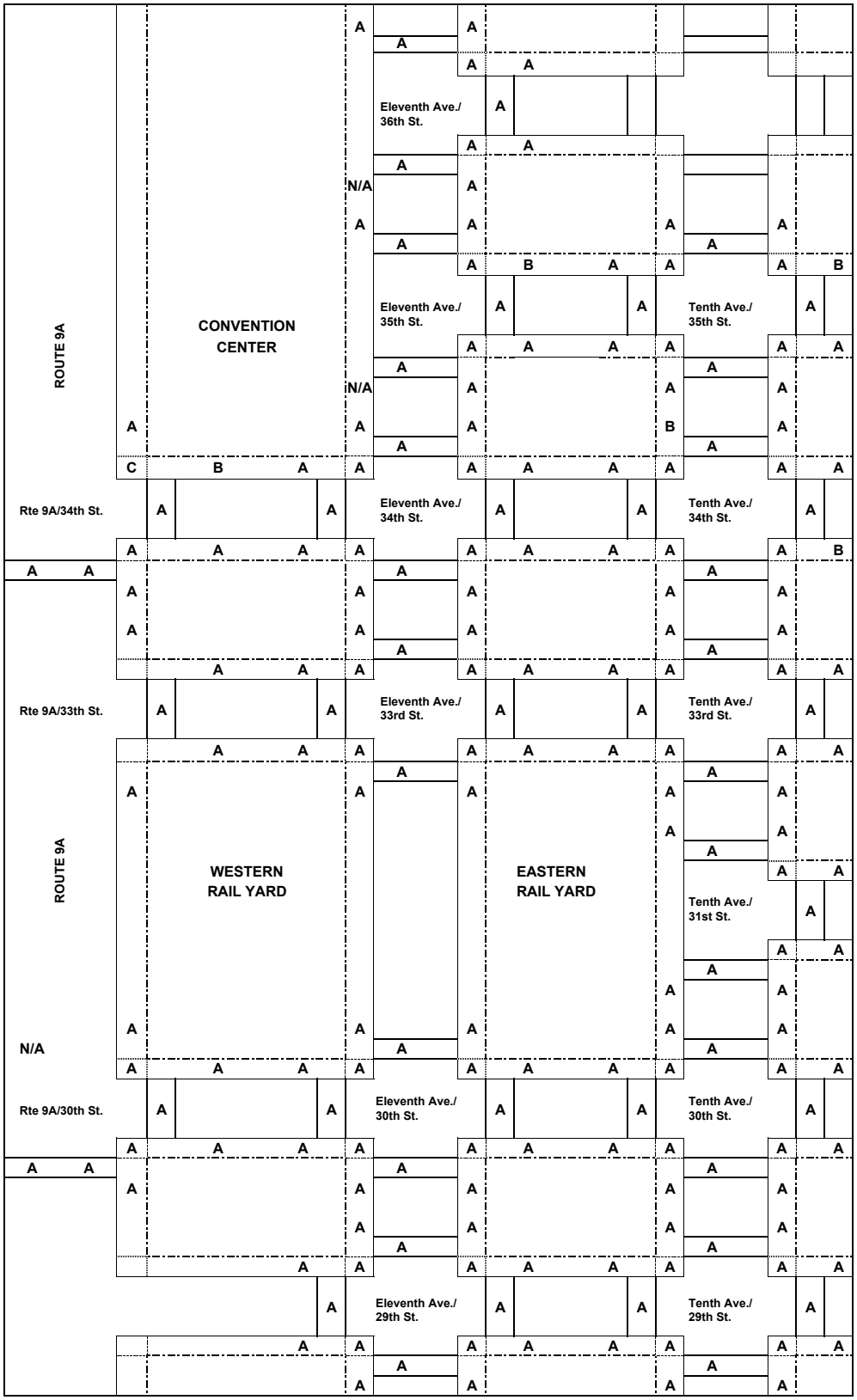
Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2008 Existing Condition - Midday Peak
Figure 18-6.1



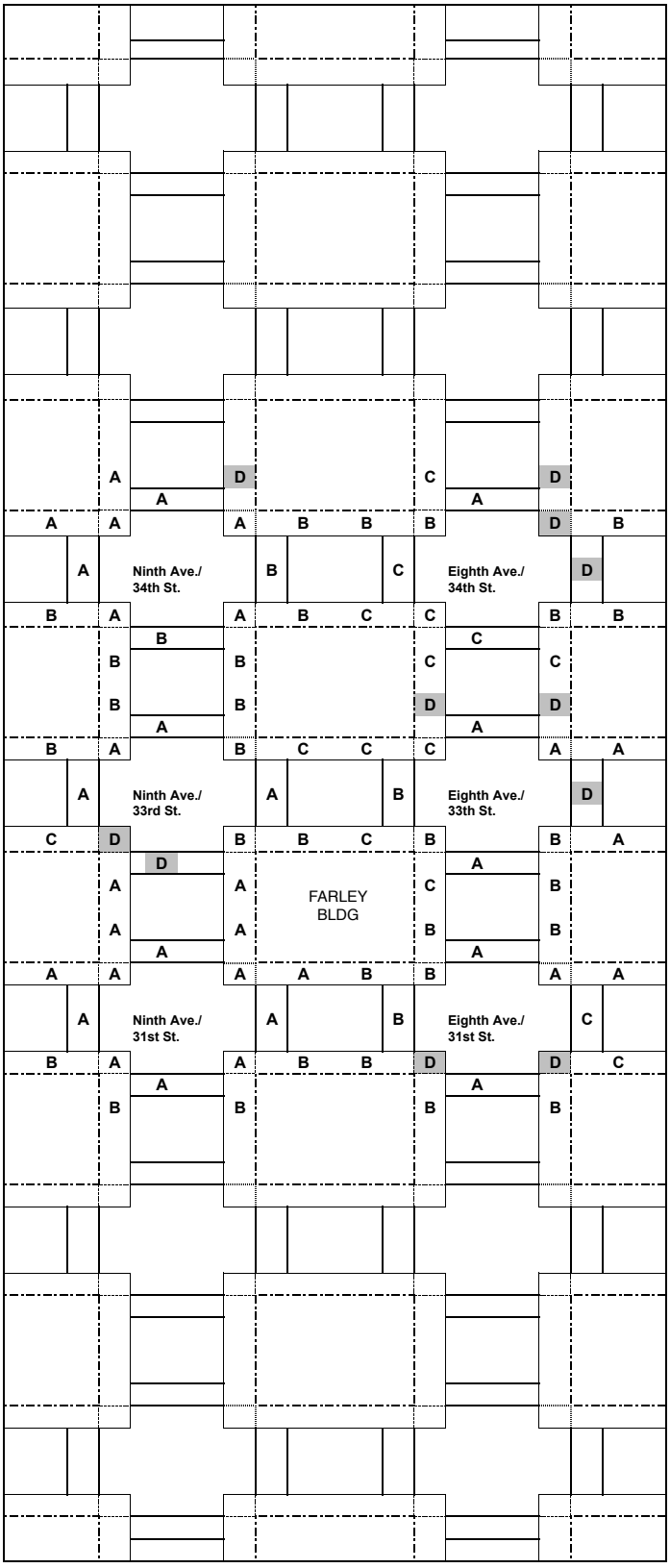
Pedestrian LOS
2008 Existing Condition - Midday Peak
Figure 18-6.2



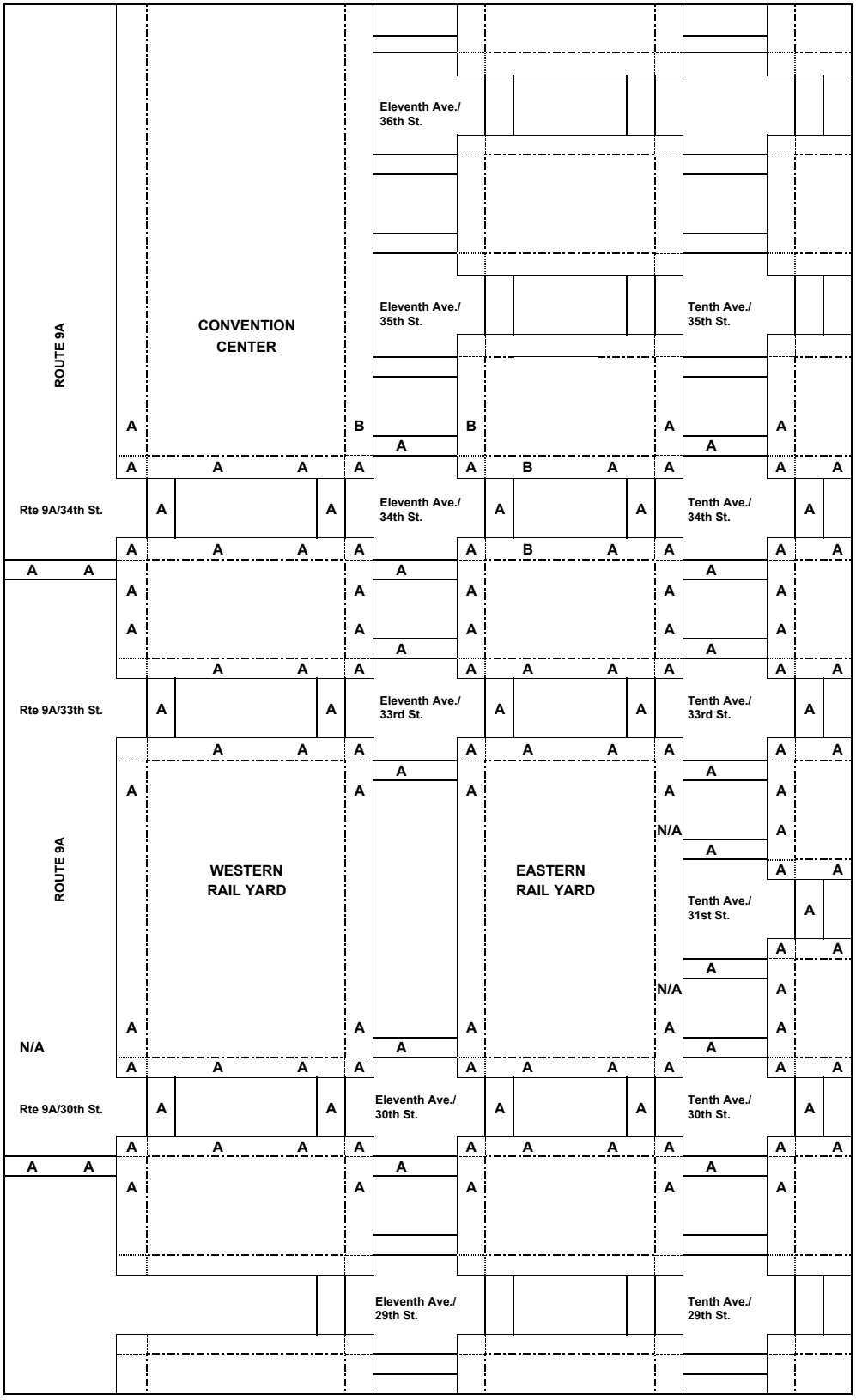
Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2008 Existing Condition - PM Peak
Figure 18-7.1



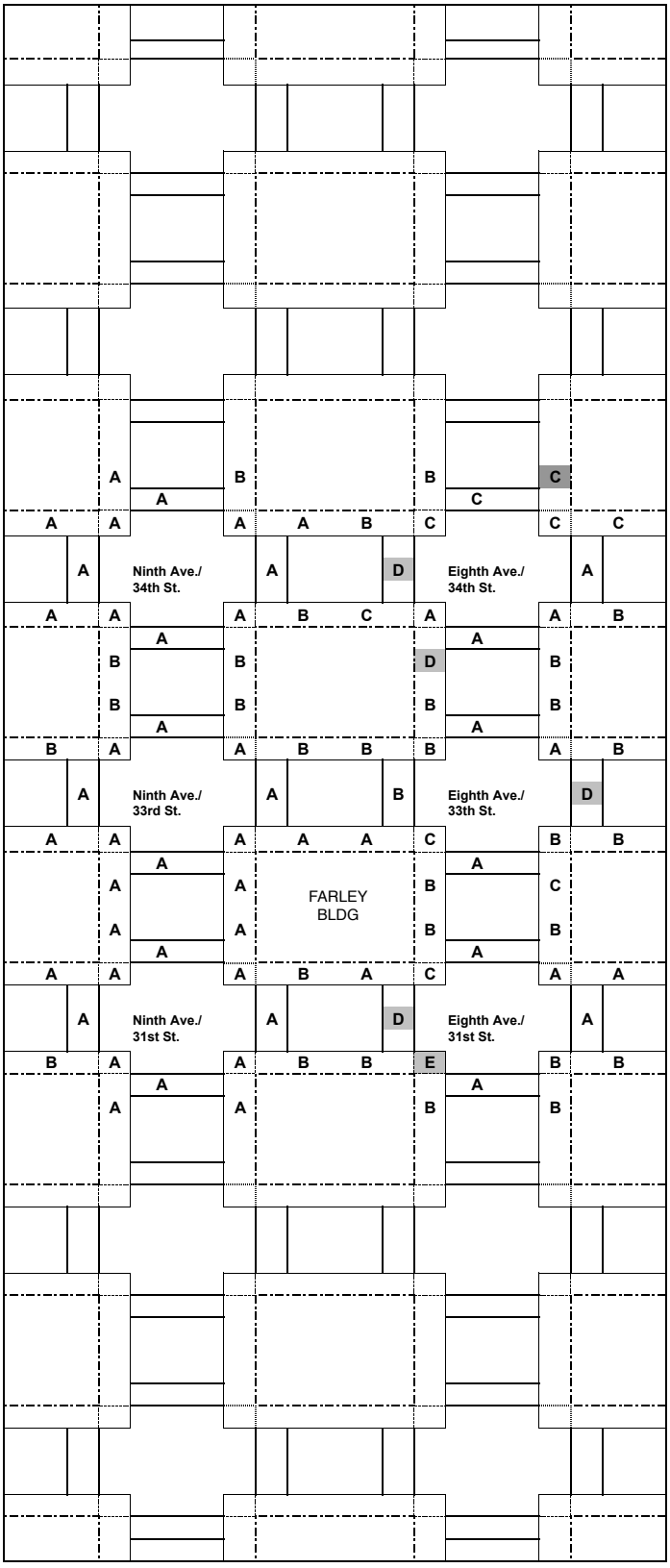
Pedestrian LOS
2008 Existing Condition - PM Peak
Figure 18-7.2



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2008 Existing Condition - Saturday Midday Peak
Figure 18-8.1



Pedestrian LOS
2008 Existing Condition - Saturday Midday Peak
Figure 18-8.2

pedestrian, and LOS are presented in Table 18-16. Of the 70 corners at the 21 intersections studied during the weekday peak periods, congested operating conditions occur at one corner at one intersection during the weekday PM peak period.

Table 18-15
Existing Crosswalk Conditions – LOS D or Worse

Intersection	Crosswalk	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
Midday Peak Period				
14. Eighth Avenue and West 34th Street	East	658	20.9	D
	South	1334	17.3	D
	West	464	22.7	D
PM Peak Period				
12. Ninth Avenue and West 33rd Street	South	510	23.1	D
13. Eighth Avenue and West 34th Street	East	786	17.4	D
14. Eighth Avenue and West 33rd Street	East	722	17.1	D
Saturday Peak Period				
13. Eighth Avenue and West 34th Street	West	464	21.7	D
14. Eighth Avenue and West 33rd Street	East	600	18.8	D
15. Eighth Avenue and West 31st Street	West	430	22.0	D

Table 18-16
Existing Corner Conditions – LOS D or Worse

Intersection	Corner	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
PM Peak Period				
15. Eighth Avenue and West 31st Street	Northeast	671	18.8	D

BICYCLE FACILITIES

Several types of bicycle facilities provide access throughout the study area including multi-use trails, bicycle lanes, and bicycle routes and are defined as follows:

- Multi-Use Trails (Class I): Multi-use trails are separated from the vehicular roadway, are typically two-way, and are constructed of asphalt. Trail users include cyclists, in-line skaters, joggers, and walkers;
- Bicycle Lanes (Class II): Bicycle lanes are located within vehicular roadways, are separated from the travel lanes by the delineation of pavement markings, and can be accompanied by a striped buffer zone. Bicycle lanes are typically one-way and located adjacent to the curb or parking lane; and
- Bicycle Routes (Class III): Bicycle routes are located along a roadway without designated physical space. Bicycle routes are delineated through the use of guide signage along the route.

Multi-Use Trails

Hudson River Greenway was conceived in 1993 with the release of the New York City Department of City Planning's (DCP) *Greenway Plan for New York City*. The Hudson River Greenway was constructed in conjunction with the Route 9A/West Side Highway reconstruction project. This 15 to 20 foot wide two-way, asphalt, multi-use trail is located adjacent to the

Hudson River for 7.49 miles from Battery Park to West 100th Street. As published in the 2007 New York City Bicycle Lane and Trails Inventory, an average of 3,752 bicyclists was reported to use the Hudson River Greenway on a daily basis according to the DCP's Transportation Division.

Bicycle Lanes

Hudson Street/Eighth Avenue: The Hudson Street/Eighth Avenue one-way northbound bicycle lane is 2.29 miles long between Dominick Street and West 39th Street. During 2005, an average of 672 daily bicyclists was recorded using the Hudson Street portion of the Hudson Street/Eight Avenue bicycle lane.

Sixth Avenue: The Sixth Avenue one-way northbound bicycle lane is 1.65 miles long between West 8th Street and West 40th Street. During 2005, an average of 1,179 daily bicyclists was recorded using the Sixth Avenue bicycle lane.

Broadway: The Broadway one-way southbound bicycle lane is 2.60 miles long between Central Park South and East 17th Street. During 2005, an average of 1,617 daily bicyclists was recorded using the Broadway bicycle lane.

Bicycle Routes

In 1997, DCP and NYCDOT released *The New York City Bicycle Master Plan* and the *New York City Cycling Map* which identify existing and future bicycle facilities throughout the City. The *New York City Cycling Map* is updated every year. According to the 2008 *New York City Cycling Map*, the following bicycle routes travel within or through the study area. The direction and limits of each route are provided.

- Ninth Avenue (southbound direction between West 31st Street and West 14th Street)
- Eleventh Avenue/West End Avenue (north- and south-bound direction between West 21st Street and West 72nd Street)
- West 30th Street (eastbound direction between Route 9A and First Avenue)
- West 31st Street (westbound direction between First Avenue and Tenth Avenue)
- West 33rd Street (westbound direction between Tenth Avenue and Eleventh Avenue)
- West 39th Street (westbound direction between First Avenue and Eleventh Avenue)
- West 40th Street (eastbound direction between Eleventh Avenue and First Avenue)

E. THE FUTURE WITHOUT THE PROPOSED ACTIONS—2019

CONDITIONS FOR ANALYSIS

Transportation demands in the study area are anticipated to increase in the future due to anticipated development projects in the area and background growth. In order to project transit and pedestrian conditions for the future years, it is also necessary to account for all changes to the built environment anticipated between current and future years that are independent of the Proposed Actions. To forecast demands under the 2019 Future without the Proposed Actions condition, the development projects listed in Chapter 2, "Framework for Analysis," were compiled in addition to an annual background growth rate; the result was then applied to existing conditions.

To forecast demands under the 2019 Future without the Proposed Actions condition, a compounded background growth rate of 3.81 percent was applied to the 2008 Existing conditions to represent background growth occurring between 2008 and 2019 to establish the baseline Future without the Proposed Actions condition. Reflecting an overall slow down in current development, this growth rate was calculated based upon an annual background growth rate of 0.50 percent per year between 2009 and 2014 and an annual growth rate of 0.25 percent between 2014 and 2019. In addition, the person trips associated with the individual development projects listed in Chapter 2, "Framework for Analysis," were compiled and overlaid onto the baseline Future without the Proposed Actions condition.

Several modification to the study area roadway network are expected to be implemented as part of the Hudson Yards area development, other development in the study area, and NYCDOT initiatives (see Chapter 17, "Traffic and Parking") by 2017 and 2019. Four of the No Build projects—the No. 7 Subway Extension, ARC, the Expanded Moynihan/Penn Station Redevelopment, and construction of the new Hudson Park and Boulevard—would result in modifications to subway and pedestrian conditions within the study area. These modifications are included in the Future without the Proposed Actions condition analyses and are described below.

