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Chapter 20: Transit and Pedestrians

A. INTRODUCTION

This chapter summarizes the potential effects on transit and pedestrian conditions associated with the Proposed Action, as described in Chapter 2, “Description of the Proposed Action.” The potential transit and pedestrian adverse impacts are analyzed based upon a reasonable worst-case scenario, which includes the adverse impacts of all of the individual elements of the Proposed Action expected to occur in the analysis years (2010 and 2025) that would create the greatest level of significant adverse impacts. These analyses utilize data previously collected and documented in the Far West Midtown Transportation Study Final Report (*Transportation Study*)¹ and were subsequently updated, as presented herein. This chapter incorporates updated analyses, as set forth in Chapter 3, “Analytical Framework.”

B. PRINCIPAL CONCLUSIONS

Analyses of transit elements included operations of subway lines (line-haul) and subway stations (corridors, passageways, turnstiles and High Entrance/Exit Turnstiles [HEETs]), commuter railroad stations, bus services, and ferry services, as well as pedestrian elements (sidewalks, corners, crosswalks, and bicycle routes). The Proposed Action would cause significant adverse impacts to certain subway station elements, bus services, and pedestrian elements. Most of these could be mitigated through implementation of the measures described in this chapter. In the absence of such measures, these impacts would remain unmitigated. No significant adverse impacts are projected for subway line-haul, ferry operations, and bicycle routes.

As with the traffic analysis discussed in Chapter 19, “Traffic and Parking,” multiple conservative assumptions were factored into the 2010 and 2025 transit and pedestrian analyses set forth in this chapter. Assumptions for the Special Event peak periods include a simultaneous 85th percentile event at the expanded Convention Center, and full-attendance events at the Multi-Use Facility and at Madison Square Garden (full attendance events at MSG, assumed to be expanded by 2025, calculated at 95 percent occupancy of any individual Rangers or Knicks game, with a no-show rate of five percent). Given the frequency of events and current scheduling practices at these facilities, this scenario is unlikely to occur more than once a year (see trip generation technical memoranda in Appendix S1).

1. Transit Network

a) Subway Stations

2010

For 2010, 311 subway station elements were analyzed for the AM and PM peak hours, including 232 stairways, three corridors, 27 escalators, 32 turnstiles, and 17 HEETs. For the weeknight and Sunday Special Event peak hours, 49 subway station elements were analyzed, including 31 stairways, three corridors, and 15 escalators.

In 2010, the Proposed Action would result in significant adverse impacts at nine station elements in the AM peak hour. Two stairways could be mitigated through widenings, four stairways could be mitigated through the construction of new stairways, one stairway could be mitigated through the construction of a new escalator, and one HEET array could be mitigated through the installation of an

¹ New York City Department of City Planning, *Far West Midtown Transportation Study Final Report*, March 2000

additional HEET (increase from two to three HEETs). Mitigation measures would not be available to sufficiently mitigate the anticipated adverse impacts at one station element (one stairway at the 42nd Street–Grand Central station providing access to/from the No. 7 line platform). Therefore, one unmitigated significant adverse impact would occur in the AM peak hour.

In the PM peak hour, four station elements would have significant adverse impacts. Three of these elements would be stairways at the Times Square–42nd Street station providing access to the Seventh Avenue platform. These three could be mitigated through widening the stairways and constructing a new stairway. In addition, the HEET array at the 42nd Street–Port Authority Bus Terminal station which would be subject to significant adverse impacts could be mitigated by the installation of an additional HEET (increase from two to three HEETs). Therefore, of the 311 subway station elements analyzed, all significant adverse impacts would be mitigated for the PM peak hour.

In the weeknight Special Event peak hour, significant increased utilization would occur at three subway station elements. One of these locations, an escalator providing access to/from the No. 7 line platform at the 42nd Street–Grand Central Station, would have significant adverse impacts; this could be mitigated through the installation of a higher speed escalator. All other elements would operate at sufficient levels, so no unmitigated significant adverse impacts would occur during the 2010 weeknight Special Event peak hour.

In the Sunday Special Event peak hour, significant increased utilization would occur at two subway station elements. One of these locations, an escalator providing access from the No. 7 line platform at the 42nd Street–Grand Central Station, would have significant adverse impacts; this could be mitigated through the installation of a higher speed escalator. All other elements would operate at sufficient levels, so no unmitigated significant adverse impacts would occur during the 2010 Sunday Special Event peak hour.

2025

For 2025, 311 subway station elements were analyzed for the AM and PM peak hours, including 232 stairways, three corridors, 27 escalators, 32 turnstiles, and 17 HEETs. For the weeknight and Sunday Special Event peak hours, 49 subway station elements were analyzed, including 31 stairways, three corridors, and 15 escalators.

In 2025, the Proposed Action would result in significant adverse impacts at 21 station elements in the AM peak hour (consisting primarily of stairways at the Times Square–42nd Street station and at the Grand Central–42nd Street station). All of these elements could be mitigated through implementation of mitigation measures. Five stairways could be mitigated through widenings, eight stairways could be mitigated through the construction of new stairways, four stairways and two escalators could be mitigated by reconstructing stairways which have been removed or re-opening stairways which have been closed, one stairway could be mitigated through the construction of a new escalator, and one HEET array could be mitigated through the installation of an additional HEET (increase from two to three HEETs). The unmitigated impact previously identified in the 2010 Future with the Proposed Action AM peak hour would not be a significant impact in 2025 due to increased transit services (i.e., Second Avenue subway line and East Side Access), which would shift demand to different locations.

In the PM peak hour, the Proposed Action would result in significant adverse impacts at 14 station elements (consisting primarily of stairways at the Times Square–42nd Street station and escalators at the 34th Street–Herald Square station). All of these elements could be mitigated through implementation of mitigation measures. Of these 14 locations, four could be mitigated through the construction of new stairways, three could be mitigated through the widening of stairways, three stairways and two escalators could be mitigated by reconstructing stairways which have been removed or re-opening stairways which have been closed, one escalator could be mitigated through

replacement with a higher speed escalator, and one location could be mitigated through the installation of an additional HEET (from two to three HEETs).

In the weeknight Special Event peak hour, the Proposed Action would result in one significant adverse impact. The potential impact, at Escalator E209 (providing access to/from the No. 7 line platform at the 42nd Street–Grand Central Station) could be mitigated by replacing the escalator with a higher-speed model. All other elements would operate at sufficient levels, so no unmitigated significant adverse impacts on subway elements would result.

In the 2025 Future With the Proposed Action Sunday Special Event peak hour, the Proposed Action would result in one significant adverse impact. The potential impact, at escalator E207 (providing access from the No. 7 line platform at the 42nd Street–Grand Central Station), could be mitigated by replacing the escalator with a higher-speed model. All other elements would operate at sufficient levels, so that no unmitigated significant adverse impacts on subway elements would result.

b) Bus Routes

2010

Twenty-four bus routes (i.e., 12 bus routes in two directions each) currently provide service within a ½-mile radius of the redevelopment area. These routes were analyzed for existing service conditions and potential significant adverse impacts from increased utilization in the 2010 Future With the Proposed Action.

In the AM peak hour, 22 bus routes currently serving the study area would provide sufficient capacity based on the existing service plans. Two routes, the M-11 (southbound) and the M-34/M-16 (westbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding more standard buses to each of these routes (four more vehicles and one more vehicle, respectively). If these measures are implemented, no significant unmitigated adverse impacts would occur to bus service.

In the PM peak hour, 22 bus routes currently serving the study area would provide sufficient capacity based on the existing service plans. The M-11 (northbound) and the M-34/M-16 (eastbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding more standard buses to each of these routes (four and three more vehicles, respectively). If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

In the weeknight Special Event peak hour, 23 bus routes currently serving the study area would provide sufficient capacity based on the existing service plans. One route, the M-34/M-16 (westbound) would not be able to provide sufficient capacity, based on the existing service plan. Sufficient capacity could be provided by adding additional 11 standard buses to this route. If this measure is implemented, no unmitigated significant adverse impacts would occur to bus service.

In the Sunday Special Event peak hour, 21 bus routes currently serving the study area would provide sufficient capacity based on the existing service plans. The M-11 (north- and southbound) and the M-34/M-16 (eastbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding more standard buses to each of these routes (one, three, and 10 more vehicles, respectively). If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

2025

Twenty-four bus routes (i.e., 12 bus routes in two directions each) currently provide service within a ½-mile radius of the redevelopment area. These routes were analyzed for existing service conditions and potential significant adverse impacts from increased utilization in the 2025 Future With the Proposed Action.

In the AM peak hour, six routes, including the M-10/M-20 (southbound), M-11 (north- and southbound), M-34/M-16 (westbound), M-42 (westbound), and Q-32 (westbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding more standard buses to the M-10/M-20 (four more vehicles), M-42 (14 more vehicles), and Q-32 (two more vehicles), and by converting the M-11 and M-34/M-16 to articulated service and adding additional vehicles (23 and 18 more vehicles, respectively). If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

In the PM peak hour, eight routes, including the M-10/M-20 (northbound), M-11 (north- and southbound), M-34/M-16 (east- and westbound), M-42 (east- and westbound), and Q-32 (eastbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding more standard buses to the M-10/M-20 (13 more vehicles), M-42 (19 more vehicles eastbound and four more vehicles westbound), and Q-32 (three more vehicles), and by converting the M-11 and M-34/M-16 to articulated service and adding additional vehicles (27 and 19 more vehicles, respectively). If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

In the weeknight Special Event peak hour, 21 bus routes currently serving the study area would provide sufficient capacity, based on the existing service plans. The M-11 (north- and southbound) and the M-34/M-16 (westbound) would not be able to provide sufficient capacity, based on the existing service plan. Sufficient capacity could be provided by adding additional vehicles to the M-11 and M-34/M-16 routes. If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

In the Sunday Special Event peak hour, 17 bus routes currently serving the study area would provide sufficient capacity, based on the existing service plans. The M10/M-20 (northbound), M-11 (north- and southbound) and the M-34/M-16 (east- and westbound), and the M-42 (east- and westbound) would not be able to provide sufficient capacity, based on the existing service plans. Sufficient capacity could be provided by adding additional vehicles to the M-10/M-20, M-42, M-11, and M-34/M-16 routes. If these measures are implemented, no unmitigated significant adverse impacts would occur to bus service.

c) Ferry Routes

2010

Six New York Waterway ferry routes currently provide service to the Project Area at Pier 78. Ferry utilization in the 2010 Future With the Proposed Action is projected to increase compared to demand in the 2010 Future Without the Proposed Action. The capacity of current ferry services and the new ferry terminal at West 39th Street (with six slips and a capacity of 28,000 people per hour, scheduled to open in Spring 2005) are anticipated to be sufficient to accommodate the additional demand on all six of its routes, including the additional demand of approximately 200 riders in the commuter peak hour and approximately 7,000 during the Special Event peak hours. For the 2010 Future With the Proposed Action, the increases in peak hour weekday ridership are projected to vary from approximately one percent (Belford, New Jersey to Pier 78, New York, requiring a transfer at Pier 11/Wall Street, New York) to 96 percent (Lincoln Harbor, New Jersey to Pier 78, New York). By providing weekday peak hour service during the Special Event peak hours plus eight additional ferry trips, the additional demand generated by the Proposed Action could also be accommodated.

2025

Ferry utilization in the 2025 Future With the Proposed Action is projected to significantly increase compared to demand in the 2025 Future Without the Proposed Action. The existing capacity of current New York Waterway ferry services is not anticipated to be sufficient to accommodate the

additional demand on three of the six routes. Demand for the following routes is projected to be greater than the existing service provides:

- Lincoln Harbor, New Jersey to Pier 78, New York (AM and PM peak hours);
- Hoboken, New Jersey to Pier 78, New York (AM Peak Hour); and
- Colgate, New Jersey to Pier, 78, New York (AM and PM peak hour).

Each of these deficits could be satisfied by adding one additional run per hour. By providing weekday peak hour service during the Special Event peak hours plus eight and nine additional ferry trips (in the weeknight and Sunday Special Event peak periods, respectively), the additional demand generated by the Proposed Action could also be accommodated.

The new ferry terminal at West 39th Street (with six slips and a capacity of 28,000 people per hour, scheduled to open in Spring 2005) is anticipated to be sufficient to accommodate the additional demand for ferry services in 2025, including the additional demand of approximately 700 riders in the commuter peak hour and approximately 7,000 during the Special Event peak hours. This increased demand is therefore not anticipated to significantly impact service operations.

2. Pedestrian Elements

2010

A total of 750 pedestrian elements were analyzed for the AM, Midday, and PM peak hours for the 2010 Future With the Proposed Action, including 380 sidewalks, 170 corners, and 193 crosswalks. A total of 317 pedestrian elements were analyzed for the weeknight and Sunday Special Event peak hours, including 160 sidewalks, 75 corners, and 82 crosswalks.

In the AM peak hour in the 2010 Future With the Proposed Action, 746 elements are anticipated to operate without significant adverse impacts, two would have significant adverse impacts that could be mitigated, and two (the northwest corner of Eighth Avenue and West 33rd Street and the southeast corner of Eighth Avenue at West 42nd Street) would have significant adverse impacts that could not be mitigated.

In the Midday peak hour, 746 elements would not have significant adverse impacts, one would have significant adverse impact that could be mitigated, and three would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include three corners (the northeast corner of Ninth Avenue at West 42nd Street, the southeast corner of Eighth Avenue at West 39th Street, and the southeast corner of Eighth Avenue at West 42nd Street).

In the PM peak hour, 742 elements would not have significant adverse impacts, six would have significant adverse impacts that could be mitigated, and two would have significant adverse impacts that could not be mitigated. These two unmitigated significant adverse impacts would include the northeast corner of Ninth Avenue at West 42nd Street and the east crosswalk at Eighth Avenue at West 33rd Street.

In the weeknight Special Event peak hour, 280 elements would not have significant adverse impacts, 26 would have significant adverse impacts that could be mitigated, and 11 would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include six corners and five crosswalks, mostly between West 30th and West 34th Streets along Eighth, Ninth, Tenth, and Eleventh Avenues.

In the Sunday Special Event peak hour, 270 elements would not have significant adverse impacts, 29 would have significant adverse impacts that could be mitigated, and 18 would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would

include three sidewalks, six corners, and nine crosswalks, concentrated mostly between West 30th and West 34th Streets along Ninth, Tenth, and Eleventh Avenues.

2025

Due to the implementation of the proposed Midblock Boulevard, additional pedestrian elements were analyzed for the 2025 Future With the Proposed Action. A total of 819 pedestrian elements (413 sidewalks, 192 corners, and 214 crosswalks) were analyzed for the AM, Midday and PM hours; 386 pedestrian elements (193 sidewalks, 90 corners, and 103 crosswalks) were analyzed for the 2025 weeknight and Sunday Special Event peak hours.

In the AM peak hour in the 2025 Future With the Proposed Action, 786 elements are anticipated to operate without significant adverse impacts, 18 would have significant adverse impacts that could be mitigated, and 15 would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include eight corners (along multiple avenues at 33rd, 35th, and 42nd Streets) and seven crosswalks (mostly between 33rd and 37th Streets, on multiple avenues).

In the Midday peak hour, 741 elements would not have significant adverse impacts, 37 would have significant adverse impacts that could be mitigated, and 41 would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include 19 corners (most heavily concentrated along Tenth Avenue from West 30th to West 37th Streets) and 22 crosswalks (mostly along 31st, 33rd, and 34th Streets). No sidewalk locations would be impacted.

In the PM peak hour, 766 elements would not have significant adverse impacts, 22 would have significant adverse impacts that could be mitigated, and 31 would have significant adverse impacts that could not be mitigated. These significant adverse impacts would include one sidewalk (at Tenth Avenue and West 33rd Street), 18 corners (mostly along West 33rd and West 34th Streets, between Sixth and Tenth Avenues), and 12 crosswalks (mostly along West 33rd and West 34th Streets, between Seventh and Tenth Avenues).

In the weeknight Special Event peak hour, 364 elements would not have significant adverse impacts, 13 would have significant adverse impacts that could be mitigated, and nine would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include three sidewalks (at Eleventh Avenue at West 33rd Street, Eleventh Avenue at West 34th Street, and Ninth Avenue at West 33rd Street), two corners (at Tenth Avenue at West 33rd Street and Eighth Avenue at West 34th Street), and four crosswalks (at West 33rd and West 34th Streets along Eighth, Ninth, Tenth, and Eleventh Avenues).

In the Sunday Special Event peak hour, 356 elements would not have significant adverse impacts, 15 would have significant adverse impacts that could be mitigated, and 14 would have significant adverse impacts that could not be mitigated. The unmitigated significant adverse impacts would include three sidewalks (at Eleventh Avenue at West 33rd Street and West 34th Street, and Ninth Avenue at West 33rd Street), four corners (at West 33rd and West 34th Streets at Ninth, Tenth, and Eleventh Avenues), and seven crosswalks (at West 33rd and West 34th Streets along Eighth, Ninth, Tenth, and Eleventh Avenues).

C. METHODOLOGY

This section describes the transit and pedestrian analysis methodologies used to determine potential significant adverse impacts of the Proposed Action. The description of methodologies identifies the analysis peak hours, study area location, input data requirements, assumptions, and calculations included in the analyses.

1. Analysis Hours

The anticipated peak hours for pedestrians at street level are the same as the traffic peak hours (see Chapter 19, “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);
- Weeknight Special Event (8:00 PM to 9:00 PM); and
- Sunday Special Event (4:00 PM to 5:00 PM).

Transit analyses for subways, local buses, and ferries were conducted for the weekday AM and PM peak commuter hours. Two peak hours were analyzed for the weekday and two peak hours were analyzed for special events, as follows:

- Weekday AM (8:00 AM to 9:00 AM);
- Weekday PM (5:00 PM to 6:00 PM);
- Weeknight Special Event (8:00 PM to 9:00 PM); and
- Sunday Special Event (4:00 PM to 5:00 PM).

The transit and pedestrian analyses reflect peak 15-minute conditions for each peak hour, calculated by aggregating the three highest consecutive 5-minute periods in each hour.

2. Study Areas

The study area defined for the transit assessments (Figure 20-1) is the subset of the complete transit network within a ½-mile radius around the Project Area, including subway and railroad stations, and bus and ferry routes. Analyses of pedestrian and bicycle elements were conducted for key locations.

a) Subway and Railroad Stations

The transit analysis encompasses the key elements (stairways, escalators, and turnstiles) at the following subway stations (Figure 20-2):

- Eighth Avenue Subway line: A, C, and E routes (34th Street–Penn Station and 42nd Street–Port Authority Bus Terminal stations);
- Seventh Avenue Subway line: 1, 2, 3, and 9 routes (34th Street–Penn Station and Times Square–42nd Street stations);
- Sixth Avenue Subway line: B, D, F, and V routes (34th Street–Herald Square and 42nd Street–Bryant Park stations); and
- Broadway Subway line: N, Q, R, and W routes (34th Street–Herald Square and Times Square–42nd Street stations).

A total of 311 subway station elements were analyzed for these eight stations during the AM and PM peak hours, including 232 stairways, three corridors, 27 escalators, 32 turnstiles, and 17 HEETS. A total of 49 station elements were analyzed for the weeknight and Sunday Special Event peak hours, including 31 stairways, three corridors, and 15 escalators. (See Appendix S.4 for a complete listing of elements analyzed.)

The Proposed Action is anticipated to result in higher utilization of the No. 7 Subway line at existing stations in Manhattan (Times Square–42nd Street, Fifth Ave–Bryant Park, and Grand Central–42nd Street stations). The key existing subway elements (internal stairways, escalators, and passageways) at these stations were analyzed. Since the extension of the No. 7 Subway line is anticipated to affect

ridership characteristics along the entire line, particularly from new transfers within Manhattan, the transit analysis also includes an assessment of the line-haul capacity of the No. 7 Subway line.

Certain high pedestrian utilization locations at Penn Station have also been analyzed for key elements separately from its associated subway stations.

The extension of the No. 7 Subway line would create two new stations:

- West 41st Street/Tenth Avenue (Intermediate Station)
- West 34th Street/Eleventh Avenue (Terminal Station).

The analysis evaluated key elements at these two new stations, including platforms, stairways, escalators, and turnstiles. In the 2010 Future With the Proposed Action, only the Terminal Station would be complete. For this analysis year, 16 subway station elements were analyzed for the AM, PM, weeknight, and Sunday Special Event peak hours, including six stairways, nine escalators, and one turnstile. In the 2025 Future With the Proposed Action, both stations would be open. For this analysis year, 37 subway station elements were analyzed for the AM and PM peak hours, including seven stairways, 23 escalators, four turnstiles, and three HEETs. (See Appendix S.4 for a complete listing of elements analyzed.)

b) Bus Routes

The transit analysis includes a capacity analysis of bus routes within a ½-mile radius of the boundaries of the Project Area and assesses bus load levels at the maximum load points. The following bus routes were analyzed: M4, M5, M6, M7, M10, M11, M16, M20, M23, M27, M34, M42, M50, M104, and Q32 (Figure 20-3). Analysis of bus route capacity was based on MTA NYCT hourly capacity guidelines of 65 passengers per standard bus and 93 passengers per articulated bus. (An articulated bus is composed of two individual bus sections connected by a "turntable" or an articulated joint.)

c) Ferry Routes

The transit analysis includes a line-haul capacity analysis of the six ferry routes that currently serve the Pier 78 Ferry Terminal, located on the Hudson River at West 38th Street. These routes include service to the following ports in New Jersey (Figure 20-4):

- Port Imperial
- Lincoln Harbor
- Hoboken (North)
- Colgate
- Newport
- Belford

d) Pedestrians

Weekday AM, Midday, and PM Peak Hours

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 20-5 and Appendix S.5. The 52 existing intersections analyzed for the weekday AM, Midday, and PM peak hours include 380 sidewalks, 171 corners, and 193 crosswalks during the 2010 and 2025 Future Without the Proposed Action and 54 intersections in the 2010 Future With the Proposed Action. Due to the proposed development of the Midblock Boulevard, the 2025 Future With the Proposed Action includes 413 sidewalks, 192 corners, and 214 crosswalks.

Special Event Peak Hours (Weeknight and Sunday)

Twenty-one existing intersections were chosen for analysis during the weeknight and Sunday Special Event peak hours. These locations, predominantly along West 30th, West 31st, West 32nd, West 33rd, and West 34th Streets, and Eleventh Avenue (Figure 20-6 and Appendix S.5), were selected to account for heavy flows of pedestrians between the Multi-Use Facility and Penn Station.

In the 2010 and 2025 Future Without the Proposed Action, the 21 intersections analyzed for the Special Event peak hours would include 160 sidewalks, 75 corners, and 82 crosswalks. The 2010 Future With the Proposed Action would include 23 intersections. (The Midblock Boulevard would add 14 sidewalks, five corners, and seven crosswalks.)

The 2025 Future With the Proposed Action would include 30 intersections, including 193 sidewalks, 90 corners, and 103 crosswalks, due to the proposed development of the Midblock Boulevard. (The Midblock Boulevard in the 2025 Future With the Proposed Action would include 47 sidewalks, 20 corners, and 28 crosswalks.)

3. Capacity Analysis Methodology**a) Transit Level of Service Analysis**

The subway station analysis was generally prepared using the design capacities for stairs, corridors/passageways, escalators, turnstiles and HEETs specified in the MTA NYCT *Station Planning and Design Guidelines*² and the procedures set forth in *Pedestrian Planning and Design*³ for the two proposed stations, and the *CEQR Technical Manual* for existing subway stations. As described by 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 walkways are based on their 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 for reverse flow. No reduction is applied to the capacity when the pedestrian flow is unidirectional.

Unlike the traffic and parking methodology, the potential significant adverse impacts to transit and pedestrian conditions require consideration of additional factors not accounted for in the standard CEQR growth methodology. Examples of unaccounted factors include the number of transfers within the study area, the number of boardings and alightings outside of the study area, and the number of existing residents who would utilize the proposed transit service if it existed today (latent, unmet demand). In order to account for these additional factors, the Regional Travel Forecasting Model (RTFM) was utilized.

The RTFM is a ridership demand forecasting model that is generally consistent with four-step demand forecasting models used throughout the United States. The RTFM is designed to support the MTA's Long Range Planning Framework process, which is the forum within the MTA that coordinates the development of the MTA's major system expansions and projects.

The RTFM is explicitly designed for the potential ridership analysis of each of these major expansions and projects.

In preparing the RTFM for use in studying the proposed extension of the No. 7 Subway line, new geographic detail (zone system) and new trip activity (i.e., trip table) information has been added for the Project Area for the 2010 and 2025 forecast years. The trip activity information is based upon the

² *Station Planning and Design Guidelines*, MTA NYCT, 2004

³ John J. Fruin, *Pedestrian Planning and Design, Revised Edition 1987*.

elements of the Proposed Action – i.e., development sites, Convention Center expansion, Multi-Use Facility, new parks and open spaces, Quill Bus Depot relocation, and DSNY/Tow Pound facility. The RTFM analysis is based upon projected employment and residential development throughout New York City, as provided by the New York Metropolitan Transportation Council (the New York region’s Metropolitan Planning Organization).

The RTFM was used to forecast ridership changes on the No. 7 Subway Line and connecting subway lines due to the combined effect of the proposed Hudson Yards development and subway extension. The 2025 Future Conditions, but not the 2010 Future Conditions, include the Second Avenue Subway and the LIRR East Side Access projects, showing the effects of these projects on the Times Square–42nd Street, Fifth Avenue–Bryant Park, and Grand Central–42nd Street stations. The RTFM provided ridership information for the line-haul capacity analysis and for station capacity analysis. This information covers both the new and existing stations, plus changes in transfer volumes at the Times Square–42nd Street, Fifth Avenue–Bryant Park, and Grand Central–42nd Street stations.

The RTFM projections for the Future Without the Proposed Action and the Future With the Proposed Action are based on MTA NYCT’s future subway service plans. In certain instances (i.e., due to the rerouting of service along the Manhattan Bridge), the future service plans differ significantly from the service plans in effect during the existing condition analysis. Changes due to modified service plans are therefore incorporated into the future conditions analysis and not considered an impact of the Proposed Action.

The RTFM model was updated and line haul projections were recalculated for inclusion in the FGEIS to reflect the updated information referred to in Chapter 3, “Analytical Framework.”

Stairways, Corridors, and Passageways

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, corridors, and passageways are defined in Table 20-1 and Table 20-2. LOS A represents free flow conditions without pedestrian conflicts and LOS F represents significant capacity limitations and inconvenience.

The LOS for stairways, corridors, and passageways were evaluated based on the Volume/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 1.00 was established as the design standard for pedestrian conditions by MTA NYCT. Therefore, LOS C/D was used to determine the design capacity of the critical stairway, corridor, and passageway locations in the station during each peak 15-minute hour. Pedestrian volumes at LOS C/D were decreased by either ten or twenty percent (depending on flow conditions) for these facilities to account for pedestrians traveling in both directions; this is known as a friction factor.

**TABLE 20-1
LOS CRITERIA FOR STAIRWAYS**

LOS	Pedestrians per Foot of Width per Minute (PFM)	Volume/SVCD Ratio	Comments
A	5 or less	< 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: New York City Environmental Quality Review Manual, Page 3P-6

**TABLE 20-2
LOS CRITERIA FOR CORRIDORS AND PASSAGEWAYS**

by 4 feet LOS	Pedestrians per Foot of Width per Minute (PFM)	Volume/SVCD Ratio	Comments
A	7 or less	< 0.45	Unrestricted
B	7 – 10	0.46 to 0.70	Slightly restricted, no impact on speed
C	10 – 15	0.71 to 1.00	Speeds reduced, difficult to pass
D	15 – 20	1.01 to 1.33	Restricted, reverse flow conflicts
E	20 – 25	1.34 to 1.67	Severely restricted
F	25 or more	> 1.67	Many stoppages, no discernible flow

Source: New York City Environmental Quality Review Manual, Page 3P-6

Turnstiles, Escalators, and HEETs

The capacity of an escalator is based upon the incline speed and the width of the steps. According to *Pedestrian Planning and Design*, an escalator with a width at the hips of 32 inches, width at the treads of 24 inches, and an incline speed of 90 feet per minute has a maximum theoretical capacity of approximately 5,000 persons per hour. An escalator with a width at the hips of 48 inches, width at the treads of 40 inches, and incline speed of 90 feet per minute has a maximum theoretical capacity of approximately 8,000 persons per hour. However, the nominal capacity of an escalator is actually less when unused space on each step is factored in, as well as arrival patterns, and boarding characteristics. The nominal capacity is based upon an approximate rate of one person for every other step. The maximum theoretical capacity and nominal capacity of these two types of escalators, which are typical models found within the study area, are presented in Table 20-3. The nominal capacity for HEETs is 20 persons per minute.

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, escalator, or HEETs was compared with that element's maximum theoretical capacity to determine the v/c ratio and LOS. Any v/c ratio greater than 1.00 signified volumes beyond capacity and would result in extended queues. LOS for turnstiles, escalators, and HEETs were described in terms of the volume-to-capacity ratios, and are presented in Table 20-4.

Line-Haul Capacity

Line-haul capacity analysis is based on MTA 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 20-5 and are intended for rush hours at peak frequencies.

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.

Commuter Railroad Service

Capacity analysis of the three commuter railroads serving Midtown Manhattan (MTA LIRR, MTA Metro-North, and NJ Transit) was based on the utilization of the two Midtown railroad stations, Penn Station and Grand Central Terminal. Existing utilization of each railroad was compared to the projected increase in demand for both the Future Without the Proposed Action and the Future With the Proposed Action, based on an annual background growth factor of 0.5 percent applied to the existing demand for each station. The incremental difference for each station was determined to be the extent of impact to each station.

Bus Service

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 MTA NYCT loading guidelines of 65 passengers per standard bus at the peak load point during the rush hour and 93 persons per articulated bus at the peak load point.

**TABLE 20-3
ESCALATOR CAPACITY**

Width at Hip (Inches)	Width at Tread (Inches)	Maximum Theoretical Capacity (persons/hour)	Maximum Theoretical Capacity (persons/minute)	Nominal Capacity (Persons/hour)	Nominal Capacity (Persons/Minute)
32	24	5,000	83	2,040	40
48	40	8,000	133	4,080	78

Source: MTA NYCT, Division of Operations Planning

**TABLE 20-4
LOS FOR TURNSTILES, ESCALATORS, AND HEETS**

LOS	v/c Ratio
A	< 0.20
B	0.20 to 0.39
C	0.40 to 0.59
D	0.60 to 0.79
E	0.80 to 1.00
F	>1.01

Source: New York City Environmental Quality Review Manual, p. 3P-8

**TABLE 20-5
SUBWAY CAR GUIDELINE CAPACITY**

Train Type/Car Length	Number of Seats Per Car	Guideline Capacity per Car	Number of Cars Per Train	Maximum Rush Hour Guideline Capacity per Train
#7 Line Cars (A Division)/51 feet	34 to 44	110	11	1,210
Other A Division/51 feet	34 to 44	110	10	1,100
B Division/60 feet	40 to 42	145	10	1,450
B Division/75 feet	70 to 74	175	8	1,400

Source: MTA NYCT, Division of Operation Planning

Ferry Service

The analysis of ferry service was conducted by comparing the available capacity of ferry service to projected demand. A qualitative assessment of whether future capacity would be sufficient to meet future demand was based upon the input of New York Waterways, the ferry service operator, and included the new West 39th Street Ferry Terminal, projected to be completed in Spring 2005 with six ferry slips and an hourly capacity of 28,000 people per hour.

b) Pedestrian/Bicycle Analyses

The adequacy of the study area's sidewalks, crosswalks, and corner reservoir capacities in relation to their demand was assessed using the methodologies presented in the *HCM Special Report 209*,⁴ as described below.

Sidewalks

LOS analysis for sidewalk conditions is based upon the calculation of the average number of pedestrians per minute per foot of effective walkway width. However, walkways are directly influenced by other elements of the transportation network, and to more accurately estimate the dynamics of walking, a platoon factor is applied in calculation of pedestrian flow. This reflects the tendency of pedestrians to move in congregated groups (platoons) and generally results in a LOS one level poorer than average flow rates. A comfortable walking flow rate is usually represented by LOS C/D or better. At LOS D, individual walking speeds, and the ability to bypass other pedestrians, can be restricted. At LOS E, individual walking speeds become a function of the pedestrian platoon, often resulting in flow interruptions. Severe restriction and unavoidable contact with other pedestrians are typical of LOS F conditions. A summary of the LOS criteria is presented below in Table 20-6.

Crosswalks

Crosswalks are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Crosswalk LOS is also a function of time and space. Crosswalk conditions are expressed as a measurement of the area available (the crosswalk width multiplied by the width of the street) and the signal timing. This measure is expressed as square feet per minute. The average time it takes for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of the measure (again expressed as pedestrians per minute) to time and space available in the crosswalk is the LOS measurement of available square feet per pedestrian. A summary of the LOS criteria is presented below in Table 20-7. Additionally, in the first seconds of the "walk" cycle, the pedestrians queued to cross the street create a surge effect as they begin to cross. Therefore, the crosswalk LOS analysis includes a factor that adjusts for this "surge" to estimate worst-case conditions during the initial start-up. After the initial surge, the LOS analysis also takes into account vehicles turning the corner, thereby passing through the crosswalk.

⁴ Transportation Research Board, *HCM Special Report 209*, 1985, p 13-8.

TABLE 20-6
LOS FOR WALKWAYS/SIDEWALKS

LOS	Space (sq ft/ped)	Flow Rate (ped/min/ft)
A	> 130	< 5
B	> 40	5-7
C	> 24	7-10
D	> 15	10-15
E	> 6	15-23
F	< 6	> 23

Source: HCM, Special Report 209

TABLE 20-7
LOS FOR CROSSWALKS AND CORNERS

LOS	Space (sq ft/ ped)
A	> 60
B	40-60
C	24-40
D	15-24
E	8-15
F	< 8

Source: HCM, Special Report 209

Pedestrian Safety

To address pedestrian safety, accident summary data within the study area were obtained from the NYSDOT Centralized Local Accident Surveillance System (CLASS). This information provides trends of pedestrian movements to determine potential safety issues. According to the *CEQR Technical Manual*, a high accident location is one where there were five or more pedestrian accidents in any year in the most recent three-year period. Although CEQR analysis is typically based on individual years, data were only available for the three-year period from May 1, 1998 to April 30, 2001. Therefore, any intersection with 15 or more accidents within that time frame was considered a potentially unsafe intersection for pedestrian crossings.

Bicycle Facilities

Recent volume counts of bicycle facilities throughout the study area have been provided by the Department of City Planning, Transportation Division. The existing infrastructure and utilization characteristics were qualitatively assessed based on changes required by implementation of the Proposed Action.

4. Trip Generation

In order to determine if the Proposed Action would result in significant adverse impacts to transit and pedestrian conditions, it was necessary to identify the additional vehicular, transit, and pedestrian trips that would be generated by the Proposed Action. Relevant sources were utilized to prepare specific estimates of the number of people that would be traveling to and from the various land uses envisioned under the Proposed Action, such as Pushkarev and Zupan's *Urban Space for Pedestrians*, NYCDOP's *Far West Midtown Transportation Study*, and previously certified environmental review documents. A combination of standard references, observed data collected specifically for this project, and other planning assumptions were used to forecast travel demand during hours not typically analyzed in New York City environmental work (e.g., during events at the proposed Multi-Use Facility on weekday evenings and Sunday afternoons). Future conditions account for both land uses that are not anticipated to remain in the future (these are existing trips that are subtracted from the total trip calculations) and land uses that do not currently exist today, but are projected to be present in the future (additional trips).

The total number of daily person-trips (the number of people entering and exiting) was calculated by multiplying the daily trip generation rate of each project component by its associated size; this result was then converted 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 means of transportation available to people accessing the site (i.e., the separation of person-trips into auto, taxi, bus, subway, commuter railroad, walk-only, and other modes). This distribution is referred to as the modal split. For people 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 S.1 and is discussed in Chapter 19, "Traffic and Parking."

A summary of the total peak hour trips generated by the Proposed Action is presented in Table 20-8. This total volume is presented by projected land uses in Table 20-9. It should be noted that these represent overall calculations for illustrative purposes only; the trip generation calculations used for analysis were done on a site-by-site basis, and as previously discussed, account for land uses that are not anticipated to remain in the future (existing trips associated with those land uses were subtracted from the total trip calculations).

TABLE 20-8
2025 FUTURE PEAK HOUR PERSON TRIPS – GENERATED BY PROPOSED ACTION (SUMMARY)

Analysis Hours	Total Person Trips	
	In	Out
Weekday AM		
Auto	6,421	992
Taxi	2,290	1,004
Bus	9,736	1,064
Subway	30,207	4,696
Railroad	9,661	559
Walk	7,178	6,534
Other	737	172
Total	66,230	15,022
Weekday Midday		
Auto	1,527	1,498
Taxi	2,364	2,268
Bus	3,561	3,624
Subway	5,853	5,014
Railroad	26	45
Walk	46,541	48,375
Other	91	55
Total	59,964	60,878
Weekday PM		
Auto	1,423	7,734
Taxi	1,457	3,155
Bus	1,672	12,146
Subway	6,143	37,335
Railroad	745	11,128
Walk	11,906	13,242
Other	139	746
Total	23,484	85,486
Weeknight Special Event		
Auto	10,605	313
Taxi	2,564	282
Bus	4,667	374
Subway	22,256	1,387
Railroad	13,047	228
Walk	2,341	1,814
Other	6,993	33
Total	62,472	4,432
Sunday Special Event		
Auto	2,679	19,586
Taxi	1,281	2,451
Bus	1,261	5,230
Subway	6,403	27,098
Railroad	129	13,971
Walk	14,384	13,737
Other	192	6,898
Total	26,327	88,969

**TABLE 20-9
2025 FUTURE PEAK HOUR PERSON TRIPS – GENERATED BY PROPOSED ACTION (BY LAND USE)**

Analysis Hours	Office 27,835,556 gsf		Residential 12,561 du		Local Retail 1,072,544 gsf		Hotel 3,000 rooms		Hotel (Convention Center) 1,500 rooms	
	In	Out	In	Out	In	Out	In	Out	In	Out
Weekday AM										
Auto	6,073	253	91	518	51	51	70	109	30	46
Taxi	1,646	69	90	510	77	77	134	210	57	89
Bus	9,081	378	80	455	154	154	24	37	10	16
Subway	26,960	1,123	519	2,942	154	154	185	290	79	123
Railroad	9,649	402	28	157	0	0	0	0	0	0
Walk	2,895	121	558	3,162	2,125	2,125	412	644	237	234
Other	454	19	18	102	0	0	0	0	0	0
Total	56,758	2,365	1,385	7,846	2,560	2,560	825	1,290	412	508
Weekday Midday										
Auto	721	782	157	157	314	314	165	141	70	60
Taxi	1,082	1,172	155	155	471	471	304	259	129	110
Bus	2,164	2,345	138	138	941	941	65	56	28	24
Subway	2,164	2,345	894	894	941	941	261	222	110	94
Railroad	0	0	48	48	0	0	0	0	0	0
Walk	29,942	32,437	961	961	13,024	13,024	1,398	1,191	760	449
Other	0	0	31	31	0	0	0	0	0	0
Total	36,075	39,081	2,384	2,384	15,691	15,691	2,193	1,868	1,096	735
Weekday PM										
Auto	367	6,978	501	215	159	159	198	107	84	45
Taxi	100	1,891	494	212	238	238	381	205	162	87
Bus	549	10,434	441	189	476	476	68	36	29	15
Subway	1,630	30,975	2,849	1,221	476	476	528	284	223	120
Railroad	583	11,086	152	65	0	0	0	0	0	0
Walk	175	3,326	3,062	1,312	6,580	6,580	1,171	631	675	229
Other	27	522	99	42	0	0	0	0	0	0
Total	3,432	65,210	7,597	3,256	7,928	7,928	2,346	1,263	1,173	497
Weeknight Special Event										
Auto	32	129	157	84	18	18	51	40	21	17
Taxi	9	35	154	83	27	27	98	77	41	32
Bus	48	192	138	74	55	55	17	14	7	6
Subway	143	571	890	479	55	55	135	106	57	45
Railroad	51	204	47	26	0	0	0	0	0	0
Walk	15	61	957	515	754	754	300	235	173	86
Other	2	10	31	17	0	0	0	0	0	0
Total	301	1,202	2,373	1,278	908	908	600	472	300	186
Sunday Special Event										
Auto	57	349	298	128	276	276	71	58	28	23
Taxi	15	95	294	126	414	414	136	112	53	44
Bus	85	522	262	112	827	827	24	20	9	8
Subway	252	1,548	1,695	726	827	827	188	154	74	60
Railroad	90	554	90	39	0	0	0	0	0	0
Walk	27	166	1,821	780	11,446	11,446	444	363	268	115
Other	4	26	59	25	0	0	0	0	0	0
Total	531	3,260	4,519	1,937	13,790	13,790	864	707	432	249

TABLE 20-9 (CONTINUED)
2025 FUTURE PEAK HOUR PERSON TRIPS – GENERATED BY PROPOSED ACTION (BY LAND USE)

Analysis Hours	Museum 100,000 gsf		Recreation Center 96,444 gsf		Elementary School 56,800 gsf		Church 43,000 gsf		Day Care Center 40,600 gsf	
	In	Out	In	Out	In	Out	In	Out	In	Out
Weekday AM										
Auto	0	0	7	3	1	0	1	1	11	10
Taxi	0	0	15	8	35	10	2	2	34	30
Bus	0	0	8	4	1	0	1	1	11	10
Subway	0	0	20	10	3	0	3	3	23	20
Railroad	0	0	0	0	1	0	0	0	0	0
Walk	0	0	116	60	492	139	17	15	34	30
Other	0	0	0	0	176	50	0	0	0	0
Total	0	0	165	85	708	198	25	21	114	101
Weekday Midday										
Auto	15	9	7	5	0	0	2	1	3	3
Taxi	12	7	17	12	0	0	4	3	10	10
Bus	9	5	9	7	0	0	2	2	3	3
Subway	36	21	22	16	0	0	5	4	7	7
Railroad	0	0	0	0	0	0	0	0	0	0
Walk	48	28	130	94	0	0	31	26	10	10
Other	4	2	0	0	0	0	0	0	0	0
Total	124	73	185	134	0	0	44	37	33	33
Weekday PM										
Auto	25	23	4	9	0	0	1	1	12	13
Taxi	21	19	10	19	0	2	2	2	36	40
Bus	14	13	6	11	0	0	1	1	12	13
Subway	59	55	13	26	0	1	3	2	24	27
Railroad	0	0	0	0	0	1	0	0	0	0
Walk	80	74	78	151	7	25	16	13	36	40
Other	6	6	0	0	2	9	0	0	0	0
Total	205	189	111	216	10	38	22	19	120	135
Weeknight Special Event										
Auto	2	20	3	5	0	0	0	0	0	0
Taxi	2	17	7	10	0	0	0	1	0	0
Bus	1	12	4	6	0	0	0	0	0	0
Subway	5	48	9	14	0	0	1	1	0	0
Railroad	0	0	0	0	0	0	0	0	0	0
Walk	6	65	52	81	0	0	3	5	0	0
Other	0	5	0	0	0	0	0	0	0	0
Total	17	167	74	116	0	0	5	7	0	0
Sunday Special Event										
Auto	17	31	4	6	0	0	5	0	0	1
Taxi	12	22	10	13	0	0	11	0	1	2
Bus	9	16	5	7	0	0	6	0	0	1
Subway	36	64	13	18	0	0	14	0	1	1
Railroad	0	0	0	0	0	0	0	0	0	0
Walk	46	82	75	104	0	0	85	0	1	2
Other	4	7	0	0	0	0	0	0	0	0
Total	125	221	108	149	0	0	121	0	5	5

* Net unbalanced taxi trips are listed for all components; total taxi trips were balanced on a site-by-site basis.

** Net incremental vehicle trips resulting from expanded Convention Center and No. 7 Subway Extension.

*** Net incremental vehicle trips resulting from the relocation and expansion of MSG.

**** Net total incremental vehicle trips (includes credit for land uses that are not anticipated to remain in the future).

**TABLE 20-9 (CONTINUED)
2025 FUTURE PEAK HOUR PERSON TRIPS – GENERATED BY PROPOSED ACTION (BY LAND USE)**

Analysis Hours	Convention Center (net incremental trips)**		Multi-Use Facility (Weekday: Convention/ Weeknight/Sunday: Special Event Use) (net incremental trips)**		Madison Square Garden (net incremental trips)***	
	In	Out	In	Out	In	Out
Weekday AM						
Auto	-22	0	109	1	0	0
Taxi	-74	-1	274	2	0	0
Bus	189	7	176	2	0	0
Subway	1858	29	404	3	0	0
Railroad	-73	-1	56	1	0	0
Walk	190	5	102	1	0	0
Other	59	1	31	0	0	0
Total	2,127	40	1,152	8	0	0
Weekday Midday						
Auto			87	31	0	0
Taxi	-15	-5	214	80	0	0
Bus	-33	-11	139	63	0	0
Subway	61	41	322	103	0	0
Railroad	1089	366	40	12	0	0
Walk	-61	-15	109	73	0	0
Other	129	82	25	9	0	0
Total	32	12	936	370	0	0
Weekday PM						
Auto	-1	-49	73	234	0	0
Taxi	-2	-128	16	567	0	0
Bus	4	501	73	456	0	0
Subway	157	3384	180	763	0	0
Railroad	-5	-124	14	101	0	0
Walk	10	546	15	314	0	0
Other	2	102	2	65	0	0
Total	165	4,232	373	2,502	0	0
Weeknight Special Event						
Auto	0	0	9,541	0	779	0
Taxi	0	0	2,014	0	212	0
Bus	0	16	4,269	0	128	0
Subway	0	67	20,732	1	231	0
Railroad	0	-2	12,735	0	213	0
Walk	0	12	0	0	81	0
Other	0	2	6,960	0	0	0
Total	0	95	56,250	1	1,644	0
Sunday Special Event						
Auto	235	186	0	18,529	1,687	0
Taxi	20	27	0	1,598	314	0
Bus	44	33	0	3,684	-12	0
Subway	3108	2467	0	21,231	194	0
Railroad	-130	-76	0	13,454	78	0
Walk	94	678	0	0	77	0
Other	125	83	0	6,757	0	0
Total	3,496	3,398	0	65,253	2,338	0

* Net unbalanced taxi trips are listed for all components; total taxi trips were balanced on a site-by-site basis.

** Net incremental vehicle trips resulting from expanded Convention Center and No. 7 Subway Extension.

*** Net incremental vehicle trips resulting from the relocation and expansion of MSG.

**** Net total incremental vehicle trips (includes credit for land uses that are not anticipated to remain in the future).

5. Determination of Significant Adverse impacts

a) Transit Impact Criteria

Stairways and Corridors/Passageways

As described in the *CEQR Technical Manual*,⁵ significant adverse stairway adverse impacts are defined in terms of the width needed to restore Future With the Proposed Action conditions to Future Without the Proposed Action 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 Action compared to the Future Without the Proposed Action. 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 provided in the Future Without the Proposed Action. Significant adverse stairway adverse impacts occur under the following conditions if the following widening thresholds are required:

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

The formation of queues is less prevalent at corridors than within stairways, and is therefore governed by different LOS criteria. Corridor width is considered less critical than the width of stairways that extend up to the train platform level (where safety considerations could occur if backups become significant). An affected corridor or passageway is one that operates with longer queues in the Future With the Proposed Action compared to the Future Without the Proposed Action. Significant adverse impacts to corridor and passageway occur under the following conditions once the following widening thresholds are required:

- LOS D: widening of 12 inches or more;
- LOS E: widening of six to 12 inches; and
- LOS F: widening of three inches.
- All conditions: if widening of less than three inches is required, an impact is not considered significant.

The co-lead agencies have refined the methodology to determine reasonable impact criteria for in-service station elements. Elements projected to operate at LOS A, B, or C in the Future Without the Proposed Action were evaluated based on bringing each element to an acceptable level of service (v/svcd of less than 1.00), not to the LOS projected for the Future Without the Proposed Action. Elements projected to operate at LOS D or worse in the Future Without the Proposed Action were analyzed based on the standard CEQR methodology. This is consistent with the traffic impact assessment and mitigation methodology.

Turnstiles, Escalators, and HEETs

According to the *CEQR Technical Manual*,⁶ proposed actions that cause a turnstile, escalator, or high-wheel exit gate 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 is already at a v/c ratio of 1.00 or greater, a 0.01 increase in v/c ratio is also considered significant.

⁵ Page 3P-14

⁶ *ibid.*

Line-Haul Capacity

Increases in per car load levels that remain within MTA NYCT subway car loading guidelines (“guideline capacity”) are generally not considered significant adverse impacts. A projected increase from a Future Without the Proposed Action condition within guideline capacity to a Future With the Proposed Action condition 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 is over capacity 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. The Proposed Action would increase ridership on the No. 7 Line, as well as transit capacity on this route by allowing additional trains to be operated.

Bus Conditions

According to the *CEQR Technical Manual* and MTA NYCT guidelines, additional bus service along a route is recommended to be added when load levels exceed maximum capacity at the route’s maximum load point. A significant impact is therefore considered at the maximum load point where an increase in bus load levels exceeds maximum capacity. The MTA NYCT general policy is to provide additional bus service where demand warrants increased service, taking into account financial and operational constraints.

b) Pedestrian Impact Criteria

Sidewalks

For sidewalks within the Manhattan CBD, a significant impact is considered to occur if a pedestrian flow rate of 15 pedestrians per foot per minute (PFM) under Future Without the Proposed Action (the threshold of LOS D and E) is projected to increase by 2 PFM under Future With the Proposed Action. Platoon conditions are assumed during the assessment of significant adverse impacts. Figure 20-8 presents the key for sidewalk analysis locations.

Crosswalks and Corners

For crosswalks and corners within the Manhattan CBD, significant adverse impacts are considered to occur for decreases in pedestrian area occupancies of one square foot per person under the Future With the Proposed Action when the Future Without the Proposed Action has average occupancies under 15 square feet per pedestrian (the threshold of LOS D and E). For crosswalks, maximum surge conditions are used for assessing significant adverse impacts. Projected pedestrian volume increases of less than 200 pedestrians per hour are not considered a significant impact, since that level of increase is not generally noticeable.

D. DATA COLLECTION

1. Transit Network

a) Subway Stations

Pedestrian counts were conducted by the project team during the weekday morning (7:30-9:30 am), afternoon (4:30-6:30 pm), evening (7:00-9:00 pm), and Sunday afternoon (4:00-6:00 pm) peak hours at the Times Square–42nd Street, Fifth Ave–Bryant Park, and Grand Central–42nd Street stations on the No. 7 Subway line. These counts were used to establish baseline volumes for key station elements (escalators, stairways, and passageways). One surveyor was assigned to count the two-way pedestrian volumes at each of the stairways and escalators located on the No. 7 platforms and at the major passageways that connect the No. 7 Subway with other subway lines at these stations. Because these elements may experience high peaking characteristics when trains arrive at the platform, pedestrian volumes were collected at five-minute intervals instead of the typical 15-minute intervals.

The three consecutive five-minute intervals with the highest volumes were then utilized for full-hour analysis, as described in the *CEQR Technical Manual*. In addition to the pedestrian counts, turnstile registration data were provided by MTA NYCT.

The No. 7 train arrival and departure time were also recorded at Times Square–42nd Street, Fifth Ave–Bryant Park, and Grand Central–42nd Street stations during all survey hours. Average dwell times and the number of train serving the stations were calculated based on these data and are presented in Table 20-10.

For the three subway stations, passenger queuing data at the congested area of the platforms/stairways were also field observed by the field managers/supervisors concurrently with the other subway station survey to determine whether detailed investigation is needed. A second field reconnaissance was conducted to record the volumes of passengers in the queue and the length of time it takes for the queue to dissipate at the current congested zone, identified as a potential problem zone in the future during all the survey hours. The subway station element count locations are presented in Appendix S.4.

b) Commuter Railroad Stations

Year 2003 railroad station utilization data for Penn Station and Grand Central Terminal were provided by MTA and NJ Transit. These data were utilized as the baseline for existing commuter ridership conditions and incorporated into the RTFM to determine future utilization.

c) Bus Routes

Year 2002 bus ridership data (the most recent data available) were provided by MTA NYCT for the M4, M5, M6, M7, M10, M11, M16, M20, M23, M27, M34, M42, M50, M104, and Q32 routes based on 2000-2002 Ride-Check survey results. (Data for the M-10/M-20, M-34/M-16, and M-50/M-27 routes were provided, and are presented, as combined routes.) These data were utilized as the baseline for existing bus ridership conditions.

d) Ferry Routes

Year 2003 ferry ridership was provided by New York Waterway for the weekday AM and PM peak commuter hours. (According to New York Waterway, weekend ridership is significantly lower than the weekday AM and PM peak hours; however, data for these times were not available.) These data were utilized as the baseline for existing ferry ridership conditions.

**TABLE 20-10
EXISTING (2003) CONDITION – NO. 7 SUBWAY DWELL TIMES AND FREQUENCY OF SERVICE**

	Average Dwell Times (in Seconds)							
	Queens Bound				Manhattan Bound			
	AM	PM	Evening	Sunday	AM	PM	Evening	Sunday
Times Square–42nd St.	Dwell times not applicable to terminal station operation.							
5th Avenue–Bryant Park	15	14	12	10	17	17	12	13
Grand Central–42nd St.	23	24	24	17	22	25	14	17
	Trains per Hour							
	Queens Bound				Manhattan Bound			
	AM	PM	Evening	Sunday	AM	PM	Evening	Sunday
Times Square–42nd St.	26	25	17	10	26	25	17	10
5th Avenue–Bryant Park	25	25	18	10	25	24	19	10
Grand Central–42nd St.	25	25	18	10	26	24	19	10

Source: May 2003 PB Team Survey

2. Pedestrian Conditions

a) Weekday AM, Midday, and PM Peak Hours

Pedestrian counts were conducted at 24 locations during the weekday AM, Midday, and PM hours to determine existing LOS for sidewalk, corners, and crosswalks. These locations (presented in Figure 20-5 and Appendix S.5) were selected based on the future locations of proposed development sites and new station entrances/exits on the No. 7 Subway extension.

b) Special Event Peak Hours (Weeknight and Sunday)

Twenty-one intersections were counted for the weeknight and Sunday Special Event peak hours (Figure 20-5 and Appendix S.5). These existing conditions data have been utilized to determine additional pedestrian volumes and adverse impacts to LOS during the approximately 19 times per year that the Multi-Use Facility would be used for large sporting or entertainment events.

c) Additional Data

The physical and operational data collected for and documented within the *Transportation Study*, including the widths of subway elements, sidewalks, and crosswalks, have been utilized, as appropriate. Signal timing plans for each intersection are based on NYCDOT records and were field checked on May 13 to 15 and May 20 to 22, 2003. Updated signal timings for Route 9A were provided by the NYCDOT in Spring 2004.

3. Existing Transit and Pedestrian Volume Development

The transit and pedestrian analyses of the key station elements utilized data previously collected and documented in the *Transportation Study*. Since the existing condition in the *Transportation Study* was year 2000, an adjustment factor is necessary to establish the transit and pedestrian network for the year 2003 Existing Condition for the current analyses. An annual growth rate of 0.5 percent per year was applied to these data, as recommended for Manhattan by the *CEQR Technical Manual*. Therefore, a compounded background growth rate of 1.5 percent (0.5 percent per year) was applied to the 2000 transit and pedestrian data in the *Transportation Study* to develop the 2003 existing condition. These data were then compared to on-site counts observed for each project element to confirm and calibrate the analysis.

E. EXISTING CONDITIONS

This section describes the existing subway, bus, and ferry systems that currently serve the Project Area and provide local and regional accessibility. Existing pedestrian conditions are also discussed.

1. Transit Network

a) Subway Lines

Currently, there are 17 MTA NYCT subway lines within a one-half mile radius of the Project Area boundaries (see Figure 20-2). These lines are the 1, 2, 3, 7, 9, A, B, C, D, E, F, N, Q, R, S, V, and W. Figure 20-2 shows the location of the subway lines and their respective subway station elements. Subway service is provided to the eastern side of the study area from stations on Sixth, Seventh, and Eighth Avenues. There is no subway service west of Eighth Avenue; a transfer to a crosstown bus route is required to access the western portion of the study area via public transit.

With the exception of the east-west No. 7 Subway line, the subway lines within the study area are generally oriented north-south. These subway lines connect Midtown Manhattan to the Bronx, Brooklyn, Queens, Upper West Side, and Lower Manhattan. The 34th Street–Herald Square and Times Square–42nd Street stations serve as major transfer points between the subway lines, and

contain multiple platforms, entrances, and exits. The study area's subway lines provide access to Penn Station, with connections to the Long Island Rail Road, New Jersey Transit, and Amtrak rail services, and the Port Authority Bus Terminal.

The following is a brief description of each aforementioned subway line within a one-half mile radius of the Rezoning Area boundaries. Service plans for each route are based on operating plans in effect in Summer 2003; changes to service plans effective after this date (other than short-term changes) are noted in the discussion of the Future Without the Proposed Action.

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

The Eighth Avenue line provides service to Upper and Lower Manhattan, Queens, and Brooklyn, and provides access via the A and E routes to John F. Kennedy International Airport. Within the study area, the line runs north/south under Eighth Avenue. The A route runs express through the study area,⁷ stopping at 34th Street–Penn Station and 42nd Street–Port Authority Bus Terminal. The C and E routes run local through the study area, making stops at 23rd Street, 34th Street–Penn Station, and 42nd Street–Port Authority Bus Terminal. Transfers at 42nd Street Station offer access to the Seventh Avenue, Flushing, and Broadway lines, and the 42nd Street Shuttle.

Seventh Avenue Line (1, 2, 3, and 9 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. The line provides access to South Ferry and the Financial District. Within the study area the line runs north/south under Seventh Avenue. The 2 and 3 routes run express through the study area, with stops at 34th Street–Penn Station, and Times Square–42nd Street. The 1 and 9 routes run local through the study area, with stops at 23rd Street, 28th Street, 34th Street–Penn Station, and Times Square–42nd Street. Transfers at Times Square–42nd Street offer access to the Eighth Avenue, Flushing, and Broadway lines, and the 42nd Street Shuttle.

Sixth Avenue Line (B, D, F, and V routes)

The Sixth Avenue line provides service to the study area from the Bronx, Upper West Side of Manhattan, Downtown Manhattan, Queens, and Brooklyn. The V route travels crosstown within Manhattan via 53rd Street. Within the study area, the B and D routes make stops at 34th Street–Herald Square and 42nd Street; the F and V routes make stops at 23rd Street, 34th Street–Herald Square, and Fifth Ave–Bryant Park. Transfers are available at 34th Street–Herald Square for the Broadway line and at 42nd Street for the Flushing line.

Broadway Line (N, Q, R, and W routes)

The Broadway line provides access from Brooklyn, Lower Manhattan, and northern and eastern Queens. Within the study area, the line runs north/south under Broadway. The N and Q routes run express through the study area, while the R and W routes run local through the study area. All of these routes include stops at 34th Street–Herald Square and Times Square–42nd Street. Transfers for the Sixth Avenue line are available at 34th Street–Herald Square, and transfers for the Eighth Avenue, Flushing, and Seventh Avenue lines, and the 42nd Street Shuttle are available at Times Square–42nd Street.

Flushing Line (No. 7 route)

The Flushing line connects central and northeastern Queens with Midtown Manhattan. It travels within the study area under 41st Street and stops at the Fifth Ave–Bryant Park and Times Square–42nd Street stations. The No. 7 route offers both local and express service in Queens; however, both

⁷ Subway line service is presented for day and evening hours; late-night service varies.

services stop at the stations located within the study area. Transfers are available at Fifth Ave–Bryant Park for the Sixth Avenue line, and at Times Square–42nd Street for the Eighth Avenue, Broadway, and Seventh Avenue lines and the 42nd Street Shuttle.

The number of trains per hour, per train capacity, peak hour capacity, peak hour volume and v/c ratio at all Flushing line stations in the peak direction during the AM peak hour are shown in Table 20-11. As indicated in the table, the peak load points for the inbound (Manhattan-bound) Flushing line during the AM peak hour are at Woodside–61st Street for the express route and 40th Street (Lowery Street) for the local route. The inbound express Flushing line currently operates near the line's loading capacity with a v/c ratio of 0.99 at the Woodside–61st Street Station during the AM peak hour. The inbound local Flushing line operates within the line's loading capacity with a v/c ratio of 0.76 at the 40th Street (Lowery Street) Station. (Note: Table 20-11 presents calculations produced by the RTFM to estimate Year 2000 conditions for the No. 7 Subway line, and are not based on observed counts. 2003 scheduled service on the No. 7 Line provides 27 trains in the peak hour.)

42nd Street Shuttle (S)

The 42nd Street Shuttle operates crosstown (east/west) under 42nd Street between Times Square–42nd Street and Grand Central–42nd Street stations. Transfers are available at Times Square–42nd Street station for the Eighth Avenue, Seventh Avenue, Broadway, and Flushing lines. Transfers for the Lexington Avenue and Flushing lines are available at Grand Central–42nd Street station.

Lexington Avenue Line (4, 5, and 6 routes)

The Lexington Avenue line traverses the entire length of the east side of Manhattan in the north-south direction. The line does not directly provide service to the study area. Transfers are available from all three Lexington Avenue line routes at the Grand Central–42nd Street station to the Flushing line and the 42nd Street Shuttle.

b) Subway Stations

The average weekday utilizations for the stations in the Study Area from years 2000, 2001, and 2003 are shown in Table 20-12.

Plans for the stations analyzed as part of this study are included in Appendix S.4. The results of the analysis of station elements for the existing condition during the weekday AM, PM, evening, and Sunday afternoon peak hours at the stations are presented in Appendix S.4.

The station elements for the subway stations are listed in Appendix S.4; the existing conditions for the pedestrian flow at 311 critical station elements at these stations are also summarized in Appendix S.4. The service conditions of the station elements at the individual subway stations are described below. Station elements that currently operate at LOS D or worse in the AM or PM peak hours are presented in Table 20-13. There are no station elements currently operating at LOS D or worse during the weeknight or Sunday Special Event peak hours. Station elements that operate at LOS A, B, or C during the one peak hour and D, E, or F during another hour are generally indicative of commuter travel patterns.

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**TABLE 20-11
EXISTING (2000) CONDITION: NO. 7 SUBWAY LINE-HAUL ANALYSIS**

	Trains per Hour	Capacity per Train	Peak Hourly Capacity	Peak Hour Volume	v/c Ratio
<i>Inbound No. 7 Local</i>					
Flushing–Main Street	12	1,210	14,520	1,540	0.11
Wilets Point Boulevard–Shea Stadium	12	1,210	14,520	1,556	0.11
111th Street	12	1,210	14,520	2,795	0.19
103rd Street–Corona Plaza	12	1,210	14,520	4,380	0.30
Junction Boulevard	12	1,210	14,520	4,478	0.31
90th Street–Elmhurst Av	12	1,210	14,520	6,144	0.42
82nd Street–Jackson Heights	12	1,210	14,520	8,611	0.59
74th Street–Broadway	12	1,210	14,520	6,828	0.47
69th Street	12	1,210	14,520	7,387	0.51
Woodside–61st Street	12	1,210	14,520	7,606	0.52
52nd Street	12	1,210	14,520	9,029	0.62
46th Street (Bliss St)	12	1,210	14,520	9,444	0.65
40th Street (Lowery St)	12	1,210	14,520	11,072	0.76
33rd Street (Rawson St)	12	1,210	14,520	10,067	0.69
Queensboro Plaza	12	1,210	14,520	8,718	0.60
45th Road–Court House Square	12	1,210	14,520	8,633	0.59
Hunters Point Avenue	12	1,210	14,520	9,559	0.66
Vernon Boulevard–Jackson Avenue	12	1,210	14,520	9,714	0.67
Grand Central	12	1,210	14,520	6,723	0.46
5th Avenue–Bryant Park	12	1,210	14,520	3,778	0.26
Times Square	12	1,210	14,520	-	-
<i>Inbound No. 7 Express</i>					
Flushing–Main Street	12	1,210	14,520	9,545	0.66
Wilets Point Boulevard–Shea Stadium	12	1,210	14,520	9,595	0.66
Junction Boulevard	12	1,210	14,520	12,765	0.88
Woodside–61st Street	12	1,210	14,520	14,415	0.99
Queensboro Plaza	12	1,210	14,520	11,217	0.77
45th Road–Court House Square	12	1,210	14,520	10,742	0.74
Hunters Point Avenue	12	1,210	14,520	10,806	0.74
Vernon Boulevard–Jackson Avenue	12	1,210	14,520	10,960	0.75
Grand Central	12	1,210	14,520	7,940	0.55
5th Avenue–Bryant Park	12	1,210	14,520	4,641	0.32
Times Square	12	1,210	14,520	-	-
<i>Inbound No. 7 Express + Local</i>					
Flushing–Main Street	24	1,210	29,040	11,085	0.38
Wilets Point Boulevard–Shea Stadium	24	1,210	29,040	11,151	0.38
Junction Boulevard	24	1,210	29,040	17,243	0.59
Woodside–61st Street	24	1,210	29,040	22,022	0.76
Queensboro Plaza	24	1,210	29,040	19,934	0.69
45th Road–Court House Square	24	1,210	29,040	19,375	0.67
Hunters Point Avenue	24	1,210	29,040	20,365	0.70
Vernon Boulevard–Jackson Avenue	24	1,210	29,040	20,674	0.71
Grand Central	24	1,210	29,040	14,663	0.50
5th Avenue–Bryant Park	24	1,210	29,040	8,419	0.29
Times Square	24	1,210	29,040	-	-

Source: RTFM, 2003 and 2004
Peak load point denoted in **bold**.

TABLE 20-12
AVERAGE WEEKDAY UTILIZATION BY STATION

Station (Route)	Average Weekday Utilization (March of each year)		
	2000	2001	2003
23 St. (1,9)	14,032	15,716	15,149
23 St. (C,E)	18,091	19,706	18,169
23 St. (F,V)	20,972	22,466	22,579
28 St. (1,9)	12,382	13,752	13,018
34 St.–Herald Square (B,D,F,N,Q,R,V,W)	106,357	112,323	115,089
34 St.–Penn Station (1,2,3,9)	86,292	91,518	87,827
34 St.–Penn Station (A,C,E)	75,816	79,035	76,533
Times Sq–42nd Street (1,2,3,7,9,A,C,E,N,Q,R,S,W)	150,380	161,779	165,416
5 Ave–Bryant Park/42nd Street–Bryant Park (7,B,D,F,V)	49,318	48,939	39,275
Grand Central–42 St. (4,5,6,7,S)	137,310	150,870	142,150

Source: MTA NYCT, Revenue Unit, 2003

March 2002 data not presented due to the significant changes in travel patterns after September 11, 2001.

TABLE 20-13
EXISTING (2003) CONDITIONS OF SUBWAY STATION ELEMENTS OPERATING AT LOS D OR WORSE

Subway Station/Elements	AM		PM	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street–Herald Square (B, D, F, N, Q, R, V, and W)				
<i>Control Area Booth A25 – 32nd Street and Broadway</i>				
Stairway S2AB (NW)	1.33	D	0.62	B
Stairway M1AB	1.33	D	0.62	B
<i>Control Area Booth N506 – 34th Street and Broadway</i>				
Stairway S5AB (SW)	1.40	E	1.06	D
Stairway M5AB	1.40	E	1.06	D
Stairway S7AB (NW)	1.18	D	1.28	D
Stairway M7AB	1.13	D	1.23	D
<i>Control Area Booth N507 – 32nd Street to 33rd Street and Sixth Avenue</i>				
Stairway H&M 307	1.72	F	0.31	A
Escalator E221	0.23	B	1.32	F
Escalator E222	0.80	D	0.78	D
Escalator E223	1.12	F	1.11	F
Escalator E224	0.13	A	0.71	D
<i>Control Booth N505 – 35th Street and Sixth Avenue</i>				
High Entrance/Exit Turnstile	0.82	E	0.74	D
Stairway S8 (NE)	1.36	E	1.23	D
Stairway S6 (NW)	1.16	D	1.08	D
<i>Control Area Booth A22 – 34th Street and Sixth Avenue</i>				
Turnstile	0.42	C	0.63	D
Stairway S4 (SE)	0.89	C	1.14	D
42nd Street–Bryant Park (B, D, F, and V)				
<i>Control Area Booth N504 – 40th Street and Sixth Avenue</i>				
Stairway S5 (SE)	1.28	D	0.77	C
Stairway S4 (SW)	1.32	D	0.83	C
Stairway M4	1.32	D	0.83	C
<i>Control Area Booth N503 – 42nd Street and Sixth Avenue</i>				
Stairway S8 (SE)	1.01	D	0.75	C
34th Street–Penn Station (1, 2, 3, and 9)				
<i>Control Area Booth R135</i>				
Turnstile (32nd Street Subpassage to Penn Station)	0.47	C	0.64	D

**TABLE 20-13 (CONTINUED)
EXISTING (2003) CONDITIONS OF SUBWAY STATION ELEMENTS OPERATING AT LOS D OR
WORSE**

Subway Station/Elements	AM		PM	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Control Area Booth R143 – 40th Street and Seventh Avenue</i>				
Stairway S2 (SE)	1.19	D	0.93	C
<i>Control Area Booth A21 to 40th Street and Broadway</i>				
Stairway 11-A (Control Area Stairway)	0.79	C	1.05	D
<i>Control Area Booth R148 to 42nd Street and Broadway</i>				
Stairway S11 (SE)	1.21	D	1.17	D
Stairway P1	1.21	D	1.17	D
<i>Seventh Avenue Line Platform (Northbound)</i>				
Stairway P4/P6	0.81	C	1.11	D
<i>Seventh Avenue Line Platform (Southbound)</i>				
Stairway ML5/ML7	1.46	E	1.13	D
Stairway P3/P5	1.24	D	0.97	C
42nd Street–Port Authority Bus Terminal (A, C, and E)				
<i>Control Area Booth N63A to 40th Street and Eighth Avenue</i>				
Stairway S2 (SE)	1.15	D	0.83	C
34th Street–Penn Station (A, C, and E)				
<i>Control Area Booth N68 – 35th Street and Eighth Avenue (East)</i>				
High Entrance/Exit Turnstile	1.04	F	0.18	A
<i>Control Area Booth N69– 35th Street and Eighth Avenue (West)</i>				
High Entrance/Exit Turnstile	1.73	F	0.19	A
<i>Control Area Booth N71 – 34th Street and Eighth Avenue (West)</i>				
Stairway S8 (NW)	1.06	D	0.36	A
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Platform</i>				
Stairway PL6	1.19	D	1.00	C
Stairways ML1 through ML5	0.32	A	1.22	D
Escalator E207 (Up)	0.64	D	0.31	B
Escalator E209 (Up/Down)	0.67	D	0.42	C
Escalator E205 (Up)	0.68	D	0.28	B
Escalator E206 (Up/Down)	0.68	D	0.43	C
<i>Lexington Avenue Southbound Platform Stairways</i>				
Stairway P12	1.50	E	0.56	B
Stairway P14	2.11	F	1.89	F
Stairway P22	1.65	E	0.91	C
Stairway U7	1.05	D	0.38	A
<i>Lexington Avenue Northbound Platform Stairways</i>				
Stairway P23	1.24	D	1.21	D
Stairway P13	0.42	A	1.08	D
<i>Connection to MTA Metro-North Railroad</i>				
Stairway M6AB/M7AB	1.23	D	1.07	D
Escalator (E255-Up)	0.66	D	0.67	D
Escalator (E-256-Up/Down)	0.66	D	0.89	E
Penn Station (railroad station) to 34th Street and Seventh Avenue				
Stairway S34	0.86	C	2.52	F
Escalator 34-A (Up/Down)	0.07	A	0.68	D
Escalator 34-B (Up)	0.85	E	0.81	E
Escalator 34-C (Up/Down)	1.19	F	0.48	C

Source: MTA NYCT, 2003

* LOS for stairways, corridors, and passageways are defined by volume/svcd ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).