As a result of the markedly changed conditions that affect pedestrian operations in the study area, the pedestrian mitigation measures identified in the *Hudson Yards FGEIS* are not incorporated in the Future without the Proposed Actions condition. Pedestrian mitigation measures contemplated for the 21 intersections analyzed for the *Hudson Yards FGEIS* are no longer applicable due to changes in background conditions in the study area, significant changes in the Hudson Yards Development Program, and changes in the No. 7 Line Subway Extension since the publication of *Hudson Yards FGEIS* (see Appendix E, "Transportation Technical Memos and Analyses"). Similarly, the bus mitigation measures identified in the *Hudson Yards FGEIS* would no longer be appropriate due to changed conditions. Consistent with the established practice of NYCT, bus conditions in the Hudson Yards rezoning area will be monitored on an on-going basis and capital and/or operational improvements will be implemented where fiscally feasible and operationally practicable.

NO. 7 SUBWAY EXTENSION

The No. 7 subway is being extended approximately one mile west from its current terminus at Times Square to a new terminal station at West 34th Street and Eleventh Avenue. The line will extend west under West 41st Street and curve to the south under Eleventh Avenue. A terminal station would be located at approximately West 34th Street and Eleventh Avenue.

HUDSON YARDS REZONING AND DEVELOPMENT

The Hudson Yards Development Program includes the creation of Hudson Park and Boulevard between Tenth and Eleventh Avenues, extending from a large open space on the Eastern Rail Yard to West 39th Street. At West 39th Street, the open space would connect by a pedestrian bridge to West 42nd Street. The boulevard would lie on the east and west sides of the open space with new intersections at West 33rd, West 34th, West 35th, West 36th, West 37th, and West 38th Streets. The portion from the Eastern Rail Yard to West 36th Street is expected to be completed by 2013.

ACCESS TO THE REGION'S CORE (ARC) PROJECT

It is anticipated that the ARC Project would be in operation by 2017. ARC would increase capacity of the trans-Hudson commuter rail system by constructing two new tunnels under the

Hudson River and related infrastructure and a new rail station under West 34th Street called the New York Penn Station Expansion (NYPSE). The NYPSE would include a mid-level mezzanine, escalators and elevators, and five street entrances along West 34th Street between Sixth and Eighth Avenues and would be compliant with the Americans with Disabilities Act (ADA). The NYPSE would accommodate underground connections to the existing Penn Station, the Sixth, Seventh, Eighth Avenue and Broadway subway lines, and PATH lines via the Broadway and West 33rd Street Stations. Five street entrances are proposed for the NYPSE, including the southeast corner of Eighth Avenue and West 34th Street (460 – 474 Eighth Avenue), the northwest corner of Seventh Avenue and West 34th Street (450 Seventh Avenue/201 West 34th Street), the southwest corner of Seventh Avenue and West 34th Street (420 Seventh Avenue), the northwest corner of Broadway and West 34th Street (1313 Broadway), and the southwest corner of Broadway and West 34th Street (1293 Broadway).

EXPANDED MOYNIHAN/PENN STATION REDEVELOPMENT PROJECT

It is anticipated that the Expanded Moynihan/Penn Station Redevelopment Project (Moynihan Project) would be in operation by 2014. The Moynihan Project would create a new transit station in the Farley Complex that connects with the existing rail infrastructure and passenger operation in other parts of the existing Penn Station. The project would renovate the existing connecting concourse between Penn Station and the future NYPSE under Eighth Avenue at the 34th Street Station. It is expected that the projected commuter rail trips between Penn Station and the Development Site would most likely use the new station facilities to access Penn Station. Since Moynihan Station would be designed and built in accordance with relevant MTA**,** LIRR**,** NJ TRANSIT, and Amtrak standards to acceptably process the projected number of users, no detailed transit analysis was warranted conducted for this station. As part of this project, subway stairways S2, S3, and P2AB will be widened and stairways M23/M24 and M21/M22 will be relocated and widened at the 34th Street-Penn Eighth Avenue Station.

EAST SIDE ACCESS

The East Side Access project is currently under construction and it is anticipated to be in operation by 2013. East Side Access will provide direct LIRR service to Grand Central Terminal via the 63rd Street Tunnel. It is expected that this project would increase the LIRR's capacity into Manhattan and relieve overcrowding on LIRR trains into and out of Penn Station as LIRR trips would be shifted to this new station below Grand Central Terminal.

TRANSIT NETWORK

SUBWAY LINES

The number of trains per hour, capacity per train, peak hour capacity, peak hour volume, and v/c ratio at the peak load point in the peak direction for the Flushing Line are shown in Table 18-17 for the Future without the Proposed Actions condition weekday AM peak hour. As indicated in the table, the inbound express No. 7 route condition is projected to improve due to an increase in service. The AM peak load point of the inbound express No. 7 route would be the Woodside-61st Street Station in Queens and would operate at loading capacity with a v/c ratio of 1.01. Because the combination of the build out of the Hudson Yards area, the No. 7 line extension, and the Proposed Actions would increase transfers onto the No. 7 route in Manhattan, the peak load for the AM combined local and express No. 7 service would shift to Times Square Station in Manhattan under the 2019 Future with the Proposed Actions condition. For comparison purposes, the AM line haul condition for the

combined local and express No. 7 route at the Times Square Station is also provide in Table 18-17 for the 2019 Future without the Proposed Actions condition. The combined local and express No. 7 route for this station would operate below the loading capacity with a v/c ratio of 0.78.

Table 18-17
2019 Future without the Proposed Actions:
Line Haul Conditions: AM Peak Hour (Manhattan-bound) (Flushing Line)

Subway Line	Peak Load Point	Trains per Hour	Capacity per Train	Peak Hourly Capacity	Peak Hour Volume	V/C ratio
Local	40th Street	13	1,210	15,730	13,388	0.85
Express	Woodside-61st Street	14	1,210	16,940	17,052	1.01
Local & Express	Times Square	27	1,210	32,670	25,554	0.78

SUBWAY STATIONS

Modifications to subway conditions within the study area in the Future without the Proposed Actions would occur as a result of the following projects: (1) For the ARC Project, stairways S3 and S5 will be widened for the 34th Street-Penn Seventh Avenue Station and new escalators will be provided for both the 34th Street-Penn Seventh Avenue Station and the 34th Street-Penn Eighth Avenue Station. It was assumed in the ARC Project that stairway pedestrians would shift to the new escalators. (2) For the Expanded Moynihan/Penn Station Redevelopment Project, stairways S2, S3, and P2AB will be widened and stairways M23/M24 and M21/M22 will be relocated and widened at the 34th Street-Penn Eighth Avenue Station. In addition, a new stairway will be constructed at the southern end of the express platform at the 34th Street-Penn Seventh Avenue Station.

The results of the analysis of the station elements for the Future without the Proposed Actions condition during the weekday AM and PM peak periods are provided in Appendix E, "Transportation Technical Memos and Analyses." The analysis indicates that most of the station elements would continue to operate at acceptable at or below capacity. For station control area elements that would operate near or above capacity, the results including pedestrian volumes and v/c ratios are presented in Table 18-18. For station stairways that would operate near or above capacity, the results including pedestrian volumes, v/svcd ratio, and LOS are presented in Table 18-19.

Table 18-18
2019 Future without the Proposed Actions:
Subway Station Control Areas Operating Near or Above Capacity

Control Area	Station Elements	AM Peak 15-Minute		PM Peak 15-Minute	
		Volume	V/C Ratio	Volume	V/C Ratio
34th Street–Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)					
R138 (33rd Street Sub passage to Penn Station)	Service Gate	-	-	645	1.08
No Booth (33rd Street and Seventh Avenue West)	HEET	225	0.94	-	-

Table 18-19
2019 Future without the Proposed Actions:
Subway Station Stairways Operating at LOS D or Worse

Control Area	Station Elements	AM Peak 15-Minute			PM Peak 15-Minute		
		Volume	V/SVC D Ratio	LOS	Volume	V/SVCD Ratio	LOS
34th Street–Penn Eighth Avenue Station (A, C, E Routes)							
N70 (34th Street and Eighth Avenue East)	Stairway S9	513	0.95	C	588	1.09	D
N73 (33rd Street and Eighth Avenue West)	Stairway S4 (NW)	475	1.16	D	393	0.96	C
N73 (33rd Street and Eighth Avenue West)	Stairway P3	475	1.16	D	393	0.96	C
N67	Stairway M23/M24	867	0.83	C	1396	1.50	E
N67	Stairway M21/M22	1057	1.14	D	883	0.84	C
N71/70	Stairway M27/M28	555	0.92	C	600	1.00	C/D
34th Street–Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)							
R141 (34th Street and Seventh Avenue East)	Stairway S6 (NE)	312	0.64	B	507	1.04	D
R138	ML12	1181	1.03	D	1126	1.10	D
R138	ML14	1491	1.46	E	1422	1.24	D

As shown in Table 18-18 and Table 18-19, of the 113 station elements studied for the two existing stations, congested operating conditions would occur in the Future without the Proposed Actions at six locations during the weekday AM peak period and seven locations during the weekday PM peak period. The following provides details relating to operations at these subway stations for the 2019 Future without the Proposed Actions condition.

34th Street-Penn Eighth Avenue Station (A, C, and E Routes)

For this station, most of the station elements would continue operating at LOS C or better with the exception of the following elements:

- Control Area N70 – The north staircase (S9) located at the east side of Eighth Avenue and West 34th Street would operate at LOS D with a v/svcd ratio of 1.09 during the PM peak period.
- Control Area N73 – The northwest staircase (S4 and P3) located at the west side of Eighth Avenue and West 33rd Street would operate at LOS D with a v/svcd ratio of 1.16 during the AM peak period.
- Control Area N67 - The southern staircase (M23/M24) leading from the express (A route) platform would operate at an LOS E during the PM peak period, with a v/svcd ratio of 1.50.
- Control Area N67 - The northern staircase (M21/M22) leading from the express (A route) platform would operate at LOS D during the AM peak period, with a v/svcd ratio of 1.14.
- Control Areas N71/ N70 - The southern staircase (M27/M28) leading from the express (A route) platform to the undertrack mezzanine at 34th Street would operate at LOS C/D during the PM peak 15 minute period, with a v/svcd ratio of 1.00.

34th Street-Penn Seventh Avenue Station (Nos. 1, 2, and 3 Routes)

For this station, most of the station elements would continue operating at LOS C or better with the exception of the following elements:

- Control Area R138 – The service gate located at the West 33rd Street passageway to Penn Station would operate at a v/c ratio of 1.08 during the PM peak period.
- Control Area (No Booth) – The HEET located at the west side of Seventh Avenue and West 33rd Street would operate at a v/c ratio of 0.94 during the AM peak hour period.
- Control Area R141 – The northeast staircase (S6) located at the east side of Seventh Avenue and West 34th Street would operate at LOS D with a v/svcd ratio of 1.04 during the PM peak period.
- Control Area R138 - The southern staircase (ML12) serving this control area from the express (Nos. 2 and 3 routes) platform would operate at LOS D during both the AM and PM peak 15 minute periods, with v/svcd ratios of 1.03 and 1.10 respectively.
- Control Area R138 - The northern staircase (ML 14) serving this control area from the express (Nos. 2 and 3 routes) platform would operate at LOS E during the AM peak with a v/svcd ratio of 1.46 and at LOS D during the PM peak with a v/svcd ratio of 1.24.

34th Street-Eleventh Avenue Station (No. 7 Route)

The new 34th Street Station of the No. 7 route would be located at Eleventh Avenue and West 34th Street in the Future without the Proposed Actions condition. Two station entrances would be provided for this new station. Both entrances to the 34th Street Station would be located in Hudson Park. One entrance would be located in Hudson Park between West 33rd and West 34th Streets and the other entrance would be located at the northwest corner of Hudson Park and West 35th Street. Subway station analysis was conducted for turnstiles, HEETs, stairways, and escalators for this station and included in Appendix E, "Transportation Technical Memos and Analyses." The analysis indicates that all of the station elements would operate at or below capacity.

BUS ROUTES

Based on the background growth rate applied throughout the study area, plus the additional demand generated by the No Build development projects in the study area, demand for bus service in the Future without the Proposed Actions condition is projected to increase. As presented in Table 18-20, existing levels of bus service would not be sufficient to provide adequate supply to meet the projected demand in the 2019 Future without the Proposed Actions condition for some bus routes during the AM and PM peak hours. These routes would require additional capacity, which could be provided by either increasing the number of standard buses or converting the route to articulated bus service.

The general policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints. Based on NYCT's ongoing passenger monitoring program and as new development occurs throughout the study area, a comprehensive service plan would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally feasible and operationally practicable. NYCT's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined.

Table 18-20
2019 Future without the Proposed Actions:
Bus Operating Conditions

Bus Route	Direction	Buses per Hour[1]	Per Bus Capacity	Hourly Capacity	Hourly Volume	Average Volume per Bus	Hourly Available Capacity
AM Peak Hour							
M10/ M20	NB	9	65	585	405	45	180
	SB	12	65	780	695	58	85
M11	NB	5	65	325	591	118	-266
	SB	6	65	390	2397	400	-2007
M34/ M16	EB	17	65	1105	1277	75	-172
	WB	15	65	975	2055	137	-1080
PM Peak Hour							
M10/ M20	NB	12	65	780	1983	165	-1203
	SB	11	65	715	563	51	152
M11	NB	6	65	390	2165	361	-1775
	SB	6	65	390	919	153	-529
M34/ M16	EB	12	65	780	1993	166	-1213
	WB	12	65	780	1252	104	-472

1. NYCT Ride-Check Surveys (2005-2007)

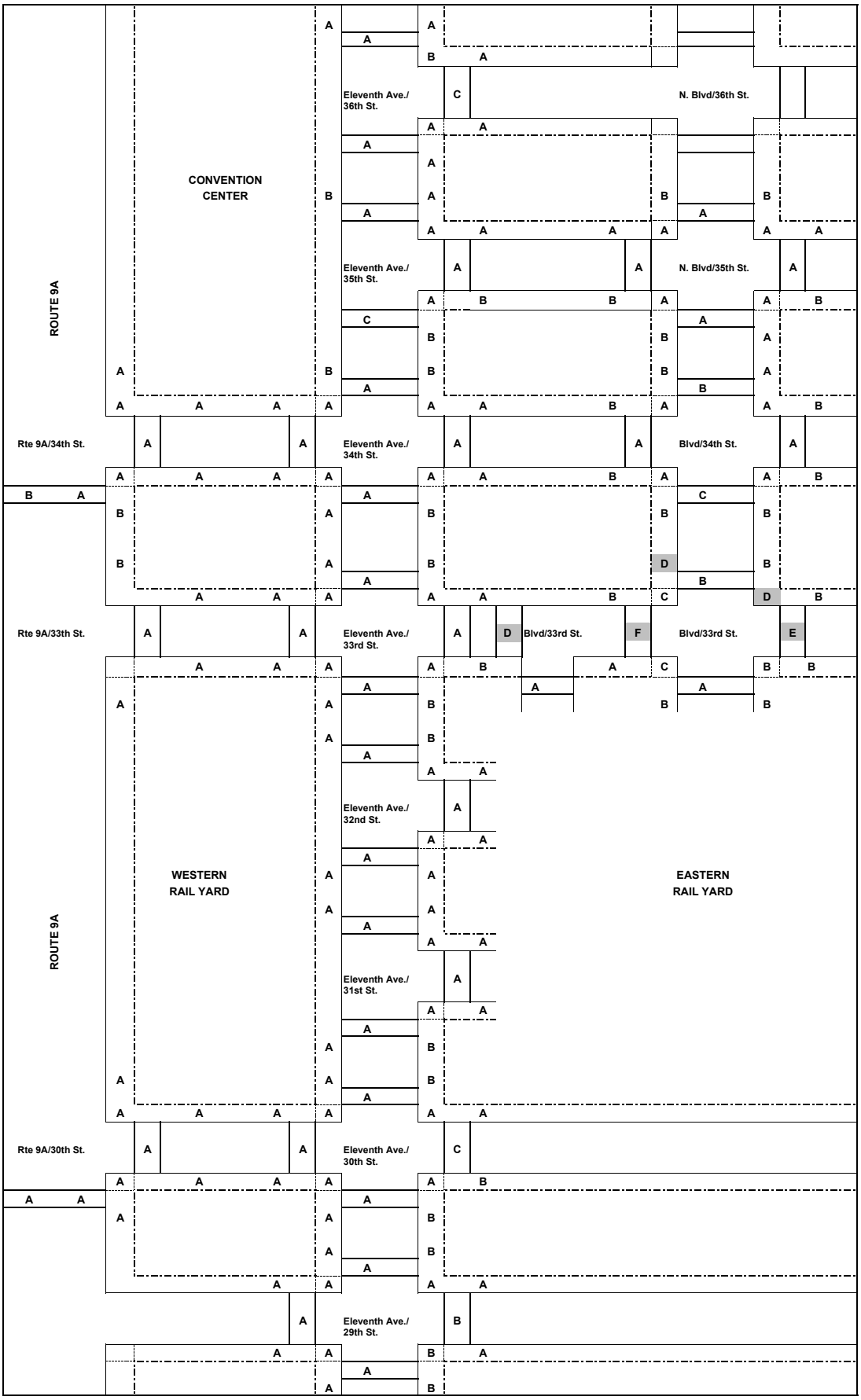
PEDESTRIAN ELEMENTS

As indicated in Figure 18-3, a total of five new intersections are proposed as part of the No Build projects in the study area. Sidewalk, corner, and crosswalk analysis was also conducted at these five new intersections for the Future without the Proposed Actions condition. As a result, a total of 26 intersections were analyzed for the weekday AM, midday, and PM peak hours and 21 intersections were analyzed for the Saturday midday peak hour. A total of 365 pedestrian elements were analyzed for the weekday AM, midday, and PM peak hours including 184 sidewalks, 95 crosswalks, and 86 corners. A total of 299 pedestrian elements were analyzed for the Saturday midday peak hour including 140 sidewalks, 93 crosswalks, and 66 corners.

The Future without the Proposed Actions condition sidewalk, crosswalk, and corner LOS results are presented in Figures 18-9.1 through 18-12.2. Copies of the individual sidewalk, crosswalk, and corner analysis tables are provided in Appendix E, "Transportation Technical Memos and Analyses." The numbers of sidewalk, crosswalk, and corner locations that would operate at LOS D or worse for the Future without the Proposed Actions condition for each of the peak hours are summarized in Table 18-21.