34th Street–Herald Square (B, D, F, N, Q, R, V, and W routes)

The 34th Street–Herald Square Station serves as a major transfer point between subway lines, containing four island platforms (two each serving the Broadway and Sixth Avenue lines), multiple entrances and exits, and Fare Control Areas (FCAs) A22, A25, N505, N506, and N507. Access to the station is made via stairways, escalators, and elevators along Broadway and Sixth Avenue between West 32nd and West 35th Streets, and within the Manhattan Mall. Transfer to the PATH train is available at the mezzanine level located under Sixth Avenue between West 32nd and West 33rd Streets. The station elements operate at LOS C or better with the following exceptions:

- FCA A25 – Stairways S2AB and M1AB, located at Broadway and West 32nd Street, both operate at LOS D with a v/svcd ratio of 1.33 during the AM peak hour. FCA 506 – For stairways S5AB, M5AB, S7AB, and M7AB, located at Broadway and 34th Street, stairways S5AB and M5AB operate at LOS E with v/svcd ratios of 1.40 during the AM peak hours and LOS D with a v/svcd ratio of 1.06 during the PM peak hour. Stairways S7AB and M7AB operate at LOS D with v/svcd ratios ranging from 1.13 to 1.28 for the AM and PM peak hours.
- FCA 507 – For stairways and escalators located at Sixth Avenue and West 32nd Street, stairway H&M 307, operates at LOS F with a v/svcd ratio of 1.72 during the AM peak hour. Escalator E221 operates at LOS F with a v/svcd ratio of 1.32 in the PM peak hour. Escalator E222 operates at LOS D with a v/svcd ratio of 0.80 during the AM peak hour and LOS D with v/svcd ratios 0.78 during the PM peak hour. Escalator E223 operates at LOS F during both the AM and PM peak hours, with v/svcd ratios of 1.12 and 1.11, respectively. Escalator E224 operates at LOS D with a v/svcd ratio of 0.71 in the PM peak hour.
- FCA A22 – The turnstile operates at LOS D with a v/svcd ratio of 0.63 in the PM peak hour. Street stairway S4 (southeast corner of West 34th Street and Sixth Avenue) currently operates at LOS D with a v/svcd ratio of 1.14.
- FCA N505 – The HEET operates at LOS E with a v/svcd 0.82 during the AM peak hour and LOS D with a v/svc ratio of 0.74 in the PM peak hour. Stairway S8, located at the northeast corner of Sixth Avenue and West 35th Street, operates at LOS E and LOS D with v/svcd ratio 1.36 and 1.23 during the AM and PM peak hours, respectively. Stairway S6, located at the northwest corner of Sixth Avenue and West 35th Street, operates at LOS D during both the AM and PM peak hours, with v/svcd ratios of 1.16 and 1.08, respectively.

42nd Street–Bryant Park (B, D, F, and V routes)

The 42nd Street–Bryant Park station has two island platforms and includes three FCAs (N502, N503, and N504). Transfer is available between this station and the Fifth Ave–Bryant Park station on the Flushing line. The station elements operate at LOS C or better with the exception of four stairways:

- FCA 504 – Stairways S5, S4, and M4, located at Sixth Avenue and West 40th Street, operate at LOS D with v/svcd ratios ranging from 1.28 to 1.32 during the AM peak hour.
- FCA N503 – Stairway S8, located at Sixth Avenue and West 42nd Street, operates at LOS D, with a v/svcd ratio of 1.01 during the AM peak hour.

34th Street–Penn Station (1, 2, 3, and 9 routes)

The 34th Street–Penn Station Seventh Avenue subway station is located between Seventh and Eighth Avenues, from West 31st to West 33rd Streets. (Note: There is no direct, free transfer between this station and the 34th Street–Penn Station subway station on the Eighth Avenue line.) The Seventh Avenue line station consists of two levels: track level and a mezzanine level, plus street level

entrance levels. The mezzanine level connects to the Long Island Rail Road concourse of Penn Station.

For this station, the elements operate at LOS C or better with the exception of the following element:

- FCA R135 – The turnstiles located at the West 32nd Street passageway to Penn Station operate at LOS D with a v/svcd ratio of 0.64 during the PM peak hour.

Times Square–42nd Street (N, Q, R, S, W, 1, 2, 3, 7, and 9 routes)

The Times Square–42nd Street Station is located below the intersection of Broadway and Seventh Avenue, spanning from West 40th to West 43rd Streets. The station serves as a major transfer points between subway lines, containing six island platforms (two each serving the Broadway and Seventh Avenue lines; one each serving the Flushing line and the 42nd Street Shuttle), two side platforms (both serving the 42nd Street Shuttle), multiple entrances and exits, and several FCAs (R143, R145, R146, R147, R148, R151, R153). This station also provides a free transfer, via a below-grade corridor to the Eighth Avenue subway line, and from there to the Port Authority Bus Terminal. At this station, the elements operate at LOS C or better in both the AM and PM peak hours, with the following exceptions:

- FCA R143 – Stairway S2, located at Seventh Avenue and West 40th Street, operates at LOS D, with a v/svcd ratio of 1.19 during the AM peak hour.
- Control Area Booth A21 – Stairway 11-A, located at West 40th Street and Broadway, operates at LOS D, with a v/svcd ratio of 1.05 in the PM peak hour.
- FCA R148 – Stairways S11 and P1, located at Broadway and West 42nd Street, operate at LOS D, with v/svcd ratios of 1.21 and 1.17, during the AM and PM peak hour, respectively.
- Seventh Avenue Platform (northbound) – Stairways ML6/ML8 operate at LOS D in both the AM and PM peak hour, with v/svcd ratios of 1.23 and 1.09, respectively.
- Seventh Avenue Platform (northbound) – Stairways P4/P6 operate at LOS D in the PM peak hour, with a v/svcd ratio of 1.11.
- Seventh Avenue Platform (southbound) – Stairways ML5/ML7 operate at LOS E in the AM peak hour with a v/svcd ratio of 1.46 and at LOS D in the PM peak hour, with v/svcd ratio of 1.13.
- Seventh Avenue Platform (southbound) – Stairways P3/P5 operate at LOS D in the AM peak hour, with a v/svcd ratio of 1.24.

34th Street–Penn Station (A, C, and E routes)

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

The elements at this station operate at LOS C or better, with the exceptions of the following elements:

- FCA N68 – The HEET, located at Eighth Avenue and West 35th Street (east), operates at LOS E, with a v/svcd ratio of 1.04 during the AM peak hour;
- FCA N69 – The HEET, located at Eighth Avenue and West 35th Street (west), operates at LOS F, with a v/svcd ratio of 1.73 during the AM peak hour; and
- FCA N71 – Stairway S8, located at the northwest corner of Eighth Avenue and West 34th Street, operates at LOS D, with a v/svcd ratio of 1.06 during the AM peak hour.

42nd Street–Port Authority Bus Terminal (A, C, and E routes)

The 42nd Street–Port Authority Bus Terminal subway station is located under Eighth Avenue, from 40th to 43rd Streets, and offers direct access to the Port Authority Bus Terminal through a below-grade level. A passageway from the Eighth Avenue line provides a free transfer to the Times Square–42nd Street station, with connection to the 1, 2, 3, 7, 9, N, Q, R, and W lines and the 42nd Street Shuttle.

The elements at this station operate at LOS C or better, with the following exceptions:

- FCA N63 – Stairway S2, located at the southeast corner of Eighth Avenue and West 40th Street, operates at LOS D, with a v/svcd ratio of 1.15 during the AM peak hour.

Fifth Avenue–Bryant Park (No. 7 route)

This No. 7 line station has one island platform. Transfer is available from this station to the 42nd Street–Bryant Park station on the Sixth Avenue line via a below-grade passageway under Bryant Park. All stairways located at the No. 7 line platform at this station operate at LOS C or better in both the AM and PM peak hours.

Grand Central–42nd Street (4, 5, 6, 7 routes and 42nd Street Shuttle)

The Grand Central–42nd Street subway station has multiple levels (mezzanine and fare zone areas, track levels to the Lexington Avenue and Flushing lines and the 42nd Street Shuttle). The upper level consists of fare zones and a center mezzanine that provides access to all subway platforms; the western portion of the upper level houses the 42nd Street Shuttle station. The middle level contains four tracks and two center platforms for the Lexington Avenue line, while the lower level provides passage for the Flushing line. Access to the station is made via passageways, stairways, and an escalator from within Grand Central Terminal, the Chrysler Building, the south side of East 42nd Street, and Lexington and Vanderbilt Avenues.

The stairways, escalators, and passageways that connect the Lower Mezzanine and the No. 7 line platforms generally operate at LOS C or better in both the AM and PM peak hours, with the following exceptions:

- Stairway PL6 operates at LOS D, with v/svcd ratio 1.19 during the AM peak hour. Stairways ML1 through ML5 operate at LOS D, with v/svcd ratio 1.22 during the PM peak hour. These stairways connect the lower mezzanine to the No. 7 line platform.
- Escalators E205, E206, E207, and E 209 operate at LOS D, with v/svcd ratio ranging from 0.64 to 0.68 during the AM peak hour.

The stairways to the Lexington Avenue platforms and to the MTA Metro-North Railroad area generally operate at LOS C or better in both the AM and PM peak hours, with the following exceptions:

- Stairway P12 operates at LOS E with v/svcd ratio of 1.50 during the AM peak hour. Stairway P14 operates at LOS F with v/svcd ratio of 2.11 during the AM peak hour and LOS F with a v/svcd ratio of 1.89 in the PM peak hour. Stairway P22 operates at LOS E with v/svcd ratio of 1.65 during the AM peak hour. These three stairways provide access to the southbound platform.
- Stairway P23 operates at LOS D with v/svcd ratio of 1.24 during the AM peak hour and LOS D with a v/svcd ratio of 1.21 in the PM peak hour. Stairway P13 operates at LOS D with v/svcd ratio of 1.08 during the PM peak hour. These stairways provide access to the northbound platform.

- Stairway M6AB/M7AB operates at LOS D with v/svcd ratio of 1.23 during the AM peak hour and LOS D with a v/svcd ratio of 1.07 in the PM peak hour. Escalator E255 (up) operates at LOS D with v/svcd ratio of 0.66 during the AM peak hour and LOS D with a v/svcd ratio of 0.67 in the PM peak hour. Escalator E256 (up/down) operates at LOS D with v/svcd ratio of 0.66 during the AM peak hour and LOS E with a v/svcd ratio of 0.89 in the PM peak hour. These three elements provide access to commuter rail service and street level.

Penn Station (railroad station)

Penn Station serves as the western terminal for the Long Island Rail Road, the eastern terminal for New Jersey 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. High volume elements of Penn Station were analyzed to determine critical locations for potential significant adverse impacts. Currently, the following station elements operate at LOS D or worse:

- Stairway S34 operates at LOS F, with a v/svcd ratio of 2.27 in the PM peak hour;⁸
- Escalator 34-A operates at LOS D, with a v/svcd ratio of 0.68 in the PM peak hour;
- Escalator 34-B operates at LOS E in both the AM and PM peak hour, with v/svcd ratios of 0.85 and 0.81, respectively; and
- Escalator 34C operates at LOS F, with a v/svcd ratio of 1.19 in the AM peak hour.

c) Commuter Railroad Stations

The two commuter railroad stations (Penn Station and Grand Central Terminal) that serve Midtown Manhattan currently service almost 100,000 inbound trips in the AM peak hour and over 70,000 outbound trips in the PM peak hour (Table 20-14). The stations are considered by the operating agencies to have sufficient capacity to support the existing demand.

⁸ The high volume of pedestrians using this staircase to go down into Penn Station excludes all upward movements, permits downward speed to exceed the standard 10 persons/feet/minute, and results in an extraordinary v/svcd ratio.

TABLE 20-14
EXISTING RAILROAD TRIPS TO/FROM MIDTOWN MANHATTAN

	AM Peak Hour Inbound Trips	PM Peak Hour Outbound Trips
Penn Station		
Long Island Rail Road	46,521	31,193
New Jersey Transit	17,584	14,553
Total	64,105	45,746
Grand Central Terminal		
Metro-North Railroad	35,694	25,542
Long Island Rail Road	-	-
Total	35,694	25,542
Commuter Rail Total	99,799	71,288

Source: AECOM, 2004

d) Bus Routes

There are 15 MTA NYCT local bus routes currently serving the Project Area and/or the area within a one-half mile radius of the Rezoning Area boundaries (Figure 20-3). These routes are the M4, M5, M6, M7, M10/M20, M11, M23, M34/M16, M42, M50/M27, M104, and Q32.

North/south bus service is provided within the study area along Sixth, Seventh, Eighth, Ninth, and Tenth Avenues, and Broadway. East/west bus service is provided along 23rd, 34th, 42nd, 49th, and 50th Streets. These routes provide substantial bus service in the north/south direction from Tenth Avenue and east, and in the east-west direction along major corridors. The bus routes provide connections to the subway stations and their respective subway lines throughout the Rezoning Area, thus providing access to the City's entire transit system.

The following is a brief description of the bus routes that provide service within ½-mile of the Rezoning Area.

M4 via Fifth and Madison Avenues/Broadway

The M4 operates daily between Penn Station (West 32nd Street at Seventh Avenue) and Cloisters/Fort Tryon Park in Washington Heights. The major streets of operation are Fort Washington Avenue, West 165th Street, Broadway, Cathedral Parkway (110th Street), Fifth and Madison Avenues, 34th Street, Seventh Avenue, and West 32nd Street. A limited-stop service is operated in the downtown direction during the weekday morning rush hours and in the uptown direction during the weekday evening rush hours. The frequency of the limited-stop service is 12 minutes in the downtown direction during the AM peak hour and 10 minutes in the uptown direction during the PM peak hour. The frequency of the regular service is five minutes in both directions during the AM peak hour, and nine minutes in the downtown direction and eight minutes in the uptown direction during the PM peak hour. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are eight to 12 minutes.

The maximum load points for both the AM and PM peak hours are Fifth Avenue and 72nd Street in the downtown direction and 96th Street and Madison Avenue in the uptown direction.

M5 via Fifth Avenue/Avenue of the Americas/Riverside Drive

The M5 provides local and limited-stop service between Houston Street at West Broadway in Greenwich Village and 178th Street at Broadway in Washington Heights. The limited-stop service is provided on weekdays between 157th and 135th Streets at Broadway and south of 72nd Street. In the AM peak hour, limited-stop service operates every 15 minutes in the uptown direction and every five minutes in the downtown direction. PM peak hour service operates every nine minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are both nine-12 minutes.

In the downtown direction, the maximum load point is at Columbus Circle during the AM peak hour and at Broadway and West 157th Street during the PM peak hour. The maximum load point in the uptown direction is at Broadway and West 157th Street during the AM peak hour, and at both 72nd Street and Broadway and Sixth Avenue and 34th Street during the PM peak hour.

M6 via Seventh Avenue/Broadway/Avenue of the Americas

The M6 operates daily between Central Park South (59th Street)/Avenue of the Americas (Sixth Avenue) and South Ferry Terminal. The major streets of operation are Seventh Avenue and Broadway (downtown) and Church Street and Sixth Avenue (uptown). The route has a frequency of service of 15 minutes in both directions during the AM peak hour. During the PM peak hour, the frequency is eight to 10 minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are nine to 15 minutes.

During the AM peak hour, the maximum load point occurs at Broadway and Houston Street (downtown) and at Sixth Avenue and 34th Street (uptown). The maximum load point occurs at Sixth Avenue and 22nd Street in both directions during the PM peak hour.

M7 via Columbus Avenue/Amsterdam Avenue/Malcolm X Boulevard/Sixth Avenue/Seventh Avenue/Broadway

The M7 operates daily between Union Square and West 147th Street/Adam Clayton Powell Boulevard. The major streets of operation are West 14th Street, Sixth Avenue/Avenue of the Americas, Central Park South (59th Street), Amsterdam Avenue, West 116th Street, Malcolm X Boulevard, Columbus Avenue, and Broadway. The bus operates with a frequency of service of every 15 minutes uptown-bound and every eight minutes downtown-bound, during the AM rush hour. The bus operates with a frequency of service of every seven to eight minutes in both directions during the PM rush hour. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are seven to 10 minutes.

During the AM peak hour, the maximum load point occurs at Columbus Avenue and West 106th Street (downtown) and at Amsterdam Avenue and West 106th Street (uptown). The maximum load point occurs at Malcolm X Boulevard and West 125th Street (downtown) and Broadway and 66th Street (uptown) during the PM peak hour.

M10/M20 (Seventh and Eighth Avenues in Rezoning Area)

(a) M10 via Central Park West/Frederick Douglass Boulevard

The M10 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 bus operates every eight minutes in both directions during AM rush hour. During PM rush hour, the bus operates every nine minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are eight and 10 minutes, respectively.

In the downtown direction, the maximum load point occurs at Frederick Douglass Boulevard and 145th Street during both the AM and PM peak hours. The maximum load point in the uptown direction occurs at Frederick Douglass Boulevard and 125th Street during the AM peak hour and at Central Park West and 66th Street during the PM peak hour.

(b) M20 via Seventh and Eighth Avenues/Hudson Street

The M20 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. Frequency of service is every 15 minutes in the downtown direction and every 20 minutes in the uptown direction during the AM rush hour. Frequency of service during the PM rush hours is every 10 minutes in the uptown direction and every 12 minutes in the downtown direction. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are 12 and 15 minutes, respectively.

In the downtown direction, the maximum load point occurs at Seventh Avenue and West 23rd Street during both the AM and PM peak hours. The maximum load point in the uptown direction occurs at Eighth Avenue and West 23rd Street during the AM and PM peak hours.

M11 via Ninth (Columbus) Avenue and Tenth (Amsterdam) Avenue

The M11 operates daily between Bethune/Hudson Streets (Abingdon Square) and West 135th Street at Broadway from about five AM till midnight. Daily service is extended to Riverbank State Park at West 145th Street/Riverside Drive from eight AM to nine PM. The major streets of operation are

Greenwich Street, Tenth (Amsterdam) Avenue, Riverside Drive, and Ninth (Columbus) Avenue. The bus operates with a frequency of service of every seven to nine minutes in both directions during the AM rush hour. During PM rush hour, the bus operates every nine minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are 10 and nine minutes, respectively.

In the uptown direction, the maximum load point occurs at Amsterdam Avenue and West 77th Street during both the AM and PM peak hours. The maximum load point in the downtown direction occurs at Columbus Avenue and West 96th Street during the AM peak hour and at Columbus Avenue and West 79th Street during the PM peak hour.

M23 via 23rd Street Crosstown

The M23 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 five minutes in both directions during the AM rush hour. During the PM rush hour, the frequency of service is every five to six minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are nine and 10 minutes, respectively.

In the eastbound direction, the maximum load point occurs at Park Avenue South and East 23rd Street during both the AM and PM peak hours. The maximum load point in the westbound direction occurs at Park Avenue South and East 23rd Street during the AM peak hour and at Avenue of the Americas and West 23rd Street during the PM peak hour.

M34/M16 (34th Street in Rezoning Area)

(a) M34 via 34th Street Crosstown

The M34 provides crosstown service between the Convention Center (Eleventh Avenue between 34th and 39th Streets) and East 34th Street at FDR Drive daily. Customers going crosstown on 34th Street between Eighth Avenue and FDR Drive (westbound) and Ninth and Second Avenues (eastbound) can reduce their waiting time by taking either the M16 or M34 bus. The major street of operation for this service is 34th Street. Frequency of service is every 10 minutes during the AM rush hours in both directions. Frequency of service during the PM rush hours is every 10 minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are 17 and 15 minutes, respectively.

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

(b) M16 via 34th Street Crosstown

The M16 provides crosstown service between West 43rd Street at Ninth Avenue (Port Authority Bus Terminal) and FDR Drive/Waterside Plaza via 34th Street daily. Customers going crosstown on 34th Street between Eighth Avenue and FDR Drive may reduce their waiting time by taking either the M16 or M34 bus. The major street of operation for this service is 34th Street. Frequency of service is every six to seven minutes during the AM rush hour in both directions. Frequency of service during the PM rush hours is every five to six minutes in both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are 15 and 16 minutes, respectively.

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

at Second Avenue and East 34th Street during the AM peak hour and at Fifth Avenue and 34th Street during the PM peak hour.

M42 via 42nd Street Crosstown

The M42 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. Frequency of service during AM rush hours is every four minutes between West 42nd Street and East 42nd Street and every 10 minutes between the Convention Center and East 42nd Street. PM rush hours frequencies are every four to five minutes between all locations. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are 10 and 12 minutes.

In the eastbound direction, the maximum load point occurs at Sixth Avenue and West 42nd Street during both the AM and PM peak hours. The maximum load point in the westbound direction occurs at Eighth Avenue and West 42nd Street during the AM peak hour and at Lexington Avenue and East 42nd Street during the PM peak hour.

M50/M27 (49th and 50th Streets in Rezoning Area)

(a) M50 via 49th and 50th Streets Crosstown

The M50 operates daily between West 42nd Street at Twelfth Avenue (Circle Line Pier) and East 42nd Street at First Avenue. Customers going crosstown on 49th or 50th Streets between Broadway and Second Avenue can reduce their waiting time by taking either the M27 or M50 bus. Major streets of operation are 50th Street, Second Avenue, First Avenue, 49th Street, and Twelfth Avenue. Frequency of service during AM rush hours is every three minutes (eastbound) and seven minutes (westbound). PM rush hour service frequency is every 11 to 12 minutes both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are seven and 12 minutes, respectively.

The maximum load points are the same as those for the M27.

(b) M27 via 49th and 50th Streets Crosstown

The M27 operates daily between West 41st Street at Eighth Avenue (Port Authority Bus Terminal) and East 42nd Street at First Avenue. Customers going crosstown on 49th or 50th Streets between Broadway and Second Avenue can reduce their waiting time by taking either the M27 or M50 bus. Major streets of operation are 50th Street, Second Avenue, First Avenue, 49th Street, Seventh Avenue, and Eighth Avenue. Frequency of service during AM rush hours is every three minutes (eastbound) and seven minutes (westbound). PM rush hour service frequency is every 11 to 12 minutes both directions. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are seven and 12 minutes, respectively.

The maximum load point in the eastbound direction occurs at Fifth Avenue and West 50th Street during the AM and PM peak hours. The maximum load point in the westbound direction occurs at Fifth Avenue and West 49th Street during the AM and PM peak hours.

M104 via Broadway/42nd Street

The M104 operates between West 129th Street at Amsterdam Avenue and East 42nd Street at First Avenue (United Nations) daily. Major streets of operation are 42nd Street, Eighth Avenue, and Broadway. AM rush hour frequencies of service are every eight minutes (uptown-bound) and five minutes (downtown-bound). PM rush hour frequencies of service are every four to five minutes. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are four to seven minutes each.

In the downtown direction, the maximum load point occurs at Broadway and West 61st Street during the AM peak hour and at Broadway and West 79th Street during the PM peak hours. The maximum load point in the uptown direction occurs at Grand Central Terminal during the AM peak hour and at Fifth Avenue and West 42nd Street during the PM peak hours.

Q32 Between Penn Station and Jackson Heights

The Q32 operates between West 32nd Street at Seventh Avenue (Penn Station), Manhattan and 81st Street at Northern Boulevard, Jackson Heights (Queens). Major streets of operation are 32nd Street, Madison Avenue, 59th Street, Roosevelt Avenue (Queens), 81st Street (Queens), Queens Boulevard (Queens), Fifth Avenue, and 34th Street. Frequency of service during AM and PM rush hours is seven and eight minutes, respectively. The frequencies of service in both directions during the weeknight and Sunday Special Event hours are eight to 10 minutes.

In the eastbound direction, the maximum load point occurs at Seventh Avenue and West 32nd Street during the AM peak hour and at Queens Boulevard and Jackson Avenue during the PM peak hour. The maximum load point in the westbound direction occurs at Queens Boulevard and 47th Street during the AM peak hour and at Fifth Avenue and West 34th Street during the PM peak hour.

e) Bus Conditions

MTA NYCT 2000-2002 Ride-Check survey results were used to determine the peak hour bus service during the AM, PM, weeknight Special Event, and Sunday Special Event peak hours within the study area.

Table 20-15 and Table 20-16 summarize the results of 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 in the peak hours.

As presented in Table 20-15 through Table 20-18, the results of the analysis indicated 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 in the AM peak hour ranges from 92 on the northbound M-6 to over 600 on the eastbound M-42. Existing available capacity in the PM peak hour ranges from almost 100 on the eastbound Q-32 to almost 600 on the combined M-10/M-20. Available capacity in the weeknight Special Event peak hour ranges from approximately 200 on the eastbound M-42 to over 650 on the combined M-10/M-20. Available capacity in the Sunday Special Event peak hour ranges from 163 on the southbound M-5 to over 550 on the southbound M-104.

**TABLE 20-15
EXISTING BUS OPERATING CONDITIONS (AM PEAK HOUR)**

Busline	Direction	Buses per Hour ¹	Per Bus Capacity	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity – Volume)
M-4	NB	13	65	845	368	28	477
	SB	18	65	1,170	719	40	451
M-5	NB	4	65	260	162	41	98
	SB	11	65	715	525	48	190
M-6	NB	4	65	260	168	42	92
	SB	4	65	260	109	27	151
M-7	NB	4	65	260	151	38	109
	SB	8	65	520	369	46	151
M-10/M-20 ³	NB	12	65	780	239	20	541
	SB	12	65	780	447	37	333
M-11	NB	7	65	455	310	44	145
	SB	9	65	585	406	45	179
M-23	EB	11	93	1,023	607	55	416
	WB	11	93	1,023	598	54	425
M-34/M-16 ³	EB	14	65	910	676	48	234
	WB	14	65	910	562	40	348
M-42	EB	34	65	2,210	1,582	47	628
	WB	14	65	910	415	30	495
M-50/M-27 ³	EB	23	65	1,495	969	42	526
	WB	9	65	585	322	36	263
M-104	NB	8	65	520	262	33	258
	SB	11	65	715	393	36	322
Q-32	EB	9	65	585	190	21	395
	WB	9	65	585	417	46	168

Source: MTA NYCT 2000-2002 Ride-Check Surveys

1 Peak load points determined by combined 2000-2002 Ride-Check Survey data.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per bus (for M-23).

3 Data include both routes as they service the same corridor within the study area.

**TABLE 20-16
EXISTING BUS OPERATING CONDITIONS (PM PEAK HOUR)**

Busline	Direction	Buses per Hour ¹	Per Bus Capacity	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity - Volume)
M-4	NB	14	65	910	575	41	335
	SB	7	65	455	300	43	155
M-5	NB	6	65	390	223	37	167
	SB	7	65	455	169	24	286
M-6	NB	8	65	520	281	35	239
	SB	6	65	390	153	26	237
M-7	NB	9	65	585	340	38	245
	SB	8	65	520	253	32	267
M-10/M-20 ³	NB	13	65	845	273	21	572
	SB	12	65	780	194	16	586
M-11	NB	7	65	455	268	38	187
	SB	7	65	455	263	38	192
M-23	EB	10	93	930	544	54	386
	WB	11	93	1,023	696	63	327
M-34/M-16 ³	EB	12	65	780	547	46	233
	WB	12	65	780	567	47	213
M-42	EB	13	65	845	401	31	444
	WB	16	65	1,040	812	51	228
M-50/M-27 ³	EB	11	65	715	323	29	392
	WB	12	65	780	342	29	438
M-104	NB	14	65	910	646	46	264
	SB	12	65	780	290	24	490
Q-32	EB	8	65	520	423	53	97
	WB	8	65	520	147	18	373

Source: MTA NYCT 2000-2002 Ride-Check Surveys

1 Peak load points determined by combined 2000-2002 Ride-Check Survey data.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes as they service the same corridor within the study area.

TABLE 20-17
EXISTING BUS OPERATING CONDITIONS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Busline	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity-Volume)
M-4	NB	7	455	202	29	253
	SB	5	325	101	20	224
M-5	NB	7	455	179	26	276
	SB	5	325	71	14	254
M-6	NB	5	325	103	21	222
	SB	4	260	52	13	208
M-7	NB	8	520	201	25	319
	SB	6	390	107	18	283
M-10/M-20 ³	NB	12	780	267	22	513
	SB	13	845	166	13	679
M-11	NB	6	390	130	22	260
	SB	7	455	117	17	338
M-23	EB	6	558	193	32	365
	WB	7	651	238	34	413
M-34/M-16 ³	EB	7	455	188	27	267
	WB	8	520	214	27	306
M-42	EB	5	325	126	25	199
	WB	6	390	146	24	244
M-50/M-27 ³	EB	9	585	112	12	473
	WB	10	650	105	11	545
M-104	NB	10	650	281	28	369
	SB	9	585	145	16	440
Q-32	EB	7	455	214	31	241
	WB	6	390	83	14	311

Source: MTA NYCT 2000-2002 Ride-Check Surveys

1 Peak load points determined by combined 2000-2002 Ride-Check Survey data.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes as they service the same corridor within the study area.

**TABLE 20-18
EXISTING BUS OPERATING CONDITIONS (SUNDAY SPECIAL EVENT PEAK HOUR)**

Busline	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity-Volume)
M-4	NB	8	520	173	22	347
	SB	7	455	169	24	286
M-5	NB	6	390	202	34	188
	SB	5	325	162	32	163
M-6	NB	7	455	207	30	248
	SB	6	390	131	22	259
M-7	NB	8	520	271	34	249
	SB	9	585	116	13	469
M-10/M-20 ³	NB	10	650	251	25	399
	SB	10	650	182	18	468
M-11	NB	6	390	207	35	183
	SB	7	455	280	40	175
M-23	EB	7	651	332	47	319
	WB	7	651	318	45	334
M-34/M-16 ³	EB	8	520	247	31	273
	WB	8	520	242	30	278
M-42	EB	6	390	167	28	223
	WB	5	325	85	17	240
M-50/M-27 ³	EB	5	325	54	11	271
	WB	5	325	78	16	247
M-104	NB	15	975	499	33	476
	SB	14	910	341	24	569
Q-32	EB	8	520	198	25	322
	WB	8	520	180	23	340

Source: MTA NYCT 2000-2002 Ride-Check Surveys

1 Peak load points determined by combined 2000-2002 Ride-Check Survey data.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes as they service the same corridor within the study area.

f) Ferry Service

Currently, New York Waterway, a privately owned ferry operator, is the sole operator of commuter ferry service in the study area. It operates scheduled ferry routes between Pier 78, located at West 38th Street, and six New Jersey ports. Figure 20-4 shows the ferry routes and the location of Pier 78 in the study area. (Construction of a new ferry terminal at West 39th Street has been included in the future conditions.) NY Waterway also provides service to the World Financial Center, with frequent weekday peak period service (up to eight trips per hour), and less frequent weekend service (up to two trips per hour).

Ferry information, including the duration of each ferry trip, frequency of peak hour weekday service and total peak hour capacity per route, is provided in Table 20-19. For the year 2003, the peak weekday ridership varied for the six routes from approximately one percent (Belford, New Jersey to Pier 78, New York, requiring a transfer at Pier 11/Wall Street, NY) to over 80 percent (Lincoln Harbor, New Jersey to Pier 78, New York). The ferry ridership in the peak direction during the AM and PM peak hours is presented in Table 20-20.

New York Waterway also provides free shuttle buses that serve the transport passengers between the ferry terminal at Pier 78 and different locations in Midtown and Lower Manhattan.

**TABLE 20-19
EXISTING FERRY OPERATIONS**

Ferry Routes	Travel Times (Minutes)	Peak Hour Frequency of Weekday Service (Minutes)	Capacity per Vessels (Passengers)	Peak Hour Total Capacity
Port Imperial, New Jersey to Pier 78, New York	7	10	399	2,394
Lincoln Harbor, New Jersey to Pier 78, New York	6	15	149	596
Hoboken, New Jersey to Pier 78, New York	9	15	149	596
Colgate, New Jersey to Pier 78, New York	15	30	149	298
Newport, New Jersey to Pier 78, New York	8-15	20	149	447
Belford, New Jersey to Pier 78, New York (requires transfer at Pier 11/Wall Street, New York, where route joins with additional routes)	45	30	350	700
TOTAL				5,031

Source: New York City Department of Transportation Private Ferry Operations and New York Waterway (June 2003 counts)

**TABLE 20-20
EXISTING FERRY RIDERSHIP IN PEAK DIRECTION**

Ferry Routes	AM Peak (New York Bound)				PM Peak (New Jersey Bound)			
	Total Capacity	Demand	Percent Utilized	Remaining Capacity	Total Capacity	Demand	Percent Utilized	Remaining Capacity
Port Imperial, New Jersey to Pier 78, New York	2,394	1,359	56.8%	1,035	2,394	919	38.4%	1,475
Lincoln Harbor, New Jersey to Pier 78, New York	596	491	82.4%	105	596	485	81.4%	111
Hoboken, New Jersey to Pier 78, New York	596	471	79.0%	125	596	178	29.9%	418
Colgate, New Jersey to Pier 78, New York	298	240	80.5%	58	298	198	66.4%	100
Newport, New Jersey to Pier 78, New York	447	191	42.7%	256	447	78	17.5%	369
Belford, New Jersey to Pier 78, New York (requires transfer at Pier 11/Wall Street, New York where route joins with additional routes)	700	4	0.6%	696	700	8	1.1%	692

Source: New York City Department of Transportation Private Ferry Operations and New York Waterway (June 2003 counts)

2. Pedestrian Conditions

a) Sidewalks

The analysis indicates that most sidewalk locations currently operate acceptably at LOS C or better (minimum standard for acceptable operating conditions). Existing LOS and v/c ratios are presented in Table 20-21 for all sidewalk conditions currently operating under LOS D, E, or F. Of the 52 intersections studied, congested operating conditions occur at one sidewalk at one intersection in the AM peak hour, two sidewalks at one intersection in the Midday peak hour, and seven sidewalks at four intersections in the PM peak hour (Figure 20-7). No intersections operate at LOS D, E, or F in either the weeknight or Sunday Special Event hours. Two intersections have sidewalks that operate at LOS D, E, or F in multiple peak hours (at Eighth Avenue and West 39th Street and Sixth Avenue at West 34th Street).

b) Corners

The analysis indicates that most corners currently operate acceptably at LOS C or better (minimum standard for acceptable operating conditions). Existing LOS and v/c ratios are presented in Table 20-22 for all corners currently operating under LOS D, E, or F. Of the 52 intersections studied, congested operating conditions occur at three corners at three intersections in the AM peak hour, five corners at three intersections in the Midday peak hour, eight corners at five intersections in the PM peak hour, and one corner at one intersection in the weeknight Special Event peak hour (Figure 20-7). No congested operating conditions currently exist during the Sunday Special Event peak hour. Corners at three intersections operate at LOS D, E, or F in multiple peak hours.

c) Crosswalks

The analysis indicates that most crosswalks currently operate acceptably at LOS C or better (minimum standard for acceptable operating conditions). Existing LOS and v/c ratios are presented in Table 20-23 for crosswalks currently operating at LOS D, E, or F. Of the 52 intersections studied, congested operating conditions occur at 14 crosswalks at eight intersections in the AM peak hour, 18 crosswalks at eight intersections in the Midday peak hour, 26 crosswalks at 11 intersections in the PM peak hour, two crosswalks at two intersections in the weeknight Special Event peak hour, and one intersection at one crosswalk in the Sunday Special Event peak hour (see Figure 20-7). Crosswalks at ten intersections operate at LOS D, E, or F in multiple peak hours.

d) Pedestrian Safety

Table 20-24 summarizes the number of reportable accidents that occurred along the major corridors within the study area over a three-year period between May 1, 1998 and April 30, 2001. The results shown include the total number of reportable accidents, the number of accidents involving pedestrians, and the total number of injuries and fatalities. A total of 27,151 accidents were reported along the major corridors within the study area for the 3-year period. A majority (66 percent) of these accidents were Non-Reportable accidents, 21 percent were Injuries, 12 percent were Property Damage Only, and one percent were Fatalities. As presented in Table 20-24, the Eighth Avenue corridor between 23rd Street and 54th Street had the highest number of both total accidents and pedestrian/bicyclists accidents, with 3,192 and 345, respectively.