SIDEWALKS

For all sidewalk conditions that would operate at LOS D or worse, the results, including effective sidewalk width, pedestrian volumes, flow rate, and LOS are presented in Table 18-22. Of the 184 sidewalk locations at the 26 locations studied during the weekday peak periods, most sidewalk locations would operate at LOS C or better. Congested operating conditions would occur at 20 sidewalk locations at seven intersections during the AM peak period, 58 sidewalk locations at 17 intersections during the midday peak period, and 32 sidewalk locations at nine intersections during the PM peak period. Of the 140 sidewalk locations at the 21 intersections studied during the

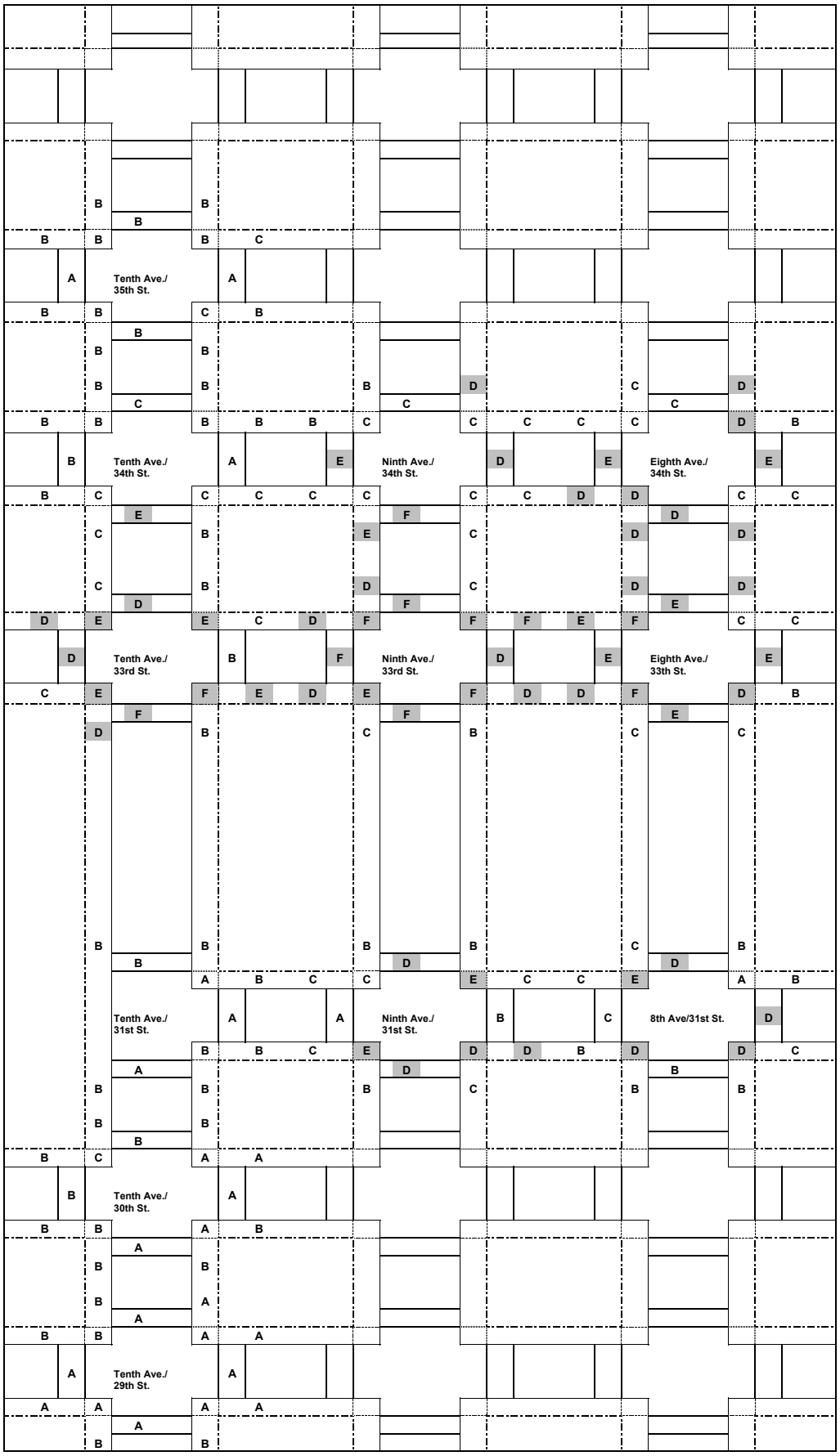


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - AM Peak
Figure 18-9.1

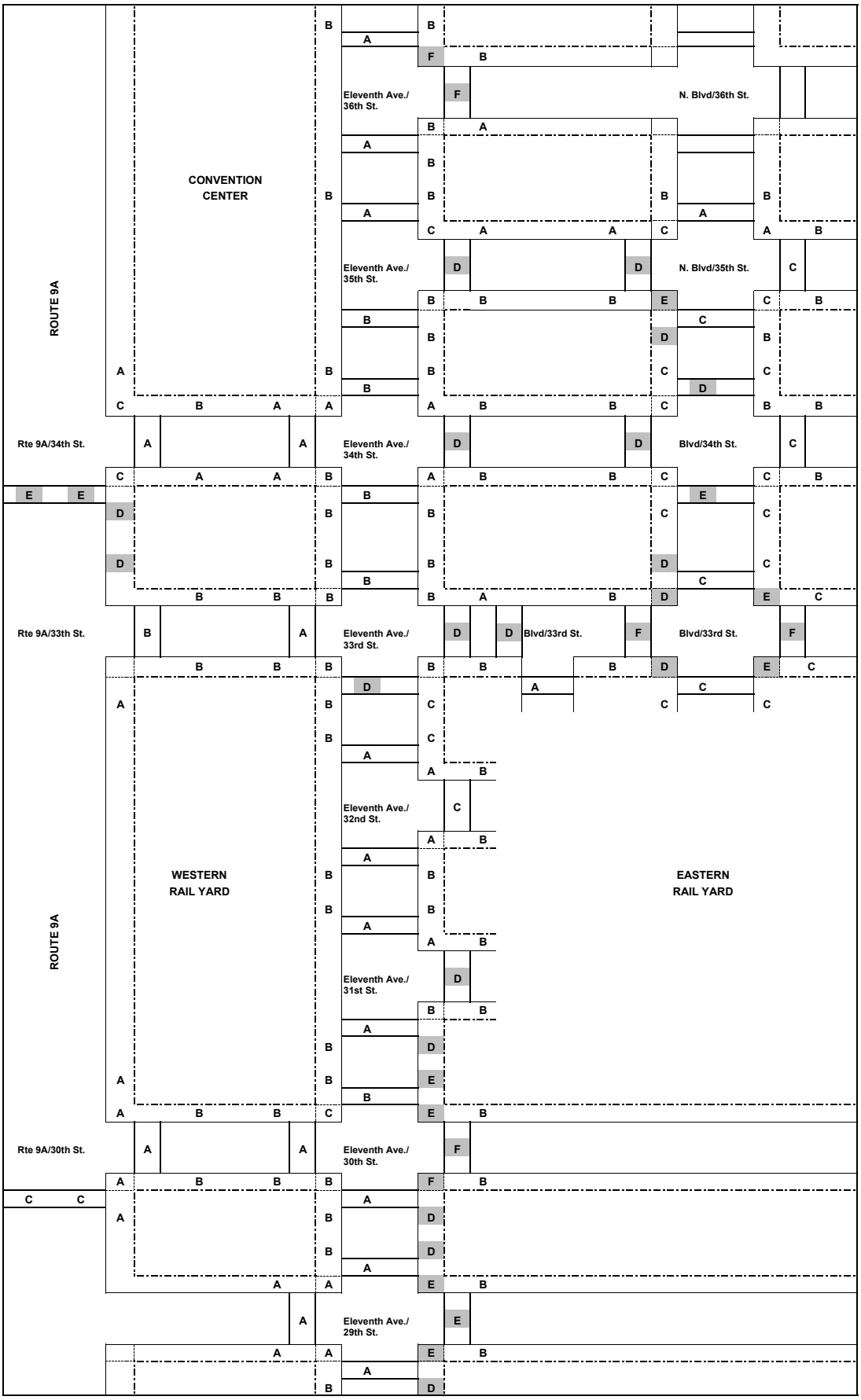
WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - AM Peak
Figure 18-9.2

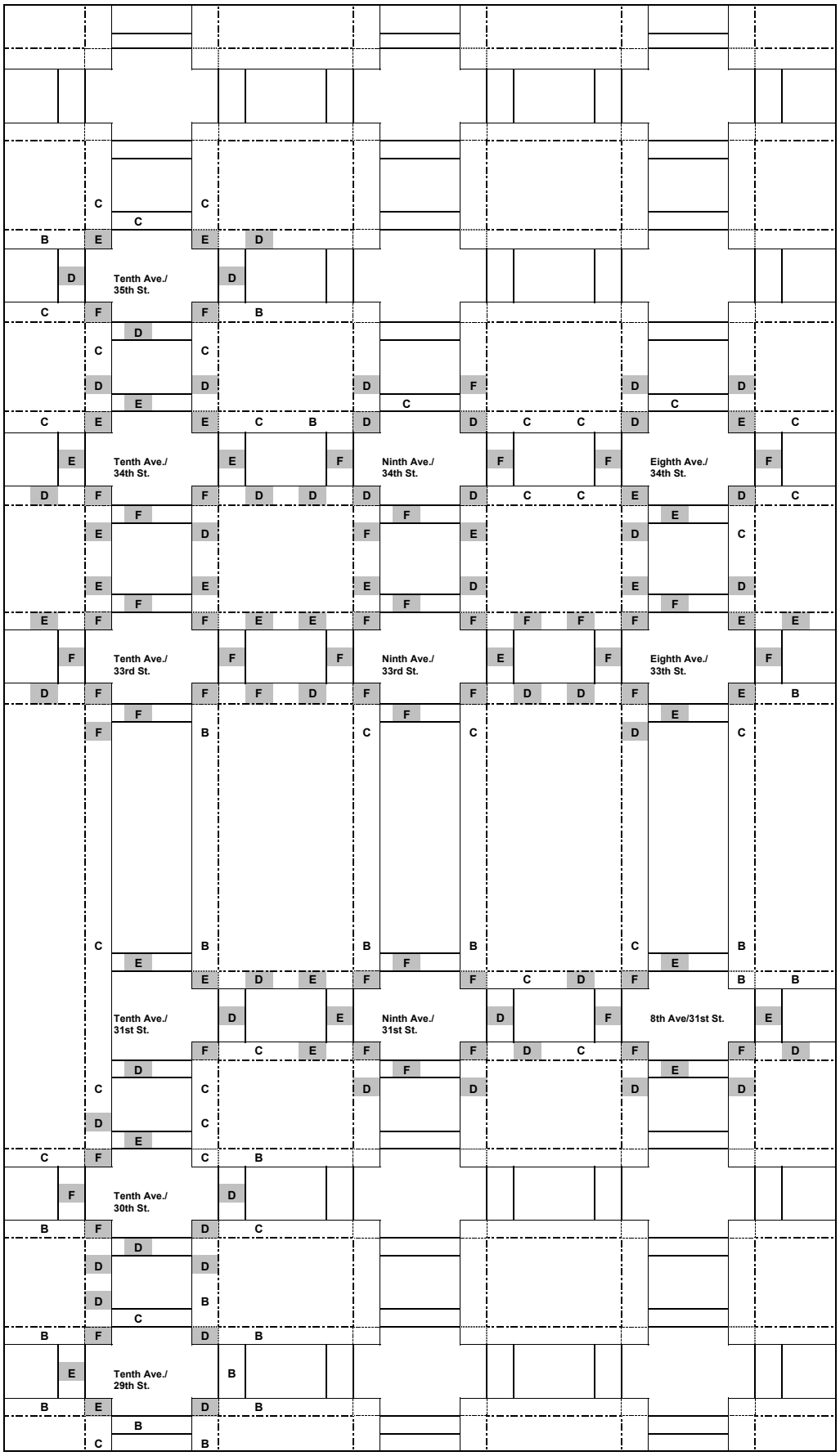


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - Midday Peak
Figure 18-10.1

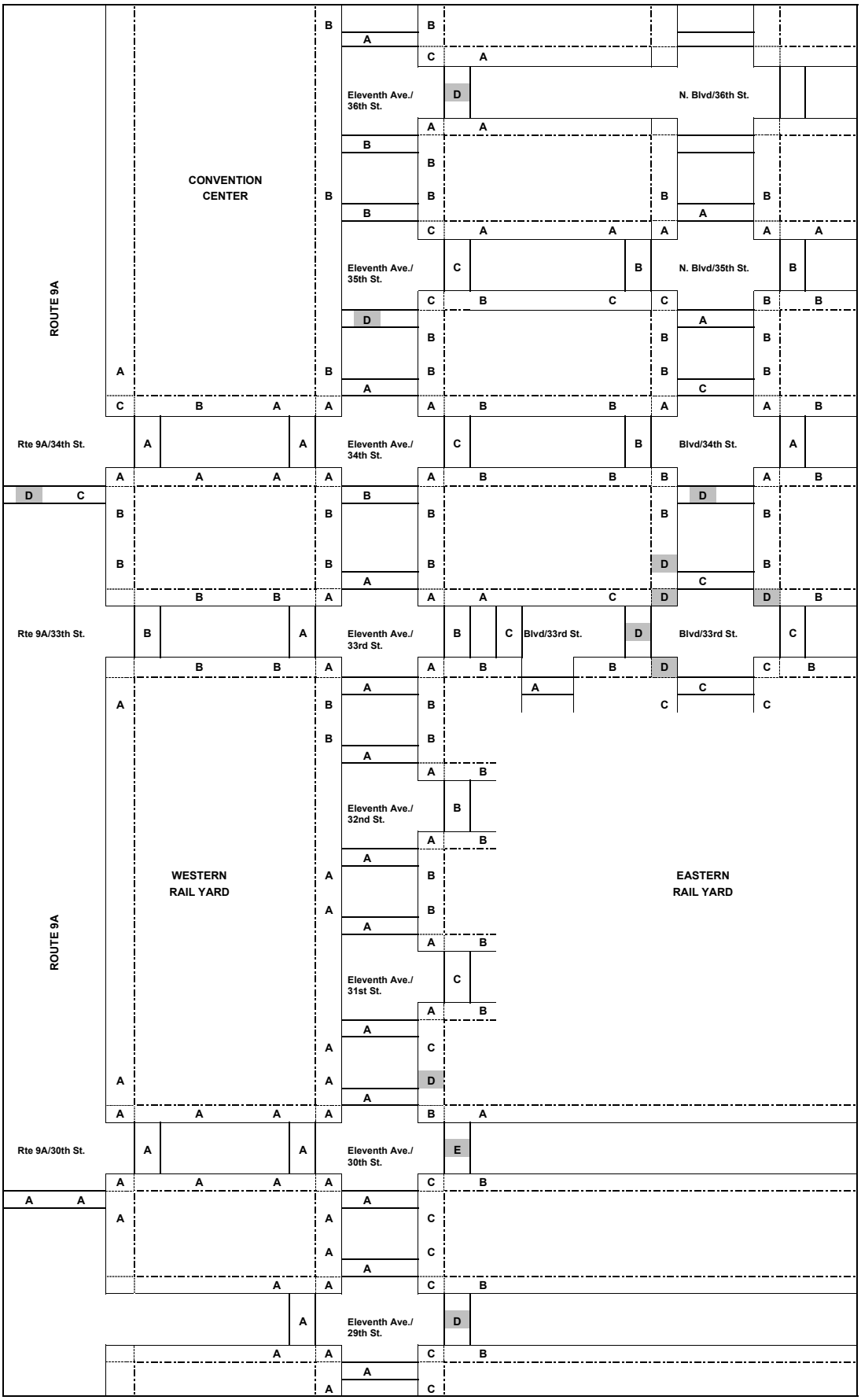
WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

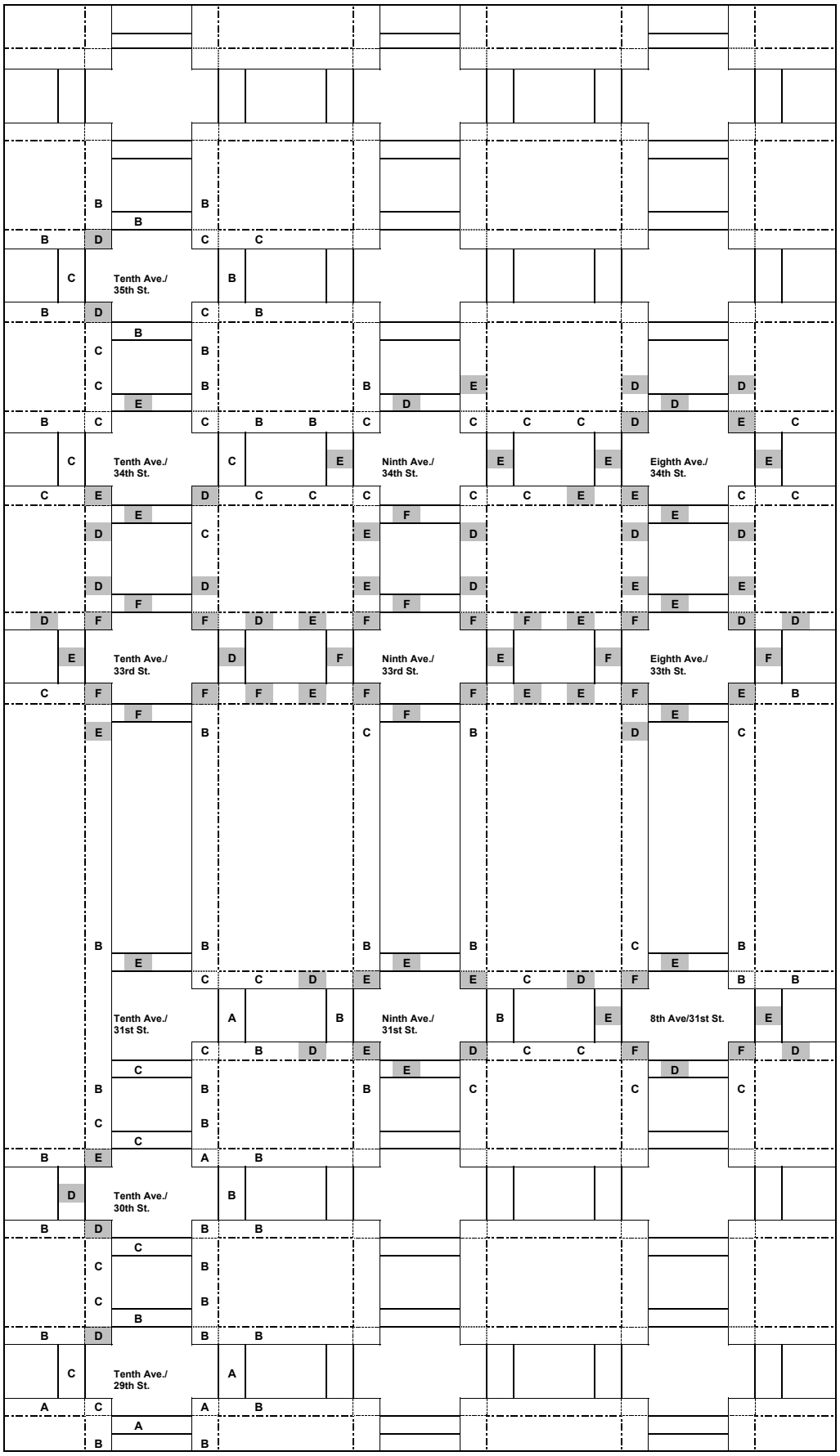
Pedestrian LOS
2019 No Build Condition - Midday Peak
Figure 18-10.2



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

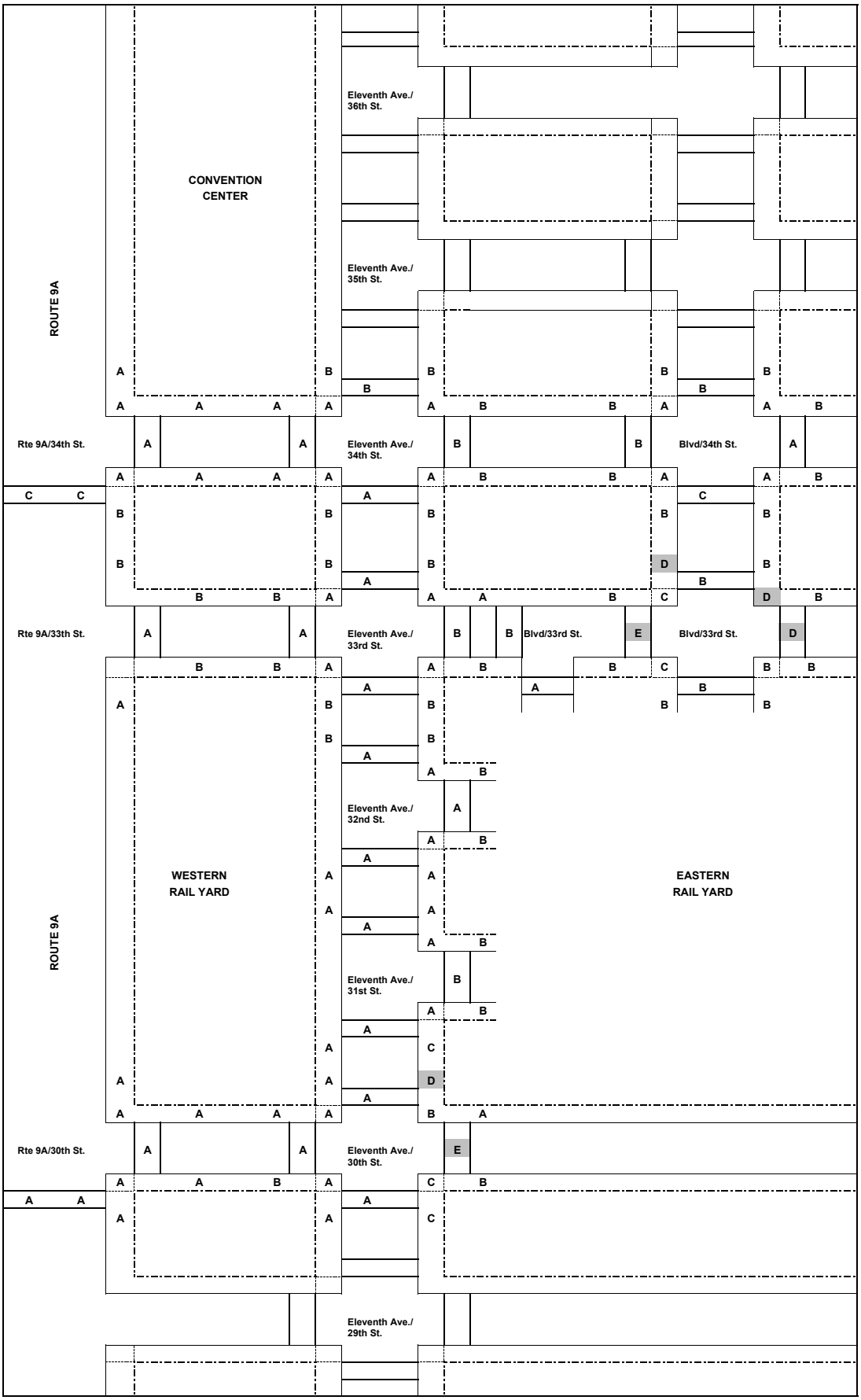
Pedestrian LOS
2019 No Build Condition - PM Peak
Figure 18-11.1



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - PM Peak
Figure 18-11.2

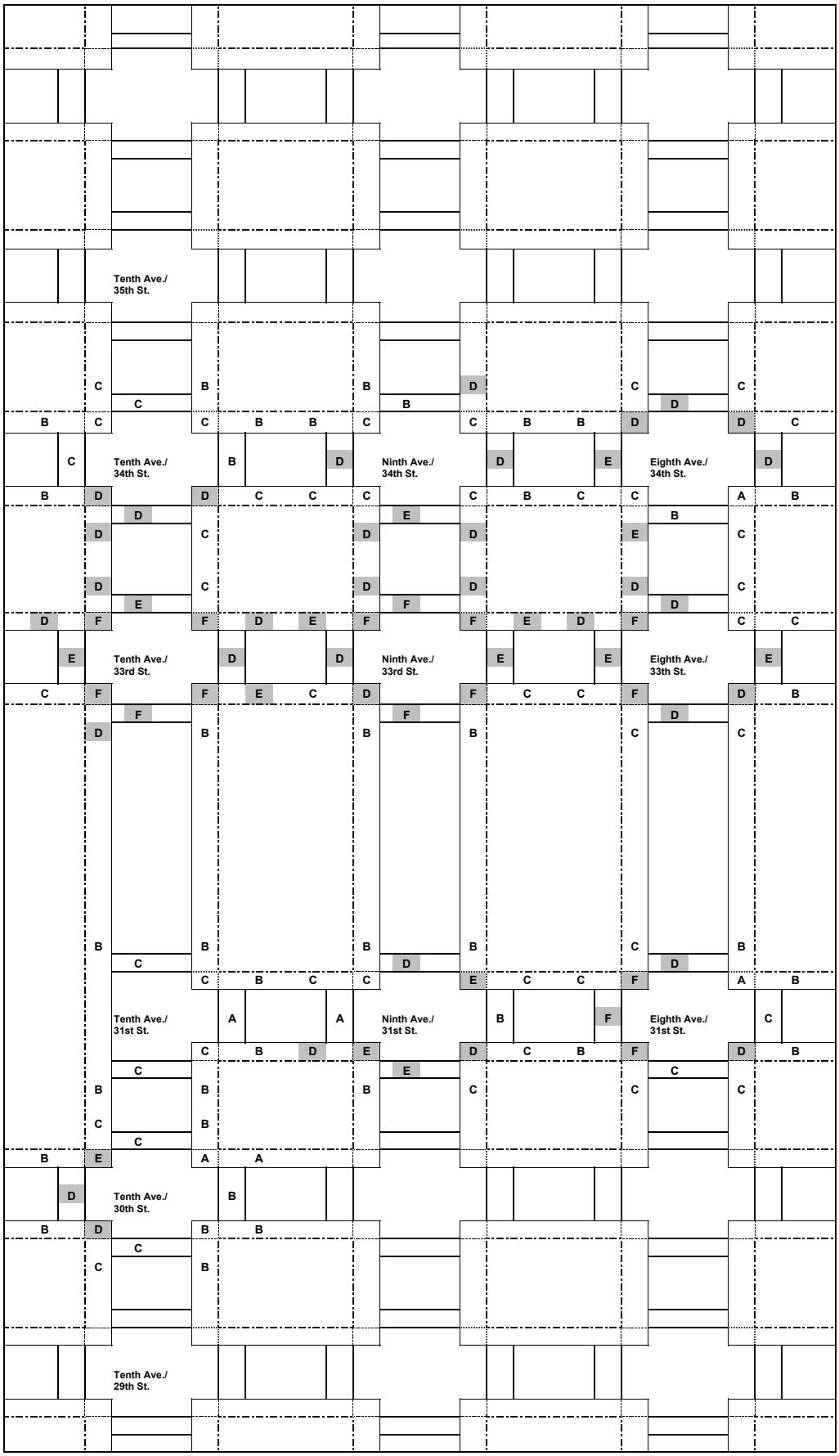


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - Saturday Midday Peak
Figure 18-12.1

WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 No Build Condition - Saturday Midday Peak
Figure 18-12.2

Saturday peak period, congested operating conditions would occur at 18 sidewalk locations at eight intersections during the Saturday midday peak period.

Table 18-21
2019 Future without the Proposed Actions:
Pedestrian Conditions – LOS D or Worse

LOS	Sidewalks				
	AM	Midday	PM	Sat	Total
Sidewalks					
D	16	38	19	15	**88**
E	3	13	12	4	**32**
F	1	6	2	0	**9**
Total D,E,F	**20**	**57**	**33**	**19**	**129**
Crosswalks					
D	10	17	11	13	**51**
E	9	17	20	10	**56**
F	6	24	8	4	**42**
Total D,E,F	**21**	**56**	**34**	**25**	**136**
Corners					
D	8	8	11	11	**38**
E	7	20	9	3	**39**
F	6	28	14	11	**59**
Total D,E,F	**21**	**56**	**34**	**25**	**136**

CROSSWALKS

For crosswalks that would operate at LOS D or worse the results, including effective sidewalk width, pedestrian volumes, flow rate, and LOS are presented in Table 18-23. Of the 95 crosswalks at the 26 intersections studied during the weekday peak periods, congested operating conditions occur at 25 crosswalks at 11 intersections during the AM peak period, 60 crosswalks at 25 intersections during the midday peak period, and 39 crosswalks at 14 intersections during the PM peak period. Of the 73 crosswalk locations at the 21 intersections studied during the Saturday peak period, congested operating conditions would occur at 29 crosswalks at 14 intersections during the Saturday midday peak period.

CORNERS

For all corners that would operating at LOS D or worse, the results, including pedestrian volumes, circulation area per pedestrian, and LOS are presented in Table 18-24. Of the 86 corners at the 26 intersections studied during the weekday peak periods, congested operating conditions occur at 22 corners at eight intersections during the AM peak period, 58 corners at 18 intersections during the midday peak period, and 37 corners at 14 intersections during the PM peak period. Of the 66 corner locations at the 21 intersections studied during the Saturday peak period, congested operating conditions would occur at 28 corners at 15 intersections during the Saturday midday peak period.

Table 18-22
2019 Future without the Proposed Actions: Sidewalk Conditions – LOS D or Worse

Intersection	Sidewalk Location	Effective width (ft)	Peak 15-minute volumes	Pedestrian Flow Rate (p/min/ft)	LOS
AM Conditions					
8. Tenth Avenue and West 33rd Street	4	5.2	929	11.9	E
	6	12.0	1086	6.0	D
	8	3.8	439	7.7	D
11. Ninth Avenue and West 34th Street	2	3.0	400	8.9	D
	6	5.5	914	11.1	E
12. Ninth Avenue and West 33rd Street	1	7.5	941	8.4	D
	3	3.5	1076	20.5	F
	4	9.0	1484	11.0	D
	7	15.0	1820	8.1	D
	8	5.2	636	8.2	D
13. Ninth Avenue and West 31st Street	4	3.9	392	6.7	D
14. Eighth Avenue and West 34th Street	2	9.7	1007	6.9	D
	5	9.8	976	6.6	D
	6	5.5	545	6.6	D
	7	7.0	965	9.2	D
15. Eighth Avenue and West 33rd Street	1	5.4	835	10.3	D
	2	10.5	1429	9.1	D
	7	9.0	1391	10.3	D
	8	5.3	1007	12.7	E
24. Boulevard and West 33rd Street	1	15.0	1508	6.7	D
Midday Conditions					
1. Route 9A and West 34th Street	5	4.3	407	6.3	D
2. Route 9A and West 33rd Street	2	4.3	407	6.3	D
6. Eleventh Avenue and West 30th Street	2	13.0	1382	7.1	D
	5	8.0	1688	14.0	E
7. Tenth Avenue and West 34th Street	1	6.7	1448	10.2	D
	2	8.5	898	7.0	D
	4	10.0	1179	7.9	D
	5	8.0	1247	10.4	D
	6	9.0	1747	12.9	E
	7	11.0	1019	6.2	D
8. Tenth Avenue and West 33rd Street	1	9.2	1872	13.6	E
	2	9.0	1566	11.6	E
	3	6.5	1254	12.9	E
	4	5.2	2477	31.8	F
	6	12.0	3657	20.3	F
	7	13.0	1430	7.3	D
	8	3.8	724	12.7	E
9. Tenth Avenue and West 31st Street	3	8.0	1112	9.3	D
10. Tenth Avenue and West 30th Street	1	12.0	1883	10.5	D
	5	4.7	517	7.3	D
	6	10.4	1471	9.4	D
11. Ninth Avenue and West 34th Street	1	8.5	918	7.2	D
	2	3.0	837	18.6	F
	5	7.4	1252	11.3	E
	6	5.5	1579	19.1	F
	7	11.0	1123	6.8	D
12. Ninth Avenue and West 33rd Street	1	7.5	1719	15.3	E
	2	8.1	1289	10.6	D
	3	3.5	1634	31.1	F
	4	9.0	1392	10.3	D
	7	15.0	2242	10.0	D
	8	5.2	1341	17.2	E

Table 18-22 (cont'd)
2019 Future without the Proposed Actions:
Sidewalk Conditions – LOS D or Worse

Intersection	Sidewalk Location	Effective width (ft)	Peak 15-minute volumes	Pedestrian Flow Rate (p/min/ft)	LOS
Midday Conditions (continued)					
13. Ninth Avenue and West 31st Street	4	3.9	503	8.6	D
	5	6.0	983	10.9	D
	6	6.1	654	7.2	D
	7	3.4	578	11.3	E
	8	6.0	1195	13.3	E
14. Eighth Avenue and West 34th Street	1	6.6	999	10.1	D
	2	9.7	1232	8.5	D
	6	5.5	839	10.2	D
15. Eighth Avenue and West 33rd Street	1	5.4	1155	14.3	E
	2	10.5	1395	8.9	D
	3	11.8	2203	12.5	E
	6	6.7	723	7.2	D
	7	9.0	1237	9.2	D
	8	5.3	1637	20.6	F
16. Eighth Avenue and West 31st Street	4	6.5	779	8.0	D
	5	7.0	646	6.2	D
	6	7.2	840	7.8	D
	8	5.6	774	9.2	D
19. Tenth Avenue and West 35th Street	3	2.0	195	6.5	D
20. Eleventh Avenue and West 29th Street	2	9.5	1236	8.7	D
	5	8.5	880	6.9	D
21. Tenth Avenue and West 29th Street	1	8.0	1066	8.9	D
22. Boulevard and West 35th Street	6	15.0	1736	7.7	D
24. Boulevard and West 33rd Street	1	15.0	2166	9.6	D
26. 11th Avenue and West 31th Street	5	10.0	1621	10.8	D
PM Conditions					
6. 11th Avenue and West 33th Street	2	8.0	767	6.4	D
7. Tenth Avenue and West 34th Street	6	9.0	892	6.6	D
8. Tenth Avenue and West 33rd Street	1	9.2	910	6.6	D
	2	9.0	893	6.6	D
	3	6.5	878	9.0	D
	4	5.2	1427	18.3	F
	6	12.0	2194	12.2	E
	8	3.8	530	9.3	D
11. Ninth Avenue and West 34th Street	2	3.0	535	11.9	E
	5	7.4	822	7.4	D
	6	5.5	1187	14.4	E
12. Ninth Avenue and West 33rd Street	1	7.5	1257	11.2	E
	2	8.1	854	7.0	D
	3	3.5	1283	24.4	F
	4	9.0	2116	15.7	E
	7	15.0	2712	12.1	E
	8	5.2	1021	13.1	E
13. Ninth Avenue and West 31st Street	7	3.4	368	7.2	D
	8	6.0	579	6.4	D
14. Eighth Avenue and West 34th Street	1	6.6	658	6.7	D
	2	9.7	1137	7.8	D
	5	9.8	1508	10.3	D
	6	5.5	882	10.7	D
	7	7.0	1160	11.1	E

Table 18-22 (cont'd)
2019 Future without the Proposed Actions:
Sidewalk Conditions – LOS D or Worse

Intersection	Sidewalk Location	Effective width (ft)	Peak 15-minute volumes	Pedestrian Flow Rate (p/min/ft)	LOS
PM Conditions (continued)					
15. Eighth Avenue and West 33rd Street	1	5.4	1297	16.0	E
	2	10.5	2097	13.3	E
	3	11.8	1100	6.2	D
	6	6.7	624	6.2	D
	7	9.0	1966	14.6	E
	8	5.3	1389	17.5	E
16. Eighth Avenue and West 31st Street	4	6.5	701	7.2	D
	8	5.6	681	8.1	D
24. Boulevard and West 33rd Street	1	15.0	2188	9.7	D
Saturday Conditions					
6. 11th Avenue and West 33th Street	2	8.0	815	6.8	D
7. Tenth Avenue and West 34th Street	6	9.0	822	6.1	D
8. Tenth Avenue and West 33rd Street	1	9.2	876	6.4	D
	3	6.5	808	8.3	D
	4	5.2	1160	14.9	E
	6	12.0	1862	10.3	D
	8	3.8	425	7.5	D
11. Ninth Avenue and West 34th Street	2	3.0	392	8.7	D
	5	7.4	722	6.5	D
	6	5.5	612	7.4	D
12. Ninth Avenue and West 33rd Street	1	7.5	707	6.3	D
	2	8.1	766	6.3	D
	3	3.5	655	12.5	E
	8	5.2	870	11.2	E
13. Ninth Avenue and West 31st Street	7	3.4	312	6.1	D
14. Eighth Avenue and West 34th Street	6	5.5	953	11.6	E
15. Eighth Avenue and West 33rd Street	1	5.4	599	7.4	D
	8	5.3	765	9.6	D
24. Boulevard and West 33rd Street	1	15.0	1462	6.5	D

Table 18-23
2019 Future without the Proposed Actions: Crosswalk Conditions – LOS D or Worse

Intersection	Crosswalk	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Conditions				
7. Tenth Avenue and West 34th Street	South	573	14.9	E
8. Tenth Avenue and West 33rd Street	North	548	17.3	D
	South	1106	7.4	F
	West	602	20.9	D
11. Ninth Avenue and West 34th Street	East	503	15.9	D
	South	689	7.4	F
	West	538	14.8	E
12. Ninth Avenue and West 33rd Street	North	858	6.1	F
	East	694	21	D
	South	1838	2.8	F
	West	1049	7.9	F
13. Ninth Avenue and West 31st Street	North	436	16.7	D
	South	301	16.6	D
14. Eighth Avenue and West 34th Street	East	690	14.2	E
	South	1178	16.1	D
	West	527	13.9	E
15. Eighth Avenue and West 33rd Street	North	1003	11.6	E
	East	631	13.7	E
	South	994	13.3	E
	West	579	9.5	E
16. Eighth Avenue and West 31st Street	North	563	16.5	D
	East	452	22	D
24. Boulevard and West 33rd Street	West	817	7.4	F
	East	536	14.9	E
27. Boulevard and West 33rd Street (midblock)	West	306	23.0	D
Midday Conditions				
1. Route 9A and West 34th Street	South (East)	414	11.5	E
	South (West)	414	9.6	E
4. Eleventh Avenue and West 34th Street	East	683	16.4	D
5. Eleventh Avenue and West 33rd Street	East	833	21.4	D
	South	235	19.5	D
6. Eleventh Avenue and West 30th Street	East	1480	3.3	F
7. Tenth Avenue and West 34th Street	North	556	11.1	E
	East	1439	9.8	E
	South	1143	7	F
	West	1433	12	E
8. Tenth Avenue and West 33rd Street	North	1270	5.6	F
	East	1534	7.9	F
	South	2808	2.4	F
	West	2174	4	F
9. Tenth Avenue and West 31st Street	North	609	8.5	E
	East	720	22.2	D
	South	502	15.2	D
10. Tenth Avenue and West 30th Street	North	661	10.1	E
	East	674	17.7	D
	South	468	20.4	D
	West	1721	6.9	F

Table 18-23 (cont'd)
2019 Future without the Proposed Actions:
Crosswalk Conditions – LOS D or Worse

Intersection	Crosswalk	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
Midday Conditions (continued)				
11. Ninth Avenue and West 34th Street	East	1055	7.2	F
	South	899	6.1	F
	West	1141	6.5	F
12. Ninth Avenue and West 33rd Street	North	1500	2.7	F
	East	1393	8.4	E
	South	1938	2.9	F
	West	1736	5.2	F
13. Ninth Avenue and West 31st Street	North	1064	6	F
	East	720	16.1	D
	South	823	5.3	F
	West	836	13.9	E
14. Eighth Avenue and West 34th Street	East	1170	7.9	F
	South	1817	10	E
	West	944	7.1	F
15. Eighth Avenue and West 33rd Street	North	2038	4.8	F
	East	1402	5.3	F
	South	1368	9.9	E
	West	1309	3.3	F
16. Eighth Avenue and West 31st Street	North	889	9	E
	East	785	11.6	E
	South	644	14.4	E
	West	869	6.8	F
17. Eleventh Avenue and West 36th Street	East	326	7.6	F
18. Eleventh Avenue and West 35th Street	East	496	17.5	D
19. Tenth Avenue and West 35th Street	East	736	17.5	D
	South	381	20.4	D
	West	750	16.5	D
20. Eleventh Avenue and West 29th Street	East	1049	9.4	E
21. Tenth Avenue and West 29th Street	West	909	14.1	E
22. Boulevard and West 35th Street	West	1315	15.5	D
23. Boulevard and West 34th Street	North	668	17	D
	South	883	12.1	E
	West	1362	16.7	D
24. Boulevard and West 33rd Street	West	1322	4.4	F
	East	960	21.0	F
26. 11th Street and 31st Street	East	966	16.1	D
27. Boulevard and 33rd Street (midblock)	West	367	21	D
PM Conditions				
1. Route 9A and West 34th Street	South (West)	167	23.2	D
6. Eleventh Avenue and West 30th Street	East	597	10.7	E
7. Tenth Avenue and West 34th Street	North	376	10.9	E
	South	826	11.1	E
8. Tenth Avenue and West 33rd Street	North	957	7.4	F
	East	754	19.1	D
	South	1923	4.6	F
	West	1281	9	E
9. Tenth Avenue and West 31st Street	North	290	12.8	E
10. Tenth Avenue and West 30th Street	West	878	16.1	D

Table 18-23 (cont'd)
2019 Future without the Proposed Actions:
Crosswalk Conditions – LOS D or Worse