Table 20-25 summarizes the 32 high pedestrian/bicyclist accident locations, where 15 or more pedestrian/bicyclist accidents were involved within the three-year period. There were a total of 4,420 accidents reported for these 32 high accident locations, of which 618 (14 percent) involved pedestrians and bicyclists.

**TABLE 20-21
EXISTING (2003) SIDEWALK CONDITIONS – LOS D OR WORSE**

Intersection	AM			Midday			PM		
	Location	p/f/m*	LOS	Location	p/f/m*	LOS	Location	p/f/m*	LOS
8th Ave. @ 39th St.	2	12	D				2	11	D
8th Ave. @ 42nd St.							1	19	E
							4	11	D
							5	13	D
							6	13	D
Broadway @ 34th St.							8	11	D
6th Ave. @ 34th St.				2	15	D	2	14	D
				5	12	D			

Shading represents locations operating at LOS D or worse.

** p/f/m to pedestrians per foot of width per minute*

See Figure 20-8 for sidewalk location key.

**TABLE 20-22
EXISTING (2003) CORNER CONDITIONS – LOS D OR WORSE**

Intersection	AM				Midday				PM				Weeknight			
	Corner	Curb Radii	SF/P	LOS	Corner	Curb Radii	SF/P	LOS	Corner	Curb Radii	SF/P	LOS	Corner	Curb Radii	SF/P	LOS
6th Ave @ 33rd St.									SW	15	23	D				
6th Ave @ 34th St.					NE	15	19	D	NE	15	21	D				
					SE	15	21	D								
8th Ave @ 33rd St.	SW	15	16	D												
8th Ave @ 34th St.													SE	15	21	D
8th Ave @ 39th St.	NE	15	22	D	SE	15	14	E	SE	15	22	D				
					SW	15	18	D	SW	15	9	E				
									NW	15	21	D				
8th Ave @ 42nd St.	SE	13	11	E	SE	13	20	D	SE	13	Shortfall	F				
9th Ave @ 42nd St.									NE	12	13	E				

Mitigated significant adverse impacts denoted by shading.

SF/P – Square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian.

**TABLE 20-23
EXISTING (2003) CROSSWALK CONDITIONS – LOS D OR WORSE**

Intersection	AM			Midday			PM			Weeknight			Sunday		
	Cross-walk	SF/P	LOS	Cross-walk	SF/P	LOS	Cross-walk	SF/P	LOS	Cross-walk	SF/P	LOS	Cross-walk	SF/P	LOS
Broadway @ 34th St				North	20	D	North	20	D						
				South	18	D	South	19	D						
				West	15	D	West	15	D						
6th Ave. @ 33rd St				West	20	D	North	23	D						
							West	17	D						
6th Ave. @ 34th St	East	21	D	North	22	D	North	23	D				East	21	D
				East	12	E	East	14	E						
				South	18	D	South	19	D						
7th Ave. @ 31st St	North	23	D	East	21	D	North	18	D						
	West	22	D				East	17	D						
							South	16	D						
							West	18	D						
7th Ave. @ 33rd St	North	15	D	North	18	D	North	11	E						
	South	12	E	South	15	D	South	14	E						
	West	21	D	West	21	D	West	18	D						
7th Ave. @ 34th St	West	13	E												
8th Ave. @ 30th St						East	21	D							
8th Ave. @ 33rd St	West	8	E	East	16	D	East	12	E						
				West	22	D	West	15	D	West	15	D			
8th Ave. @ 34th St						East	21	D	South	12	E				
8th Ave. @ 37th St	East	23	D	East	23	D	East	14	E						
	West	17	D	West	16	D	West	12	E						
8th Ave. @ 39th St	East	10	E	East	18	D	East	10	E						
	West	12	E	South	13	E	West	6	E						
				West	12	E									
8th Ave. @ 42nd St	South	11	E				East	17	D						
							South	11	E						
	West	21	D				West	16	D						

Shading represents locations operating at LOS D or worse.

**TABLE 20-24
SUMMARY OF ACCIDENT DATA BY CORRIDOR**

Corridor	From	To	Number of Accidents					
			Total	Fatalities	Injuries	Property Damage Only	Non-Reportable	Pedestrian and Bicyclists
6th Ave.	23rd St.	54th St.	2,954	1	699	323	1,931	363
7th Ave.	23rd St.	54th St.	3,046	1	668	322	2,055	356
8th Ave.	23rd St.	54th St.	3,192	4	685	353	2,150	345
9th Ave.	23rd St.	54th St.	2,414	3	548	261	1,602	267
10th Ave.	23rd St.	54th St.	2,488	2	466	335	1,685	95
11th Ave.	23rd St.	56th St.	2,086	2	424	326	1,334	91
12th Ave.	23rd St.	59th St.	1,822	4	436	276	1,106	22
Route 9A	Vestry St.	Canal St.	266	0	54	63	149	4
Broadway	29th St.	59th St.	2,098	0	408	243	1,447	238
Dyer Ave.	34th St.	42nd St.	647	0	77	77	493	14
Canal St.	Washington St.	Hudson St.	552	0	98	118	336	15
14th St.	West St.	6th Ave.	859	1	180	65	613	95
34th St.	5th Ave.	Queens-Midtown Tunnel Entrance	1,100	0	248	86	766	110
42nd St.	5th Ave.	2nd Ave.	1,184	1	282	85	816	130
57th St.	12th Ave.	2nd Ave.	2,443	0	541	426	1,476	249

Source: NYS DOT Safety Information Management System, September 3, 2003

Data represents three-year period between May 1, 1998 and April 30, 2001

**TABLE 20-25
SUMMARY OF ACCIDENT DATA**

Intersection		Number of Accidents					
		Total	Fatalities	Injuries	Property Damage Only	Non-Reportable	Pedestrian and Bicyclists
6th Ave.	W. 42nd St.	136	0	42	7	87	26
6th Ave.	Broadway/W. 34th St.	190	0	33	17	140	20
6th Ave.	W. 33rd St.	59	0	24	2	33	15
6th Ave.	W. 23rd St.	125	0	29	15	81	16
7th Ave.	W. 49th St.	59	1	20	8	30	16
7th Ave.	Broadway/W. 44th St.	151	0	31	10	110	16
7th Ave.	W. 34th St.	166	0	38	15	113	26
7th Ave.	W. 32nd St.	54	0	24	3	27	20
7th Ave.	W. 23rd St.	129	0	35	13	81	18
8th Ave.	W. 50th St.	82	0	19	17	46	15
8th Ave.	W. 42nd St.	180	2	41	10	127	21
8th Ave.	W. 34th St.	189	0	47	11	131	22
8th Ave.	W. 23rd St.	116	0	24	9	83	16
9th Ave.	W. 42nd St.	191	0	54	16	121	27
9th Ave.	W. 41st St.	135	1	26	7	101	17
9th Ave.	W. 23rd St.	117	0	34	4	79	24
Broadway	7th Ave./W. 44th St.	151	0	31	10	110	16
W. 14th St.	7th Ave.	114	0	28	11	75	17
W. 14th St.	Ave. of The Americas	145	0	48	6	91	33
34th St.	5th Ave.	184	0	41	11	132	23
E. 34th St.	3rd Ave.	153	0	38	15	100	19
42nd St.	5th Ave.	95	0	36	10	49	16
E. 42nd St.	Madison Ave.	87	0	26	9	52	16
E. 42nd St.	Lexington Ave.	150	0	31	7	112	16
E. 42nd St.	3rd Ave.	155	0	36	10	109	19
E. 42nd St.	2nd Ave./E. 42nd St. Ramp to FDR Drive	196	0	56	13	127	20
E. 57th St.	3rd Ave.	238	0	50	16	172	22
E. 57th St.	2nd Ave.	176	0	42	17	117	18
W. 57th St.	Ave. Of The Americas	154	0	34	32	88	24
W. 57th St.	Broadway	96	0	27	22	47	18
W. 57th St.	8th Ave.	142	0	29	32	81	17
W. 57th St.	9th Ave.	105	0	31	19	55	19

Source: *NYS DOT Safety Information Management System, September 3, 2003*
Data represents three-year period between May 1, 1998 and April 30, 2001

e) Bicycle Facilities

Several types of bicycle facilities provide access through the study area, including multi-use trails, bicycle lanes, and bicycle routes. The three types of bicycle facilities 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. Trails users include cyclists, in-line skaters, joggers, and walkers;
- Bicycle Lanes (Class II): Bicycle lanes are located within vehicular roadways, but are separated from the travel lanes by the delineation of pavement markings, and can be accompanied by 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 by the use of guide signage.

Bicycle Facilities Within the Study Area

- Multi-Use Trails:
 - Hudson River Greenway: Conceived in 1993 with the release of the New York City Department of City Planning's *Greenway Plan for New York City*, the Hudson River Greenway was constructed in conjunction with the Route 9A/West Side Highway reconstruction project. This two-way, asphalt, multi-use trail varies in width from 15 feet to 20 feet, and travels adjacent to the Hudson River waterfront from Battery Park to the George Washington Bridge.
- Bicycle Lanes:
 - Sixth Avenue: The Sixth Avenue bicycle lane travels 1.65 miles one-way northbound from West 8th Street to West 42nd Street, and varies in width from 3-1/2-feet to four-feet. During 1999, the Department of City Planning, Transportation Division counted 1,738 bicyclists using the Sixth Avenue bicycle lane during a 12-hour period.
 - Broadway: The Broadway bicycle lane travels 2.6 miles one-way southbound from West 59th Street to East 17th Street, and varies in width from four to five feet. During a 12-hour count in 1999 by the Department of City Planning, Transportation Division, 908 cyclists were counted at 48th Street and 719 cyclists were counted at 28th Street.
- Bicycle Routes: In 1997, the New York City Department of City Planning and the New York City Department of Transportation released *The New York City Bicycle Master Plan* and the *New York Cycling Maps* (one per borough), which identify existing and future bicycle facilities throughout the City. The following are bicycle routes that are within or travel through the study area (the limits of the route have also been identified):
 - Eighth Avenue (northbound direction between Hudson Street and West 59th Street)
 - Tenth Avenue (northbound direction between West 30th Street and West 33rd Street)
 - Eleventh Avenue (north- and south-bound direction between West 21st Street and West 72nd Street; becoming West End Avenue north of West 60th 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)

F. 2010 FUTURE WITHOUT THE PROPOSED ACTION

1. Conditions for Analysis

Transportation demands in the study area are anticipated to increase in the future due to known development projects in the area and background growth. In order to project transit and pedestrian conditions for future years, it is necessary to account for all changes to the built environment anticipated between current and future years that would be realized independent of the Proposed Action. To forecast demands under the Future Without the Proposed Action, the development projects (along with mitigation) listed in Chapter 3, “Analytical Framework,” were compiled in addition to an annual background growth rate; the result was then applied to existing conditions. One project, the conversion of the Farley Post Office building for utilization as a railroad station, would result in the following modifications that would directly alter accessibility to subway and pedestrian elements:

- Subway
 - Stairway S2 (currently 5 feet actual and 4 feet effective), S3 (currently 5 feet actual and 4 feet effective), and P2 (currently 8 feet actual and 6 feet effective) stairways at the southwest corner of 33rd Street and Eighth Avenue, that lead to the Eighth Avenue Line, would be reconstructed. The replacement stairway would be located further from the curb line and would be 12 feet wide (10-foot effective width).
 - The M3 and M4 mezzanine stairways within the 34th Street–Penn Station Complex on the Eighth Avenue Line would be widened from 10 feet (8-foot effective width) to 18 feet (15-foot effective width).
- Sidewalk Widening
 - The south sidewalk of 33rd Street between Eighth Avenue and the Midblock boulevard entrance would be widened from 14 to 24 feet.
 - The north sidewalk of 31st Street between Eighth Avenue and the Midblock boulevard entrance would be widened from 15 to 24 feet.
- Crosswalks Widening
 - The west crosswalk at Eighth Avenue and West 33rd Street would be widened from 14 to 24 feet.
 - The south crosswalk at Eighth Avenue and West 33rd Street would be widened from 17 to 24 feet.
 - The west crosswalk at Eighth Avenue and West 31st Street would be widened from 11.5 to 24 feet.
 - The north crosswalk at Eighth Avenue and West 31st Street would be widened from 14.5 to 24 feet.
 - The east crosswalk at Ninth Avenue and West 33rd Street would be widened from 14.5 to 24 feet.
 - The south crosswalk at Ninth Avenue and West 33rd Street would be widened from 19.5 to 24 feet.
 - The east crosswalk at Ninth Avenue and West 31st Street would be widened from 13 to 24 feet.
 - The north crosswalk at Ninth Avenue and West 31st Street would be widened from 16.5 to 24 feet.

- **Corner Modifications**
 - Obstructions would be removed from the southwest corner at Ninth Avenue and West 33rd Street, effectively widening the corner to the width of adjacent crosswalks.
 - Obstructions would be removed from the northwest corner at Eighth Avenue and West 33rd Street, effectively widening the corner to the width of the adjacent crosswalk.
 - Obstructions would be removed from the northwest corner at Seventh Avenue and West 33rd Street, effectively widening the corner to the width of the adjacent crosswalk.

For the 2010 Future Without the Proposed Action, a cumulative background growth rate of 3.55 percent was applied to 2003 conditions to represent background growth occurring between 2003 and 2010 (using an annual background growth rate of 0.5 percent per year). In addition, changes to the travel demands include known developments within the study area.

Future conditions have also been modeled based on updated transit services plans. Starting in February 2004, subway service was significantly modified by MTA NYCT, to account for the restoration of full four-track service via the Manhattan Bridge. These subway service changes are presented in Table 20-26.

2. Transit Network

a) Subway Line-Haul Analysis

In the 2010 Future Without the Proposed Action, the peak load points for the inbound Flushing line in the AM peak hour are projected to be the same as in the existing condition – at 40th Street (Lowery Street) for the local route and at Woodside–61st Street for the express route. The line-haul v/c ratio on the express route leaving Woodside–61st Street Station along the No. 7 Subway line, which is 0.99 in 2000 according to the RTFM model run, is projected to increase slightly to 1.01 in the 2010 Future Without the Proposed Action. (This assumes AM peak hour service in 2010 increases to 14 express and 13 local trains from 13 express and 12 local trains in 2000. Conditions in 2010 do not include operation of the Second Avenue subway line or the East Side Access project, as these projects are not scheduled to be complete at this time.) In 2010, the projection is for an additional 2,674 passengers in the AM peak hour, or approximately 17 more passengers per car, compared to the year 2000 levels.

Appendix S.4 presents the line-haul data for all No. 7 Line subway stations in the 2010 Future Without the Proposed Action.

b) Subway Station Element Analysis

Background growth experienced throughout New York City is anticipated to increase subway usage in the study area. Table 20-27 presents the subway station elements that are projected to operate at LOS D or worse during the AM and PM peak hours in the 2010 Future Without the Proposed Action. The operation of station elements at LOS A, B, or C during the peak hour and D, E, or F during another hour is generally indicative of commuter travel patterns. There are no station elements projected to operate at LOS D or worse during the weeknight or Sunday Special Event peak hours in the 2010 Future Without the Proposed Action. Plans for the stations analyzed as part of this study are included in Appendix S.4.

**TABLE 20-26
CHANGES TO SUBWAY SERVICE EFFECTIVE FEBRUARY 2004**

Route	Service Change Effective February 2004
6th Avenue Line/B Route	<ul style="list-style-type: none"> • B Route replaces Q-Diamond Route in Brooklyn (Q-Diamond discontinued) • Runs over the Manhattan Bridge to express stations on 6th Avenue • Runs express between Brighton Beach and 59 Street–Columbus Circle • Service between 34 Street–Herald Square and Bedford Park Boulevard does not change • Stops at Grand Street station (Grand Street Shuttle discontinued)
6th Avenue Line/D Route	<ul style="list-style-type: none"> • D route replaces W route in Brooklyn • Runs over the Manhattan Bridge to express stations on 6th Avenue • Runs express between 36 Street in Brooklyn and 145 Street in Manhattan • Stops at Grand Street station (Grand Street Shuttle discontinued) • Late nights makes local stops in Brooklyn • Does not stop at DeKalb Avenue (except late night) • No change in service between 34 Street–Herald Square and Norwood–205 Street
Broadway Line/N Route	<ul style="list-style-type: none"> • N route runs over the Manhattan Bridge to stations on Broadway • Weekdays, runs express between 59 Street in Brooklyn and 34 Street–Herald Square • Does not stop at DeKalb Avenue (except late night) • Stops at 49 Street to serve Rockefeller Center • Weekends, makes local stops between Canal Street and Astoria–Ditmars Boulevard • Late nights, does not travel over the Manhattan Bridge; makes all local stops in lower Manhattan via Whitehall Street instead • Service terminates at 86 St until 2005
Broadway Line/Q Route	<ul style="list-style-type: none"> • No change in existing service • Q Circle route continues to run over the Manhattan Bridge to stations on Broadway • Makes express stops in Manhattan, local stops in Brooklyn • Service terminates at Brighton Beach until spring 2004
Broadway Line/R Route	<ul style="list-style-type: none"> • Rush hours, more trains between Brooklyn and Manhattan • Late nights, runs between Bay Ridge–95 Street and 36 Street in Brooklyn
Broadway Line/W Route	<ul style="list-style-type: none"> • W route makes all local stops between Astoria and Whitehall Street • Replaced by D route in Brooklyn

Source: MTA NYCT, February 2004

TABLE 20-27
2010 FUTURE WITHOUT THE PROPOSED ACTION – SUBWAY STATION ELEMENTS OPERATING AT LOS D OR WORSE

Subway Station/Elements	AM		PM	
	v/svcd Ratio	LOS	v/svcd Ratio	LOS
34th Street–Herald Square (B, D, F, N, Q, R, V, and W)				
<i>Control Area Booth A22 – 34th Street and Broadway</i>				
Turnstile	0.44	C	0.65	D
Stairway S4 (SE)	0.93	C	1.18	D
<i>Control Area Booth A25 – 32nd Street and Broadway</i>				
Stairway S2AB (NW)	1.38	E	0.65	B
Stairway M1AB	1.38	E	0.65	B
<i>Control Area Booth N506 – 34th Street and Broadway</i>				
Stairway S5AB (SW)	1.47	E	1.12	D
Stairway M5AB	1.47	E	1.12	D
Stairway S7AB (NW)	1.23	D	1.34	E
Stairway M7AB	1.19	D	1.28	D
<i>Control Area Booth N507 – 32nd Street to 33rd Street and 6th Avenue</i>				
Stairway H&M 307	1.82	F	0.36	A
Escalator E221	0.25	B	1.40	F
Escalator E222	0.84	E	0.81	E
Escalator E223	1.19	F	1.16	F
Escalator E224	0.14	A	0.77	D
<i>Control Booth N505 – 35th Street and 6th Avenue</i>				
High Entrance/Exit Turnstile	0.86	E	0.79	D
Stairway S8 (NE)	1.40	E	1.27	D
Stairway S6 (NW)	1.23	D	1.15	D
42nd Street–Bryant Park (B, D, F, and V)				
<i>Control Area Booth N504 – 40th Street and 6th Avenue</i>				
Stairway S5 (SE)	1.33	D	0.79	C
Stairway S4 (SW)	1.37	E	0.86	C
Stairway M4	1.37	E	0.86	C
<i>Control Area Booth N503 – 42nd Street and 6th Avenue</i>				
Stairway S8 (SE)	1.05	D	0.78	C
34th Street–Penn Station (1, 2, 3, and 9)				
<i>Control Area Booth R135</i>				
Turnstile (32nd Street Subpassage to Penn Station)	0.49	C	0.66	D
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Control Area Booth R143 – 40th Street and 7th Avenue</i>				
Stairway S2 (SE)	1.23	D	0.96	C
<i>Control Area Booth R146 to 41st Street and 7th Avenue</i>				
High Entrance/Exit Turnstile	0.69	D	0.85	E
<i>Control Area Booth R148 to 42nd Street and Broadway</i>				
Stairway S11 (SE)	1.25	D	1.22	D
Stairway P1	1.25	D	1.22	D
<i>Lower Mezzanine to No. 7 line Platform – 42nd Street and Broadway</i>				
Stairway PL2	1.13	D	1.00	D
<i>Passageway to/from Lower Mezzanine and 8th Avenue Subway Line</i>				
Passageway	1.10	D	1.19	D
<i>Seventh Avenue Platform (northbound)</i>				
Stairway P4/P6	0.86	C	1.16	D
<i>Seventh Avenue Platform (southbound)</i>				
Stairway ML5/ML7	1.54	E	1.20	D
Stairway P3/P5	1.29	D	1.01	D
42nd Street–Port Authority Bus Terminal (A, C, and E)				
<i>Control Area Booth N63A to 40th Street and 8th Avenue</i>				
Stairway S2 (SE)	1.19	D	0.87	C
<i>Control Area N69A– 42nd Street and 8th Avenue (West)</i>				
High Entrance/Exit Turnstile	1.00	F	1.11	F
34th Street–Penn Station (A, C, and E)				
<i>Control Area Booth N68 – 35th Street and 8th Avenue (East)</i>				
High Entrance/Exit Turnstile	1.08	F	0.19	A
<i>Control Area Booth N69 – 35th Street and 8th Avenue (West)</i>				
High Entrance/Exit Turnstile	1.80	F	0.20	A
Stairway S8 (NW)	1.11	D	0.38	A
<i>Control Area Booth N73</i>				
Service Gate	0.40	C	0.83	E

**TABLE 20-27 (CONTINUED)
2010 FUTURE WITHOUT THE PROPOSED ACTION – SUBWAY STATION ELEMENTS OPERATING AT
LOS D OR WORSE**

Subway Station/Elements	AM		PM	
	v/svcd Ratio	LOS	v/svcd Ratio	LOS
Penn Station (railroad station)–34th Street and 7th Avenue				
<i>Street Stairs to Mezzanine Level</i>				
Stairway S34	0.29	A	1.27	D
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 line Platform</i>				
Stairway PL3	0.84	C	1.09	D
Stairway PL6	1.29	D	0.86	C
Escalator E205 (Up)	0.90	E	0.20	A
Escalator E206 (Up/Down)	0.90	E	0.22	B
Escalator E207 (Up)	0.80	E	0.24	B
Escalator E209 (Up/Down)	0.82	E	0.22	B
<i>Passageway to Lexington Avenue</i>				
Passageway	0.57	B	1.45	E
<i>Lexington Avenue Southbound Platform Stairways</i>				
Stairway P12	1.52	E	0.52	B
Stairway P14	2.46	F	1.85	F
Stairway P18	1.45	E	0.52	B
Stairway P22	1.66	E	0.83	C
<i>Lexington Avenue Northbound Platform Stairways</i>				
Stairway P23	1.22	D	1.13	D
Stairway P13	0.42	A	1.10	D
Stairway U2	0.24	A	1.02	D
Stairway U4	0.24	A	1.02	D
Stairway U6	0.40	A	1.38	E
Stairway U8	0.40	A	1.38	E
<i>Connection to MTA Metro-North Railroad</i>				
M6AB/M7AB	1.16	D	0.93	C
Escalator (E255-Up)	0.55	C	0.67	D
Escalator (E-256-Up/Down)	0.55	C	0.72	D

LOS for stairways, corridors, and passageways are defined by Volume/svcd ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).

c) Commuter Railroad Stations

Commuter rail trips at Penn Station and Grand Central Terminal are projected to increase in the 2010 Future Without the Proposed Action based on the projected annual background growth and known development projects (Table 20-28). Commuter railroad demand at Penn Station is projected at almost 69,000 inbound riders in the AM peak hour and almost 50,000 outbound riders in the PM peak hour (increases of approximately 5,000 and 4,000 riders, respectively). Commuter railroad demand at Grand Central Terminal is projected at almost 45,000 inbound riders in the AM peak hour and over 30,000 outbound riders in the PM peak hour (increases of approximately 8,500 and 6,000 riders, respectively). Based on analyses of the terminals' pedestrian elements presented in the MTA's East Side Access project (East Side Access MTA Long Island Rail Road Grand Central Connection Final Environmental Impact Statement, March 2001), the commuter rail demand in the 2010 Future Without the Proposed Action at Grand Central Terminal (Metro-North Railroad and Long Island Rail Road) and demand at Penn Station (Long Island Rail Road) could be accommodated by the terminals.

NJ Transit has projected a shortfall in seated capacity in the future of "4,000 to 5,000 [seats] by 2020" (Access to the Region's Core Summary Report 2003) with or without the Proposed Action. NJ Transit has planned a program of short-term improvements (including delivery of bi-level coaches and completion of a high-density signal system) which would provide sufficient capacity to satisfy the demand projected for the 2010 Future Without the Proposed Action.

d) Bus Service

Based on the background growth rate throughout the study area, plus the additional demand generated by other area projects, demand for bus service in the 2010 Future Without the Proposed Action is projected to increase. As presented in Table 20-29 and Table 20-30, the existing levels of bus service would be sufficient to provide adequate supply to meet the projected demand in the 2010 Future Without the Proposed Action for all bus routes in the peak hours, except for one route in the Sunday Special Event Peak hour. Available capacity in the AM peak hour would range from 38 on the southbound M-11 to over 500 on the westbound M-42. Capacity in the PM peak hour would range from 47 on the southbound M-11 to over 500 on the combined M-10/M-20 southbound. As presented in Table 20-31, available capacity in the weeknight Special Event peak hour would range from almost 200 on the eastbound M-42 to over 650 on the southbound M-10/M-20. Available capacity in the Sunday Special Event peak hour would range from a shortfall of 10 on the southbound M-11 to a surplus of over 550 on the southbound M-104, presented in Table 20-32. The shortfall on the M-11 could be met by adding one bus to the route.

TABLE 20-28
2010 FUTURE WITHOUT THE PROPOSED ACTION – COMMUTER RAILROAD STATION
UTILIZATION

	AM Peak Hour Inbound Trips			PM Peak Hour Outbound Trips		
	Existing (2003)	2010 Future Without the Proposed Action	Increase	Existing (2003)	2010 Future Without the Proposed Action	Increase
Penn Station						
Long Island Rail Road	46,521	48,203	1,682	31,193	32,287	1,094
New Jersey Transit	17,584	20,734	3,150	14,553	17,168	2,615
<i>Total</i>	<i>64,105</i>	<i>68,937</i>	<i>4,832</i>	<i>45,746</i>	<i>49,455</i>	<i>3,709</i>
Grand Central Terminal						
Metro-North Railroad	35,694	44,281	8,587	25,542	31,528	5,986
Long Island Rail Road	-	-	-	-	-	-
<i>Total</i>	<i>35,694</i>	<i>44,281</i>	<i>8,587</i>	<i>25,542</i>	<i>31,528</i>	<i>5,986</i>
Commuter Rail Total	99,799	113,218	13,419	71,288	80,983	9,695

TABLE 20-29
2010 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(AM PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity – Volume)
M-4	NB	13	845	381	29	464
	SB	18	1,170	745	41	425
M-5	NB	4	260	169	42	91
	SB	11	715	544	49	171
M-6	NB	4	260	176	44	84
	SB	4	260	114	28	146
M-7	NB	4	260	159	40	101
	SB	8	520	387	48	133
M-10/M-20 ³	NB	12	780	305	25	475
	SB	12	780	476	40	304
M-11	NB	7	455	349	50	106
	SB	9	585	547	61	38
M-23	EB	11	1,023	629	57	394
	WB	11	1,023	619	56	404
M-34/M-16 ³	EB	14	910	744	53	166
	WB	14	910	682	49	228
M-42	EB	34	2,210	1,692	50	518
	WB	14	910	443	32	467
M-50/M-27 ³	EB	23	1,495	1,004	44	491
	WB	9	585	334	37	251
M-104	NB	8	520	271	34	249
	SB	11	715	407	37	308
Q-32	EB	9	585	205	23	380
	WB	9	585	444	49	141

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

TABLE 20-30
2010 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(PM PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity – Volume)
M-4	NB	14	910	595	43	315
	SB	7	455	311	44	144
M-5	NB	6	390	232	39	158
	SB	7	455	175	25	280
M-6	NB	8	520	293	37	227
	SB	6	390	161	27	229
M-7	NB	9	585	358	40	227
	SB	8	520	267	33	253
M-10/M-20 ³	NB	13	845	428	33	417
	SB	12	780	216	18	564
M-11	NB	7	455	332	47	123
	SB	7	455	408	58	47
M-23	EB	10	930	563	56	367
	WB	11	1,023	721	66	302
M-34/M-16 ³	EB	12	780	706	59	74
	WB	12	780	663	55	117
M-42	EB	13	845	456	35	389
	WB	16	1,040	903	56	137
M-50/M-27 ³	EB	11	715	335	30	380
	WB	12	780	355	30	425
M-104	NB	14	910	669	48	241
	SB	12	780	300	25	480
Q-32	EB	8	520	458	57	62
	WB	8	520	160	20	360

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-31
2010 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS (WEEKNIGHT
SPECIAL EVENT PEAK HOUR)**

Bus Route	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity-Volume)
M-4	NB	7	455	209	30	246
	SB	5	325	105	21	220
M-5	NB	7	455	185	26	270
	SB	5	325	74	15	251
M-6	NB	5	325	107	21	218
	SB	4	260	54	14	206
M-7	NB	8	520	209	26	311
	SB	6	390	112	19	278
M-10/M-20 ³	NB	12	780	295	25	485
	SB	13	845	173	13	672
M-11	NB	6	390	150	25	240
	SB	7	455	154	22	301
M-23	EB	6	558	200	33	358
	WB	7	651	246	35	405
M-34/M-16 ³	EB	7	455	202	29	253
	WB	8	520	231	29	289
M-42	EB	5	325	137	27	188
	WB	6	390	161	27	229
M-50/M-27 ³	EB	9	585	116	13	469
	WB	10	650	110	11	540
M-104	NB	10	650	291	29	359
	SB	9	585	150	17	435
Q-32	EB	7	455	223	32	232
	WB	6	390	87	15	303

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

TABLE 20-32
2010 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity-Volume)
M-4	NB	8	520	179	22	341
	SB	7	455	175	25	280
M-5	NB	6	390	210	35	180
	SB	5	325	168	34	157
M-6	NB	7	455	216	31	239
	SB	6	390	137	23	253
M-7	NB	8	520	284	36	236
	SB	9	585	125	14	460
M-10/M-20 ³	NB	10	650	385	39	265
	SB	10	650	205	20	445
M-11	NB	6	390	267	45	123
	SB	7	455	465	66	(10)
M-23	EB	7	651	344	49	307
	WB	7	651	328	47	323
M-34/M-16 ³	EB	8	520	375	47	145
	WB	8	520	370	46	150
M-42	EB	6	390	195	33	195
	WB	5	325	114	23	211
M-50/M-27 ³	EB	5	325	58	12	267
	WB	5	325	83	17	242
M-104	NB	15	975	517	34	458
	SB	14	910	353	25	557
Q-32	EB	8	520	227	28	293
	WB	8	520	195	24	325

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

e) Ferry Service

The new ferry terminal at West 39th Street is scheduled to open in Spring 2005; future demand and capacity analyses are based upon the operations of this new facility. Ferry utilization in the 2010 Future Without the Proposed Action is projected to increase to a maximum peak of approximately 2,900 passengers in the AM peak period.⁹ (Demand in the PM and Special Event peak periods are anticipated to be less than the AM peak hour.) This demand could be accommodated by the new passenger terminal.

The capacity of current ferry services is anticipated to be sufficient to handle the additional demand on all six of its routes. For the 2010 Future Without the Proposed Action, increases in the peak hour weekday ridership are projected to vary from approximately one percent (Belford, New Jersey to Pier 78, New York, requiring a transfer at Pier 11/Wall Street, New York) to 87 percent (Lincoln Harbor, New Jersey to Pier 78, New York). The ferry ridership in the peak direction during the AM and PM peak hours is presented in Table 20-33.

⁹ NYCDOT Ferry Planning, 2003.

TABLE 20-33
2010 FUTURE WITHOUT THE PROPOSED ACTION – FERRY RIDERSHIP IN PEAK DIRECTION

Ferry Routes	AM Peak Hour (New York Bound)				PM Peak Hour (New Jersey Bound)			
	Total Capacity	Demand	Percent Utilized	Remaining Capacity	Total Capacity	Demand	Percent Utilized	Remaining Capacity
Port Imperial, New Jersey to Pier 78, New York	2,394	1,427	60%	967	2,394	980	41%	1,414
Lincoln Harbor, New Jersey to Pier 78, New York	596	516	87%	80	596	517	87%	79
Hoboken, New Jersey to Pier 78, New York	596	495	83%	101	596	190	32%	406
Colgate, New Jersey to Pier 78, New York	298	252	85%	46	298	211	71%	87
Newport, New Jersey to Pier 78, New York	447	201	45%	246	447	83	19%	364
Belford, New Jersey to Pier 78, New York (requires transfer at Pier 11/Wall Street, New York)	700	4	1%	696	700	9	1%	691

3. Pedestrian Conditions

a) Sidewalks

In the 2010 Future Without the Proposed Action, pedestrian volumes are not anticipated to increase significantly. Of the 390 sidewalk locations analyzed, the following 12 are projected to operate with flow rates of LOS D or worse during any of the five analysis hours in the 2010 Future Without the Proposed Action (see Figure 20-9):¹⁰

- East side of Eighth Avenue, north of West 39th Street (AM and PM peak periods);
- East side of Sixth Avenue, north of West 34th Street (Midday and PM peak periods);
- East side of Sixth Avenue, south of West 34th Street (Midday peak hour);
- North side of West 31st Street, east of Ninth Avenue (Midday peak hour);
- South side of West 33rd Street, east of Ninth Avenue (Midday peak hour);
- South side of West 33rd Street, west of Eighth Avenue (Midday peak hour);
- South side of West 34th Street, west of Broadway (PM peak hour);
- North side of West 34th Street, west of Broadway (PM peak hour);
- West side of Eighth Avenue, north of West 42nd Street (AM and PM peak periods);
- West side of Eighth Avenue, south of West 42nd Street (PM peak hour);
- South side of West 42nd Street, east of Eighth Avenue (PM peak hours); and
- East side of Eighth Avenue, south of West 42nd Street (AM, Midday, and PM peak periods).

b) Corners

Of the 181 corner locations analyzed for the 2010 Future Without the Proposed Action, the following 17 are projected to operate with flow rates of LOS D or worse during the analysis hours (see Figure 20-9):

- Ninth Avenue at West 31st Street, northeast corner (Midday peak hour);
- Ninth Avenue at West 33rd Street, northeast corner (Midday peak hour);
- Ninth Avenue at West 33rd Street, southeast corner (Midday peak hour);
- Ninth Avenue at West 42nd Street, northeast corner (AM, Midday, and PM peak hours);
- Eighth Avenue at West 33rd Street, northwest corner (AM, Midday, and PM peak hours);
- Eighth Avenue at West 34th Street, southeast corner (Weeknight Special Event peak hour);
- Eighth Avenue at West 39th Street, northeast corner (AM and PM peak hours);
- Eighth Avenue at West 39th Street, northwest corner (PM peak hour);
- Eighth Avenue at West 39th Street, southeast corner (Midday and PM peak hour);
- Eighth Avenue at West 39th Street, southwest corner (Midday and PM peak hours);
- Eighth Avenue at West 42nd Street, southeast corner (AM, Midday, and PM peak hours);
- Eighth Avenue at West 42nd Street, northwest corner (PM peak hour);
- Seventh Avenue at West 33rd Street, northeast corner (PM peak hour);
- Seventh Avenue at West 33rd Street, southeast corner (AM, Midday, and PM peak hours);
- Sixth Avenue at West 33rd Street, southwest corner (PM peak hour);
- Sixth Avenue at West 34th Street, northeast corner (Midday and PM peak hours);
- Sixth Avenue at West 34th Street, southeast corner (Midday and PM peak hours).