Intersection	Crosswalk	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
PM Conditions (continued)				
11. Ninth Avenue and West 34th Street	North	695	22.5	D
	East	655	12.6	E
	South	925	4.7	F
	West	692	9.9	E
12. Ninth Avenue and West 33rd Street	North	1271	3	F
	East	1314	8.6	E
	South	2709	2.2	F
	West	1369	7.3	F
13. Ninth Avenue and West 31st Street	North	729	8.7	E
	South	357	11.5	E
14. Eighth Avenue and West 34th Street	North	976	19	D
	East	1041	9.4	E
	South	1447	13.3	E
	West	547	13.3	E
15. Eighth Avenue and West 33rd Street	North	1248	8.5	E
	East	1180	7.2	F
	South	1479	9.8	E
	West	849	5	F
16. Eighth Avenue and West 31st Street	North	874	9.1	E
	East	679	13.3	E
	South	436	22.3	D
	West	465	13	E
17. Eleventh Avenue and West 36th Street	East	120	19.4	D
18. Eleventh Avenue and West 35th Street	South	461	15.5	D
20. 11th Avenue and West 29th Street	East	509	23.5	D
23. Boulevard and West 34th Street	South	571	22.8	D
24. Boulevard and West 33rd Street	East	714	13.0	E
	West	1236	9.3	E
27. Boulevard and West 33rd Street (midblock)	West	448	22.6	D

Table 18-23 (cont'd)
2019 Future without the Proposed Actions:
Crosswalk Conditions – LOS D or Worse

Intersection	Crosswalk	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
Saturday Conditions				
6. Eleventh Avenue and West 30th Street	East	649	13.3	E
7. Tenth Avenue and West 34th Street	South	576	15.4	D
8. Tenth Avenue and West 33rd Street	North	733	11.5	E
	East	658	23	D
	South	1511	5.5	F
	West	1080	11.2	E
10. Tenth Avenue and West 30th Street	West	862	16.9	D
11. Ninth Avenue and West 34th Street	East	542	16.1	D
	South	454	12.2	E
	West	389	21.7	D
12. Ninth Avenue and West 33rd Street	North	1085	4.5	F
	East	1317	9.2	E
	South	1064	6.8	F
	West	662	16.9	D
13. Ninth Avenue and West 31st Street	North	453	15.3	D
	South	327	14.3	E
14. Eighth Avenue and West 34th Street	North	891	21.1	D
	East	474	21.9	D
	West	716	9.5	E
15. Eighth Avenue and West 33rd Street	North	673	17.1	D
	East	949	8.7	E
	South	913	15.9	D
	West	652	9	E
16. Eighth Avenue and West 31st Street	North	537	16.3	D
	West	815	7.5	F
24. Boulevard and West 33rd Street	East	588	21.6	D
	West	864	21.9	D

Table 18-24
2019 Future without the Proposed Actions:
Corner Conditions – LOS D or Worse

Intersection	Corner	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Conditions				
8. Tenth Avenue and West 33rd Street	Northeast	983	8.6	E
	Southeast	1510	3.7	F
	Southwest	1781	11.0	E
	Northwest	1214	12.3	E
11. Ninth Avenue and West 34th Street	Southwest	1452	16.9	D
12. Ninth Avenue and West 33rd Street	Northeast	1707	-3.4	F
	Southeast	2588	-10.8	F
	Southwest	2900	14.8	E
	Northwest	2140	1.7	F
13. Ninth Avenue and West 31st Street	Northeast	678	12.2	E
	Southeast	680	18.8	D
	Southwest	559	14.8	E
14. Eighth Avenue and West 34th Street	Northeast	1583	19.3	D
	Southwest	1807	18.4	D
15. Eighth Avenue and West 33rd Street	Southeast	1683	19.8	D
	Southwest	1665	7.1	F
	Northwest	1753	3.3	F
16. Eighth Avenue and West 31st Street	Southeast	688	19.3	D
	Southwest	524	16.7	D
	Northwest	991	14.4	E
24. Boulevard and West 33rd Street	Northeast	1193	20.5	D
Midday Conditions				
5. Eleventh Avenue and West 33rd Street	Southeast	1199	9.8	E
	Southwest	506	13.8	E
6. Eleventh Avenue and West 30th Street	Northeast	1764	12.9	E
	Southeast	1595	6.8	F
7. Tenth Avenue and West 34th Street	Northeast	2086	9.2	E
	Southeast	3071	4.4	F
	Southwest	2753	5.5	F
	Northwest	2011	10.0	E
8. Tenth Avenue and West 33rd Street	Northeast	2989	-0.4	F
	Southeast	4402	-3.6	F
	Southwest	5138	-3.5	F
	Northwest	3458	-1.8	F
9. Tenth Avenue and West 31st Street	Northeast	1385	9.8	E
	Southeast	1279	8.0	F
10. Tenth Avenue and West 30th Street	Northeast	1374	-6.1	F
	Southeast	1175	22.9	D
	Southwest	2197	6.1	F
	Northwest	2433	2.5	F
11. Ninth Avenue and West 34th Street	Northeast	1765	15.8	D
	Southeast	2102	10.8	E
	Southwest	2817	4.2	F
	Northwest	1826	14.5	E

Table 18-24(cont'd)
2019 Future without the Proposed Actions:
Corner Conditions – LOS D or Worse

Intersection	Corner	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
Midday Conditions (cont'd)				
12. Ninth Avenue and West 33rd Street	Northeast	3282	-2.6	F
	Southeast	3384	-4.2	F
	Southwest	3732	3.7	F
	Northwest	3514	-3.6	F
13. Ninth Avenue and West 31st Street	Northeast	1832	0.3	F
	Southeast	1642	2.1	F
	Southwest	1949	-0.2	F
	Northwest	1945	5.4	F
14. Eighth Avenue and West 34th Street	Northeast	2286	12.4	E
	Southeast	3205	21.8	D
	Southwest	2846	8.4	E
	Northwest	1862	16.6	D
15. Eighth Avenue and West 33rd Street	Northeast	3642	12.5	E
	Southeast	2797	10.3	E
	Southwest	2735	-2.0	F
	Northwest	3508	-2.4	F
16. Eighth Avenue and West 31st Street	Southeast	1513	4.0	F
	Southwest	1640	-0.4	F
	Northwest	1876	2.7	F
17. Eleventh Avenue and West 36th Street	Northeast	367	4.2	F
19. Tenth Avenue and West 35th Street	Northeast	964	12.4	E
	Southeast	1188	6.2	F
	Southwest	1191	7.0	F
	Northwest	982	8.6	E
20. Eleventh Avenue and West 29th Street	Northeast	1242	8.7	E
	Southeast	1080	8.9	E
21. Tenth Avenue and West 29th Street	Northeast	708	19.1	D
	Southeast	561	23.9	D
	Southwest	1086	11.4	E
	Northwest	1175	6.7	F
22. Boulevard and West 35th Street	Southwest	1886	12.3	E
24. Boulevard and West 33rd Street	Northeast	1923	9.3	E
	Southwest	2042	21.3	E

Table 18-24 (cont'd)
2019 Future without the Proposed Actions:
Corner Conditions – LOS D or Worse

Intersection	Corner	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
PM Conditions				
7. Tenth Avenue and West 34th Street	Southeast	1662	17.2	D
	Southwest	1534	12.4	E
8. Tenth Avenue and West 33rd Street	Northeast	1796	7.2	F
	Southeast	2706	2.2	F
	Southwest	3319	-3.4	F
	Northwest	2251	-0.3	F
10. Tenth Avenue and West 30th Street	Southwest	1153	18.3	D
	Northwest	1206	12.5	E
11. Ninth Avenue and West 34th Street	Southeast	1788	16.7	D
	Southwest	1888	4.8	F
	Northwest	1437	21.5	D
12. Ninth Avenue and West 33rd Street	Northeast	2775	1.2	F
	Southeast	4080	-0.1	F
	Southwest	4106	-6.1	F
	Northwest	2884	-3.4	F
13. Ninth Avenue and West 31st Street	Northeast	1055	10.5	E
	Southeast	756	16.2	D
	Southwest	720	12.0	E
	Northwest	974	13.9	E
14. Eighth Avenue and West 34th Street	Northeast	2370	12.0	E
	Southwest	2084	14.0	E
	Northwest	1603	18.9	D
15. Eighth Avenue and West 33rd Street	Northeast	2724	18.4	D
	Southeast	2721	14.2	E
	Southwest	2420	-1.9	F
	Northwest	2323	0.3	F
16. Eighth Avenue and West 31st Street	Southeast	1157	6.4	F
	Southwest	987	4.8	F
	Northwest	1475	5.5	F
19. Tenth Avenue and West 35th Street	Southwest	595	19.8	D
	Northwest	499	22.6	D
21. Tenth Avenue and West 29th Street	Northwest	623	16.6	D
24. Boulevard and West 33rd Street	Northeast	1613	9.7	E

Table 18-24 (cont'd)
2019 Future without the Proposed Actions:
Corner Conditions – LOS D or Worse

Intersection	Corner	Peak 15-min Volumes	Circulation area per pedestrian (ft^2/p)	LOS
Saturday Conditions				
7. Tenth Avenue and West 34th Street	Southeast	1204	22.5	D
	Southwest	1319	21.2	D
8. Tenth Avenue and West 33rd Street	Northeast	1529	6.6	F
	Southeast	2222	2.0	F
	Southwest	2702	1.6	F
	Northwest	1822	3.5	F
10. Tenth Avenue and West 30th Street	Southwest	1140	17.8	D
	Northwest	1189	13.0	E
11. Ninth Avenue and West 34th Street	Southwest	1078	23.2	D
12. Ninth Avenue and West 33rd Street	Northeast	2521	-0.6	F
	Southeast	2416	-0.6	F
	Southwest	1755	18.8	D
	Northwest	1909	-0.4	F
13. Ninth Avenue and West 31st Street	Northeast	776	13.0	E
	Southeast	693	17.5	D
	Southwest	662	13.5	E
14. Eighth Avenue and West 34th Street	Northeast	1558	23.3	D
	Northwest	1676	17.3	D
15. Eighth Avenue and West 33rd Street	Southeast	1935	19.0	D
	Southwest	1595	2.7	F
	Northwest	1444	5.4	F
16. Eighth Avenue and West 31st Street	Southeast	784	15.2	D
	Southwest	1242	0.6	F
	Northwest	1416	7.2	F
24. Boulevard and West 33rd Street	Northeast	1203	23.3	D

BICYCLE FACILITIES

Increased utilization of existing bicycle facilities throughout the study area is anticipated as a result of background growth and the implementation by the City of bicycle-related infrastructure improvements. The City's 1,800-mile bicycle master plan has identified a goal to encourage cycling as an environmentally friendly, healthy form of transportation. The plan includes 504 miles of separated bike paths (Class 1 facilities) and 1,296 miles of striped bicycle lanes or markings reminding drivers and cyclists to share the road (Class 2 and 3). NYCDOT is currently installing bicycle lanes as part of its three-year 200-lane-mile commitment (Phase 1 of the master plan), which started in 2006; over 80 lane-miles have been installed to date. Phase 1 of the plan will be completed in 2009. NYCDOT's Spring 2009 installation schedule does not include any specific bicycle improvements in the study area. However, this schedule is subject to change. Completion of the City's 1,800-mile bicycle master plan is scheduled for 2030.

THE FUTURE WITHOUT THE PROPOSED ACTIONS—2017

In addition to the 2019 Future without the Proposed Actions condition analysis, an assessment of the Proposed Actions' potential impact for a 2017 interim development year was also prepared. This assessment was undertaken for the purposes of determining: (1) whether any significant

adverse impact identified with the completion of the Proposed Actions would occur prior to 2019; (2) the availability and feasibility of mitigation measures for any significant adverse impact projected to occur in an interim year; and (3) the potential for any significant adverse impact to occur in an interim year that would be eliminated by the completion of the full development program for the Proposed Actions.

Transit and pedestrian analyses were conducted for the 2017 Future without the Proposed Actions condition at the same locations as those analyzed in the 2019 Future without the Proposed Actions condition. The 2017 Future without the Proposed Actions condition pedestrian volumes and LOS results are provided in Appendix E, "Transportation Technical Memos and Analyses." The 2017 Future without the Proposed Actions transit and pedestrian condition were compared with the 2019 Future without the Proposed Actions condition during the analyzed periods.

TRANSIT NETWORK

The line-haul v/c ratios at the No. 7 route peak load points in the 2017 Future without the Proposed Actions condition would be the same as the 2019 Future without the Proposed Actions condition.

The station elements in the 2017 Future without the Proposed Actions condition would operate at the same LOS as in the 2019 Future without the Proposed Actions condition during both the AM and PM peak periods.

The projected bus passenger demand in the 2017 Future without the Proposed Actions condition would be similar to the 2019 Future without the Proposed Actions condition. As was the case for the 2019 Future without the Proposed Actions condition, existing levels of bus service would not be sufficient to provide an adequate supply to meet the projected demand in the 2017 Future without the Proposed Actions condition for some bus routes during the AM and PM peak hours. The additional bus service required for the 2017 Future without the Proposed Actions condition would be the same as the 2019 Future without the Proposed Actions condition.

PEDESTRIAN

The 2017 Future without the Proposed Actions pedestrian LOS was compared with the 2019 Future without the Proposed Actions LOS during the four peak periods and provided in Tables 18-25a, 18-25b, and 18-25c. For sidewalks, the 2017 Future without the Proposed Actions LOS would be the same compared to the 2019 Future without the Proposed Actions condition. For crosswalks, the 2017 Future with the Proposed Actions condition would have one fewer location operating at LOS E during the AM peak period and one fewer location operating at LOS F during the midway peak period, compared to the 2019 Future without the Proposed Actions condition. For corners, the 2017 Future without the Proposed Actions condition would have one fewer location operating at LOS E during the AM peak period.

Table 18-25a
2019 and 2017 Pedestrian LOS Comparison
Future without the Proposed Actions Sidewalk LOS

	2019 Future without the Proposed Actions					2017 Future without the Proposed Actions				
LOS	**AM**	**Midday**	**PM**	**Sat**	**Total**	**AM**	**Midday**	**PM**	**Sat**	**Total**
A	58	13	29	21	**121**	58	13	29	21	**121**
B	81	75	88	72	**316**	81	75	88	72	**316**
C	25	39	34	30	**128**	25	39	34	30	**128**
D	16	38	19	15	**88**	16	38	19	15	**88**
E	3	13	12	4	**32**	3	13	12	4	**32**
F	1	6	2	0	**9**	1	6	2	0	**9**
Total	**184**	**184**	**184**	**142**	**694**	**184**	**184**	**184**	**142**	**694**
Total D,E,F	**20**	**57**	**33**	**19**	**129**	**20**	**57**	**33**	**19**	**129**

Table 18-25b
Future without the Proposed Actions Crosswalk LOS

	2019 Future without the Proposed Actions					2017 Future without the Proposed Actions				
LOS	**AM**	**Midday**	**PM**	**Sat**	**Total**	**AM**	**Midday**	**PM**	**Sat**	**Total**
A	49	18	28	21	**116**	49	18	28	21	**116**
B	13	7	15	14	**49**	13	7	15	14	**49**
C	8	12	13	11	**44**	8	12	13	11	**44**
D	10	17	11	13	**51**	11	17	11	13	**52**
E	9	17	20	10	**56**	8	18	20	10	**56**
F	6	24	8	4	**42**	6	23	8	4	**41**
Total	**95**	**95**	**95**	**73**	**358**	**95**	**95**	**95**	**73**	**358**
Total D,E,F	**21**	**56**	**34**	**25**	**136**	**21**	**56**	**34**	**25**	**136**

Table 18-25c
Future without the Proposed Actions Corner LOS

	2019 Future without the Proposed Actions					2017 Future without the Proposed Actions				
LOS	**AM**	**Midday**	**PM**	**Sat**	**Total**	**AM**	**Midday**	**PM**	**Sat**	**Total**
A	41	11	25	22	**99**	41	11	25	22	**99**
B	11	8	7	6	**32**	11	8	7	6	**32**
C	13	11	20	13	**57**	13	11	20	13	**57**
D	8	8	11	11	**38**	9	8	11	11	**39**
E	7	20	9	3	**39**	6	20	9	3	**38**
F	6	28	14	11	**59**	6	28	14	11	**59**
Total	**86**	**86**	**86**	**66**	**324**	**86**	**86**	**86**	**66**	**324**
Total D,E,F	**21**	**56**	**34**	**25**	**136**	**21**	**56**	**34**	**25**	**136**

F. PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2019

CONDITIONS FOR ANALYSIS

To evaluate conditions for the 2019 Future with the Proposed Actions condition, it is necessary to account for changes to the built environment anticipated between existing and future

conditions that would be attributable to only the Proposed Actions. The elements that were included in the analysis of the Future with the Proposed Actions condition are described below. Changes that are not part of the Proposed Actions are not included in the Future with the Proposed Actions condition tables below. However, these changes would be part of the future background conditions (i.e., 2019 Future without the Proposed Actions) against which the Proposed Actions are assessed.

Detailed analysis methodologies for trip generation rates, modal splits, temporal distributions, and assignments to the transit and pedestrian networks are described in a series of technical memoranda provided in the Methodology section of this chapter and in Appendix E, "Transportation Technical Memos and Analyses." The methodologies developed for these analyses utilize assumptions consistent with those incorporated in the traffic analysis, Chapter 17, "Traffic and Parking."

REZONING AND RELATED LAND USE ACTIONS

As described in Chapter 1, "Project Description," the Proposed Actions would result in the development of up to eight new mixed-use towers containing residential units, commercial space, a public school, approximately five acres of publicly accessible open space, and accessory parking spaces. These buildings would be towers of varying bulk, massing, and height situated around a new, expansive open space network that would physically and visually connect to the open space network on the Eastern Rail Yard to the east and the new High Line Park to the west and south, and would visually connect to the Hudson River Park to the west. Further information on the design for the Development Site as it is currently contemplated can be found in Chapter 3, "Land Use, Zoning, and Public Policy."

A detailed methodology of trip generation and transit and pedestrian assignments is provided in the Methodology section of this chapter and in Appendix E, "Transportation Technical Memos and Analyses." A summary of person trips by mode projected for each of the analyzed peak hours is presented in Table 18-5. The subway and railroad trip assignment is presented on Table 18-6 and the bus trip assignment is presented on Table 18-7. Transit trip distributions were based on the 2000 Census Data. The Proposed Actions would generate pedestrian traffic along likely routes between the Development Site and connecting transit service, and the adjacent neighborhoods. Project generated pedestrian trips for each mode were assigned to the pedestrian network along likely routes between the Development Site and connecting transit service, and the adjacent neighborhoods. The projected net incremental pedestrian trips for each of the analyzed peak periods are provided in Appendix E, "Transportation Technical Memos and Analyses."

TRANSIT NETWORK

SUBWAY LINES

The number of trains per hour, capacity per train, peak hour capacity, project generated trips, peak hour volume, and v/c ratio at the peak load point in the peak direction for the Flushing Line No. 7 route are shown in Table 18-26 for the Future with the Proposed Actions condition weekday AM peak hour. The line-haul v/c ratios at the No. 7 subway line peak load points are projected to be the same or slightly higher than the line-haul v/c ratios in the 2019 Future without the Proposed Actions. It is anticipated that the AM peak load point for the combined local and express No. 7 route would shift to the Times Square Station in Manhattan as a result of the combination of the build out of the Hudson Yards area, the No. 7 line extension, and the Proposed Actions.

Table 18-26
2019 Future with the Proposed Actions:
Subway Line Haul Conditions (Flushing Line)

Subway Line	Peak Load Point	Trains per Hour	Capacity per Train	Peak Hourly Capacity	Project Generated Trips	Peak Hour Volume	V/C ratio
AM Peak Hour (Manhattan-bound)							
Local	40th Street	13	1,210	15,730	110	13,498	0.86
Express	Woodside-61st Street	14	1,210	16,940	110	17,162	1.01
Local & Express	**Times Square**	**27**	**1,210**	**32,670**	**1,401**	**26,955**	**0.83**

The inbound local No. 7 route would operate below the loading capacity with a v/c ratio of 0.85 at the 40th Street Station in Queens. The line haul v/c ratio at Woodside-61st Street Station in Queens in the Future with the Proposed Action is projected to remain at 1.01, the same as in the Future without the Proposed Action. The inbound express No. 7 route at the Woodside-61st Street Station in Queens would have a net increase of 110 riders in the peak hour, or less than one person per car, which is not considered a significant impact (as per the *CEQR Technical Manual*). The peak load point for the combined local and express No. 7 route at the Times Square Station in Manhattan would operate below the loading capacity with a v/c ratio of 0.83.