¹⁰ 15 PFM is the threshold between LOS C and D.

c) Crosswalks

Of the 190 crosswalk locations analyzed for the 2010 Future Without the Proposed Action, the following 42 are projected to operate with flow rates of LOS D or worse in any of the analysis hours (see Figure 20-9):

- Ninth Avenue at West 30th Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 31st Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 33rd Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 33rd Street, west crosswalk (Midday peak hour);
- Ninth Avenue at West 34th Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 42nd Street, north crosswalk (PM peak hour);
- Ninth Avenue at West 42nd Street, south crosswalk (Midday and PM peak hours);
- Eighth Avenue at West 30th Street, east crosswalk (PM peak hour);
- Eighth Avenue at West 33rd Street, north crosswalk (PM peak hour);
- Eighth Avenue at West 33rd Street, east crosswalk (AM, Midday, PM, weeknight and Sunday Special Event peak hours);
- Eighth Avenue at West 33rd Street, west crosswalk (AM, Midday, PM, and weeknight Special Event peak hours);
- Eighth Avenue at West 34th Street, east crosswalk (Midday, PM, and weeknight Special Event peak hours);
- Eighth Avenue at West 34th Street, south crosswalk (Weeknight Special Event peak hour);
- Eighth Avenue at West 34th Street, west crosswalk (Midday and PM peak hours);
- Eighth Avenue at West 37th Street, east crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 37th Street, west crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, east crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, south crosswalk (Midday peak hour);
- Eighth Avenue at West 39th Street, west crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 42nd Street, north crosswalk (PM peak hour);
- Eighth Avenue at West 42nd Street, east crosswalk (Midday and PM peak hours);
- Eighth Avenue at West 42nd Street, south crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 42nd Street, west crosswalk (AM and PM peak hours);
- Seventh Avenue at West 31st Street, north crosswalk (AM, Midday, and PM peak hour);
- Seventh Avenue at West 31st Street, east crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 31st Street, south crosswalk (PM peak hour);
- Seventh Avenue at West 31st Street, west crosswalk (AM and PM peak hours);
- Seventh Avenue at West 33rd Street, north crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 33rd Street, east crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 33rd Street, south crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 33rd Street, west crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 34th Street, north crosswalk (Midday peak hour);
- Seventh Avenue at West 34th Street, west crosswalk (AM peak hour);
- Seventh Avenue at West 34th Street, south crosswalk (AM peak hour);
- Sixth Avenue at West 33rd Street, north crosswalk (PM peak hour);
- Sixth Avenue at West 33rd Street, west crosswalk (Midday, and PM peak hours);
- Sixth Avenue at West 34th Street, north crosswalk (Midday and PM peak hours);
- Sixth Avenue at West 34th Street, east crosswalk (AM, Midday, PM, and Sunday Special Event peak hours);
- Sixth Avenue at West 34th Street, south crosswalk (Midday and PM peak hours);

- Broadway at West 34th Street, north crosswalk (AM, Midday, and PM peak hours).
- Broadway at West 34th Street, south crosswalk (Midday and PM peak hours); and
- Broadway at West 34th Street, west crosswalk (Midday and PM peak hours).

d) Bicycle Facilities

Increased utilization of existing bicycle facilities throughout the study area is anticipated as a result of background growth and completion of other local projects. No significant changes to the infrastructure of existing bicycle facilities are anticipated in the 2010 Future Without the Proposed Action.

G. 2010 FUTURE WITH THE PROPOSED ACTION

1. Conditions for Analysis

To project conditions for 2010, it is necessary to account for all changes to the built environment anticipated between existing and future conditions that would be realized only with the Proposed Action. Changes not attributable to the Proposed Action are not included in these assessments and are not indicated in the Future With the Proposed Action tables; however, these changes would be part of the background conditions (i.e., Future Without the Proposed Action) against which the Proposed Action is assessed. The elements that were included in the Future With the Proposed Action are described below. 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 Appendix S.1. The methodologies developed for these analyses utilize assumptions consistent with those incorporated in the traffic analysis.

a) Rezoning and Related Land Use Actions

The reasonable worst-case development scenario is based on a long-term forecast for development potential that can reasonably be expected to occur within the Project Area with the Proposed Action.

Commercial Office and Retail Development

By the 2010 analysis year, the No. 7 Subway Extension (with the exception of the Intermediate Station), the Multi-Use Facility, and the Convention Center Expansion would be completed. Based on historical average absorption rates in Midtown Manhattan, the study area would absorb about one million square feet of commercial development per year, and allowing for time to construct office buildings, the area is projected to receive a total of approximately 2.2 million square feet of office space and 91,500 square feet of retail space by 2010.

Residential Use

The residential market study determined that the rezoning area could see an additional 2.7 million square feet (approximately 2,700 units) constructed by 2010.

Sidewalk Widening

As part of the proposed Special Hudson Yards District rezoning, widening of certain sidewalks would be required for site development. Mandatory sidewalk widenings that have been incorporated into the analysis of the Future With the Proposed Action are presented in Figure 20-10. In the 2010 Future With the Proposed Action, only Site 4 would include sidewalk widenings.

b) No. 7 Subway Extension

The Proposed Action would include the extension of the No. 7 Subway west from its current terminus at Times Square, approximately one mile. The line would extend west under West 41st Street and curve to the south along a 500-foot radius into Eleventh Avenue. A Terminal Station would be

located at approximately West 34th Street and Eleventh Avenue by 2010. (The Intermediate Station at approximately West 41st Street and Tenth Avenue would not be opened until after 2010.)

c) Convention Center

Preliminary plans call for the proposed expansion of the Convention Center by 2010 to include additional exhibition halls, meeting rooms, and ballroom space contiguous to the existing building; and development of a 1,500-room hotel that would be linked to the Convention Center. Additional space within the Convention Center would be utilized for secondary support, pre-function, food court, and retail facilities. These secondary areas have not been considered in terms of trip generation, since they would not be expected to attract additional travel demand.

In the Future With the Proposed Action, vehicles would be able to access the Convention Center at Eleventh Avenue at West 41st Street, while pedestrians would be able to enter the Convention Center from multiple points along Eleventh Avenue, as well as from West 34th Street and West 42nd Street, between Eleventh and Twelfth Avenues.

d) Multi-Use Sports, Exhibition, and Entertainment Facility

The Proposed Action would include a new Multi-Use Facility with approximately 18,000 square feet of permanent meeting room space and the capacity to convert into a number of different uses and configurations, including a stadium configuration with a seating capacity of approximately 75,000, an exhibition configuration including 180,000 square feet of exhibition floor space, or a plenary hall configuration that provides a seating capacity of approximately 40,000. The predominant use of the Multi-Use Facility throughout the year would be for exhibition and convention events using the exhibition arrangement which would generate only modest person trips during the weekday hours.

Major street entrances for the Multi-Use Facility would be located on the north and south sides above street level (accessed by ramps, steps, and/or escalators), and an entrance would be located on the east side facing Eleventh Avenue for use by fans with suite or club seats. The north entry would be located along the entire frontage of West 33rd Street. This entrance would serve patrons arriving from the ferry terminal at West 39th Street and Twelfth Avenue, the No. 7 Subway Extension, and points north. The south entry would be located along the entire West 30th Street frontage, but above street level, with access from the High Line on West 30th Street via an elevated pedestrian connection. The east entry would be located along the centerline of the building between West 31st and West 32nd Streets on Eleventh Avenue. For use of the Multi-Use Facility as an exposition configuration, most guests would be expected to enter from the West 33rd Street side, based on its proximity to the Convention Center. A 30-foot wide underground pedestrian connection would also be provided between the Multi-Use Facility and the Convention Center, as well as to the No. 7 Line's new Terminal Station.

e) Street Closings

The following existing streets would be closed to through traffic by 2010:

- West 33rd Street between Eleventh and Twelfth Avenues;
- West 39th Street between Eleventh and Twelfth Avenues; and
- West 40th Street between Eleventh and Twelfth Avenues.

In addition, West 41st Street between Eleventh and Twelfth Avenues would be reconfigured and effectively closed to through traffic.

While these blocks would be closed to vehicular traffic, a through-block pedestrian passageway would be provided in place of West 40th Street.

f) Midblock Park and Boulevard System

The Proposed Action includes a Midblock Park and Boulevard System between Tenth and Eleventh Avenues, extending from a large open space on the eastern portion of Caemmerer Yard to West 39th Street. At West 39th Street, the open space would connect via 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, 34th, 35th, 36th, 37th, and 38th Streets. Only the portion from Caemmerer Yard to West 34th Street would be completed by 2010. (The remainder from West 34th Street to West 42nd Street would be completed by 2025.)

g) Relocation of DSNY Facility and NYPD Tow Pound

This FGEIS analyzes the relocation of two facilities (currently outside the Project Area) – the Department of Sanitation of the City of New York (DSNY) District 6 (Gansevoort peninsula facility) and District 5 (Midtown facility), and the Manhattan Vehicle Tow Pound operated by the New York City Police Department (NYPD) located on Pier 76 – into one combined municipal facility between West 29th and 30th Streets from Eleventh to Twelfth Avenues (Block 675) by 2010. A full-block, publicly accessible open space (approximately 3.6 acres) for active recreation would be developed on the roof. The NYPD and DSNY are also considering other locations, and if Block 675 is not developed as relocation space for the DSNY or the NYPD Tow Pound, the publicly accessible open space would be developed at-grade.

Pedestrian and transit volumes generated by the DSNY/Tow Pound were screened out for analysis purposes, as the numbers generated by these facilities would be minimal during applicable project-related peak hours. Therefore, no additional traffic volumes or related significant adverse impacts are associated with these elements. Pedestrian volumes generated by the open space have been incorporated into the Midday peak hour (the peak utilization time).

2. Transit Network

a) Subway Line-Haul Analysis

In the 2010 Future With the Proposed Action, the peak load point for the inbound Flushing Line in the AM peak hour is projected to be the same as in the 2010 Future Without the Proposed Action – at 40th Street (Lowery Street) for the local route and at Woodside–61st Street for the express route. The line-haul v/c ratios at most stations along the No. 7 Subway line are projected to be the same or better than the line-haul v/c ratios in the 2010 Future Without the Proposed Action. The line haul v/c ratio at Woodside-61st Street station is projected to increase from 1.01 in the Future Without the Proposed Action to 1.02 in the Future With the Proposed Action. This change represents an increase of 105 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). All other subway lines in the 2010 Future With the Proposed Action are also projected to operate at comparable conditions compared to the 2010 Future Without the Proposed Action.

Due to the construction of two additional stations west of Times Square–42nd Street, the current No. 7 terminal at Times Square–42nd Street would no longer function as a terminal where trains begin and end, but as a through station with an associated dwell time for passengers to enter and exit the train.

Implementation of the Proposed Action would also significantly change transfer patterns at all three of the existing Manhattan stations on the No. 7 Line. In the Future Without the Proposed Action, Times Square–42nd Street, Fifth Avenue–Bryant Park, and Grand Central–42nd Street stations would remain serving predominantly one-way passenger flows. In the Future With the Proposed Action, since the No. 7 Line would travel along its extended route to the Project Area, passengers would access the No. 7 Subway platform to travel in both directions, causing reverse flows of passengers

boarding and alighting from trains. Despite these extended dwell times, it is anticipated that adequate line-haul capacity could be maintained.

Appendix S.4 presents the line-haul data for all No. 7 subway stations in the 2010 Future With the Proposed Action.

b) Subway Station Element Analysis

Development of the Proposed Action is projected to increase transit utilization at various points throughout the study area. As presented in Table 20-34 through Table 20-37, increased utilization in the 2010 Future With the Proposed Action, when compared to the 2010 Future Without the Proposed Action, would result in effects to 18 subway station elements in the AM peak hours and 15 subway stations elements in the PM peak hours, out of the 311 analyzed; nine of these affected elements would be subject to significant adverse impacts in the AM peak hour (significant adverse impacts are adverse impacts that would require mitigation to return operations to an acceptable LOS) and four would be subject to significant adverse impacts in the PM peak hour. Within the study area, increased transfers are anticipated at No. 7 Line stations (as opposed to additional entries/exits that are anticipated at other study area stations). The majority of significant adverse impacts would occur at the Times Square–42nd Street station, which is a transfer station (Figure 20-11).

**TABLE 20-34
2010 FUTURE WITH THE PROPOSED ACTION – AFFECTED SUBWAY STATION ELEMENTS
(AM PEAK HOUR)**

Subway Station/Elements	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street–Penn Station (A, C, and E)				
<i>Control Area Booth N-71</i>				
Stairway S8 (northwest)	1.11	D	1.13	D
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL8AB	0.97	C	1.14**	D**
<i>Seventh Avenue Platform (northbound)</i>				
Stairway ML6/ML8	0.99	C	1.17**	D**
Stairway ML10/ML12	0.91	C	1.08**	D**
<i>Seventh Avenue Platform (southbound)</i>				
Stairway ML5/ML7	1.54	E	1.72**	F**
Stairway P3/P5	1.29	D	1.38**	E**
42nd Street–Port Authority Bus Terminal				
<i>Northwest Corner of 42nd Street and Eighth Avenue</i>				
High Entrance/Exit Turnstile	1.00	F	1.13**	F**
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL3	0.84	C	1.02	D
Stairway PL6	1.29	D	1.37**	E**
Stairway PL4	0.88	C	1.00	D
<i>Lexington Avenue Line Platform (southbound)</i>				
Stairway P12	1.52	E	1.53	E
Stairway P14	2.46	F	2.47	F
Stairway P18	1.45	E	1.45	E
Stairway P22	1.66	E	1.68	F
Stairway U5	0.85	C	1.06	D
Stairway U7	0.89	C	1.12**	D**
<i>Lexington Avenue Line Platform (northbound)</i>				
Stairway P23	1.22	D	1.24	D
<i>Control Area Booth 238 (Connection to Metro-North)</i>				
Stairway M6AB/M7AB	1.18	D	1.23**	D**

* LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).
 ** Denotes significant adverse impacts.

TABLE 20-35
2010 FUTURE WITH THE PROPOSED ACTION – AFFECTED SUBWAY STATION ELEMENTS
(PM PEAK HOUR)

Subway Station/Elements	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
42nd Street–Port Authority Bus Terminal				
<i>Northwest Corner of 42nd Street and Eighth Avenue</i>				
High Entrance/Exit Turnstile	1.11	F	1.23**	F**
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL7AB	0.96	C	1.09**	D**
Stairway PL8AB	0.98	C	1.09**	D**
<i>Seventh Avenue Platform (northbound)</i>				
Stairway ML6/ML8	0.90	C	1.03	D
Stairway P4/P6	1.16	D	1.22	D
<i>Seventh Avenue Platform (southbound)</i>				
Stairway ML5/ML7	1.20	D	1.32**	D**
Stairway P3/P5	1.01	D	1.11	D
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL2	0.94	C	1.02	D
Stairway PL3	1.09	D	1.17	D
<i>Passageway to Lexington Avenue Line</i>				
Passageway	1.45	E	1.52	E
<i>Lexington Avenue Line Platform (southbound)</i>				
Stairway P14	1.85	F	1.85	F
<i>Lexington Avenue Line Platform (northbound)</i>				
Stairway U2	1.02	D	1.06	D
Stairway U4	1.02	D	1.06	D
Stairway U6	1.38	E	1.44	E
Stairway U8	1.38	E	1.44	E

* LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).
 ** Denotes significant adverse impacts.

TABLE 20-36
2010 FUTURE WITH THE PROPOSED ACTION – AFFECTED SUBWAY STATION ELEMENTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Subway Station/Elements	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL3	0.44	A	1.06	D
Stairway PL6	0.42	A	1.04	D
Escalator E209 (Up/Down)	0.07	A	1.18**	F**

* LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D).
 ** Denotes significant adverse impacts.

TABLE 20-37
2010 FUTURE WITH THE PROPOSED ACTION – AFFECTED SUBWAY STATION ELEMENTS (SUNDAY
SPECIAL EVENT PEAK HOUR)

Subway Station/Elements	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Escalator E207 (Up)	0.06	A	1.14**	F**
<i>Passageway to Lexington Avenue Platform</i>				
Passageway	0.22	A	1.05	D

* LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).
 ** Denotes significant adverse impacts.

AM Peak Hour

- 42nd Street–Port Authority Bus Terminal (A, C, and E routes): The HEET at the northwest corner of West 42nd Street and Eighth Avenue would operate at LOS F, with a v/svcd ratio of 1.00, in the 2010 Future Without the Proposed Action, and a LOS F, with a v/svcd ratio of 1.13, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway PL8AB providing access from the lower mezzanine to the No. 7 line platform would operate at LOS C, with a v/svcd ratio of 0.97, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.14, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway ML6/ML8 providing access from the Seventh Avenue line platform (northbound) would operate at LOS C, with a v/svcd ratio of 0.99, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.17, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway ML10/ML12 providing access from the Seventh Avenue line platform (northbound) would operate at LOS C, with a v/svcd ratio of 0.91, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.08, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway ML5/ML7 providing access from the lower mezzanine to the No. 7 line platform (southbound) would operate at LOS E, with a v/svcd ratio of 1.54, in the 2010 Future Without the Proposed Action, and a LOS F, with a v/svcd ratio of 1.72, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway P3/P5 providing access from the lower mezzanine to the No. 7 line platform (southbound) would operate at LOS D, with a v/svcd ratio of 1.29, in the 2010 Future Without the Proposed Action, and a LOS E, with a v/svcd ratio of 1.38, in the 2010 Future With the Proposed Action.
- 42nd Street–Grand Central (4, 5, 6, 7, and 42nd Street Shuttle): Stairway PL6 providing access to the No. 7 line platform would operate at LOS D, with a v/svcd ratio of 1.29, in the 2010 Future Without the Proposed Action, and a LOS E with a v/svcd ratio of 1.37, in the 2010 Future With the Proposed Action.
- 42nd Street–Grand Central (4, 5, 6, 7, and 42nd Street Shuttle): Stairway U7 providing access to the Lexington Avenue line platform (southbound) would operate at LOS C, with a v/svcd ratio of 0.89, in the 2010 Future Without the Proposed Action, and a LOS D with a v/svcd ratio of 1.12, in the 2010 Future With the Proposed Action.
- 42nd Street–Grand Central (4, 5, 6, 7, and 42nd Street Shuttle): Stairway M6AB/M7AB providing connection to commuter rail service and street level would operate at LOS D, with a v/svcd ratio of 1.18, in the 2010 Future Without the Proposed Action, and a LOS D with a v/svcd ratio of 1.23, in the 2010 Future With the Proposed Action.

PM Peak Hour

- 42nd Street to Port Authority Bus Terminal (A, C, and E routes): The HEET at the northwest corner of West 42nd Street and Eighth Avenue would operate at LOS F, with a v/svcd ratio of 1.11, in the 2010 Future Without the Proposed Action, and a LOS F, with a v/svcd ratio of 1.23, in the 2010 Future With the Proposed Action.

- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway PL7AB providing access from the lower mezzanine to the No. 7 line platform would operate at LOS C, with a v/svcd ratio of 0.96, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.09, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway PL8AB providing access from the lower mezzanine to the No. 7 line platform would operate at LOS C, with a v/svcd ratio of 0.98, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.09, in the 2010 Future With the Proposed Action.
- Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle): Stairway ML5/ML7, providing access from the lower mezzanine to the No. 7 line platform (southbound) would operate at LOS D, with a v/svcd ratio of 1.20, in the 2010 Future Without the Proposed Action, and a LOS D, with a v/svcd ratio of 1.32, in the 2010 Future With the Proposed Action.

Of the 49 elements analyzed for the Special Event peak hours, three are projected to be affected in the weeknight Special Event peak hour and two are projected to be affected in the Sunday Special Event peak hours. Of those affected elements, the following two subway station elements – one in each Special Event peak hour – would have significant adverse impacts (would require mitigation to return operations to an acceptable LOS) in either of the Special Event peak hours:

- **Weeknight Special Event Peak Hour**
 - Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle routes): Escalator E209 (down) would operate at LOS A, with a v/c ratio of 0.07, in the 2010 Future Without the Proposed Action, and LOS F, with a v/c ratio of 1.18, in the 2010 Future With the Proposed Action.
- **Sunday Special Event Peak Hour**
 - Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle routes): Escalator E207 (up) would operate at LOS A, with a v/c ratio of 0.06, in the 2010 Future Without the Proposed Action, and LOS F, with a v/c ratio of 1.14, in the 2010 Future With the Proposed Action.

c) Commuter Railroad Stations

Commuter rail trips at Penn Station and Grand Central Terminal are projected to increase in the 2010 Future With the Proposed Action compared to the Future Without the Proposed Action. Penn Station is projected to accommodate approximately 500 additional riders in both the AM and PM peak hours (Table 20-38). Grand Central Terminal is projected to accommodate approximately 300 additional riders in both the AM and PM peak hours. The stations are anticipated to provide sufficient capacity to accommodate these additional riders, and no significant adverse impacts to these services are anticipated.

Based on analyses of the terminals' pedestrian elements presented in the MTA's East Side Access project (East Side Access MTA Long Island Rail Road Grand Central Connection Final Environmental Impact Statement, March 2001), the incremental commuter rail demand in the 2010 Future With the Proposed Action at Grand Central Terminal (Metro-North Railroad and Long Island Rail Road) and demand at Penn Station (Long Island Rail Road) could be accommodated by the existing terminals.

NJ Transit has projected a shortfall in seated capacity in the future of "4,000 to 5,000 [seats] by 2020" (Access to the Region's Core Summary Report 2003) with or without the Proposed Action. NJ Transit has planned a program of short-term improvements (including delivery of bi-level coaches and completion of a high-density signal system) which would provide sufficient capacity to satisfy both the existing unmet demand and the incremental demand projected for the Proposed Action in 2010.

TABLE 20-38
2010 FUTURE WITH THE PROPOSED ACTION – COMMUTER RAILROAD STATION UTILIZATION

	AM Peak Hour Inbound Trips			PM Peak Hour Outbound Trips		
	2010 Future Without the Proposed Action	2010 Future With the Proposed Action	Increase	2010 Future Without the Proposed Action	2010 Future With the Proposed Action	Increase
Penn Station						
Long Island Rail Road	48,203	48,519	316	32,287	32,651	364
New Jersey Transit	20,734	20,865	131	17,168	17,319	151
<i>Total</i>	<i>68,937</i>	<i>69,385</i>	<i>448</i>	<i>49,455</i>	<i>49,970</i>	<i>515</i>
Grand Central Terminal						
Metro-North Railroad	44,281	44,568	287	31,528	31,858	330
Long Island Rail Road	-	-	-	-	-	-
<i>Total</i>	<i>44,281</i>	<i>44,568</i>	<i>287</i>	<i>31,528</i>	<i>31,858</i>	<i>330</i>
Commuter Rail Total	113,218	113,953	735	80,983	81,828	845

d) Bus Service

In the 2010 Future With the Proposed Action, demand for bus service is projected to increase throughout the study area. However, few modifications to the existing bus service plans would be required to meet this additional demand. Table 20-39 through Table 20-42 present the anticipated demand for bus service in the 2010 Future With the Proposed Action, compare that demand to the demand in the 2010 Future Without the Proposed Action, and indicate how many additional buses would be required on each route to meet the additional demand. As shown in the tables, the following routes would require additional service to meet the projected demand in the 2010 Future With the Proposed Action:¹¹

- M-11 (southbound) in the AM peak hour: With a deficit of 218 passengers, four additional buses would be needed to meet the projected demand;
- M-11 (northbound) in the PM peak hour: With a deficit of 203 passengers, four additional buses would be needed to meet the projected demand;
- M-11 (northbound) in the Sunday Special Event peak hour: With a deficit of 30 passengers, one additional bus would be needed to meet the projected demand;
- M-11 (southbound) in the Sunday Special Event peak hour: With a deficit of 151 passengers, three additional bus would be needed to meet the projected demand;
- M-34/M-16 (westbound) in the AM peak hour: With a deficit of 14 passengers, one additional bus would be needed to meet the projected demand;
- M-34/M-16 (eastbound) in the PM peak hour: With a deficit of 164 passengers, three additional buses would be needed to meet the projected demand.
- M-34/M-16 (westbound) in the weeknight Special Event PM peak hour: With a deficit of 680 passengers, 11 additional buses would be needed to meet the projected demand; and
- M-34/M-16 (eastbound) in the Sunday Special Event peak hour: With a deficit of 595 passengers, 10 additional buses would be needed to meet the projected demand.

MTA NYCT general policy is to provide additional bus service where demand warrants increased service, taking into account financial and operational constraints. MTA NYCT maintains an on-going passenger monitoring program and adjusts bus service plans where physically feasible and financially practicable.

¹¹ The additional number of buses required is based on the existing service plan of operating standard buses on these routes. Conversion to articulated buses is discussed in the Proposed Mitigation section.

TABLE 20-39
2010 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(AM PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Project Generated Trips	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/ Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	13	65	845	0	381	29	464	0
	SB	18	65	1,170	0	745	41	425	0
M-5	NB	4	65	260	0	169	42	91	0
	SB	11	65	715	0	544	49	171	0
M-6	NB	4	65	260	0	176	44	84	0
	SB	4	65	260	0	114	28	146	0
M-7	NB	4	65	260	0	159	40	101	0
	SB	8	65	520	0	387	48	133	0
M-10/ M-20 ³	NB	12	65	780	14	319	27	461	0
	SB	12	65	780	33	509	42	271	0
M-11	NB	7	65	455	30	380	54	75	0
	SB	9	65	585	256	803	89	(218)	4
M-23	EB	11	93	1,023	0	629	57	394	0
	WB	11	93	1,023	0	619	56	404	0
M-34/ M-16 ³	EB	14	65	910	-7	737	53	173	0
	WB	14	65	910	242	924	66	(14)	1
M-42	EB	34	65	2,210	20	1,712	50	498	0
	WB	14	65	910	58	501	36	409	0
M-50/M- 27 ³	EB	23	65	1,495	3	1,007	44	488	0
	WB	9	65	585	-2	332	37	253	0
M-104	NB	8	65	520	0	271	34	249	0
	SB	11	65	715	0	407	37	308	0
Q-32	EB	9	65	585	1	205	23	380	0
	WB	9	65	585	14	458	51	127	0

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

TABLE 20-40
2010 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(PM PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Project Generated Trips	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	14	65	910	0	595	43	315	0
	SB	7	65	455	0	311	44	144	0
M-5	NB	6	65	390	0	232	39	158	0
	SB	7	65	455	0	175	25	280	0
M-6	NB	8	65	520	0	293	37	227	0
	SB	6	65	390	0	161	27	229	0
M-7	NB	9	65	585	0	358	40	227	0
	SB	8	65	520	0	267	33	253	0
M-10/ M-20 ³	NB	13	65	845	51	479	37	366	0
	SB	12	65	780	16	232	19	548	0
M-11	NB	7	65	455	326	658	94	-203	4
	SB	7	65	455	42	451	64	4	0
M-23	EB	10	93	930	0	563	56	367	0
	WB	11	93	1,023	0	721	66	302	0
M-34/ M-16 ³	EB	12	65	780	238	944	79	-164	3
	WB	12	65	780	52	715	60	65	0
M-42	EB	13	65	845	58	513	39	332	0
	WB	16	65	1,040	27	931	58	109	0
M-50/ M-27 ³	EB	11	65	715	-2	333	30	382	0
	WB	12	65	780	3	359	30	421	0
M-104	NB	14	65	910	0	669	48	241	0
	SB	12	65	780	0	300	25	480	0
Q-32	EB	8	65	520	16	474	59	46	0
	WB	8	65	520	1	161	20	359	0

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-41
2010 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Bus Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Project Generated Trips	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	7	65	455	0	209	30	246	0
	SB	5	65	325	0	105	21	220	0
M-5	NB	7	65	455	0	186	27	269	0
	SB	5	65	325	0	74	15	251	0
M-6	NB	5	65	325	0	107	21	218	0
	SB	4	65	260	0	54	14	206	0
M-7	NB	8	65	520	0	209	26	311	0
	SB	6	65	390	0	112	19	278	0
M-10/M-20 ³	NB	12	65	780	163	458	38	322	0
	SB	13	65	845	162	336	26	509	0
M-11	NB	6	65	390	169	319	53	71	0
	SB	7	65	455	165	320	46	135	0
M-23	EB	6	93	558	0	200	33	358	0
	WB	7	93	651	0	246	35	405	0
M-34/M-16 ³	EB	7	65	455	4	206	29	249	0
	WB	8	65	520	969	1,200	150	(680)	11
M-42	EB	5	65	325	4	142	28	183	0
	WB	6	65	390	5	166	28	224	0
M-50/M-27 ³	EB	9	65	585	0	117	13	468	0
	WB	10	65	650	1	110	11	540	0
M-104	NB	10	65	650	0	291	29	359	0
	SB	9	65	585	0	150	17	435	0
Q-32	EB	7	65	455	0	223	32	232	0
	WB	6	65	390	0	87	15	303	0

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

TABLE 20-42
2010 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS (SUNDAY SPECIAL
EVENT PEAK HOUR)

Bus Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Project Generated Trips	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/ Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	8	65	520	0	179	22	341	0
	SB	7	65	455	0	175	25	280	0
M-5	NB	6	65	390	0	210	35	180	0
	SB	5	65	325	0	168	34	157	0
M-6	NB	7	65	455	0	216	31	239	0
	SB	6	65	390	0	137	23	253	0
M-7	NB	8	65	520	0	285	36	235	0
	SB	9	65	585	0	125	14	460	0
M-10/M-20 ³	NB	10	65	650	132	517	52	133	0
	SB	10	65	650	130	335	33	315	0
M-11	NB	6	65	390	153	420	70	(30)	1
	SB	7	65	455	141	606	87	(151)	3
M-23	EB	7	93	651	0	344	49	307	0
	WB	7	93	651	0	328	47	323	0
M-34/M-16 ³	EB	8	65	520	740	1,115	139	(595)	10
	WB	8	65	520	-20	350	44	170	0
M-42	EB	6	65	390	15	210	35	180	0
	WB	5	65	325	23	137	27	188	0
M-50/M-27 ³	EB	5	65	325	2	59	12	266	0
	WB	5	65	325	3	86	17	239	0
M-104	NB	15	65	975	0	517	34	458	0
	SB	14	65	910	0	353	25	557	0
Q-32	EB	8	65	520	1	228	28	292	0
	WB	8	65	520	0	195	24	325	0

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

e) Ferry Service

Ferry utilization in the 2010 Future With the Proposed Action is projected to increase compared to demand in the 2010 Future Without the Proposed Action. The new ferry terminal at West 39th Street is scheduled to open in Spring 2005; future demand and capacity analyses are based upon the operations of this new passenger facility.

Demand for peak commuter hour ferry utilization in the 2010 Future Without the Proposed Action is projected to be approximately 3,000 passengers in the AM peak period and approximately 2,200 passengers in the PM peak hour. This demand could be accommodated by the new passenger terminal and the existing scheduled ferry operations on the six ferry routes. For the 2010 Future With the Proposed Action, the increases in peak hour weekday ridership are projected to vary from approximately one percent (Belford, New Jersey to Pier 78, New York, requiring a transfer at Pier 11/Wall Street, New York) to 96 percent (Lincoln Harbor, New Jersey to Pier 78, New York). Ferry ridership in the peak direction during the AM and PM peak hours is presented in Table 20-43.

Based on the existing schedule of 21 ferry trips (see Table 20-19), approximately 5,000 passengers currently can be served in the commuter peak hour (an average of 240 passengers per ship). In the 2010 Future With the Proposed Action, the Proposed Action is projected to generate a total demand for ferry services of 6,964 passengers in the weeknight Special Event peak hour and 6,846 in the Sunday Special Event peak hour. Operation of weekday peak hour service plus eight additional ferry trips would provide the required capacity to meet the Special Event peak hour demand. NY Waterway's ferry fleet has sufficient capacity to meet this demand. It is anticipated that the private operator would reassign ferries used in the weekday on World Financial Center routes to the Midtown routes to accommodate the demand of the Special Event peak periods. The new passenger ferry terminal would also provide adequate capacity to meet the Special Event peak hour demand.

TABLE 20-43
2010 FUTURE WITH THE PROPOSED ACTION – FERRY RIDERSHIP IN PEAK DIRECTION

Ferry Routes	AM Peak Hour (New York Bound)						PM Peak Hour (New Jersey Bound)					
	Total Capacity	2010 Without Proposed Action Demand	Project-Generated Demand	2010 With Proposed Action Demand	Percent Utilized	Remaining Capacity	Total Capacity	2010 Without Proposed Action Demand	Project-Generated Demand	2010 With Proposed Action Demand	Percent Utilized	Remaining Capacity
Port Imperial, NJ – Pier 78, NY	2,394	1,427	62	1,490	62%	904	2,394	980	102	1,082	45%	1,312
Lincoln Harbor, NJ – Pier 78, NY	596	516	22	538	90%	58	596	517	54	571	96%	25
Hoboken, NJ – Pier 78, NY	596	495	21	516	87%	80	596	190	20	210	35%	386
Colgate, NJ – Pier 78, NY	298	252	11	263	88%	35	298	211	22	233	78%	65
Newport, NJ – Pier 78, NY	447	201	9	209	47%	238	447	83	9	92	21%	355
Belford, NJ – Pier 78, NY (requires transfer at Pier 11/Wall Street, NY)	700	4	0	4	1%	696	700	9	1	9	1%	691

3. Pedestrian Conditions

a) Sidewalks

Sidewalk operations in the 2010 Future With the Proposed Action are not anticipated to be subject to significant adverse impacts during the weekday peak hours. Additional pedestrian volumes are projected for these times (AM, Midday, and PM peak hours), generated primarily by the projected development sites. Due to the available capacity within the study area, significant adverse impacts are anticipated to be minimal during the 2010 Future With the Proposed Action. Out of the 380 sidewalk locations analyzed, there would be no significant adverse impacts during the AM, Midday, or PM peak hours.

During the Special Event peak hours, the pedestrian volumes generated by the proposed Multi-Use Facility are anticipated to result in additional significant adverse impacts to sidewalk operations. Table 20-44, Table 20-45 and Figure 20-12 present the sidewalk locations that are projected to have significant adverse impacts in the 2010 Future With the Proposed Action compared to the Future Without the Proposed Action, in the Special Event peak hours. Of the 160 sidewalk locations analyzed for the Special Event peak hours, 10 significant adverse impacts at seven intersections are anticipated during the weeknight Special Event peak hour and 11 significant adverse impacts at eight intersections during the Sunday Special Event peak hour.

Improvements to pedestrian infrastructure that are part of the Proposed Action, including sidewalk widenings, restriping of pavement, and street markings, are anticipated to enhance pedestrian safety conditions throughout Project Area. These proposed pedestrian improvement measures are consistent with, and have been incorporated into, the traffic analyses for the Future With the Proposed Action, as presented in Chapter 19.

b) Corners

Due to the Proposed Action, pedestrian volumes at corners are anticipated to increase in the 2010 Future With the Proposed Action and result in significant adverse impacts throughout the study area. Table 20-46 through Table 20-50 and Figure 20-12 present the corner locations that are projected to have significant adverse impacts in the 2010 Future With the Proposed Action compared to the 2010 Future Without the Proposed Action. Of the 177 corners analyzed for the weekday peak hours and 75 corners analyzed for the Special Event peak hours, significant adverse impacts are anticipated at two corners at two intersections in the AM peak hour, three corners at three intersections in the Midday peak hour, three corners at two intersections in the PM peak hour, 13 corners at eight intersections in the weeknight Special Event peak hour, and 12 corners at eight intersections in the Sunday Special Event peak hour.