SUBWAY STATIONS

Development of the Proposed Actions is anticipated to increase subway usage in the transit study area. The results of the LOS analysis of the station elements for the Future with the Proposed Actions condition during the weekday AM and PM peak 15-minutes are provided in Appendix E, "Transportation Technical Memos and Analyses." Most of the station elements would continue to operate at or below capacity. For station elements that would be affected in the Future with the Proposed Actions condition, the results including volumes, v/svc ratio, and LOS are presented in Table 18-27. Of the 113 elements analyzed, increased utilization in the 2019 Future with the Proposed Actions condition would affect five subway station stairways during the AM peak period and six subway station stairways during the PM peak period. One stairway, M23/M24 at Control Area N67 at the 34th Street-Penn Eighth Avenue Station, operates at LOS E during the PM peak period and the width increment threshold (WIT) needed to restore this stairway to the Future without the Proposed Actions condition would be greater than three inches, indicating a significant adverse impact.

The following provides details related to operations at these subway stations for the 2019 Future with the Proposed Actions condition.

34th Street-Penn Eighth Avenue Station (A, C, and E Routes)

For this station, increased utilization in the 2019 Future with the Proposed Actions condition would affect the following station elements (see Table 18-27) but would not result in a significant adverse impact:

- Control Area N73 – The northwest staircase (S4 and P3) located at the west side of Eighth Avenue and West 33rd Street would operate at LOS D with a v/svcd ratio of 1.16 in the Future without the Proposed Actions condition and LOS D with a v/svcd ratio of 1.20 during the AM peak period in the Future with the Proposed Actions condition.

Table 18-27
2019 Future with the Proposed Actions:
Affected Subway Station Elements

Control Area	Station Elements	Future without the Proposed Actions Condition			Future with the Proposed Actions Condition			Width Increment Threshold
		Volume	V/SVCD Ratio	LOS	Volume	V/SVCD Ratio	LOS	
34th Street–Penn Seventh Avenue Station (A, C, E Routes)								
AM Peak Period								
N73 (33rd Street and Eighth Avenue West)	Stairway S4 (NW)	475	1.16	D	488	1.20	D	1.1″
N73 (33rd Street and Eighth Avenue West)	Stairway P3	475	1.16	D	488	1.20	D	1.1″
N67	Stairway M21/22	1057	1.14	D	1124	1.21	D	5.9″
34th Street–Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)								
R138	Stairway ML12	1181	1.03	D	1199	1.05	D	1.6″
R138	Stairway ML14	1491	1.46	E	1511	1.48	E	1.4″
PM Peak Period								
N70 (34th Street and Eighth Avenue East)	Stairway S9	588	1.09	D	592	1.10	D	0.37″
N67	Stairway M23/M24	1396	1.50	E	1497	1.61	E	6.7″
N71/70	Stairway M27/M28	600	1.00	C/D	653	1.09	D	5.4″
34th Street–Penn Seventh Avenue Station (Nos. 1, 2, 3 Routes)								
PM Peak Period								
R141 (34th Street and Seventh Avenue East)	Stairway S6 (NE)	507	1.04	D	510	1.05	D	1.3″
R138	Stairway ML12	1126	1.10	D	1145	1.12	D	1.7″
R138	Stairway ML14	1422	1.24	D	1448	1.26	D	1.8″

- Control Area N70 – The northeast staircase (S9) located at the west side of Eighth Avenue and West 34th Street would operate at LOS D with a v/svcd ratio of 1.09 in the Future without the Proposed Actions condition and LOS D with a v/svcd ratio of 1.10 during the PM peak period in the Future with the Proposed Actions condition.
- Control Area N67 - The northern staircase (M21/M22) leading from the express (A route) platform would operate at LOS D during the AM peak period, with a v/svcd ratio of 1.14 in the Future without the Proposed Actions condition and would operate at LOS D during the AM peak period, with a v/svcd ratio of 1.21 in the Future with the Proposed Actions condition.
- Control Areas N71/ N70 - The southern staircase (M27/M28) leading from the express (A route) platform to the undertrack mezzanine at 34th Street would operate at LOS C/D during the PM peak 15 minute period, with a v/svcd ratio of 1.00 in the Future without the Proposed Actions condition and would operate at LOS D during the PM peak 15 minute period, with a v/svcd ratio of 1.09 in the Future with the Proposed Actions condition.
- Control Area N67 - The southern staircase (M23/M24) serving the express (A train) platform would operate at an LOS E during the PM peak period, with a v/svcd ratio of 1.50 in the Future without the Proposed Actions condition and will operate at an LOS E during the PM peak period, with a v/svcd ratio of 1.61 in the Future with the Proposed Actions condition.

34th Street-Penn Station Seventh Avenue Line (Nos. 1, 2, and 3 Routes)

For this station, increased utilization in the 2019 Future with the Proposed Actions condition would affect the following station elements (see Table 18-27) but would not result in a significant adverse impact:

- Control Area R141 – The northeast staircase (S6) located at the east side of Seventh Avenue and West 34th Street would operate at LOS D with a v/svcd ratio of 1.04 in the Future without the Proposed Actions condition and LOS D with a v/svcd ratio of 1.05 in the Future with the Proposed Actions condition.
- Control Area R138 - The southern staircase (ML12) serving this control area from the express (Nos. 2 and 3 routes) platform would operate at LOS D during both the AM and PM peak 15 minute periods, with v/svcd ratios of 1.03 and 1.10, respectively, in the Future without the Proposed Actions condition and would operate at LOS D during both the AM and PM peak 15 minute periods, with v/svcd ratios of 1.05 and 1.12, respectively, in the Future with the Proposed Actions condition.
- Control Area R138 - The northern staircase (ML 14) serving this control area from the express (Nos. 2 and 3 routes) platform would operate at LOS E during the AM peak with a v/svcd ratio of 1.46 and at LOS D during the PM peak with a v/svcd ratio of 1.24 in the Future without the Proposed Actions condition and would operate at LOS E during the AM peak with a v/svcd ratio of 1.48 and at LOS D during the PM peak with a v/svcd ratio of 1.26 in the Future with the Proposed Actions condition.

34th Street-Eleventh Avenue Station (No. 7 Route)

Increased utilization in the 2019 Future with the Proposed Actions condition at this station would not result in a significant adverse impact during either the AM or PM peak period.

BUS ROUTES

Based on development of the Proposed Actions, demand for bus service in the Future with the Proposed Actions condition is projected to increase. As presented in Table 18-28, existing levels of bus service would not be sufficient to provide adequate supply to meet the projected demand in the 2019 Future with the Proposed Actions condition for most of the bus routes during the AM and PM peak hours. Therefore, the Proposed Actions would result in a significant adverse bus impact during the AM and PM peak hours. These routes would require additional capacity, which could be provided by either increasing the number of standard buses or, where feasible, converting the route to articulated bus service. Detailed description of additional bus service required for each of the bus routes is discussed in Chapter, 24, "Mitigation."

The general policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints. Based on NYCT's ongoing passenger monitoring program and as new development occurs throughout the study area, a comprehensive service plan would be generated to respond to specific, known needs with capital and/or operational improvements where fiscally feasible and operationally practicable. NYCT's capital program is developed on a five-year cycle; through this program, expansion of bus services would be provided as needs are determined.

Table 18-28
2019 Future with the Proposed Actions:
Bus Operating Conditions

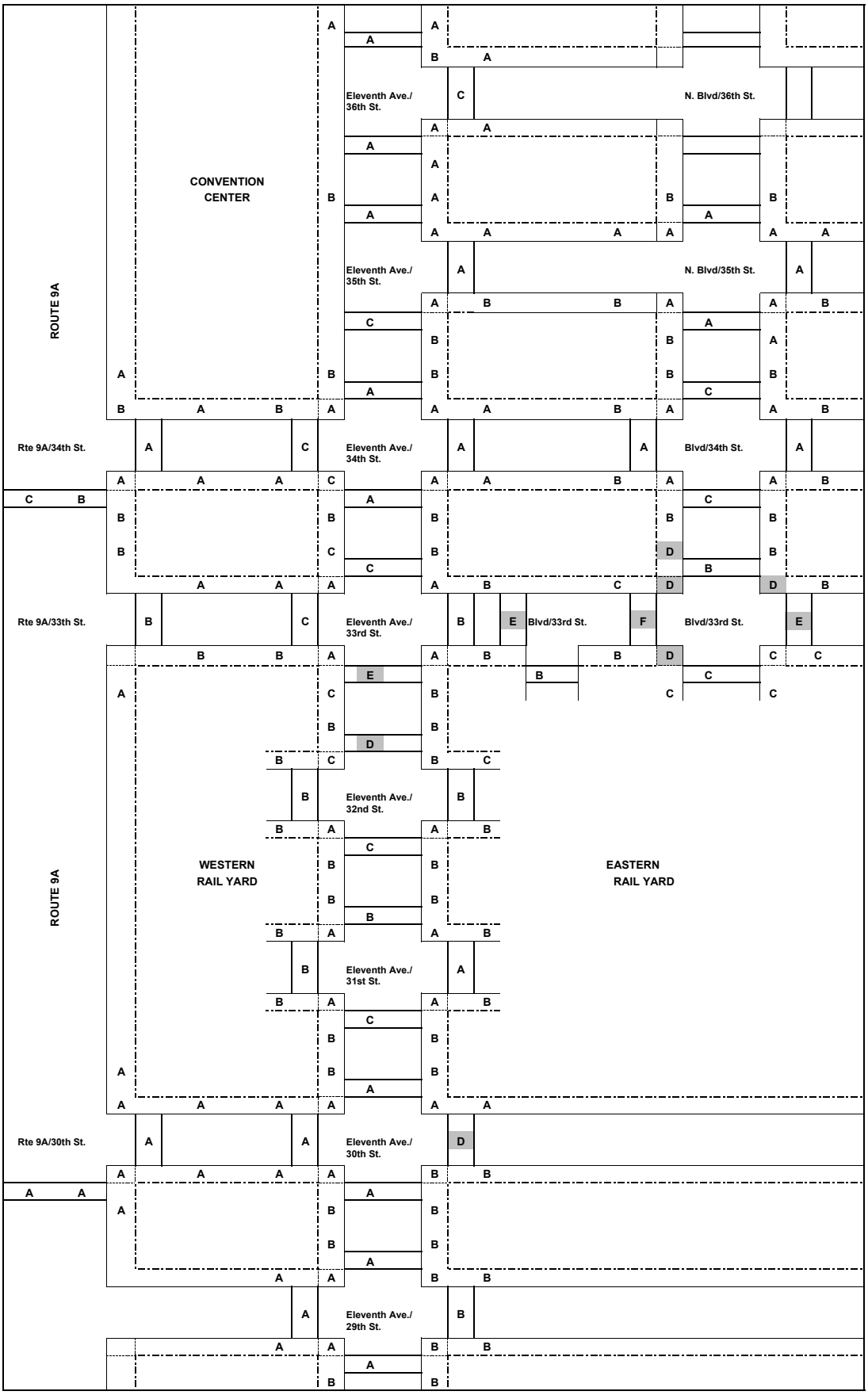
Bus Route	Direction	Buses per Hour[1]	Per Bus Capacity	Hourly Capacity	Project Generated Trips	Hourly Volume	Average Volume per Bus	Hourly Available Capacity
AM Peak Hour								
M10/ M20	NB	9	65	585	40	445	49	140
	SB	12	65	780	102	797	66	-17
M11	NB	5	65	325	80	670	134	-345
	SB	6	65	390	180	2,577	429	-2,187
M34/ M16	EB	17	65	1105	239	1,516	89	-411
	WB	15	65	975	842	2,897	193	-1,922
PM Peak Hour								
M10/ M20	NB	12	65	780	124	2,107	176	-1,327
	SB	11	65	715	48	612	56	103
M11	NB	6	65	390	248	2,413	402	-2,023
	SB	6	65	390	86	1,005	168	-615
M34/ M16	EB	12	65	780	940	2,933	244	-2,153
	WB	12	65	780	299	1,551	129	-771

1. NYCT Ride-Check Surveys (2005-2007)

PEDESTRIAN ELEMENTS

As indicated in Figure 18-3, two new intersections are proposed along Eleventh Avenue generally in line with the extension of mapped West 31st and West 32nd Streets adjacent to the Development Site and connecting to the Eastern Rail Yard. Under the Future without the Proposed Actions condition (with development only on the Eastern Rail Yard), each of these two intersections would operate as a three leg (T) intersection with no crosswalks or corners at the west side of the intersections. With the Proposed Actions, new sidewalks, crosswalks, and corners would be provided at the west side of these two intersections due to the construction of the roadways on the Development Site. As a result, each of these two intersections was analyzed as a regular four leg intersections with four crosswalks and corners. Sidewalk, corner, and crosswalk analysis was also conducted for these additional pedestrian elements in the Future with the Proposed Actions condition. As a result, a total of 26 intersections were analyzed for the weekday AM, midday, and PM peak hours and 21 intersections were analyzed for the Saturday midday peak hour. A total of 373 pedestrian elements were analyzed for the weekday AM, midday, and PM peak hours including 188 sidewalks, 95 crosswalks, and 90 corners. A total of 293 pedestrian elements were analyzed for the Saturday midday peak hour including 146 sidewalks, 73 crosswalks, and 74 corners.

The Future with the Proposed Actions sidewalk, corner, and crosswalk LOS results are presented in Figures 18-13.1 through 18-16.2. Copies of the individual sidewalk, corner, and crosswalk analysis tables are provided in Appendix E, "Transportation Technical Memos and Analyses." The number of significant adverse impacts for sidewalk, corner, and crosswalk for the Future without the Proposed Actions condition is summarized in Table 18-29.

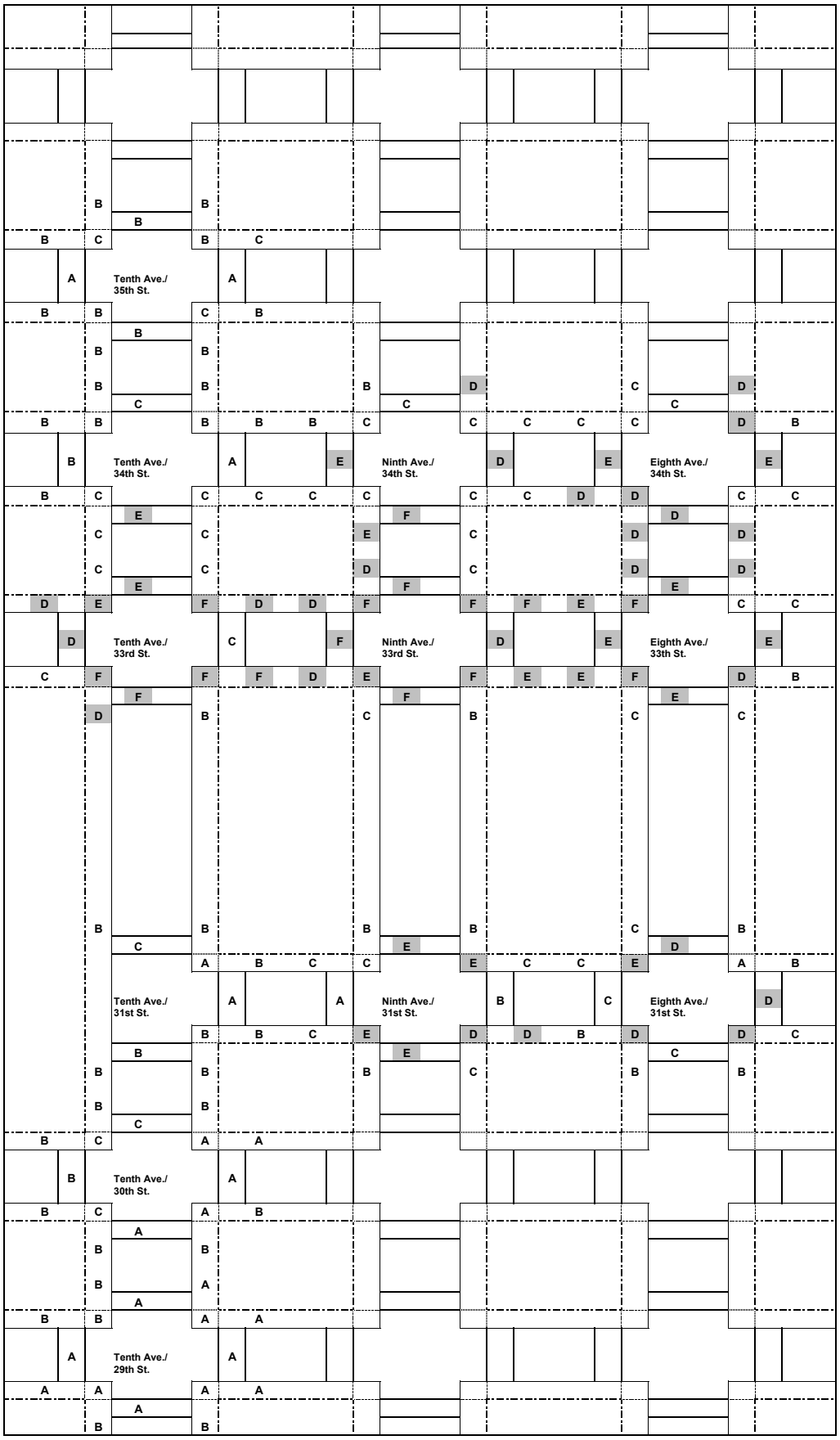


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - AM Peak
Figure 18-13.1

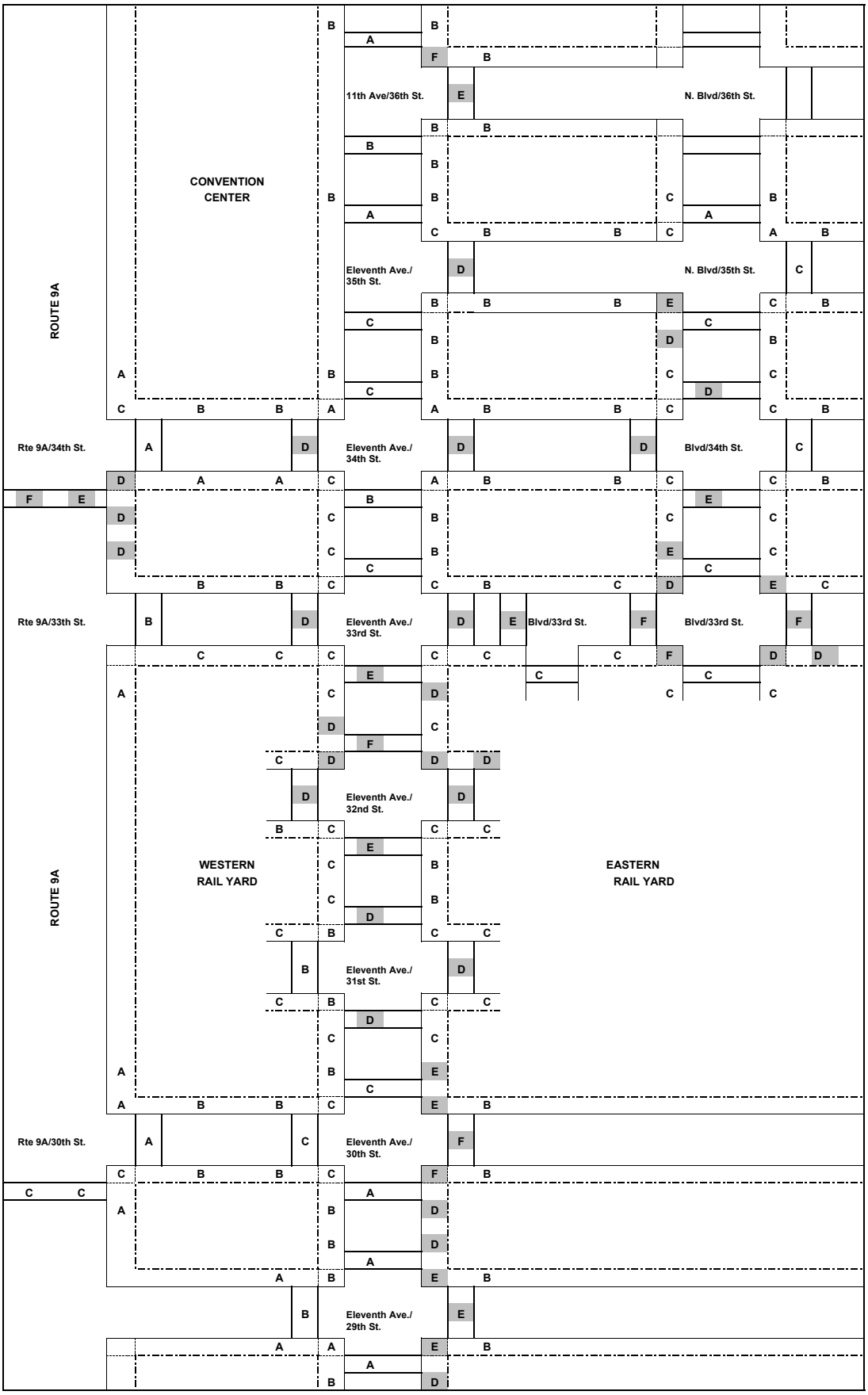
WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - AM Peak
Figure 18-13.2