TABLE 20-44
2010 FUTURE WITH THE PROPOSED ACTION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Sidewalk	2010 Future Without the Proposed Action				2010 Future With the Proposed Action			
		15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS
11th Ave. @ 33rd St.	1	3	12	4	B	3,446	12	23	E
	4	2	10	4	B	3,050	10	24	E
11th Ave. @ 34th St.	6	3	12	4	B	3,446	12	23	E
10th Ave. @ 30th St.	8	5	11	4	B	3,108	11	23	E
10th Ave. @ 33rd St.	4	34	10	4	B	2,405	10	20	E
	7	6	10	4	B	2,581	10	21	E
9th Ave. @ 31st St.	3	25	10	4	B	1,762	10	16	E
9th Ave. @ 33rd St.	4	88	10	5	B	2,740	10	22	E
	7	79	10	5	B	2,422	10	20	E
8th Ave. @ 33rd St.	7	245	13	5	B	2,253	13	16	E

p/f/m – pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

TABLE 20-45
2010 FUTURE WITH THE PROPOSED ACTION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Sidewalk	2010 Future Without the Proposed Action				2010 Future With the Proposed Action			
		15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS
11th Ave @ 33rd St	1	2	12	4	B	3,970	12	26	F
	4	2	10	4	B	2,988	10	24	E
11th Ave @ 34th St	6	2	12	4	B	3,970	12	26	F
10th Ave @ 30th St	8	53	11	4	B	3,721	11	27	F
10th Ave. @ 31st St.	6	48	12	4	B	2,130	12	16	E
	4	128	10	5	B	2,559	10	21	E
10th Ave. @ 33rd St.	7	58	10	4	B	2,606	10	21	E
	3	429	10	7	B	2,337	10	20	E
9th Ave. @ 31st St.	4	394	10	7	B	3,342	10	26	F
	7	138	10	5	B	2,501	10	21	E
8th Ave. @ 33rd St.	7	475	13	6	B	2,698	13	18	E

p/f/m – pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

TABLE 20-46
2010 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (AM PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action			2010 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
8th Ave. @ 33rd St.	Northwest	15	15	D	15	14	E
8th Ave. @ 42nd St.	Southeast	13	9	E	13	7	E

SF/P – square feet of space per pedestrian

**TABLE 20-47
2010 FUTURE WITH THE PROPOSED ACTION— CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (MIDDAY PEAK HOUR)**

Intersection	Corner	2010 Future Without the Proposed Action			2010 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
9th Ave. @ 42nd St.	Northeast	12	13	E	12	9	E
8th Ave. @ 39th St.	Southeast	15	10	E	15	9	E
8th Ave. @ 42nd St.	Southeast	13	8	E	13	6	E

SF/P – square feet of space per pedestrian

**TABLE 20-48
2010 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (PM PEAK HOUR)**

Intersection	Corner	2010 Future Without the Proposed Action			2010 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
9th Ave. @ 42nd St.	Northeast	12	7	E	12	3	F
8th Ave. @ 42nd St.	Southeast	13	Shortfall	F	13	Shortfall	F
	Northwest	14	7	E	14	6	E

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

**TABLE 20-49
2010 FUTURE WITH THE PROPOSED ACTION— CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Intersection	Corner	2010 Future Without the Proposed Action			2010 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
11th Ave. @ 33rd St.	Southeast	15	4,114	A	15	Shortfall	F
11th Ave. @ 34th St.	Southeast	18	1,101	A	18	13	E
10th Ave. @ 30th St.	Northeast	13	1,613	A	13	5	F
	Northwest	13	1,355	A	13	13	E
10th Ave. @ 31st St.	Northeast	10	2,429	A	10	Shortfall	F
10th Ave. @ 33rd St.	Southeast	9	897	A	9	Shortfall	F
	Southwest	12	1,360	A	12	14	E
9th Ave. @ 31st St.	Northeast	15	452	A	15	Shortfall	F
	Southeast	15	403	A	15	11	E
	Northwest	15	816	A	15	13	E
9th Ave. @ 33rd St.	Southeast	15	236	A	15	Shortfall	F
	Southwest	15	396	A	15	13	E
8th Ave. @ 34th St.	Southeast	15	19	D	15	12	E

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

TABLE 20-50
2010 FUTURE WITH THE PROPOSED ACTION– CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action			2010 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
12th Ave. @ 34th St.	Southeast	12	304	A	12	Shortfall	F
11th Ave. @ 30th St.	Northwest	15	859	A	15	1	F
11th Ave. @ 33rd St.	Southeast	15	1,027	A	15	11	E
11th Ave. @ 34th St.	Southwest	18	364	A	18	3	F
10th Ave @ 30th St	Northwest	13	239	A	13	0	F
10th Ave. @ 33rd St.	Southwest	12	237	A	12	shortfall	F
9th Ave. @ 31st St.	Northeast	15	49	B	15	8	E
	Southeast	15	87	B	15	14	E
	Southwest	15	233	A	15	6	E
	Northwest	15	143	A	15	shortfall	F
9th Ave. @ 33rd St.	Southeast	15	61	B	15	8	E
	Southwest	15	110	B	15	shortfall	F

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

c) Crosswalks

Pedestrian volumes at crosswalks are anticipated to increase in the 2010 Future With the Proposed Action and result in significant adverse impacts throughout the study area. Table 20-51 through Table 20-55 and Figure 20-12 present the crosswalk locations projected to have significant adverse impacts in the 2010 Future With the Proposed Action compared to the 2010 Future Without the Proposed Action. Of the 193 crosswalks analyzed for the weekday peak hours and 82 crosswalks analyzed for the Special Event peak hours, two significant adverse impacts at two intersections are anticipated in the AM peak hour, one significant adverse impact at one intersection is anticipated in the Midday peak hour, five significant adverse impacts are anticipated at five intersections in the PM peak hour, 13 significant adverse impacts are anticipated at 11 intersections in the weeknight Special Event peak hour, and 21 significant adverse impacts are anticipated at 13 intersections in the Sunday Special Event peak hour.

d) Bicycle Facilities

The 2010 Future With the Proposed Action includes the closing of West 33rd, West 39th, and West 40th Streets, west of Eleventh Avenue. As the existing bicycle routes on these streets end at Eleventh Avenue, no significant adverse impacts to utilization are anticipated due to the Proposed Action.

TABLE 20-51
2010 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (AM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
8th Ave. @ 39th St.	West	13	12	E	11	E
8th Ave. @ 42nd St.	South	19	10	E	9	E

TABLE 20-52
2010 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (MIDDAY PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
9th Ave. @ 42nd St.	South	10	20	D	13	E

SF/P – square feet of space per pedestrian

TABLE 20-53
2010 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (PM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
9th Ave. @ 42nd St.	South	10	22	D	12	E
8th Ave. @ 33rd St.	East	20	11	E	10	E
8th Ave. @ 42nd St.	West	27	14	E	13	E
7th Ave. @ 31st St.	North	11	15	D	14	E
7th Ave. @ 33rd St.	North	11	9	E	8	E

SF/P – square feet of space per pedestrian

TABLE 20-54
2010 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
12th Ave. @ 39th St.	South	15	1,581	A	14	E
12th Ave. @ 34th St.	South	15	6,713	A	13	E
11th Ave. @ 30th St.	North	11	5,054	A	13	E
11th Ave. @ 33rd St.	North	11	4,147	A	12	E
	South	11	4,147	A	3	F
11th Ave. @ 34th St.	South	18	1,473	A	13	E
10th Ave. @ 30th St.	North	14	1,262	A	10	E
10th Ave. @ 31st St.	North	13	2,085	A	5	F
10th Ave. @ 33rd St.	North	12	574	A	14	E
	South	11	539	A	5	F
9th Ave. @ 31st St.	North	24	2,843	A	11	E
9th Ave. @ 33rd St.	South	24	315	A	8	E
8th Ave. @ 34th St.	South	20	11	E	9	E

SF/P – square feet of space per pedestrian

TABLE 20-55
2010 FUTURE WITH THE PROPOSED ACTION— CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
12th Ave. @ 39th St.	South	15	1,581	A	14	E
12th Ave. @ 34th St.	South	15	110	B	11	E
11th Ave. @ 30th St.	North	11	481	A	8	E
	West	13	386	A	11	E
11th Ave. @ 33rd St.	North	11	2,765	A	6	E
	South	11	4,147	A	3	F
11th Ave. @ 34th St.	East	12	201	A	12	E
	South	18	182	A	13	E
	West	13	223	A	10	E
11th Ave. @ 39th St.	East	11	2,121	A	12	E
10th Ave. @ 30th St.	North	14	140	A	7	E
10th Ave. @ 31st St.	North	13	521	A	5	F
	South	11	4,411	A	14	E
10th Ave. @ 33rd St.	North	12	168	A	10	E
	South	11	103	B	5	F
9th Ave. @ 30th St.	North	11.7	99	B	11	E
9th Ave. @ 31st St.	North	24	133	A	9	E
	South	14	151	A	13	E
9th Ave. @ 33rd St.	North	12.5	121	B	14	E
	South	24	100	B	7	E
8th Ave. @ 33rd St.	South	24	52	B	12	E

SF/P – square feet of space per pedestrian

H. 2010 PROPOSED MITIGATION

As discussed in Section G, the 2010 Future With the Proposed Action would result in significant adverse impacts of varying degrees (and extents) during multiple peak hours throughout the study area. (Measures to mitigate significant adverse impacts to transit and pedestrians resulting from the implementation of proposed traffic mitigation measures are also included.) Proposed mitigation measures for each of the elements projected to have one or more significant adverse impacts are described below. Mitigation has been proposed only where measures are practicable and feasible; where such measures are not available, the significant adverse impacts would remain unmitigated. Capital costs for the proposed mitigation measures are included in Chapter 5.

1. Transit Network

a) Subway Stations

Mitigation measures for subway station elements are primarily based on widening the element to provide sufficient capacity to support the projected volume of passengers moving through that element or providing an alternative route (e.g., installing a new stairway). For staircases, passageways, and corridors, widenings are recommended based on preliminary review to determine whether existing station infrastructure would preclude mitigation. Because of physical constraints, the envelope of space available for widening existing escalators is limited. Instead, proposed mitigation for escalators is based on the replacement of existing escalators with higher speed models, which would provide additional capacity to mitigate some or all of the anticipated significant adverse impacts (speeds could be increased from the existing rate of 90 feet per minute to 120 feet per minute and serve 50 people per minute). Unmitigated significant adverse impacts at escalators and stairways are anticipated to result in longer wait times for accessing or leaving station platforms. The recommended mitigation measure for turnstile significant adverse impacts is to increase capacity through the installation of additional turnstiles or HEETs, if sufficient space is available. Table 20-56 presents the number of station elements analyzed, indicating those that would be subject to significant adverse impacts (requiring mitigation to return the element to an acceptable LOS), those that would not be subject to significant adverse impacts, those that could be mitigated, and those that could not be mitigated in the 2010 Future With the Proposed Action.

In the 2010 Future With the Proposed Action, nine station elements are projected to have significant adverse impacts in the AM peak hour and five station elements are projected to have significant adverse impacts in the PM peak hours (these are elements that require mitigation to return operations to an acceptable LOS). Eight of the elements in the AM peak hour and all five of the elements in the PM peak hour could be mitigated, as discussed below. Unmitigated adverse impacts would remain at one station element in the AM peak hour (Stairway PL6 at Grand Central–42nd Street station, providing access from the lower mezzanine to the No. 7 line platform).

The proposed measures would primarily provide additional capacity at stairways connecting the No. 7 Subway line platform with the Seventh Avenue line platforms (at Times Square–42nd Street Station) and the No. 7 line platform with the Lexington Avenue line platforms (at Grand Central–42nd Street Station). Implementation of these measures would mitigate significant increases in stairway and mezzanine crowding and provide adequate capacity for transferring between the subway lines.

TABLE 20-56
2010 FUTURE WITH THE PROPOSED ACTION — SUMMARY OF SUBWAY STATION ELEMENT
SIGNIFICANT ADVERSE IMPACTS AND MITIGATION

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse impacts
AM	311	302	8	1
PM	311	307	4	0
Weeknight	49	48	1	0
Sunday	49	48	1	0

AM Peak Hour

- 42nd Street–Port Authority Bus Terminal Station (A, C, and E routes): The HEET at the northwest corner of Eighth Avenue and West 42nd Street could be successfully mitigated by installation of a third HEET at the same location (to supplement the two existing HEETs). Implementation of this mitigation measure would improve the AM peak hour operating conditions from LOS F, with a v/svcd ratio of 1.13, to LOS C, with a v/svcd of 0.60.
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway PL8AB could be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the AM peak hour operating conditions from LOS D, with a v/svcd ratio of 1.14, to LOS C, with a v/svcd of 0.97.
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway ML6/ML8 and Stairway ML10/ML12 could both be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the AM peak hour operating conditions for ML6/ML8 from LOS D, with a v/svcd ratio of 1.17, to LOS C, with a v/svcd of 0.79 and for Stairway ML10/ML12 from LOS D, with a v/svcd ratio of 1.08, to LOS C, with a v/svcd of 0.79. (Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station.)
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway ML5/ML7 could be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the AM peak hour operating conditions from LOS F, with a v/svcd ratio of 1.72, to LOS D, with a v/svcd of 1.07. (Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years based on similar work at Atlantic Avenue station.)
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway P3/P5 could be mitigated by extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.38, to LOS D, with a v/svcd of 1.04. (Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years based on similar work at Atlantic Avenue station.)
- Grand Central–42nd Street Station (4, 5, 6, 7, and S): Stairway U7 could be mitigated by widening the stairways by 2 feet. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.12, to LOS C, with a v/svcd of 0.79.
- Grand Central–42nd Street Station (4, 5, 6, 7, and S): Stairway M6ABC/M7ABC, providing connection to commuter rail service and street level, could be mitigated by replacing the existing stairway with a new high-speed escalator. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.23, to LOS C, with a v/svcd of 0.60.

PM Peak Hour

- 42nd Street–Port Authority Bus Terminal Station (A, C, and E routes): The HEET at the northwest corner of Eighth Avenue and West 42nd Street could be successfully mitigated by installation of a third HEET at the same location (to supplement the two existing HEETs). Implementation of this mitigation measure would improve the PM peak hour operating condition from LOS F, with a v/svcd of 1.23, to LOS D, with a v/svcd of 0.66.

- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway PL7AB and Stairway PL8AB could both be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the PM peak hour operating conditions of Stairway PL7AB from LOS D, with a v/svcd ratio of 1.09, to LOS C, with a v/svcd of 0.8494 and Stairway PL8AB from LOS D, with a v/svcd ratio of 1.09, to LOS C, with a v/svcd of 0.95.
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W): Stairway ML5/ML7 could be mitigated by construction of a new stairway. Implementation of this mitigation measure would improve the PM peak hour operating conditions from LOS D, with a v/svcd ratio of 1.32, to LOS C, with a v/svcd of 0.58.

Weeknight and Sunday Special Event Peak Hours

In the 2010 Future With the Proposed Action, one station element is projected to be subject to significant adverse impacts in each of the Special Event peak hours. At Grand Central–42nd Street station, Escalators E207 and E209 would be subject to significant adverse impacts during the Sunday and weeknight Special Event peak hours, respectively. Installation of higher-speed escalators could mitigate the anticipated significant adverse impacts at both of these locations. Implementation of these measures would result in no unmitigated significant adverse impacts at subway station elements in the 2010 Future With the Proposed Action during the Special Event peak hours.

b) Bus Routes

| The MTA NYCT's general policy is to provide additional bus service where demand warrants, taking into account financial and operational constraints. According to the MTA NYCT guidelines, standard buses provide a capacity of 65 passengers per bus, while articulated buses service 93 passengers per bus. Table 20-57 presents the routes with projected shortfalls under current operating plans attributable to the Proposed Action and the number of buses required to eliminate these deficits. As presented in Table 20-58 through Table 20-61, all routes could accommodate projected demands by increasing the existing standard vehicle service. A total of nine additional standard buses would be required to mitigate the potential impact.

| Based on the MTA NYCT's on-going 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 practicable. The 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.

TABLE 20-57
2010 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE ADJUSTMENTS REQUIRED TO
ACCOMMODATE PROJECTED DEMANDS

Route	Direction	Buses per Hour ¹	Hourly Capacity ²	2010 Project Generated Trips	2010 Future With the Proposed Action Hourly Volume ¹	Average Capacity per Bus	Hourly Capacity (Surplus/ Deficit)	Required Service Adjustment	Result
AM Peak Hour									
M-11	SB	9	585	256	803	89	-218	Increase service	13 standard vehicles required (4 additional vehicles on route)
M-34/M-16 ³	WB	14	910	242	924	66	-14	Increase service	15 standard vehicles required (1 additional vehicle on route)
PM Peak Hour									
M-11	NB	7	455	326	658	94	-203	Increase service	11 standard vehicles required (4 additional vehicles on route)
M-34/M-16 ³	EB	12	780	238	944	79	-164	Increase service	15 standard vehicles required (3 additional vehicles on route)
Weeknight Special Event Peak Hour									
M-34/M-16 ³	WB	8	520	969	1,200	150	-680	Increase service	19 standard vehicles required (11 additional vehicles on route)
Sunday Special Event Peak Hour									
M-11	NB	6	390	153	420	70	-30	Increase service	7 standard vehicles required (1 additional vehicle on route)
	SB	7	455	141	606	87	-151		10 standard vehicles required (3 additional vehicles on route)
M-34/M-16 ³	EB	8	520	740	1,115	139	-595	Increase service	18 standard vehicles required (10 additional vehicles on route)

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per standard bus.

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-58
2010 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (AM PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/Deficit)
M-4	NB	13	65	845	381	29	464
	SB	18	65	1170	745	41	425
M-5	NB	4	65	260	169	42	91
	SB	11	65	715	544	49	171
M-6	NB	4	65	260	176	44	84
	SB	4	65	260	114	29	146
M-7	NB	4	65	260	159	40	101
	SB	8	65	520	387	48	133
M-10/M-20 ³	NB	12	65	780	319	27	461
	SB	12	65	780	509	42	271
M-11	NB	7	65	455	380	54	75
	SB*	13	65	845	803	62	42
M-23	EB	11	93	1023	629	57	394
	WB	11	93	1023	619	56	404
M-34/M-16 ³	EB	14	65	910	737	53	173
	WB*	15	65	975	924	62	51
M-42	EB	34	65	2210	1,712	50	498
	WB	14	65	910	501	36	409
M-50/M-27 ³	EB	23	65	1495	1,007	44	488
	WB	9	65	585	332	37	253
M-104	NB	8	65	520	271	34	249
	SB	11	65	715	407	37	308
Q-32	EB	9	65	585	205	23	380
	WB	9	65	585	458	51	127

¹ All data are for peak load points.

² Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

³ Data include both routes, which service the same corridor within the study area.

* Denotes proposed increase in service.

TABLE 20-59
2010 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (PM PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	14	65	910	595	43	315
	SB	7	65	455	311	44	144
M-5	NB	6	65	390	232	39	158
	SB	7	65	455	175	25	280
M-6	NB	8	65	520	293	37	227
	SB	6	65	390	161	27	229
M-7	NB	9	65	585	358	40	227
	SB	8	65	520	267	33	253
M-10/M-20 ³	NB	13	65	845	479	37	366
	SB	12	65	780	232	19	548
M-11	NB	11	65	715	658	60	57
	SB	7	65	455	451	64	4
M-23	EB	10	93	930	563	56	367
	WB	11	93	1,023	721	66	302
M-34/M-16 ³	EB*	15	65	975	944	63	31
	WB*	12	65	780	715	60	65
M-42	EB	13	65	845	513	39	332
	WB	16	65	1,040	931	58	109
M-50/M-27 ³	EB	11	65	715	333	30	382
	WB	12	65	780	359	30	421
M-104	NB	14	65	910	669	48	241
	SB	12	65	780	300	25	480
Q-32	EB	8	65	520	474	59	46
	WB	8	65	520	161	20	359

1. All data are for peak load points.

2. Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3. Data include both routes, which service the same corridor within the study area.

* Denotes proposed increase in service.

**TABLE 20-60
2010 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	7	65	455	209	30	246
	SB	5	65	325	105	21	220
M-5	NB	7	65	455	186	27	269
	SB	5	65	325	74	15	251
M-6	NB	5	65	325	107	21	218
	SB	4	65	260	54	14	206
M-7	NB	8	65	520	209	26	311
	SB	6	65	390	112	19	278
M-10/M-20 ³	NB	12	65	780	458	38	322
	SB	13	65	845	336	26	509
M-11	NB	6	65	390	319	53	71
	SB	7	65	455	320	46	135
M-23	EB	6	93	558	200	33	358
	WB	7	93	651	246	35	405
M-34/M-16 ³	EB	7	65	455	206	29	249
	WB*	19	65	1,235	1,200	63	35
M-42	EB	5	65	325	142	28	183
	WB	6	65	390	166	28	224
M-50/M-27 ³	EB	9	65	585	117	13	468
	WB	10	65	650	110	11	540
M-104	NB	10	65	650	291	29	359
	SB	9	65	585	150	17	435
Q-32	EB	7	65	455	223	32	232
	WB	6	65	390	87	15	303

1. All data are for peak load points.
 2. Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).
 3. Data include both routes, which service the same corridor within the study area.
- * Denotes proposed increase in service.

TABLE 20-61
2010 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity Per Bus	Hourly Capacity ²	2010 Future With the Proposed Action Hourly Volume ¹	Average Volume Per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	8	65	520	179	22	341
	SB	7	65	455	175	25	280
M-5	NB	6	65	390	210	35	180
	SB	5	65	325	168	34	157
M-6	NB	7	65	455	216	31	239
	SB	6	65	390	137	23	253
M-7	NB	8	65	520	285	36	235
	SB	9	65	585	125	14	460
M-10/M-20 ³	NB	10	65	650	517	52	133
	SB	10	65	650	335	34	315
M-11	NB*	7	65	455	420	60	35
	SB*	10	65	520	606	61	-86
M-23	EB	7	93	651	344	49	307
	WB	7	93	651	328	47	323
M-34/M-16 ³	EB*	18	65	1,105	1,115	62	-10
	WB	8	65	520	350	44	170
M-42	EB	6	65	390	210	35	180
	WB	5	65	325	137	27	188
M-50/M-27 ³	EB	5	65	325	59	12	266
	WB	5	65	325	86	17	239
M-104	NB	15	65	975	517	34	458
	SB	14	65	910	353	25	557
Q-32	EB	8	65	520	228	29	292
	WB	8	65	520	195	24	325

1. All data are for peak load points.
 2. Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).
 3. Data include both routes, which service the same corridor within the study area.
- * Denotes proposed increase in service.

2. Pedestrian Conditions

Standard mitigation for projected significant adverse impacts to pedestrian conditions includes construction of wider sidewalks and corners and repainting crosswalks for additional width. As part of the Proposed Action, widening of certain sidewalks would be required for site development. Mandatory sidewalk widenings that have been incorporated into the analysis for the Future With the Proposed Action are presented in Figure 20-10.

Above-grade pedestrian bridges are proposed for locations at Twelfth Avenue at West 33rd Street to provide a direct connection into the plaza leading to the proposed Multi-Use Facility and at Twelfth Avenue between West 39th and West 40th Streets to provide a connection to the east side of Twelfth Avenue. These two proposed pedestrian bridges would mitigate potential pedestrian significant adverse impacts along Twelfth Avenue in the Special Event peak hours (this measure was also included as mitigation in the traffic analysis (see Chapter 19, “Traffic and Parking”). In the Special Event peak hours, mitigation would also include limiting West 30th Street and West 33rd Street each to one lane of vehicular traffic, with the remaining space dedicated to pedestrian movements. Certain pedestrian adverse significant impacts cannot be mitigated without resulting in significant adverse impacts on traffic conditions beyond those identified in the traffic analysis.

a) Sidewalks

Out of the 380 sidewalk locations analyzed for the AM, Midday, and PM peak hours, two locations are projected to operate under congested conditions in the AM peak hour in the 2010 Future With the Proposed Action and one location is projected to operate under congested conditions in the Midday peak hour. Of the 160 sidewalk locations analyzed for the Special Event peak hours, 10 significant adverse impacts during the weeknight Special Event peak hour and 11 during the Sunday Special Event peak hour are anticipated. Table 20-62 presents a summary of the number of sidewalk locations analyzed, without impacts, mitigated, and not mitigated for all five peak hours.

Table 20-63 and Table 20-64 present the sidewalk locations that would have significant adverse impacts in the 2010 Future With the Proposed Action, and the effectiveness of widening the sidewalk at each location. The tables indicate whether mitigation is proposed through the availability of additional pedestrian routes, operational management planning (including closing portions of through streets to vehicular traffic and using the lane space for pedestrian volumes) or through changes to signal timings (also incorporated into traffic operation conditions presented in Chapter 19, “Traffic and Parking”). Upon incorporation of the mitigation measures, unmitigated adverse impacts would remain at three locations in the Sunday Special Event peak hour (see Table 20-64). No significant adverse impacts would remain in the other four peak hours.

TABLE 20-62
2010 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF SIDEWALK SIGNIFICANT ADVERSE IMPACTS

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	380	380	0	0
Midday	380	380	0	0
PM	380	380	0	0
Weeknight	160	150	10	0
Sunday	160	149	8	3

TABLE 20-63
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Sidewalk Location	2010 Future Without the Proposed Action					2010 Future With the Proposed Action					2010 Future With the Proposed Action with Mitigation					Result
		15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	
			Effective Width	Actual Width				Effective Width	Actual Width				Effective Width	Actual Width			
11th Ave. @ 33rd St.	1	3	12	15	4	B	3,446	12	15	23	E	2,006	12	15	15	D	Mitigated through operational management of pedestrian route
	4	2	10	13	4	B	3,050	10	13	24	E	2,441	30	35	9	C	Mitigated through operational management of pedestrian route
11th Ave. @ 34th St.	6	3	12	15	4	B	3,446	12	15	23	E	2,006	12	15	15	D	Mitigated through operational management of pedestrian route
10th Ave. @ 30th St.	8	5	11	14	4	B	3,108	11	14	23	E	1,321	31	36	7	B	Mitigated through operational management of pedestrian route
10th Ave. @ 33rd St.	4	34	10	13	4	B	2,405	10	13	20	E	4,919	30	35	15	D	Mitigated through operational management of pedestrian route
	7	6	10	13	4	B	2,581	10	13	21	E	3,293	30	35	11	D	Mitigated through operational management of pedestrian route
9th Ave. @ 31st St.	3	25	10	13	4	B	1,762	10	13	16	E	828	10	13	10	C	Mitigated through operational management of pedestrian route
9th Ave. @ 33rd St.	4	88	10	13	5	B	2,740	10	13	22	E	4,763	30	35	15	D	Mitigated through operational management of pedestrian route
	7	79	10	13	5	B	2,422	10	13	20	E	4,936	30	35	15	D	Mitigated through operational management of pedestrian route
8th Ave. @ 33rd St.	7	245	13	24	5	B	2,253	13	24	16	E	3,418	33	46	11	D	Mitigated through operational management of pedestrian route

Mitigated significant adverse impacts denoted by shading.
 p/f/m – Pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

TABLE 20-64
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Sidewalk Location	2010 Future Without the Proposed Action					2010 Future With the Proposed Action					2010 Future With the Proposed Action with Mitigation					Result
		15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	
			Effective Width	Actual Width				Effective Width	Actual Width				Effective Width	Actual Width			
11th Ave @ 33rd St	1	2	12	15	4	B	3,970	12	15	26	F	2,563	12	15	18	E	Unmitigated
	4	2	10	13	4	B	2,988	10	13	24	E	2,326	30	35	9	C	Mitigated through operational management of pedestrian route
11th Ave @ 34th St	6	2	12	15	4	B	3,970	12	15	26	F	2,664	12	15	19	E	Unmitigated
10th Ave @ 30th St	8	53	11	14	4	B	3,721	11	14	27	F	1,840	31	36	8	C	Mitigated through operational management of pedestrian route
10th Ave. @ 31st St.	6	48	12	15	4	B	2,130	12	15	16	E	1,237	12	15	11	D	Mitigated through operational management of pedestrian route
10th Ave. @ 33rd St.	4	128	10	13	5	B	2,559	10	13	21	E	5,174	30	35	15	D	Mitigated through operational management of pedestrian route
	7	58	10	13	4	B	2,606	10	13	21	E	3,309	30	35	11	D	Mitigated through operational management of pedestrian route
9th Ave. @ 31st St.	3	429	10	13	7	B	2,337	10	13	20	E	1,352	10	13	13	D	Mitigated through operational management of pedestrian route
9th Ave. @ 33rd St.	4	394	10	13	7	B	3,342	10	13	26	F	5,398	30	35	16	E	Unmitigated
	7	138	10	13	5	B	2,501	10	13	21	E	5,095	30	35	15	D	Mitigated through operational management of pedestrian route
8th Ave. @ 33rd St.	7	475	13	24	6	B	2,698	13	24	18	E	3,824	33	46	12	D	Mitigated through operational management of pedestrian route

Mitigated adverse impacts denoted by shading.
 p/f/m – Pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

b) Corners

Of the 177 corners analyzed for the weekday peak hours and 75 corners for the Special Event peak hours, two significant adverse impacts in the AM peak hour, three in the Midday peak hour, three in the PM peak hour, 13 in the weeknight Special Event peak hour, and 12 in the Sunday Special Event peak hour are anticipated. Table 20-65 presents a summary of the number of corner locations analyzed, without impacts, mitigated, and not mitigated for all five peak hours.

Pedestrian volumes at corners are anticipated to increase in the 2010 Future With the Proposed Action and result in scattered adverse impacts throughout the study area. Table 20-66 through Table 20-70 present the corner locations that would have significant adverse impacts in the 2010 Future With the Proposed Action, and the effectiveness of widening the sidewalks and corners at each location. The tables indicate whether operational management planning (including closing portions of through streets to vehicular traffic and using the lane space for pedestrian volumes) or changes to signal timings (also incorporated into traffic operation conditions presented in Chapter 19, “Traffic and Parking”) are sufficient to mitigate the potential impact. Upon incorporation of the measures, unmitigated significant adverse impacts would remain at two corner locations in the AM peak hour, three in the Midday peak hour, three in the PM peak hour, six in the weeknight Special Event peak hour, and six in the Sunday Special Event peak hour.

TABLE 20-65
2010 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF CORNER ADVERSE IMPACTS

	Analyzed	Not Impacted	Mitigated Adverse impacts	Unmitigated Adverse impacts
AM	177	175	0	2
Midday	177	174	0	3
PM	177	174	2	1
Weeknight	75	61	8	6
Sunday	75	61	8	6

TABLE 20-66
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(AM PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action						2010 Future With the Proposed Action						2010 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
8th Ave. @ 33rd St.	Northwest	1	15	8	14	15	D	1	15	8	14	14	E	1	15	8	14	14	E	Unmitigated
8th Ave. @ 42nd St.	Southeast	4	16	5	12	9	E	4	16	5	12	7	E	4	16	5	12	7	E	Unmitigated

SF/P – Square feet of space per pedestrian

TABLE 20-67
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(MIDDAY PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action						2010 Future With the Proposed Action						2010 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
9th Ave. @ 42nd St.	Northeast	2	10	3	11	13	E	2	10	3	11	9	E	2	10	3	11	9	E	Unmitigated
8th Ave. @ 39th St.	Southeast	4	12	5	15	10	E	4	12	5	15	9	E	4	12	5	15	9	E	Unmitigated
8th Ave. @ 42nd St.	Southeast	4	16	5	12	8	E	4	16	5	12	6	E	4	16	5	12	6	E	Unmitigated

SF/P – Square feet of space per pedestrian

TABLE 20-68
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(PM PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action						2010 Future With the Proposed Action						2010 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
9th Ave. @ 42nd St.	Northeast	2	10	3	11	7	E	2	10	3	11	3	F	2	10	3	11	3	F	Unmitigated
8th Ave. @ 42nd St.	Southeast	4	16	5	12	Shortfall 	F	4	16	5	12	Shortfall 	F	4	16	5	12	Shortfall 	F	Mitigated
	Northwest	1	15	8	20	7	E	1	15	8	20	6	E	1	15	8	20	8	E	Mitigated

SF/P – Square feet of space per pedestrian

TABLE 20-69
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action						2010 Future With the Proposed Action						2010 Future With the Proposed Action with Mitigation						Result
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
11th Ave. @ 33rd St.	Southeast	4	13	5	15	4,114	A	4	13	5	15	Shortfall	F	4	35	5	15	15	D	Mitigated through operational management of pedestrian route
11th Ave. @ 34th St.	Southeast	4	20	5	15	1,101	A	4	20	5	15	13	E	4	20	5	15	30	C	Mitigated through signal timing
10th Ave. @ 30th St.	Northeast	2	15	3	13	1,613	A	2	15	3	13	5	F	2	15	3	13	84	B	Mitigated through operational management of pedestrian route
	Northwest	1	16	8	14	1,355	A	1	16	8	14	13	E	1	16	8	36	90	B	Mitigated through operational management of pedestrian route
10th Ave. @ 31st St.	Northeast	2	15	3	13	2,429	A	2	15	3	13	Shortfall	F	2	15	3	13	Shortfall	F	Unmitigated
	Southeast*	4	13	5	15	2,107	A	4	13	5	15	30	C	4	13	5	15	14	E	Unmitigated
10th Ave. @ 33rd St.	Southeast*	4	13	5	15	897	A	4	13	5	15	Shortfall	F	4	35	5	15	4	F	Unmitigated
	Southwest	6	15	7	13	1,360	A	6	15	7	13	14	E	6	15	7	35	26	C	Mitigated through operational management of pedestrian route
9th Ave. @ 31st St.	Northeast	2	13	3	13	452	A	2	13	3	13	Shortfall	F	2	13	3	13	8	E	Unmitigated
	Southeast	4	13	5	15	403	A	4	13	5	15	11	E	4	13	5	15	281	A	Mitigated through operational management of pedestrian route
	Northwest	1	15	8	13	816	A	1	15	8	13	13	E	1	15	8	13	25	C	Mitigated through operational management of pedestrian route
9th Ave. @ 33rd St.	Southeast	4	13	5	15	236	A	4	13	5	15	Shortfall	F	4	35	5	15	Shortfall	F	Unmitigated
	Southwest	6	15	7	13	396	A	6	15	7	13	13	E	6	15	7	35	21	D	Mitigated through operational management of pedestrian route
8th Ave. @ 34th St.	Southeast	4	22	5	15	19	D	4	22	5	15	12	E	4	22	5	15	12	E	Unmitigated

SF/P – Square feet of space per pedestrian
 Mitigated adverse impacts denoted by shading.
 Shortfall= Projected condition of less than one square foot of space per pedestrian
 *Impact due to proposed traffic or transit mitigation.

TABLE 20-70
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2010 Future Without the Proposed Action						2010 Future With the Proposed Action						2010 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
12th Ave. @ 34th St.	Southeast	4	18	5	12	304	A	4	18	5	12	Shortfall	F	4	18	5	12	38	C	Mitigated through pedestrian bridge over 12th Ave to entrance to MJF
11th Ave. @ 30th St.	Northwest	1	15	8	13	859	A	1	15	8	13	1	F	1	15	8	35	43	B	Mitigated through operational management of pedestrian route
11th Ave. @ 33rd St.	Southeast	4	13	5	15	1,027	A	4	13	5	15	11	E	4	35	5	15	45	B	Mitigated through operational management of pedestrian route
11th Ave. @ 34th St.	Southeast*	4	20	5	15	346	A	4	20	5	15	19	D	4	20	5	15	13	E	Unmitigated
	Southwest	6	15	7	20	364	A	6	15	7	20	3	F	6	15	7	20	1	F	Unmitigated
11th Ave @ 39h St	Northeast*	2	10	3	12	1,626	A	2	10	3	12	24	C	2	10	3	12	13	E	Unmitigated
10th Ave @ 30th St	Northwest	1	16	8	14	239	A	1	16	8	14	0	F	1	16	8	36	51	B	Mitigated through operational management of pedestrian route
10th Ave. @ 33rd St.	Southwest	6	15	7	13	237	A	6	15	7	13	shortfall	F	6	15	7	35	4	F	Unmitigated
9th Ave @ 31st St	Northeast	2	13	3	13	49	B	2	13	3	13	8	E	2	13	3	13	17	D	Mitigated through operational management of pedestrian route
	Southeast	4	13	5	15	87	B	4	13	5	15	14	E	4	13	5	15	60	B	Mitigated through operational management of pedestrian route
	Southwest	6	15	7	13	233	A	6	15	7	13	6	E	6	15	7	13	46	B	Mitigated through operational management of pedestrian route
	Northwest	1	15	8	13	143	A	1	15	8	13	shortfall	F	1	15	8	13	6	E	Unmitigated
9th Ave. @ 33rd St.	Southeast	4	13	5	15	61	B	4	13	5	15	8	E	4	35	5	15	18	D	Mitigated through operational management of pedestrian route
	Southwest	6	15	7	13	110	B	6	15	7	13	shortfall	F	6	15	7	35	shortfall	F	Unmitigated

SF/P – Square feet of space per pedestrian
 Mitigated significant adverse impacts denoted by shading.
 Shortfall= Projected condition of less than one square foot of space per pedestrian
 *Impact due to proposed traffic or transit mitigation.

c) Crosswalks

Of the 193 crosswalks analyzed for the weekday peak hours and 82 crosswalks analyzed for the Special Event peak hours in the 2010 Future With the Proposed Action, two significant adverse impacts in the AM peak hour, one in the Midday peak hour, five in the PM peak hour, 13 in the weeknight Special Event peak hour (12 from the Proposed Action and one from the implementation of traffic mitigation measures), and 22 in the Sunday Special Event peak hour (21 from the Proposed Action and one from the implementation of traffic mitigation measures) are anticipated. Table 20-71 presents a summary of the number of crosswalk locations analyzed, without impacts, mitigated, and not mitigated for all five peak hours.

Table 20-72 through Table 20-76 present the crosswalk locations that would be subject to significant adverse impacts in the 2010 Future With the Proposed Action, and the effectiveness of the proposed widening of each crosswalk. The tables indicate the width of widening required to mitigate the projected impacted condition, and denote where sufficient width is unavailable for sufficient mitigation. Implementation of the proposed widenings, construction of the pedestrian bridges, operational planning (including closing portions of through streets to vehicular traffic and using the lane space for pedestrian volumes), and changes to signal timings (also incorporated into traffic operation conditions presented in Chapter 19, “Traffic and Parking”) would mitigate most of the significant adverse impacts. Upon incorporation of the measures, no unmitigated significant adverse impacts would remain in the AM and Midday peak hours, one would remain in the PM peak hour, five would remain in the weeknight Special Event peak hour, and nine would remain in the Sunday Special Event peak hour.

TABLE 20-71
2010 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF CROSSWALK SIGNIFICANT ADVERSE IMPACTS

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	193	191	2	0
Midday	193	192	1	0
PM	193	188	4	1
Weeknight	82	69	8	5
Sunday	82	60	13	9

TABLE 20-72
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (AM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action		2010 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
8th Ave. @ 39th St.	West	13	12	E	11	E	20	17	D	Mitigated through crosswalk widening
8th Ave. @ 42nd St.	South	19	10	E	9	E	20	10	E	Mitigated through crosswalk widening

TABLE 20-73
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (MIDDAY PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action		2010 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
9th Ave. @ 42nd St.	South	10	20	D	13	E	17	22	D	Mitigated through crosswalk widening

*SF/P – Square feet of space per pedestrian
 Mitigated significant adverse impacts denoted by shading.*

TABLE 20-74
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS (PM PEAK HOUR)

SF/P	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action		2010 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
9th Ave. @ 42nd St.	South	10	22	D	12	E	17	21	D	Mitigated through crosswalk widening
8th Ave. @ 33rd St.	East	20	11	E	10	E	20	10	E	Unmitigated
8th Ave. @ 42nd St.	West	27	14	E	13	E	27	14	E	Mitigated through signal timing
7th Ave. @ 31st St.	North	11	15	D	14	E	17	22	D	Mitigated through crosswalk widening
7th Ave. @ 33rd St.	North	11	9	E	8	E	17	13	E	Mitigated through crosswalk widening

*SF/P – Square feet of space per pedestrian
 Mitigated significant adverse impacts denoted by shading.*

TABLE 20-75
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action		2010 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
12th Ave. @ 39th St.	South	15	1,581	A	14	E	15	6,769	A	Mitigated through pedestrian bridge over 12th Ave between 39th and 40th Streets.
12th Ave. @ 34th St.	South	15	6,713	A	13	E	15	6,713	A	Mitigated through pedestrian bridge over 12th Ave to entrance to MUF
11th Ave. @ 30th St.	North	11	5,054	A	13	E	39	27	C	Mitigated through operational management of pedestrian route
11th Ave. @ 33rd St.	North	11	4,147	A	12	E	17	28	C	Mitigated through operational management of pedestrian route
	South	11	4,147	A	3	F	39	12	E	Unmitigated
11th Ave. @ 34th St.	South	18	1,473	A	13	E	20	24	C	Mitigated through operational management of pedestrian route and signal timing
10th Ave. @ 30th St.	North	14	1,262	A	10	E	39	149	A	Mitigated through operational management of pedestrian route
10th Ave. @ 31st St.	North	13	2,085	A	5	F	17	10	E	Unmitigated
10th Ave. @ 33rd St.	North	12	574	A	14	E	17	31	C	Mitigated through operational management of pedestrian route
	South	11	539	A	5	F	39	8	E	Unmitigated
9th Ave. @ 31st St.	North	24	2,843	A	11	E	24	25	C	Mitigated through operational management of pedestrian route
9th Ave. @ 33rd St.	South	24	315	A	8	E	46	7	E	Unmitigated
8th Ave. @ 34th St.	South	20	11	E	9	E	20	9	E	Unmitigated

SF/P – Square feet of space per pedestrian
Mitigated significant adverse impacts denoted by shading.

TABLE 20-76
2010 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2010 Future Without the Proposed Action		2010 Future With the Proposed Action		2010 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
12th Ave. @ 39th St.	South	15	117	B	12	E	15	16	D	Mitigated through pedestrian bridge over 12th Ave between 39th and 40th Streets.
12th Ave. @ 34th St.	South	15	110	B	11	E	15	110	B	Mitigated through pedestrian bridge over 12th Ave to entrance to MUF
11th Ave. @ 30th St.	North	11	481	A	8	E	39	20	D	Mitigated through operational management of pedestrian route
	West	13	386	A	11	E	20	404	A	Mitigated through operational management of pedestrian route
11th Ave. @ 33rd St.	North	11	2,765	A	6	E	17	11	E	Unmitigated
	South	11	4,147	A	3	F	39	13	E	Unmitigated
11th Ave. @ 34th St.	East	12	201	A	12	E	20	13	E	Unmitigated
	South	18	182	A	13	E	20	21	D	Mitigated through signal timing
	West	13	223	A	10	E	20	10	E	Unmitigated
11th Ave. @ 39th St.	East	11	2,121	A	12	E	20	16	D	Mitigated through signal timing
10th Ave. @ 30th St.	North	14	140	A	7	E	39	41	B	Mitigated through operational management of pedestrian route
10th Ave. @ 31st St.	North	13	521	A	5	F	17	10	E	Unmitigated
	South	11	4,411	A	14	E	17	16	D	Mitigated through operational management of pedestrian route and widening
10th Ave. @ 33rd St.	North	12	168	A	10	E	17	20	D	Mitigated through operational management of pedestrian route and widening
	South	11	103	B	5	F	39	8	E	Unmitigated
9th Ave. @ 30th St.	North	11.7	99	B	11	E	11.7	14	E	Unmitigated
9th Ave. @ 31st St.	North	24	133	A	9	E	24	19	D	Mitigated through operational management of pedestrian route
	South	14	151	A	13	E	14	80	B	Mitigated through operational management of pedestrian route
9th Ave. @ 33rd St.	North	12.5	121	B	14	E	17	21	D	Mitigated through operational management of pedestrian route
	South	24	100	B	7	E	46	7	E	Unmitigated
	East	20	23	D	16	D	20	13	E	Unmitigated
8th Ave. @ 33rd St.	South	24	52	B	12	E	46	17	D	Mitigated through operational management of pedestrian route and signal timing

SF/P – Square feet of space per pedestrian
 Mitigated significant adverse impacts denoted by shading.

I. 2025 FUTURE WITHOUT THE PROPOSED ACTION

1. Conditions for Analysis

Between 2003 and 2025, transportation demands in the study area are anticipated to increase due to known development projects in the area and background growth. In order to project transit and pedestrian conditions for future years, it is necessary to account for all changes to the built environment anticipated between current and future years that would be realized independent of the Proposed Action. To forecast demands under the Future Without the Proposed Action, the development projects (along with mitigation) listed in Chapter 3, “Analytical Framework,” were compiled in addition to an annual background growth rate; the result was then applied to existing conditions. As described in Section F, 2010 Future Without the Proposed Action, the conversion of the Farley Post Office building for utilization as a railroad station would alter accessibility to subway and pedestrian elements within the study area.

For the 2025 Future Without the Proposed Action, a cumulative background growth rate of 11.32 percent, which includes an annual background growth rate of 0.5 percent and known development projects within the study area, was applied to 2003 conditions to represent background growth occurring between 2003 and 2025.

Future conditions have also been modeled based on updated transit services plans. Starting in February 2004, subway service was significantly modified by the MTA NYCT, to account for the restoration of full four-track subway service via the Manhattan Bridge. These subway service changes are described in Section F, 2010 Future Without the Proposed Action.

2. Transit Network

a) Subway Line-Haul Analysis

In the 2025 Future Without the Proposed Action, the peak load points for the inbound Flushing line in the AM peak hour are projected to be the same as in the existing conditions – at 40th Street (Lowery Street) for the local route and at Woodside–61st Street for the express route. The line-haul v/c ratio on the express route leaving Woodside–61st Street Station along the No. 7 Subway line that was 0.99 in 2000 according to the RTFM model run, is projected to increase slightly to 1.01 in the 2025 Future Without the Proposed Action. (This assumes AM peak hour service in 2025 increases to 14 express and 13 local trains from 12 express and 12 local trains in 2000.) In 2025, the projection is for an additional 2,674 passengers in the AM peak hour, or approximately 17 more passengers per car compared to the year 2000 levels.

Appendix S.4 presents the line-haul data for all No. 7 subway stations in the 2025 Future Without the Proposed Action. (2025 Future Conditions include operation of the Second Avenue subway line and the East Side Access project, as they are scheduled to be complete at this time.)

b) Subway Station Element Analysis

Background growth experienced throughout New York City is anticipated to increase subway usage in the study area. Table 20-77 presents subway station elements projected to operate at LOS D or worse in the AM and PM peak hours in the 2025 Future Without the Proposed Action. The operation of station elements at LOS A, B, or C during one peak hour and D, E, or F during another hour is generally indicative of commuter travel patterns. Plans for the stations analyzed as part of this study are included in Appendix S.4. All subway station elements are projected to operate at LOS D or better in the weeknight and Sunday Special Event Peak hours.

No. 7 Subway Extension—Hudson Yards Rezoning and Development Program FGEIS

**TABLE 20-77
2025 FUTURE WITHOUT THE PROPOSED ACTION – SUBWAY STATION ELEMENTS OPERATING AT
LOS D OR WORSE**

Subway Station/Elements	AM		PM	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street–Herald Square (B, D, F, N, Q, R, V, and W)				
<i>Control Area Booth A22 – 33rd Street and Broadway</i>				
Turnstile	0.47	C	0.70	D
Stairway S4 (SE)	1.00	C	1.27	D
<i>Control Area Booth A25 – 32nd Street and Broadway</i>				
High Entrance/Exit Turnstile	0.59	C	0.62	D
Stairway S2AB (NW)	1.49	E	0.70	B
Stairway M1AB	1.49	E	0.70	B
<i>Control Area Booth N506 – 34th Street and Broadway</i>				
Stairway S5AB (SW)	1.59	E	1.21	D
Stairway M5AB	1.59	E	1.21	D
Stairway S7AB (NW)	1.33	D	1.44	E
Stairway M7AB	1.28	D	1.38	E
<i>Control Area Booth N507 – 32nd Street to 33rd Street and Sixth Avenue</i>				
Stairway H&M 307	2.01	F	0.44	A
Escalator E221	0.27	B	1.56	F
Escalator E222	0.93	E	0.88	E
Escalator E223	1.32	F	1.25	F
Escalator E224	0.15	A	0.87	E
<i>Control Booth N505 – 35th Street and 6th Avenue</i>				
High Entrance/Exit Turnstile	0.92	E	0.85	E
Stairway S8 (NE)	1.51	E	1.37	E
Stairway S6 (NW)	1.32	D	1.25	D
42nd Street–Bryant Park (B, D, F, and V)				
<i>Control Area Booth N504 – 40th Street and Sixth Avenue</i>				
Stairway S5 (SE)	1.43	E	0.86	C
Stairway S4 (SW)	1.47	E	0.93	C
Stairway M4	1.47	E	0.93	C
<i>Control Area Booth N503 – 42nd Street and Sixth Avenue</i>				
Stairway S8 (SE)	1.13	D	0.84	C
<i>Control Area Booth N502 – 42nd Street and Sixth Avenue</i>				
Turnstile	0.58	C	0.61	D
34th Street–Penn Station (1, 2, 3, and 9)				
<i>Control Area Booth R135</i>				
Turnstile (32nd Street Subpassage to Penn Station)	0.53	C	0.71	D
<i>Control Area Booth R139-33rd Street and Seventh Avenue (east side, upper level)</i>				
High Entrance/Exit Turnstile	0.20	A	0.64	D
<i>Control Area Booth R138</i>				
Turnstile (33rd Street Subpassage to Penn Station)	1.13	F	1.42	F
<i>Control Area Booth R138-33rd Street and Seventh Avenue (east side, lower level)</i>				
High Entrance/Exit Turnstile	0.72	D	0.70	D
Times Square–42nd Street (N, Q, R,W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Control Area Booth R143 – 40th Street and Seventh Avenue</i>				
Stairway S2 (SE)	1.32	D	1.04	D
<i>Control Area Booth R146 to 41st Street and Seventh Avenue</i>				
High Entrance/Exit Turnstile	0.73	D	0.90	E
<i>Control Area Booth R148 to 42nd Street and Broadway</i>				
Stairway S11 (SE)	1.35	E	1.31	D
Stairway P1	1.35	E	1.31	D
<i>Passageway to/from Lower Mezzanine and Eighth Avenue Subway Line</i>				
Passageway	1.15	D	1.25	D
<i>Seventh Avenue Platform (Northbound)</i>				
Stairway P4/P6	0.85	C	1.16	D
<i>Seventh Avenue Platform (Southbound)</i>				
Stairway ML5/ML7	1.25	D	0.75	C
Stairway P3/P5	1.34	E	1.02	D
42nd Street–Port Authority Bus Terminal (A, C, and E)				
<i>Control Area Booth N63A to 40th Street and Eighth Avenue</i>				
Stairway S2 (SE)	1.28	D	0.93	C
<i>Control Area to 42nd Street and Eighth Avenue (West)</i>				
High Entrance/Exit Turnstile	1.05	F	1.16	F

TABLE 20-77 (CONTINUED)
2025 FUTURE WITHOUT THE PROPOSED ACTION TO SUBWAY STATION ELEMENTS OPERATING AT LOS D OR WORSE

Subway Station/Elements	AM		PM	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street–Penn Station (A, C, and E)				
<i>Control Area Booth N68 – 35th Street and Eighth Avenue (East)</i>				
High Entrance/Exit Turnstile	1.16	F	0.21	B
Stairway S14 (NE/W)	1.02	D	0.41	A
<i>Control Area Booth N69 – 35th Street and Eighth Avenue (West)</i>				
High Entrance/Exit Turnstile	1.94	F	0.22	B
Stairway S13 (NW/E)	1.06	D	0.75	C
<i>Control Area Booth N71 – 34th Street and Eighth Avenue (West)</i>				
Stairway S8 (NW)	1.21	D	0.43	A
<i>Control Area Booth N73 – 33rd Street and Eighth Avenue</i>				
Stairway S4 (NW)	1.06	D	0.44	A
Stairway P3	1.06	D	0.44	A
Penn Station (railroad station)–34th Street and 7th Avenue				
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL9AB	1.00	D	0.72	C
Stairway ML1	0.46	B	1.72	F
Escalator E203 (Up)	0.93	E	0.12	A
<i>Lexington Avenue Line (Southbound) Stairways</i>				
Stairway P12	1.63	E	0.52	B
Stairway P14	2.39	F	1.93	F
Stairway P18	1.19	D	0.53	B
Stairway P22	1.78	F	0.83	C
<i>Lexington Avenue Line (Northbound) Stairways</i>				
Stairway P23	1.30	D	1.15	D
Stairway P13	0.45	B	1.18	D
<i>Connection to MTA Metro-North Railroad</i>				
Stairway	1.20	D	0.92	C
Escalator (Up)	0.51	C	0.71	D
Escalator (Down)	0.51	C	0.66	D

* LOS for stairways, corridors, and passageways are defined by Volume/svcd ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).

c) Commuter Railroad Stations

Commuter rail trips at Penn Station and Grand Central Terminal are projected to increase in the 2025 Future Without the Proposed Action based on the projected annual background growth (see Table 20-78), as well as the initiation of LIRR service to Grand Central Terminal upon completion of the East Side Access project, which includes a new LIRR terminal below the existing MTA Metro-North terminal. This additional service would result in the reduction of commuter trips to Penn Station, with many passengers redirected to Grand Central Terminal. Commuter demand at Penn Station is projected to be approximately 60,000 inbound riders in the AM peak hour and over 44,000 outbound riders in the PM peak hour (reductions of approximately 4,800 and 2,300 riders, respectively). Total Metro-North and LIRR commuter demand at Grand Central Terminal is projected to be approximately 75,000 inbound riders in the AM peak hour and approximately 50,000 outbound riders in the PM peak hour (increases of 40,000 and 50,000 riders, respectively). Overall, the two terminals are projected to accommodate an increase of approximately 35,000 riders in the AM peak hour and 25,000 riders in the PM peak hour.

Based on analyses of the terminals' pedestrian elements presented in the MTA's East Side Access project (East Side Access MTA Long Island Rail Road Grand Central Connection Final Environmental Impact Statement, March 2001), the additional commuter rail demand at Grand Central Terminal (Metro-North Railroad and Long Island Rail Road) and demand at Penn Station (Long Island Rail Road) could be accommodated by the terminals in the 2025 Future Without the Proposed Action.

NJ Transit has projected a shortfall in seated capacity in the future of "4,000 to 5,000 [seats] by 2020" (Access to the Region's Core Summary Report 2003) with or without the Proposed Action. Having completed a Major Investment Study, NJ Transit is conducting an environmental review under NEPA (ARC Study) to investigate and select the most appropriate measures to increase service to address the long-term demand (which would also address any demand that may be generated by the 2025 Future Without the Proposed Action).

TABLE 20-78
2025 FUTURE WITHOUT THE PROPOSED ACTION – COMMUTER RAILROAD STATION
UTILIZATION

	AM Peak Hour Inbound Trips			PM Peak Hour Outbound Trips		
	Existing	2025 Future Without the Proposed Action	Increase	Existing	2025 Future Without the Proposed Action	Increase
Penn Station						
Long Island Rail Road	46,521	35,746	-10,775	31,193	23,950	-7,243
New Jersey Transit	17,584	23,575	5,991	14,553	19,520	4,967
<i>Total</i>	<i>64,105</i>	<i>59,321</i>	<i>-4,784</i>	<i>45,746</i>	<i>43,470</i>	<i>-2,276</i>
Grand Central Terminal						
Metro-North Railroad	35,694	46,545	10,851	25,542	33,140	7,598
Long Island Rail Road	0	28,061	28,061	0	18,801	18,801
<i>Total</i>	<i>35,694</i>	<i>74,606</i>	<i>38,912</i>	<i>25,542</i>	<i>51,941</i>	<i>26,399</i>
Commuter Rail Total	99,799	133,927	34,128	71,288	95,411	24,123

d) Bus Service

Based on the background growth rate throughout the study area, plus the additional demand generated by other area projects, demand for bus service in the 2025 Future Without the Proposed Action is projected to increase. As presented in Table 20-79 through Table 20-82, the existing levels of bus service would be sufficient to provide adequate supply to meet the projected demand in the 2025 Future Without the Proposed Action for most bus routes in the peak hours. The following 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:

- M-11 (southbound) in the AM peak hour: With a deficit of 130 passengers, two additional buses would be needed in addition to the existing service plan to meet the projected demand;
- M-11 (southbound) in the PM peak hour: With a deficit of 22 passengers, one additional bus would be needed in addition to the existing service plan to meet the projected demand;
- M-11 (southbound) in the Sunday Special Event peak hour: With a deficit of 68 passengers, two additional buses would be needed in addition to the existing service plan to meet the projected demand;
- M-34/M-16 (eastbound) in the PM peak hour: With a deficit of 28 passengers, one additional bus would be needed in addition to the existing service plan to meet the projected demand; and
- M-34/M-16 (westbound) in the PM peak hour: With a deficit of 86 passengers, two additional buses would be needed in addition to the existing service plan to meet the projected demand.

**TABLE 20-79
2025 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(AM PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity – Volume)
M-4	NB	13	65	845	411	32	434
	SB	18	65	1,170	802	45	368
M-5	NB	4	65	260	182	46	78
	SB	11	65	715	586	53	129
M-6	NB	4	65	260	190	47	70
	SB	4	65	260	123	31	137
M-7	NB	4	65	260	172	43	88
	SB	8	65	520	418	52	102
M-10/M-20 ³	NB	12	65	780	345	29	435
	SB	12	65	780	528	44	252
M-11	NB	7	65	455	400	57	55
	SB	9	65	585	715	79	(130)
M-23	EB	11	93	1,023	677	62	346
	WB	11	93	1,023	667	61	356
M-34/M-16 ³	EB	14	65	910	868	62	42
	WB	14	65	910	855	61	55
M-42	EB	34	65	2,210	1,832	54	378
	WB	14	65	910	481	34	429
M-50/M-27 ³	EB	23	65	1,495	1,086	47	409
	WB	9	65	585	361	40	224
M-104	NB	8	65	520	292	37	228
	SB	11	65	715	439	40	276
Q-32	EB	9	65	585	249	28	336
	WB	9	65	585	479	53	106

¹ All data are for peak load points; buses per hour based on existing service plans.

² Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

³ Data include both routes, which service the same corridor within the study area.

**TABLE 20-80
2025 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(PM PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity - Volume)
M-4	NB	14	65	910	642	46	268
	SB	7	65	455	335	48	120
M-5	NB	6	65	390	250	42	140
	SB	7	65	455	189	27	266
M-6	NB	8	65	520	315	39	205
	SB	6	65	390	173	29	217
M-7	NB	9	65	585	387	43	198
	SB	8	65	520	287	36	233
M-10/M-20 ³	NB	13	65	845	586	45	259
	SB	12	65	780	273	23	507
M-11	NB	7	65	455	447	64	8
	SB	7	65	455	477	68	(22)
M-23	EB	10	93	930	607	61	323
	WB	11	93	1,023	777	71	246
M-34/M-16 ³	EB	12	65	780	808	67	(28)
	WB	12	65	780	866	72	(86)
M-42	EB	13	65	845	502	39	343
	WB	16	65	1,040	988	62	52
M-50/M-27 ³	EB	11	65	715	365	33	350
	WB	12	65	780	389	32	391
M-104	NB	14	65	910	721	51	189
	SB	12	65	780	324	27	456
Q-32	EB	8	65	520	496	62	24
	WB	8	65	520	173	22	347

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-81
2025 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS (WEEKNIGHT
SPECIAL EVENT PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity - Volume)
M-4	NB	7	65	455	225	32	230
	SB	5	65	325	113	23	212
M-5	NB	7	65	455	200	29	255
	SB	5	65	325	79	16	246
M-6	NB	5	65	325	115	23	210
	SB	4	65	260	58	15	202
M-7	NB	8	65	520	225	28	295
	SB	6	65	390	120	20	270
M-10/M-20 ³	NB	12	65	780	320	27	460
	SB	13	65	845	187	14	658
M-11	NB	6	65	390	165	27	225
	SB	7	65	455	174	25	281
M-23	EB	6	93	558	215	36	343
	WB	7	93	651	266	38	385
M-34/M-16 ³	EB	7	65	455	219	31	236
	WB	8	65	520	249	31	271
M-42	EB	5	65	325	147	29	178
	WB	6	65	390	173	29	217
M-50/M-27 ³	EB	9	65	585	125	14	460
	WB	10	65	650	118	12	532
M-104	NB	10	65	650	314	31	336
	SB	9	65	585	162	18	423
Q-32	EB	7	65	455	240	34	215
	WB	6	65	390	94	16	296

- 1 All data are for peak load points; buses per hour based on existing service plans.
- 2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).
- 3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-82
2025 FUTURE WITHOUT THE PROPOSED ACTION – BUS OPERATING CONDITIONS (SUNDAY
SPECIAL EVENT PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	Hourly Volume ¹	Average Volume per Bus	Hourly Available Capacity (Capacity - Volume)
M-4	NB	8	65	520	193	24	327
	SB	7	65	455	189	27	266
M-5	NB	6	65	390	226	38	164
	SB	5	65	325	181	36	144
M-6	NB	7	65	455	232	33	223
	SB	6	65	390	147	25	243
M-7	NB	8	65	520	306	38	214
	SB	9	65	585	134	15	451
M-10/M-20 ³	NB	10	65	650	426	43	224
	SB	10	65	650	218	22	432
M-11	NB	6	65	390	295	49	95
	SB	7	65	455	523	75	(68)
M-23	EB	7	93	651	371	53	280
	WB	7	93	651	354	51	297
M-34/M-16 ³	EB	8	65	520	405	51	115
	WB	8	65	520	415	52	105
M-42	EB	6	65	390	196	33	194
	WB	5	65	325	108	22	217
M-50/M-27 ³	EB	5	65	325	58	12	267
	WB	5	65	325	86	17	239
M-104	NB	15	65	975	557	37	418
	SB	14	65	910	381	27	529
Q-32	EB	8	65	520	245	31	275
	WB	8	65	520	209	26	311

- 1 All data are for peak load points; buses per hour based on existing service plans.
- 2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).
- 3 Data include both routes, which service the same corridor within the study area.

e) Ferry Service

The new ferry terminal at West 39th Street is scheduled to open in Spring 2005; future demand and capacity analyses are based upon the operations of this new passenger facility. Ferry utilization in the 2025 Future Without the Proposed Action is projected to increase to a maximum peak of approximately 3,100 passengers in the AM peak hour. (Demands in the PM and Special Event peak periods are anticipated to be less than the AM peak hour.) The existing capacity of current ferry services is anticipated to be sufficient to handle the additional demand on all six of its routes.

For the 2025 Future Without the Proposed Action, increases in peak hour weekday ridership are projected to vary from approximately 1 percent (Belford, New Jersey to Pier 78, New York, requiring a transfer at Pier 11/Wall Street, New York) to 94 percent (Lincoln Harbor, New Jersey to Pier 78, New York). The ferry ridership in the peak direction during the AM and PM peak hours is presented in Table 20-83.

TABLE 20-83
2025 FUTURE WITHOUT THE PROPOSED ACTION – FERRY RIDERSHIP IN PEAK DIRECTION

Ferry Routes	AM Peak Hour (New York Bound)				PM Peak Hour (New Jersey Bound)			
	Total Capacity	Demand	Percent Utilized	Remaining Capacity	Total Capacity	Demand	Percent Utilized	Remaining Capacity
Port Imperial, New Jersey to Pier 78, New York	2,394	1,546	65%	848	2,394	1,065	45%	1,329
Lincoln Harbor, New Jersey to Pier 78, New York	596	559	94%	37	596	562	94%	34
Hoboken, New Jersey to Pier 78, New York	596	536	90%	60	596	206	35%	390
Colgate, New Jersey to Pier 78, New York	298	273	92%	25	298	230	77%	68
Newport, New Jersey to Pier 78, New York	447	217	49%	230	447	90	20%	357
Belford, New Jersey to Pier 78, New York (requires transfer at Pier 11/Wall Street, New York)	700	5	1%	695	700	9	1%	691

3. Pedestrian Conditions

a) Sidewalks

In the 2025 Future Without the Proposed Action, pedestrian volumes are not anticipated to increase significantly. The following 16 sidewalk locations are projected to operate with flow rates of LOS D or worse during any of the analysis hours in the 2025 Future Without the Proposed Action (Figure 20-14):

- North side of West 31st Street, east of Ninth Avenue (Midday peak hour);
- South side of West 33rd Street, east of Ninth Avenue (Midday peak hour);
- West side of Eighth Ave, north of West 33rd Street (PM peak hour);
- South side of 33rd Street, west of Eighth Avenue (Midday peak hour);
- West side of Eighth Ave, south of West 39th Street (PM peak hour);
- East side of Eighth Ave, north of West 39th Street (AM and PM peak hours);
- West side of Eighth Ave, north of West 42nd Street (AM and PM peak hours)
- West side of Eighth Ave, south of West 42nd Street (PM peak hour)
- South side of West 42nd Street, east of Eighth Avenue (AM and PM peak hours)
- East side of Eighth Ave, south of West 42nd Street (AM, Midday and PM peak hours)
- North side of West 33rd Street, east of Seventh Avenue (PM peak hour);
- South side of West 33rd Street, west of Sixth Avenue (PM peak hour);
- East side of Sixth Ave, north of West 34th Street (Midday and PM peak hours);
- East side of Sixth Ave, south of West 34th Street (Midday peak hour);
- South side of West 34th Street, west of Broadway (PM peak hour);
- North side of West 34th Street, west of Broadway (PM peak hour).

b) Corners

In the 2025 Future Without the Proposed Action, the following 26 corner locations are projected to operate with flow rates at LOS D or worse in any of the analysis hours (see Figure 20-14):

- Ninth Avenue at West 31st Street, northeast corner (Midday peak hour);
- Ninth Avenue at West 33rd Street, northeast corner (Midday peak hour);
- Ninth Avenue at West 33rd Street, southeast corner (AM, Midday and PM peak hours);
- Ninth Avenue at West 33rd Street, southwest corner (Midday and PM peak hours);
- Ninth Avenue at West 42nd Street, northeast corner (AM, Midday and PM peak hours);
- Eighth Avenue at West 33rd Street, southwest corner (PM peak hour);
- Eighth Avenue at West 33rd Street, northwest corner (AM, Midday, and PM peak hours);
- Eighth Avenue at West 34th Street, northeast corner (weeknight Special Event peak hour);
- Eighth Avenue at West 34th Street, southeast corner (weeknight Special Event peak hour);
- Eighth Avenue at West 34th Street, southwest corner (weeknight Special Event peak hour);
- Eighth Avenue at West 34th Street, northwest corner (PM peak hour);
- Eighth Avenue at West 37th Street, southwest corner (Midday and PM peak hours);
- Eighth Avenue at West 39th Street, northeast corner (AM and PM peak hours);
- Eighth Avenue at West 39th Street, southeast corner (Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, southwest corner (Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, northwest corner (AM, Midday and PM peak hours);
- Eighth Avenue at West 42nd Street, northeast corner (PM peak hour);
- Eighth Avenue at West 42nd Street, southeast corner (AM, Midday and PM peak hours);
- Eighth Avenue at West 42nd Street, northwest corner (AM and PM peak hours);
- Seventh Avenue at West 33rd Street, northeast corner (Midday, and PM peak hours);

- Seventh Avenue at West 33rd Street, southeast corner (AM, Midday and PM peak hours);
- Seventh Avenue at West 33rd Street, northwest corner (PM peak hour);
- Sixth Avenue at West 33rd Street, southeast corner (PM peak hour);
- Sixth Avenue at West 33rd Street, southwest corner (PM peak hour);
- Sixth Avenue at West 34th Street, northeast corner (Midday and PM peak hours);
- Sixth Avenue at West 34th Street, southeast corner (Midday and PM peak hours).

c) Crosswalks

In the 2025 Future Without the Proposed Action, the following 45 crosswalk locations are projected to operate with flow rates of LOS D or worse in any of the analysis hours (see Figure 20-14):

- Ninth Avenue at West 30th Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 31st Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 33rd Street, east crosswalk (Midday peak hour);
- Ninth Avenue at West 33rd Street, west crosswalk (Midday peak hour);
- Ninth Avenue at West 34th Street, east crosswalk (Midday and PM peak hours);
- Ninth Avenue at West 42nd Street, north crosswalk (PM peak hour);
- Ninth Avenue at West 42nd Street, south crosswalk (Midday and PM peak hours);
- Ninth Avenue at West 42nd Street, west crosswalk (PM peak hour);
- Eighth Avenue at West 30th Street, east crosswalk (Midday and PM peak hours);
- Eighth Avenue at West 30th Street, west crosswalk (Midday peak hour);
- Eighth Avenue at West 33rd Street, north crosswalk (AM and PM peak hour);
- Eighth Avenue at West 33rd Street, east crosswalk (AM, Midday, PM, weeknight Special Event, and Sunday Special Event peak hours);
- Eighth Avenue at West 33rd Street, west crosswalk (AM, Midday, PM, weeknight Special Event, and Sunday Special Event peak hours);
- Eighth Avenue at West 34th Street, north crosswalk (Midday, and PM peak hours);
- Eighth Avenue at West 34th Street, east crosswalk (Midday, PM, and weeknight Special Event peak hours);
- Eighth Avenue at West 34th Street, south crosswalk (weeknight Special Event peak hour);
- Eighth Avenue at West 34th Street, west crosswalk (AM, Midday, PM, and Sunday Special Event peak hours);
- Eighth Avenue at West 37th Street, east crosswalk (AM, Midday, and PM peak hour);
- Eighth Avenue at West 37th Street, west crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, east crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 39th Street, south crosswalk (Midday peak hour);
- Eighth Avenue at West 39th Street, west crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 42nd Street, north crosswalk (AM and PM peak hours);
- Eighth Avenue at West 42nd Street, east crosswalk (Midday and PM peak hours);
- Eighth Avenue at West 42nd Street, south crosswalk (AM, Midday, and PM peak hours);
- Eighth Avenue at West 42nd Street, west crosswalk (AM and PM peak hours);
- Seventh Avenue at West 31st Street, north crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 31st Street, east crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 31st Street, south crosswalk (PM peak hour);
- Seventh Avenue at West 31st Street, west crosswalk (AM and PM peak hours);
- Seventh Avenue at West 33rd Street, north crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 33rd Street, east crosswalk (AM, Midday, and PM peak hours);
- Seventh Avenue at West 33rd Street, south crosswalk (AM, Midday, and PM peak hours);

- Seventh Avenue at West 33rd Street, west crosswalk (AM, MIDDAY, and PM peak hours);
- Seventh Avenue at West 34th Street, north crosswalk (AM and MIDDAY peak hours);
- Seventh Avenue at West 34th Street, south crosswalk (AM peak hour);
- Seventh Avenue at West 34th Street, west crosswalk (AM peak hour);
- Sixth Avenue at West 33rd Street, north crosswalk (PM peak hour);
- Sixth Avenue at West 33rd Street, west crosswalk (AM, MIDDAY, and PM peak hours);
- Sixth Avenue at West 34th Street, north crosswalk (MIDDAY and PM peak hours);
- Sixth Avenue at West 34th Street, east crosswalk (AM, MIDDAY, PM, and Sunday Special Event peak hours);
- Sixth Avenue at West 34th Street, south crosswalk (MIDDAY and PM peak hours);
- Broadway at West 34th Street, north crosswalk (AM, MIDDAY, and PM peak hours);
- Broadway at West 34th Street, south crosswalk (MIDDAY and PM peak hours);
- Broadway at West 34th Street, west crosswalk (MIDDAY and PM peak hours).

d) Bicycle Facilities

Increased utilization of existing bicycle facilities throughout the study area is anticipated as a result of background growth and completion of other local projects. No significant changes to the infrastructure of existing bicycle facilities are anticipated in the 2025 Future Without the Proposed Action.

J. 2025 FUTURE WITH THE PROPOSED ACTION

1. Conditions for Analysis

To project conditions for future years, it is necessary to account for all changes to the built environment anticipated between existing and future conditions that would be realized only with the Proposed Action. Significant adverse impacts not attributable to the Proposed Action are not included in these assessments and are not indicated in the Future With the Proposed Action tables. The elements that were included in the 2025 Future With the Proposed Action, not previously included in the 2010 Future With the Proposed Action, are described below. 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 Appendix S.1. The methodologies developed for these analyses utilize assumptions consistent with those incorporated in the traffic analysis.

a) Rezoning and Related Land Use Actions

The reasonable worst-case development scenario is based on a long-term forecast for development potential that can reasonably be expected to occur within the Project Area with the Proposed Action, projected to be approximately 43 million square feet.

Commercial Office and Retail Development

The long-term development projections — 28 million square feet of office use and approximately one million square feet of retail use — represent the market study’s estimate of growth in the foreseeable “long-term” future. It is likely that some of this development would not materialize until after 2025, which is the ultimate future analysis year for the Proposed Action. However, given the margin of error inherent in any long-term projection, and to be conservative for purposes of this FGEIS, the 2025 scenario assumes that up to 28 million square feet of office and up to 1.1 million square feet of retail development would be in place by 2025.