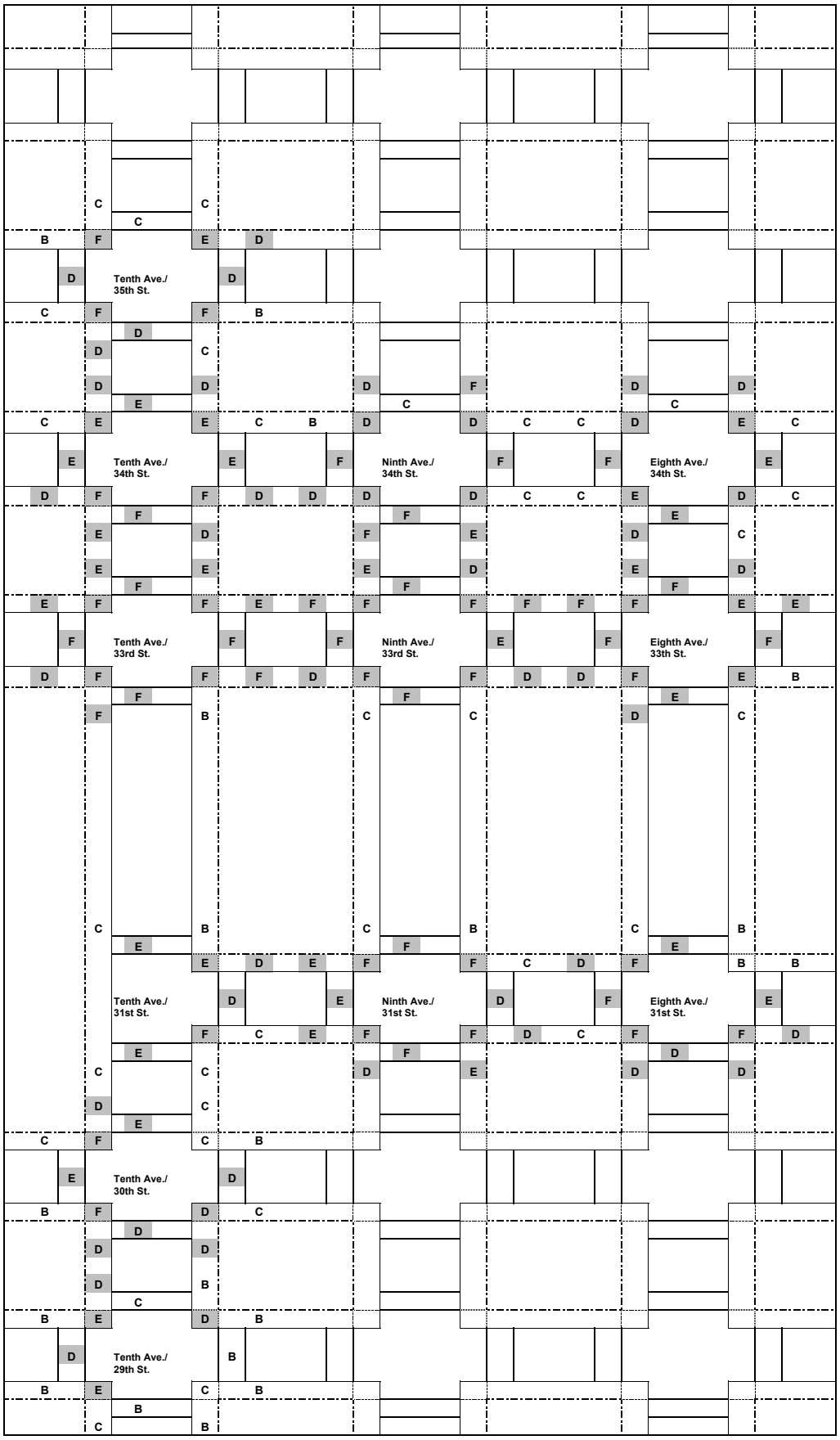


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - Midday Peak
Figure 18-14.1

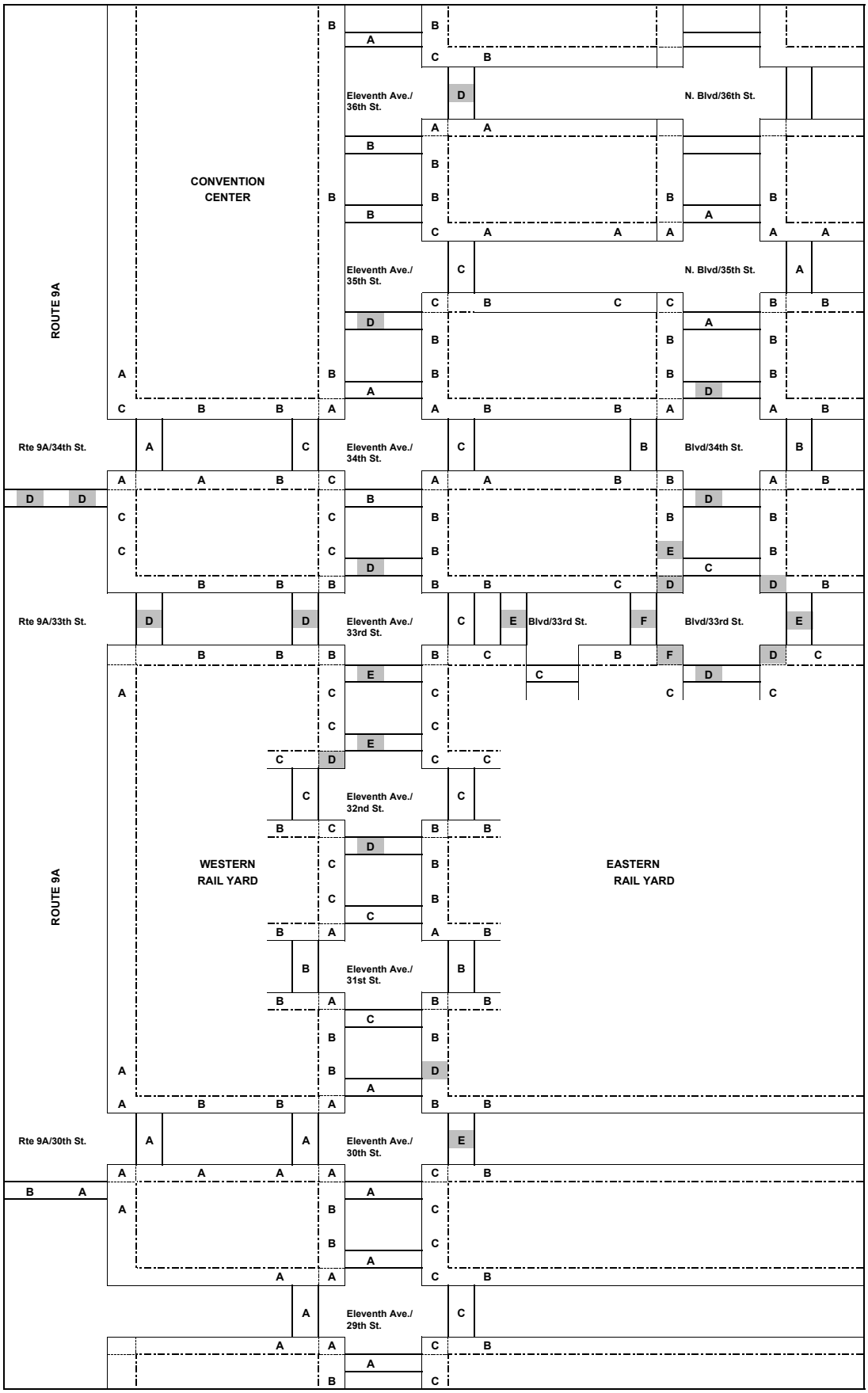
WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - Midday Peak
Figure 18-14.2

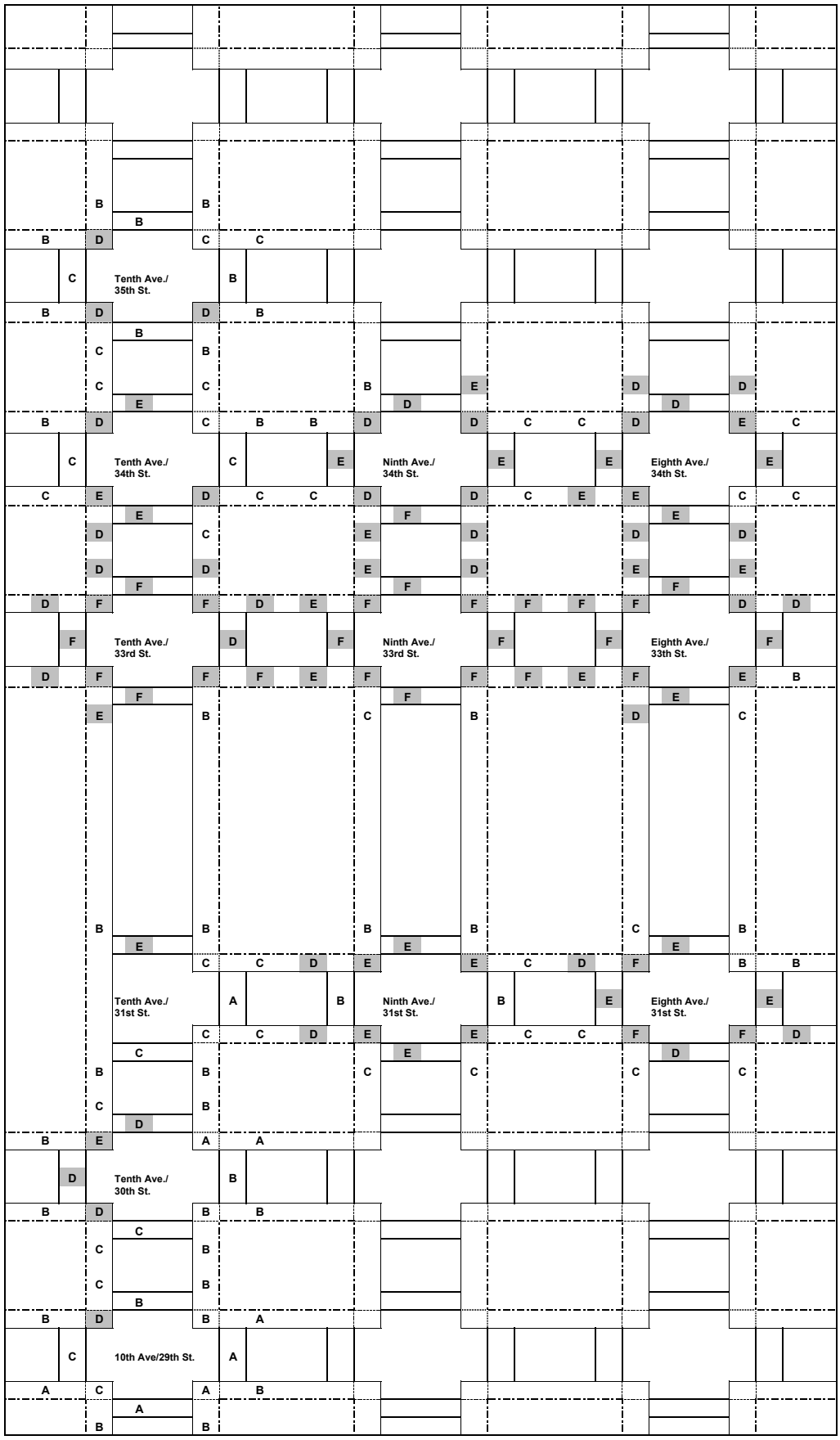


Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - PM Peak
Figure 18-15.1

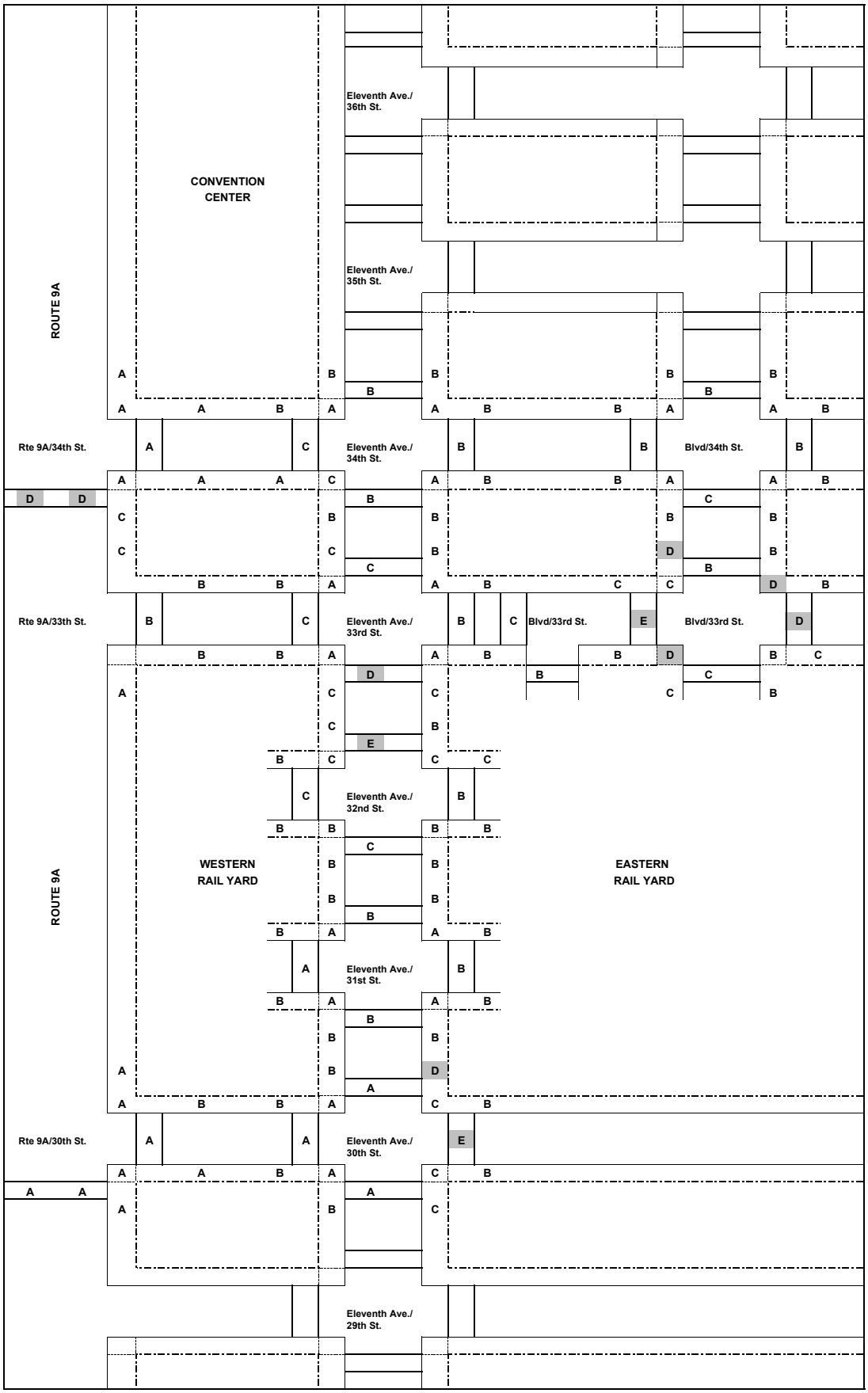
WESTERN **RAIL YARD**



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

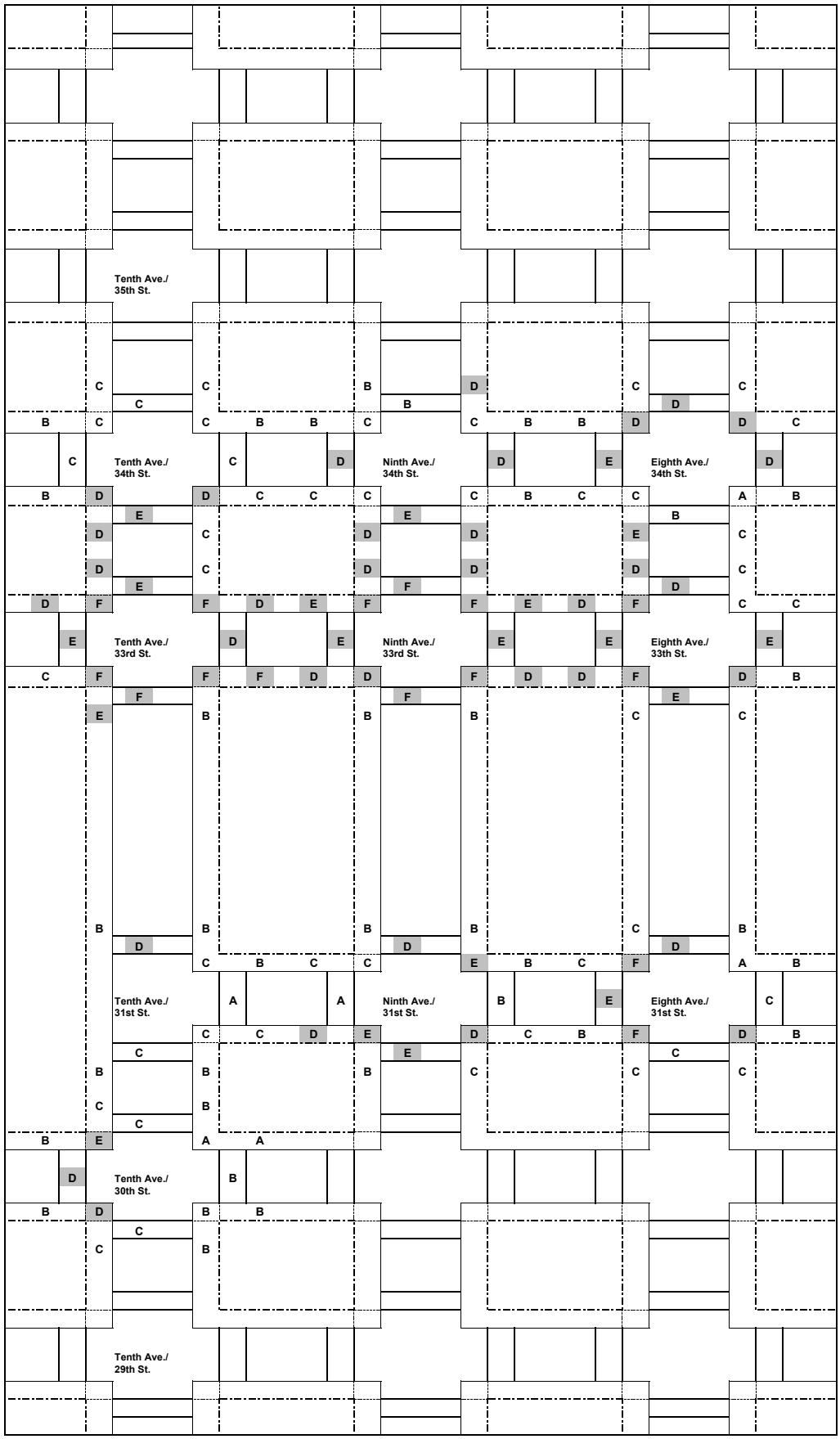
Pedestrian LOS
2019 Build Condition - PM Peak
Figure 18-15.2



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - Saturday Midday Peak
Figure 18-16.1



Pedestrian Locations Operating at LOS "D" or Worse

Pedestrian Locations Operating at LOS "D" or Worse are highlighted in gray

Pedestrian LOS
2019 Build Condition - Saturday Midday Peak
Figure 18-16.2

Table 18-29
2019 Future with the Proposed Actions:
Number of Locations with Significant Adverse Impacts

Elements	AM	MD	PM	SAT	Total
Sidewalk	2	1	5	1	**9**
Crosswalk	9	7	10	8	**34**
Corner	13	6	12	7	**38**
Total	**24**	**14**	**27**	**16**	**81**

SIDEWALKS

Pedestrian volumes at sidewalk locations are anticipated to increase in 2019 in the Future with the Proposed Actions and result in additional significant adverse impacts throughout the study area. Table 18-30 presents the sidewalk locations that are projected to have significant adverse impacts in 2019. Of the 188 sidewalk locations at the 26 intersections analyzed for the weekday peak hours and 146 sidewalk locations at the 21 intersections analyzed for the Saturday peak hour, two significant adverse sidewalk impacts (at two intersections) are anticipated during the AM peak hour, one during the midday peak hour, five sidewalk locations at three intersections during the PM peak hour and one during the Saturday peak hour.

Table 18-30
2019 Future with the Proposed Actions:
Sidewalks Conditions: Locations with Significant Adverse Impacts

Intersection	Sidewalk Location	2019 Future Without the Proposed Actions				2019 Future With the Proposed Actions			
		Effective Width (ft)	Peak 15-Minute Volumes	Pedestrian Flow Rate (p/min/ft)	LOS	Effective Width (ft)	Peak 15-Minute Volumes	Pedestrian Flow Rate (p/min/ft)	LOS
AM Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	929	11.9	E	5.2	1527	19.6	F
12. Ninth Avenue and West 33rd Street	3	3.5	1076	20.5	F	3.5	1234	23.5	F
Midday Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	2477	31.8	F	5.2	2649	34.0	F
PM Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	1427	18.3	F	5.2	2080	26.7	F
12. Ninth Avenue and West 33rd Street	3	3.5	1283	24.4	F	3.5	1460	27.8	F
	4	9.0	2116	15.7	E	9.0	2619	19.4	F
15. Eighth Avenue and West 33rd Street	7	9.0	1966	14.6	E	9.0	2401	17.8	E
	8	5.3	1389	17.5	E	5.3	1562	19.7	F
Saturday Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	1160	14.9	E	5.2	1407	18.0	F

CROSSWALKS

Pedestrian volumes at crosswalks are anticipated to increase in 2019 in the Future with the Proposed Actions and result in additional significant adverse impacts throughout the study area. Table 18-31 presents the crosswalks that are projected to have significant adverse impacts in 2019. Of the 95 crosswalks at the 26 intersections analyzed for the weekday peak hours and 73

crosswalks at the 21 intersections analyzed for the Saturday peak hour, nine significant adverse crosswalk impacts (at six intersections) are anticipated during the AM peak hour, seven crosswalk locations at five intersections during the midday peak hour, ten crosswalk locations at nine intersections during the PM peak hour, eight crosswalk locations at six intersections during the Saturday peak hour.

Table 18-31
2019 Future with the Proposed Actions:
Crosswalk Conditions: Locations with Significant Adverse Impacts

Intersection	Crosswalk Location	2019 Future Without the Proposed Actions			2019 Future With the Proposed Actions		
		Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS	Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Peak Hour							
5. Eleventh Avenue and West 33rd Street	South	36	131.2	A	332	12.6	E
8. Tenth Avenue and West 33rd Street	North	548	17.3	D	628	14.4	E
	South	1106	7.4	E	1811	3.8	F
13. Ninth Avenue and West 31st Street	North	436	16.7	D	481	14.9	E
	South	301	16.6	D	343	14.9	E
15. Eighth Avenue and West 33rd Street	East	631	13.7	E	684	12.5	E
	South	994	13.3	E	1251	10.1	E
24. Blvd and West 33rd Street	West	817	7.4	F	1013	5.6	F
27. Blvd and West 33rd Street (midblock)	West	306	23	D	484	13.6	E
Midday Peak Hour							
1. Route 9A and West 34th Street	South (East)	414	11.5	E	516	8.9	E
	South (West)	414	9.6	E	516	7.3	F
5. Eleventh Avenue and West 33rd Street	South	235	19.5	D	472	8.1	E
9. Tenth Avenue and West 31st Street	South	502	15.2	D	552	13.6	E
25. 11th Street and 32nd Street	North	84	165.9	A	1614	5.0	F
	South	42	395.5	A	946	12.8	E
27. Blvd and West 33rd Street (midblock)	West	367	21	D	493	14.2	E
PM Peak Hour							
5. Eleventh Avenue and West 33rd Street	South	84	64.8	A	459	9.4	E
6. Eleventh Avenue and West 30th Street	East	597	10.7	E	602	8.7	E
8. Tenth Avenue and West 33rd Street	South	1923	4.6	F	2692	3.0	F
	West	1281	9.0	E	1387	7.9	F
9. Tenth Avenue and West. 31st Street	North	290	12.8	E	320	10.8	E
13. Ninth Avenue and West 31st Street	South	357	11.5	E	394	10.3	E
15. Eighth Avenue and West 33rd Street	South	1479	9.8	E	1750	8.1	E
24. Blvd and West 33rd Street	West	1236	9.3	E	1455	6.0	F
25. 11th Street and West 32nd Street	North	34	336.9	A	1261	8.3	E
27. Boulevard and West 33rd Street (midblock)	West	448	22.6	D	661	14.5	E
Saturday Peak Hour							
6. Eleventh Avenue and West 30th Street	East	649	13.3	E	640	12.3	E
8. Tenth Avenue and West 33rd Street	South	1511	5.5	F	1837	4.2	F
	West	1080	11.2	E	1145	10.0	E
12. Ninth Avenue and West 33rd Street	South	1064	6.8	F	1251	5.6	F
	West	662	16.9	D	711	14.9	E
15. Eighth Avenue and West 33rd Street	South	913	15.9	D	981	14.7	E
24. Blvd and West 33rd Street	West	864	13	E	965	11.2	E
25. 11th Street and West 32nd Street	North	38	336.9	A	918	13.2	E

CORNERS

Pedestrian volumes at corners are anticipated to increase in 2019 in the Future with the Proposed Actions and result in additional significant adverse impacts throughout the study area. Table 18-32 presents the corners that are projected to have significant adverse impacts in 2019. Of the 90 corners at the 26 intersections analyzed for the weekday peak hours and 70 corners at the 21 intersections analyzed for the Saturday peak hour, 13 significant adverse crosswalk impacts (at five intersections) are anticipated during the AM peak hour, seven crosswalk locations at four intersections during the midday peak hour, 12 crosswalk locations at six intersections during the PM peak hour, seven crosswalk locations at three intersections during the Saturday peak hour.

Table 18-32
2019 Future with the Proposed Actions:
Corner Conditions: Locations with Significant Adverse Impacts

Intersection	Corner Location	2019 Future Without the Proposed Actions			2019 Future With the Proposed Actions		
		Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS	Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	266	65.4	A	909	11.9	E
	Southwest	81	135.2	A	980	13.1	E
	Northwest	92	142.8	A	891	8.7	E
8. Tenth Avenue and West 33rd Street	Northeast	983	8.6	E	1169	5.5	F
	Southeast	1510	3.7	F	2321	-2.7	F
	Southwest	1781	11.0	E	2592	5.4	F
	Northwest	1214	12.3	E	1412	9.6	E
12. Ninth Avenue and West 31st Street	Northeast	1707	-3.4	F	1887	-4.5	F
	Southeast	2588	-10.8	F	3179	-12.0	F
	Southwest	2900	14.8	E	3496	11.1	E
13. Ninth Avenue and West 31st Street	Northeast	678	12.2	E	733	9.7	E
	Southwest	559	14.8	E	644	12.4	E
15. Eighth Avenue and West 33rd Street	Southwest	1665	7.1	F	1928	5.6	F
Midday Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	1199	9.8	E	1632	4.8	F
	Southwest	506	13.8	E	1301	5.7	F
	Northwest	429	24.1	C	1122	5.4	F
6. Eleventh Avenue and West 30th Street	Northeast	1764	12.9	E	1898	11.4	E
24. Boulevard and West 33rd Street	Northeast	1923	9.5	E	2044	8.5	E
	Southwest	2042	9.3	E	2306	7.3	F
25. Eleventh Avenue and 32nd Street	Northeast	1063	60.7	A	3004	14.1	E
PM Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	529	30.6	C	1321	8.7	E
	Southwest	183	55.7	B	1291	3.5	F
	Northwest	194	63.0	A	1165	4.5	F
8. Tenth Avenue and West 33rd Street	Northeast	1796	7.2	F	1997	5.8	F
	Southeast	2706	2.2	F	3589	-0.2	F
	Southwest	3319	-3.4	F	4194	-5.8	F
12. Ninth Avenue and West 31st Street	Southwest	4106	-6.1	F	4756	-7.6	F
13. Ninth Avenue and West 31st Street	Southeast	756	16.2	D	804	14.8	E
	Southwest	720	12.0	E	809	9.6	E
	Northwest	974	13.9	E	1033	12.2	E
15. Eighth Avenue and West 33rd Street	Southeast	2721	14.2	E	3036	12.1	E
24. Boulevard and West 33rd Street	Southwest	1818	9.7	E	2337	5.0	F
Saturday Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	526	30.8	C	903	14.0	E
	Southwest	193	50.8	B	797	14.7	E
	Northwest	240	46.4	B	777	9.4	E
8. Tenth Avenue and West 33rd Street	Northeast	1529	6.6	F	1654	5.4	F
	Southeast	2222	2.0	F	2623	-0.1	F
	Southwest	2702	1.6	F	3093	0.2	F
12. Ninth Avenue and West 31st Street	Southeast	2416	-0.6	F	2637	-1.6	F

BICYCLE FACILITIES

The Proposed Actions would not affect the existing bicycle routes in the study area. Therefore, there would not be a significant adverse impact on bicycle utilization anticipated due to the Proposed Actions. It is expected that project-generated bicycle trips would be minimal and there would not be a significant adverse impact for the bicycle facilities within the study area.

PROBABLE IMPACTS OF THE PROPOSED ACTIONS—2017

In addition to the 2019 Future with the Proposed Actions condition analysis, an assessment of the Proposed Actions potential transit and pedestrian impact for a 2017 interim year of development was also prepared. This assessment was undertaken for the purposes of determining: (1) whether any significant adverse impact would be identified with the completion of the Proposed Actions in 2017; (2) the availability and feasibility of mitigation measures for any significant adverse impact projected to occur in 2017; and (3) the potential for any significant adverse impact to occur in 2017 that would be eliminated by the completion of the full development program for the Proposed Actions. In addition, an examination was undertaken to determine whether any significant adverse environmental impact identified in 2017 would occur in an earlier year.

Transit and pedestrian analyses were conducted for the same locations as the 2019 Future with the Proposed Actions condition. Copies of the 2017 Future with the Proposed Actions condition pedestrian volumes and LOS results are provided in Appendix E, "Transportation Technical Memos and Analyses." The 2017 Future with the Proposed Actions transit and pedestrian condition were compared with the 2019 Future with the Proposed Actions condition during the analyzed periods, as follow:

TRANSIT NETWORK

The projected demand for the inbound No. 7 route in the AM peak hour in the 2017 Future with the Proposed Actions condition would be slightly lower than the 2019 Future with the Proposed Actions condition. However, this reduction in demand for the inbound No. 7 route in the AM peak hour in the 2017 Future with the Proposed Actions condition would not change the line-haul v/c ratios as compared to the 2019 Future with the Proposed Actions condition.

The station elements in the 2017 Future with the Proposed Actions condition would operate better than in the 2019 Future with the Proposed Actions condition. However, the nine stairways predicted to operate at LOS D or worse in the AM and/or PM peak periods in the 2019 Future with the Proposed Actions condition also would operate at LOS D or worse in the 2017 Future with the Proposed Actions condition. Similar to the 2019 Future with the Proposed Actions condition, none of these elements would be subject to a significant adverse impact during the AM peak period and one stairway (M23/M24 at Control Area N67 in the 34th Street-Penn Eighth Avenue Station) would be subject to a significant adverse impact during the PM peak period.

The projected bus passenger demand in the 2017 Future with the Proposed Actions condition would be reduced in comparison to the 2019 Future with the Proposed Actions condition. As was the case for the 2019 Future with the Proposed Actions condition, the 2017 Future with the Proposed Actions condition would result in a significant adverse impact for some bus routes during the AM and PM peak hours. The additional bus service required for the 2017 Future with the Proposed Actions condition would be less than what would be required in the 2019 Future with the Proposed Actions condition.

PEDESTRIAN

The 2017 Future with the Proposed Actions condition were compared with the 2019 Future with the Proposed Actions condition and provided in Table 18-33. For all four peak periods analyzed, the 2017 Future with the Proposed Actions condition would have a total of 25 fewer significant adverse pedestrian impacts (81 for 2019 and 51 for 2017) compared with the 2019 Future with the Proposed Actions condition. The 2017 Future with the Proposed Actions condition would have a total of six sidewalk significant adverse impacts, which would be three fewer impacts than the nine impacts projected for the 2019 Future with the Proposed Actions condition. The 2017 Future with the Proposed Actions condition is projected to have a total of 19 crosswalk significant adverse impacts, 15 fewer impacts as compared with the 34 impacts projected for the 2019 Future with the Proposed Actions condition. The 2017 Future with the Proposed Actions condition is projected to have a total of 31 corner significant adverse impacts, seven fewer impacts as compared with the 38 impacts projected for the 2019 Future with the Proposed Actions condition.

Table 18-33
2019 and 2017 Pedestrian Impact Comparison
Number of Locations with Significant Adverse Impacts

	2019 Future With the Proposed Actions					2017 Future With the Proposed Actions				
Elements	**AM**	**MD**	**PM**	**SAT**	**Total**	**AM**	**MD**	**PM**	**SAT**	**Total**
Sidewalk	2	1	5	1	**9**	2	0	4	0	**6**
Crosswalk	9	7	10	8	**34**	7	3	8	1	**19**
Corner	13	7	12	7	**39**	13	6	11	1	**31**
Total	**24**	**15**	**27**	**16**	**81**	**22**	**9**	**23**	**2**	**56**

Significant adverse impacts for the 2017 Future with the Proposed Actions condition are provided in Table 18-34 for sidewalks, Table 18-35 for crosswalks, and Table 18-36 for corners.

Table 18-34
2017 Future with the Proposed Actions:
Sidewalks Conditions: Locations with Significant Adverse Impacts

Intersection	Sidewalk Location	2017 Future Without the Proposed Actions				2017 Future With the Proposed Actions			
		Effective Width (ft)	Peak 15-Minute Volumes	Pedestrian Flow Rate (p/min/ft)	LOS	Effective Width (ft)	Peak 15-Minute Volumes	Pedestrian Flow Rate (p/min/ft)	LOS
AM Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	928	11.9	E	5.2	1399	17.9	E
12. Ninth Avenue and West 33rd Street	3	3.5	1075	20.5	F	3.5	1198	22.8	F
PM Peak Hour									
8. Tenth Avenue and West 33rd Street	4	5.2	1427	18.3	F	5.2	1913	24.5	F
12. Ninth Avenue and West 33rd Street	3	3.5	1282	24.4	F	3.5	1416	27.0	F
	4	9.0	2115	15.7	E	9.0	2494	18.5	F
15. Eighth Avenue and West 33rd Street	7	9.0	1964	14.6	E	9.0	2284	16.9	E

Table 18-35
2017 Future with the Proposed Actions:
Crosswalk Conditions: Locations with Significant Adverse Impacts

Intersection	Crosswalk Location	2017 Future Without the Proposed Actions			2017 Future With the Proposed Actions		
		Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS	Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Peak Hour							
5. Eleventh Avenue and West 33rd Street	South	36	131.2	A	508	7.9	F
7. Tenth Avenue and West 34th Street	South	571	15.2	D	583	14.7	E
8. Tenth Avenue and West 33rd Street	North	548	17.3	D	611	14.7	E
	South	1106	7.4	F	1658	4.2	F
15. Eighth Avenue and West 33rd Street	South	994	13.3	E	1196	10.6	E
24. Boulevard West 33rd Street	West	817	7.4	F	977	5.8	F
27. Boulevard 33rd Street (west)	West	306	23.0	D	444	14.5	E
Midday Peak Hour							
5. Eleventh Avenue and West 33rd Street	South	235	19.5	D	406	10.2	E
9. Tenth Avenue and West 31st Street	South	502	15.2	D	529	14.3	E
25. 11th Street and 32nd Street	North	84	165.9	A	2244	3.1	F
PM Peak Hour							
5. Eleventh Avenue and West 33rd Street	South	84	64.8	A	636	7.1	F
7. Tenth Avenue and West 34th Street	North	375	11.6	E	387	10.6	E
8. Tenth Avenue and West 33rd Street	South	1923	4.6	F	2488	3.4	F
9. Tenth Avenue and West. 31st Street	North	290	12.8	E	303	11.1	E
15. Eighth Avenue and West 33rd Street	South	1479	9.8	E	1679	8.6	E
18. Eleventh Avenue and West 35th Street	South	461	15.5	D	476	14.8	E
24. Boulevard and West 33rd Street	West	1236	9.3	E	1408	6.3	F
25. Eleventh Avenue and West 32nd Street	North	34	336.9	A	1252	8.6	E
Saturday Peak Hour							
25. 11th Street and West 32nd Street	North	38	336.9	A	1058	11.1	E

Table 18-36
2017 Future with the Proposed Actions:
Corner Conditions: Locations with Significant Adverse Impacts

Intersection	Corner Location	2017 Future Without the Proposed Actions			2017 Future With the Proposed Actions		
		Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS	Peak 15-Minute Volumes	Circulation area per pedestrian (ft^2/p)	LOS
AM Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	266	65.4	A	985	5.5	F
	Southwest	81	135.2	A	1096	12.6	E
	Northwest	92	142.8	A	805	10.5	E
8. Tenth Avenue and West 33rd Street	Northeast	982	8.6	E	1124	5.8	F
	Southeast	1510	3.7	F	2141	-2.5	F
	Southwest	1781	11.0	E	2407	7.0	F
	Northwest	1214	12.3	E	1366	10.1	E
12. Ninth Avenue and West 31st Street	Northeast	1705	-3.4	F	1846	-4.5	F
	Southeast	2587	-10.7	F	3049	-12.1	F
	Southwest	2899	14.9	E	3376	12.2	E
13. Ninth Avenue and West 31st Street	Northeast	678	12.2	E	723	10.2	E
	Southwest	557	15.5	D	623	13.2	E
15. Eighth Avenue and West 33rd Street	Southwest	1665	7.1	F	1871	6.1	F
Midday Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	1199	9.8	E	1565	5.4	F
	Southwest	506	13.8	E	1138	8.0	F
	Northwest	429	24.1	C	989	6.8	F
6. Eleventh Avenue and West 30th Street	Northeast	1764	12.9	E	1993	10.5	E
24. Boulevard and West 33rd Street	Southwest	2042	9.3	E	2246	7.9	F
25. Eleventh Avenue and West 32nd Street	Northeast	1063	60.7	A	3268	12.5	E
PM Peak Hour							
5. Eleventh Avenue and West 33rd Street	Southeast	529	30.6	C	1379	8.3	E
	Southwest	183	55.7	B	1382	-0.5	F
	Northwest	194	63.0	A	1047	5.6	F
8. Tenth Avenue and West 33rd Street	Northeast	1796	7.2	F	1941	6.2	F
	Southeast	2706	2.2	F	3349	0.7	F
	Southwest	3319	-3.4	F	3945	-5.6	F
12. Ninth Avenue and West 31st Street	Southwest	4102	-6.1	F	4585	-7.6	F
13. Ninth Avenue and West 31st Street	Southwest	720	12.0	E	779	10.3	E
	Northwest	974	13.9	E	1017	12.6	E
15. Eighth Avenue and West 33rd Street	Southeast	2717	14.3	E	2947	12.8	E
24. Boulevard and West 33rd Street	Southwest	1818	9.7	E	2432	4.6	F
Saturday Peak Hour							
8. Tenth Avenue and West 33rd Street	Southeast	2222	20	F	2381	1.0	F

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