In order to model the reasonable worse-case scenario, relocation of Madison Square Garden has been included in the evaluation for two reasons. A relocated MSG would be larger, generating more trips

than to the current site, and since the relocated site would no longer be located above Penn Station (a significant transit hub), the percentage of attendees walking from the transit hub to the new site would be anticipated to increase. With more trips and a greater percentage of pedestrian trips, relocation of MSG is anticipated to result in more significant adverse impacts to the street network than maintaining MSG at its current site.

A through-block, east-west connection would also be developed through Projected Development Site 31 along the alignment of West 32nd Street, west of the relocated MSG site, connecting across Tenth Avenue and connecting through to the eastern portion of Caemmerer Yard. Between Seventh and Eighth Avenues, the pedestrian connection would be an at-grade east-west walkway in the vicinity of West 32nd Street, with a north-south through block connection between West 31st and West 33rd Streets. Between Eighth and Ninth Avenues (Farley Building), the connection would be a through-building east-west walkway on West 32nd Street with a north-south mid-block walkway between West 31st and West 33rd Streets. At-grade crosswalks would also be provided at West 32nd Street at Eighth Avenue and Ninth Avenue. Due to the relocation of MSG, there would be no continuous walkway between Ninth and Tenth Avenues. Pedestrians exiting from the Farley Building/Penn Station at Ninth Avenue would go around to either West 31st Street or West 33rd Street to continue their trip to Tenth Avenue. Between Tenth and Eleventh Avenues, pedestrians would utilize the public open space between West 30th and West 33rd Streets.

Residential Use

Given the strong current market for residential development, the market study estimated that approximately 12,600 units would be constructed by 2025.

Sidewalk Widening

As part of the proposed Special Hudson Yards District rezoning, widening of certain sidewalks would be required for site development. Mandatory sidewalk widenings that have been incorporated into the analysis of the Future With the Proposed Action are presented in Figure 20-10.

b) No. 7 Subway Extension

The Proposed Action would include the extension of the No. 7 Subway west from its current terminus at Times Square, approximately one mile. The line would extend west under West 41st Street and curve to the south along a 500-foot radius into Eleventh Avenue. A new Terminal Station would be located at approximately West 34th Street and Eleventh Avenue by 2010. Those elements would be completed by 2010. An Intermediate Station would be opened at approximately West 41st Street and Tenth Avenue by 2025.

c) Midblock Park and Boulevard System

The Proposed Action includes a Midblock Park and Boulevard System between Tenth and Eleventh Avenues, extending from a large open space on the eastern portion of Caemmerer Yard to West 39th Street. At West 39th Street, the open space would connect via 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, 34th, 35th, 36th, 37th, and 38th Streets. The portion from Caemmerer Yard to West 34th Street would be completed first by 2010, with the remainder from West 34th Street to West 39th Street to be completed by 2025. Below the boulevard, from West 34th Street to West 36th Street, a 950-space public parking garage would be constructed by 2025 to accommodate a portion of the parking demand generated throughout the study area.

d) PANYNJ Bus Garage

Because the Proposed Action would provide significant development opportunities, it is anticipated that the PANYNJ would, over time, consolidate its bus parking in Project Area in one location. Currently, PANYNJ stores buses on several lots throughout Project Area. For purposes of this

FGEIS, it is assumed that the new garage would occupy Projected Development Site 21 (between West 38th and West 39th Streets, Ninth to Tenth Avenues) within a 450,000-square-foot structure. The planned PANYNJ Bus Garage would accommodate the need for additional capacity within the Project Area, and particularly in the area surrounding the Port Authority Bus Terminal. Therefore, it is conservatively assumed, for analytical purposes, in the 2025 Future With the Proposed Action; however, it is not an element of the Proposed Action. The garage is anticipated to include a direct ramp connection to the Port Authority Bus Terminal.

2. Transit Network

a) Subway Line-Haul Analysis

In the 2025 Future With the Proposed Action, the peak load points for the inbound Flushing line in the AM peak hour are projected to be the same as in the 2025 Future Without the Proposed Action – at 40th Street (Lowery Street) for the local route and at Woodside–61st Street for the express route. The line-haul v/c ratios at these stations would be the same as in the 2025 Future Without the Proposed Action. The line-haul v/c ratio at Woodside–61st Street station is projected to remain at 1.01 in both the Future With and Without the Proposed Action. Ridership would increase by 20 passengers in the Future With the Proposed Action, which is less than one person per car, and not considered a significant impact (as per the CEQR Technical Manual).

Due to the construction of two additional stations west of Times Square–42nd Street, the current No. 7 terminal at Times Square–42nd Street would no longer function as a terminal where trains begin and end, but as a through station with an associated dwell time for passengers to enter and exit the train.

Implementation of the Proposed Action would also significantly change transfer patterns at all three of the existing Manhattan stations on the No. 7 Line. In the Future Without the Proposed Action, Times Square–42nd Street, Fifth Avenue–Bryant Park, and Grand Central–42nd Street stations would remain serving predominantly one-way passenger flows. In the Future With the Proposed Action, since the No. 7 Line would travel along its extended route to Hudson Yards, passengers would access the No. 7 Subway platform to travel in both directions, causing reverse flows of passengers boarding and alighting from trains. With additional passengers boarding in both directions, dwell times at these stations are anticipated to increase based on a comparison of existing dwell times on routes that have similar train loads, transfer volumes, transfer types, and station configurations. Despite these extended dwell times, it is anticipated that adequate line-haul capacity could be maintained.

Appendix S.4 presents the line-haul data for all No. 7 subway stations in the 2025 Future With the Proposed Action.

b) Subway Station Element Analysis

Development of the Proposed Action is projected to increase transit utilization at various points throughout the study area. As presented in Table 20-84 through Table 20-87, increased utilization in the 2025 Future With the Proposed Action, when compared to the 2025 Future Without the Proposed Action, would result in 40 subway station elements affected in the AM peak hour and 23 in the PM peak hour, out of the 311 analyzed. Within the study area, increased transfers are anticipated at No. 7 Line stations (as opposed to additional entries/exits that are anticipated at other Study Area stations).

TABLE 20-84
2025 FUTURE WITH THE PROPOSED ACTION– AFFECTED SUBWAY STATION ELEMENTS
(AM PEAK HOUR)

Subway Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street–Herald Square (B, D, F, N, Q, R, V, and W)				
<i>Control Area Booth A25 – 32nd Street and Sixth Avenue</i>				
Stairway H&M 300	0.77	C	1.26**	D**
Stairway S2AB (NW)	1.49	E	1.51	E
Stairway M1AB	1.49	E	1.51	E
<i>Control Area Booth N507 – 32nd Street to 33rd Street and Sixth Avenue</i>				
Stairway H&M 307	2.01	F	2.24**	F**
Escalator E222	0.93	E	1.04**	F**
Escalator E223	1.32	F	1.55**	F**
<i>Control Area Booth N506 – 34th Street and Broadway</i>				
Stairway S5AB (NW)	1.59	E	1.61	E
Stairway M5AB	1.59	E	1.61	E
42nd Street–Bryant Park (B, D, F, and V)				
<i>Control Area Booth N504 – 42nd Street and Sixth Avenue</i>				
Stairway S4 (NW)	1.71	F	1.74	F
Stairway M4	1.71	F	1.74	F
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform to 42nd Street and Broadway</i>				
Stairway PL5	0.34	A	1.41**	E**
Stairway PL7AB	0.34	A	1.38**	E**
Stairway PL8AB	0.58	B	1.36**	E**
<i>Seventh Avenue Platform (northbound)</i>				
Stairway ML6/ML8	0.53	B	1.35**	E**
Stairway ML10/ML12	0.91	C	1.73**	F**
Stairway P4/P6	0.85	C	1.10	D
Stairway P8/P10	0.46	B	1.05	D
<i>Seventh Avenue Platform (southbound)</i>				
Stairway ML5/ML7	1.25	D	2.07**	F**
Stairway ML9/ML11	0.43	A	1.25**	D**
Stairway P3/P5	1.34	E	1.76**	F**
Stairway P7/P9	0.88	C	1.30**	D**
42nd Street–Port Authority Bus Terminal (A, C, and E)				
<i>Control Area Booth N63A to 40th Street and Eighth Avenue</i>				
Stairway S3 (NW)	0.84	C	1.01	D
<i>Control Area Booth –Northwest corner of 42nd Street and Eighth Avenue</i>				
High Entrance/Exit Turnstile	1.05	F	1.21**	F**
34th Street–Penn Station (A, C, and E)				
<i>Control Area Booth N68 – 35th Street and Eighth Avenue (East)</i>				
Stairway S14 (NE/W)	1.02	D	1.12	D
<i>Control Area Booth N71 – 34th Street and Eighth Avenue (West)</i>				
Stairway S8 (NW)	1.21	D	1.32	D
<i>Control Area Booth N73 – 33rd Street and Eighth Avenue</i>				
Stairway S4 (NW)	1.06	D	1.18	D
Stairway P3	1.06	D	1.18	D
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL6	0.80	C	1.06	D
Stairway PL9AB	1.00	D	1.03	D
<i>Passageway to Lexington Avenue Line</i>				
Passageway	0.35	A	1.06	D
<i>Lexington Avenue Line Platform (southbound)</i>				
Stairway P12	1.63	E	1.68**	F**
Stairway P14	2.39	F	2.47**	F**
Stairway P18	1.19	D	1.24	D
Stairway P22	1.78	F	1.87**	F**
Stairway U1	0.61	B	1.04	D
Stairway U3	0.61	B	1.04	D
Stairway U5	0.75	C	1.31**	D**
Stairway U7	0.78	C	1.37**	E**
<i>Lexington Avenue Line Platform (northbound)</i>				
Stairway P23	1.30	D	1.40**	E**
<i>Control Area 238 (Connection to Metro-North)</i>				
Stairway M6ABC/M7ABC	1.20	D	1.51**	E**

LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).

** Denotes significant adverse impacts.

**TABLE 20-85
2025 FUTURE WITH THE PROPOSED ACTION— AFFECTED SUBWAY STATION ELEMENTS
(PM PEAK HOUR)**

Subway Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
34th Street—Herald Square (B, D, F, N, Q, R, V, and W)				
<i>Control Area Booth A25 – 32nd Street and Sixth Avenue</i>				
Stairway H&M 300	0.95	C	1.50**	E**
<i>Control Area Booth N506 to 34th Street and Broadway</i>				
Stairway S5AB (SW)	1.21	D	1.23	D
Stairway M5AB	1.21	D	1.23	D
<i>Control Area Booth N507 – 32nd Street to 33rd Street and Sixth Avenue</i>				
Escalator E221	1.56	F	1.80**	F**
Escalator E223	1.25	F	1.28**	F**
Escalator E224	0.87	E	1.11**	F**
34th Street—Penn Station (1, 2, 3, and 9)				
<i>Control Area Booth R142 (34th Street and Seventh Avenue, west)</i>				
Stairway S5 (NW)	0.97	C	1.01	D
Times Square—42nd Street (N, Q, R,W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 Line Platform</i>				
Stairway PL5	0.31	A	1.09**	D**
Stairway PL7AB	0.87	C	1.51**	E**
Stairway PL8AB	0.79	C	1.27**	D**
Escalator E216 (Up)	0.09	A	1.01**	F**
<i>Seventh Avenue Platform (northbound)</i>				
Stairway ML6/ML8	0.68	B	1.26**	D**
Stairway P4/P6	1.16	D	1.44**	E**
Stairway P8/P10	0.38	A	1.03	D
<i>Seventh Avenue Platform (southbound)</i>				
Stairway ML5/ML7	0.75	C	1.33**	E**
Stairway P3/P5	1.02	D	1.49**	E**
34th Street—Penn Station (A, C, and E)				
<i>Control Area Booth N71 – 34th Street and Eighth Avenue (West)</i>				
Stairway S6 (SW)	0.74	C	1.04	D
42nd Street—Port Authority Bus Terminal (A, C, and E)				
<i>Control Area Booth N63A – 40th Street and Eighth Avenue</i>				
Stairway S3 (NW)	0.95	C	1.12	D
<i>Control Area – 42nd Street and Eighth Avenue, northwest corner</i>				
High Entrance/Exit Turnstile	1.16	F	1.28**	F**
Stairway S8 (northwest)	0.94	C	1.04	D
Grand Central—42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lexington Avenue Line Platform (Southbound)</i>				
Stairway P14	1.93	F	1.98**	F**
Stairway U6	0.90	C	1.07	D
Stairway U8	0.90	C	1.07	D

LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D). LOS for turnstiles, escalators, and HEETs are defined by v/c ratio criteria (volume to capacity).

** Denotes significant adverse impacts.

TABLE 20-86
2025 FUTURE WITH THE PROPOSED ACTION– AFFECTED SUBWAY STATION ELEMENTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 line Platform</i>				
Stairway PL3	0.36	A	1.01	D
Escalator E209 (Up/Down)	0.05	A	1.20**	F**

Note: LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D).

*** Denotes significant adverse impacts.*

TABLE 20-87
2025 FUTURE WITH THE PROPOSED ACTION – AFFECTED SUBWAY STATION ELEMENTS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS
Grand Central–42nd Street (4, 5, 6, 7, and 42nd Street Shuttle)				
<i>Lower Mezzanine to No. 7 line Platform</i>				
Stairway PL3	0.20	A	1.01	D
Escalator E207 (Up)	0.05	A	1.19**	F**
<i>Connection to Lexington Avenue Line</i>				
Passageway	0.19	A	1.08	D

Note: LOS for stairways, corridors, and passageways are defined by Volume/SVCD ratio criteria and service criteria (volume of service at LOS C/D).

*** Denotes significant adverse impacts.*

Of the affected elements, 21 would have significant adverse impacts (significant adverse impacts are adverse impacts that would require mitigation to return operations to an acceptable LOS) in the AM peak hour and 14 would have significant adverse impacts in the PM peak hour. Most of the significant adverse impacts would occur at the Times Square–42nd Street and Grand Central–42nd Street stations, as a result of the additional transfer movements to and from the No. 7 Line (Figure 20-13). The unmitigated impact previously identified in the 2010 Future with the Proposed Action AM peak hour would not be a significant impact in 2025 due to increased transit services (i.e., Second Avenue subway line and East Side Access), which would shift demand to different locations.

Of the 37 elements analyzed for the Special Event peak hours, two are projected to be affected in the weeknight Special Event peak hour and three are projected to be affected in the Sunday Special Event peak hour. In each of the Special Event peak hours, one of the affected elements would have a significant adverse impact. Table 20-84 through Table 20-87 also present subway station elements with significant adverse impacts.

c) Commuter Railroad Stations

Commuter rail trips at Penn Station and Grand Central Terminal are projected to increase in the 2025 Future With the Proposed Action compared to the 2025 Future Without the Proposed Action. Penn Station is projected to accommodate approximately 3,300 additional inbound riders in the AM peak hour and 3,800 additional outbound riders in the PM peak hour (Table 20-88). Grand Central Terminal is projected to accommodate approximately 5,200 additional inbound riders in the AM peak hour and over 6,000 additional outbound riders in the PM peak hour. Based on analyses of the terminals' pedestrian elements presented in the MTA's East Side Access project (*East Side Access MTA Long Island Rail Road Grand Central Connection Final Environmental Impact Statement, March 2001*), commuter rail demand at Grand Central Terminal (Metro-North Railroad and Long Island Rail Road) and demand at Penn Station (Long Island Rail Road) could be accommodated by the terminals. No significant impacts to these services are anticipated.

NJ Transit has projected a shortfall in seated capacity in the future of "4,000 to 5,000 [seats] by 2020" (*Access to the Region's Core Summary Report 2003*) with or without the Proposed Action. Having completed a Major Investment Study, NJ Transit is conducting an environmental review under NEPA (ARC Study) to investigate and select the most appropriate measures to increase service to address the long-term demand (which would also address any demand that may be generated by the 2025 Future With the Proposed Action).

TABLE 20-88
2025 FUTURE WITH THE PROPOSED ACTION – COMMUTER RAILROAD STATION UTILIZATION

	AM Peak Hour Inbound Trips			PM Peak Hour Outbound Trips		
	2025 Future Without the Proposed Action	2025 Future With the Proposed Action	Increase	2025 Future Without the Proposed Action	2025 Future With the Proposed Action	Increase
Penn Station						
Long Island Rail Road	35,746	37,403	1,657	23,950	25,862	1,912
New Jersey Transit	23,575	25,174	1,599	19,520	21,364	1,844
<i>Total</i>	<i>59,321</i>	<i>62,577</i>	<i>3,256</i>	<i>43,470</i>	<i>47,226</i>	<i>3,756</i>
Grand Central Terminal						
Metro-North Railroad	46,545	50,060	3,515	33,140	37,194	4,054
Long Island Rail Road	28,061	30,273	2,212	18,801	21,352	2,551
<i>Total</i>	<i>74,606</i>	<i>80,333</i>	<i>5,727</i>	<i>51,941</i>	<i>58,546</i>	<i>6,605</i>
Commuter Rail Total	133,927	142,910	8,983	95,411	105,772	10,361

d) Bus Service

In the Proposed Action in 2025, demand for bus service is projected to increase throughout the study area compared to the 2025 Future Without the Proposed Action. Several modifications to the existing service plans would be required to meet this additional demand. Table 20-89 through Table 20-92 present the anticipated demand for bus service in the 2025 Future with the Proposed Action, compare the future demand to the existing capacity, and indicate how many additional buses would be required on each route to meet the additional demand. As shown in the tables, the following routes would require additional service to meet the projected demand in the 2025 Future With the Proposed Action. (The additional number of buses required is based on the existing service plan of operating standard buses on these routes. Conversion to articulated buses is discussed in the Proposed Mitigation section.):

M-10/M-20: Four additional buses southbound in the AM peak hour, 13 additional buses northbound in the PM peak hour, and one additional bus northbound in the Sunday Special Event peak hour would be needed to supplement the existing service plans to meet the projected demand.

M-11: In the AM peak hour, four additional buses would be needed northbound to supplement the existing service plan to meet the projected demand; 37 additional buses would be needed southbound. In the PM peak hour, 41 additional standard buses would be needed northbound to supplement the existing service plan to meet the projected demand; eight additional buses would be needed southbound. One additional bus northbound and five additional buses southbound would be needed in the weeknight Special Event peak hour. In the Sunday Special Event peak hour, five additional buses would be needed northbound and nine additional buses would be needed southbound.

M-34/M-16: In the AM peak hour, one bus eastbound and 31 buses westbound would be required in addition to the existing service plan to meet the projected demand. In the PM peak hour, 32 additional buses would be required eastbound and six buses would be required westbound. 18 additional buses would be needed westbound in the weeknight Special Event peak hour. In the Sunday Special Event peak hour, 13 additional buses would be needed northbound and four additional buses would be needed southbound.

M-42: In the AM peak hour, 14 additional buses would be needed westbound to supplement the existing service plan to meet the projected demand. In the PM peak hour, 19 additional buses would be required eastbound and four additional buses would be required westbound. One additional bus would be needed in each direction in the Sunday Special Event peak hour.

Q-32: Two additional buses westbound in the AM peak hour and three eastbound in the PM peak hour would be required to meet the projected increase in demand.

TABLE 20-89
2025 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS (AM PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Project Generated Trips	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	13	65	845	0	411	32	434	0
	SB	18	65	1,170	0	802	45	368	0
M-5	NB	4	65	260	12	194	49	66	0
	SB	11	65	715	26	612	56	103	0
M-6	NB	4	65	260	21	211	53	49	0
	SB	4	65	260	11	134	33	126	0
M-7	NB	4	65	260	24	196	49	64	0
	SB	8	65	520	97	515	64	5	0
M-10/	NB	12	65	780	255	600	50	180	0
M-20 ³	SB	12	65	780	469	997	83	(217)	4
M-11	NB	7	65	455	304	704	101	(249)	4
	SB	9	65	585	2,230	2,944	327	(2,359)	37
M-23	EB	11	93	1,023	0	677	62	346	0
	WB	11	93	1,023	0	667	61	356	0
M-34/	EB	14	65	910	59	927	66	(17)	1
M-16 ³	WB	14	65	910	2,031	2,886	206	(1,976)	31
M-42	EB	34	65	2,210	201	2,033	60	177	0
	WB	14	65	910	1,277	1,758	126	(848)	14
M-50/	EB	23	65	1,495	2	1,089	47	406	0
M-27 ³	WB	9	65	585	-2	359	40	226	0
M-104	NB	8	65	520	0	292	37	228	0
	SB	11	65	715	0	439	40	276	0
Q-32	EB	9	65	585	13	262	29	323	0
	WB	9	65	585	181	660	73	(75)	2

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-90
2025 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS (PM PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Project Generated Trips	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	14	65	910	0	642	46	268	0
	SB	7	65	455	0	335	48	120	0
M-5	NB	6	65	390	32	282	47	108	0
	SB	7	65	455	3	192	27	263	0
M-6	NB	8	65	520	14	329	41	191	0
	SB	6	65	390	28	202	34	188	0
M-7	NB	9	65	585	134	521	58	64	0
	SB	8	65	520	36	323	40	197	0
M-10/ M-20 ³	NB	13	65	845	1,040	1,626	125	(781)	13
	SB	12	65	780	235	508	42	272	0
M-11	NB	7	65	455	2,634	3,081	440	(2,626)	41
	SB	7	65	455	462	939	134	(484)	8
M-23	EB	10	93	930	0	607	61	323	0
	WB	11	93	1,023	0	777	71	246	0
M-34/ M-16 ³	EB	12	65	780	2,018	2,826	236	(2,046)	32
	WB	12	65	780	282	1,148	96	(368)	6
M-42	EB	13	65	845	1,545	2,047	157	(1,202)	19
	WB	16	65	1,040	262	1,250	78	(210)	4
M-50/ M-27 ³	EB	11	65	715	-4	361	33	354	0
	WB	12	65	780	1	390	32	390	0
M-104	NB	14	65	910	0	721	51	189	0
	SB	12	65	780	0	324	27	456	0
Q-32	EB	8	65	520	213	709	89	(189)	3
	WB	8	65	520	22	194	24	326	0

Routes with insufficient capacity based on existing service plan denoted in shading

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

TABLE 20-91
2025 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS (WEEKNIGHT
SPECIAL EVENT PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Project Generated Trips	2025 Future With the Proposed Action Hourly Volume ¹	Average Capacity per Bus	Hourly Capacity (Surplus/ Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	7	65	455	0	225	32	230	0
	SB	5	65	325	0	113	23	212	0
M-5	NB	7	65	455	1	201	29	254	0
	SB	5	65	325	0	80	16	245	0
M-6	NB	5	65	325	1	116	23	209	0
	SB	4	65	260	1	59	15	201	0
M-7	NB	8	65	520	4	229	29	291	0
	SB	6	65	390	3	123	20	267	0
M-10/	NB	12	65	780	210	530	44	250	0
M-20 ³	SB	13	65	845	217	404	31	441	0
M-11	NB	6	65	390	247	412	69	(22)	1
	SB	7	65	455	563	737	105	(282)	5
M-23	EB	6	93	558	0	215	36	343	0
	WB	7	93	651	0	266	38	385	0
M-34/	EB	7	65	455	58	278	40	177	0
	M-16 ³	WB	8	65	520	1,441	211	(1,170)	18
M-42	EB	5	65	325	58	205	41	120	0
	WB	6	65	390	53	225	38	165	0
M-50/	EB	9	65	585	0	126	14	459	0
	M-27 ³	WB	10	65	650	1	119	12	531
M-104	NB	10	65	650	0	314	31	336	0
	SB	9	65	585	0	162	18	423	0
Q-32	EB	7	65	455	109	349	50	106	0
	WB	6	65	390	3	97	16	293	0

Routes with insufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-92
2025 FUTURE WITH THE PROPOSED ACTION – BUS OPERATING CONDITIONS
(SUNDAY SPECIAL EVENT PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Project Generated Trips	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/Deficit)	Additional Buses Needed to Meet Excess Demand Generated by Proposed Action
M-4	NB	8	65	520	0	193	24	327	0
	SB	7	65	455	0	189	27	266	0
M-5	NB	6	65	390	4	231	38	159	0
	SB	5	65	325	2	183	37	142	0
M-6	NB	7	65	455	3	236	34	219	0
	SB	6	65	390	4	152	25	238	0
M-7	NB	8	65	520	17	323	40	197	0
	SB	9	65	585	12	146	16	439	0
M-10/ M-20 ³	NB	10	65	650	277	703	70	(53)	1
M-11	SB	10	65	650	205	423	42	227	0
	NB	6	65	390	404	700	117	(310)	5
M-23	SB	7	65	455	498	1,021	146	(566)	9
	EB	7	93	651	0	371	53	280	0
M-34/ M-16 ³	WB	7	93	651	0	354	51	297	0
	EB	8	65	520	946	1,351	169	(831)	13
M-42	WB	8	65	520	341	756	94	(236)	4
	EB	6	65	390	223	419	70	(29)	1
M-50/ M-27 ³	WB	5	65	325	219	327	65	(2)	1
	EB	5	65	325	-2	55	11	270	0
M-104	WB	5	65	325	-1	84	17	241	0
	NB	15	65	975	0	557	37	418	0
Q-32	SB	14	65	910	0	381	27	529	0
	EB	8	65	520	68	314	39	206	0
	WB	8	65	520	15	224	28	296	0

Routes with sufficient capacity based on existing service plan denoted in shading.

1 All data are for peak load points; buses per hour based on existing service plans.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

e) **Ferry Service**

Ferry utilization in the 2025 Future With the Proposed Action is projected to significantly increase compared to demand in the 2025 Future Without the Proposed Action. The existing capacity of current ferry services is not anticipated to be sufficient to accommodate the additional demand on all six of its routes. Demand for the following routes is projected to be greater than the existing service provides:

- Lincoln Harbor, New Jersey to Pier 78, New York (AM and PM peak hours);
- Hoboken, New Jersey to Pier 78, New York (AM peak hour); and
- Colgate, New Jersey to Pier 78, New York (AM and PM peak hour).

Each of these deficits could be satisfied by adding one additional ferry trip per hour. This increased demand is therefore not anticipated to result in significant adverse impacts on service operations. This demand could be accommodated by the new passenger per hour terminal. The ferry ridership in the peak direction during the AM and PM peak hours is presented in Table 20-93.

Based on the existing schedule of 21 ferry trips (see Table 20-19), approximately 5,000 passengers currently can be served in the commuter peak hour (an average of 240 passengers per ship). In the 2025 Future With the Proposed Action, the Proposed Action is projected to generate a total demand for ferry services of 6,989 passengers in the weeknight Special Event peak hour and 6,891 in the Sunday Special Event peak hour. Operation of weekday peak hour service plus eight and nine additional ferry trips, respectively, would provide the required capacity to meet the Special Event peak hour demand. NY Waterway's ferry fleet has sufficient capacity to meet this demand. It is anticipated that the operator would reassign ferries used in the weekday to World Financial Center routes onto the Midtown routes to accommodate the demand of the Special Event peak periods. The new passenger terminal would also provide adequate capacity to meet the Special Event peak hour demand.

**TABLE 20-93
2025 FUTURE WITH THE PROPOSED ACTION – FERRY RIDERSHIP IN PEAK DIRECTION**

Ferry Routes	AM Peak Hour (New York Bound)						PM Peak Hour (New Jersey Bound)					
	Total Capacity	2025 Without Proposed Action Demand	Project-Generated Demand	2025 With Proposed Action Demand	Percent Utilized	Available Capacity	Total Capacity	2025 Without Proposed Action Demand	Project-Generated Demand	2025 With Proposed Action Demand	Percent Utilized	Available Capacity
Port Imperial, NJ – Pier 78, NY	2,394	1,546	346	1,892	79%	502	2,394	1,065	347	1,413	59%	981
Lincoln Harbor, NJ – Pier 78, NY	596	559	125	684	115%	(88)	596	562	183	746	125%	(150)
Hoboken, NJ – Pier 78, NY	596	536	120	656	110%	(60)	596	206	67	274	46%	322
Colgate, NJ – Pier 78, NY	298	273	61	334	112%	(36)	298	230	75	305	102%	(7)
Newport, NJ – Pier 78, NY	447	217	49	266	60%	181	447	90	29	120	27%	327
Belford, NJ – Pier 78, NY (requires transfer at Pier 11/Wall Street, NY)	700	5	1	6	1%	694	700	9	3	12	2%	688

3. Pedestrian Conditions

a) Sidewalks

Pedestrian volumes are projected to significantly increase in the 2025 Future With the Proposed Action based on the multiple elements of the Proposed Action. Moderate increases are anticipated during the weekday peak hours, resulting in moderate adverse impacts to sidewalk operations. Table 20-94 and Figure 20-15 present the one sidewalk location with a significant impact for the PM peak hour. Of the 413 sidewalk locations analyzed for the weekday peak hours, one significant impact is anticipated during the PM peak hour (the southern sidewalk at West 33rd Street, east of Tenth Avenue).

Future improvements to pedestrian infrastructure as part of the Proposed Action, including sidewalk widenings (see Figure 20-10), restriping of pavement, and street markings, are anticipated to improve pedestrian safety conditions throughout the Project Area.

During the Special Event peak hours, the pedestrian volumes generated by the proposed Multi-Use Facility are anticipated to result in additional significant adverse impacts to sidewalk operations. Table 20-95 and Table 20-96 present the sidewalk locations that are projected to have significant adverse impacts in the 2025 Future With the Proposed Action compared to the Future Without the Proposed Action, in the Special Event peak hours. Of the 193 sidewalk locations analyzed for the Special Event peak hours, significant adverse impacts at the same seven locations along the 34th Street corridor during both the weeknight and Sunday Special Event peak hours are anticipated. These significant adverse impacts would occur only on a limited number of days throughout the year – roughly 10 to 11 weeknights and eight to nine Sundays – and only for the limited period when people are traveling to and from an event.

**TABLE 20-94
2025 FUTURE WITH THE PROPOSED ACTION – SIDEWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (PM PEAK HOUR)**

Intersection	2025 Future Without the Proposed Action					2025 Future With the Proposed Action				
	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS
10th Ave. @ 33rd St.	4	138	10	5	B	4	1,737	10	16	E

*p/f/m – pedestrians per foot of width per minute
See Figure 20-8 for sidewalk location key.*

**TABLE 20-95
2025 FUTURE WITH THE PROPOSED ACTION – SIDEWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Intersection	2025 Future Without the Proposed Action					2025 Future With the Proposed Action				
	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS
11th Ave. @ 33rd St.	1	3	12	4	B	1	3,660	12	24	E
	4	2	10	4	B	4	1,811	10	16	E
11th Ave. @ 34th St.	6	3	12	4	B	6	3,664	12	24	E
10th Ave. @ 33rd St.	4	44	10	4	B	4	3,939	10	30	F
	7	6	10	4	B	7	2,926	10	24	E
9th Ave. @ 33rd St.	6	63	12	4	B	6	3,306	17	17	E
	7	129	10	5	B	7	4,502	15	24	E

*p/f/m – pedestrians per foot of width per minute
See Figure 20-8 for sidewalk location key.*

**TABLE 20-96
2025 FUTURE WITH THE PROPOSED ACTION – SIDEWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)**

Intersection	2025 Future Without the Proposed Action					2025 Future With the Proposed Action				
	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS	Sidewalk	15 Min Vol. Two-Way	Effective Sidewalk Width (feet)	p/f/m	LOS
11th Ave. @ 33rd St.	1	4	12	4	B	1	4,535	12	29	F
	4	2	10	4	B	4	2,286	10	19	E
11th Ave. @ 34th St.	6	6	12	4	B	6	4,757	12	30	F
10th Ave. @ 33rd St.	4	150	10	5	B	4	4,287	10	33	F
	7	60	10	4	B	7	3,260	10	26	F
9th Ave. @ 33rd St.	6	85	12	4	B	6	3,591	17	18	E
	7	201	10	5	B	7	4,970	15	26	F

*p/f/m – pedestrians per foot of width per minute
See Figure 20-8 for sidewalk location key.*

b) Corners

Pedestrian volumes at corners are anticipated to significantly increase in the 2025 Future With the Proposed Action and result in additional significant adverse impacts throughout the study area. Table 20-97 through Table 20-101 and Figure 20-15 present the corner locations that are projected to have significant adverse impacts in the 2025 Future With the Proposed Action compared to the 2025 Future Without the Proposed Action. Of the 192 corners analyzed for the weekday peak hours and 90 corners analyzed for the Special Event peak hours, 10 significant adverse impacts in the AM peak hour, 19 in the Midday peak hour, 18 in the PM peak hour, seven in the weeknight Special Event peak hour, and eight in the Sunday Special Event peak hour are anticipated.

**TABLE 20-97
2025 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (AM PEAK HOUR)**

Intersection	Corner	2025 Future Without the Proposed Action			2025 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
10th Ave. @ 33rd St.	Northeast	12	388	A	12	11	E
	Southeast	9	332	A	9	7	E
	Southwest	12	357	A	12	9	E
10th Ave. @ 35th St.	Southeast	12	616	A	12	14	E
9th Ave. @ 33rd St.	Northeast	15	43	B	15	11	E
	Southeast	15	18	D	15	1	F
9th Ave. @ 42nd St.	Northeast	12	18	D	12	9	E
8th Ave. @ 33rd St.	Northwest	15	12	E	15	9	E
8th Ave. @ 42nd St.	Southeast	13	8	E	13	7	E
7th Ave. @ 33rd St.	Southeast	15	16	D	15	13	E

SF/P – square feet of space per pedestrian

**TABLE 20-98
2025 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (MIDDAY PEAK HOUR)**

Intersection	Corner	2025 Future Without the Proposed Action			2025 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
10th Ave. @ 30th St.	Northwest	13	98	B	13	11	E
10th Ave. @ 33rd St.	Northeast	12	63	B	12	14	E
	Southeast	9	64	B	9	10	E
	Southwest	12	59	B	12	3	F
	Northwest	10	63	B	10	12	E
10th Ave. @ 34th St.	Southeast	20	130	A	20	9	E
	Southwest	20	151	A	20	14	E
10th Ave. @ 35th St.	Southeast	12	179	A	12	6	E
10th Ave. @ 37th St.	Northeast	15	218	A	15	13	E
9th Ave. @ 31st St.	Northeast	15	13	E	15	7	E
9th Ave. @ 33rd St.	Northeast	15	18	D	15	8	E
	Southeast	15	12	E	15	4	F
	Northwest	15	27	C	15	10	E
	Southwest	20	46	B	20	13	E
9th Ave. @ 42nd St.	Northeast	12	11	E	12	5	F
8th Ave. @ 33rd St.	Northwest	15	14	E	15	11	E
8th Ave. @ 39th St.	Southeast	15	8	E	15	7	E
	Southwest	15	13	E	15	11	E
8th Ave. @ 42nd St.	Southeast	13	7	E	13	5	F

SF/P – square feet of space per pedestrian

TABLE 20-99
2025 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (PM PEAK HOUR)

Intersection	Corner	2025 Future Without the Proposed Action			2025 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
10th Ave. @ 33rd St.	Northeast	12	303	A	12	14	E
	Southeast	9	207	A	9	9	E
	Southwest	12	203	A	12	1	F
	Northwest	10	304	A	10	13	E
9th Ave. @ 33rd St.	Northeast	15	34	C	15	13	E
	Southeast	15	18	D	15	6	E
	Southwest	15	15	D	15	12	E
	Northwest	15	47	B	15	10	E
9th Ave. @ 34th St.	Southwest	20	43	B	20	13	E
	Northwest	20	31	C	20	12	E
9th Ave. @ 42nd St.	Northeast	12	5	F	12	3	F
8th Ave. @ 33rd St.	Southeast	15	194	A	15	13	E
	Northwest	15	9	E	15	6	E
8th Ave. @ 39th St.	Southeast	15	16	D	15	14	E
	Southwest	15	5	F	15	4	F
	Northwest	15	13	E	15	11	E
7th Ave. @ 33rd St.	Southeast	15	16	D	15	14	E
6th Ave. @ 33rd St.	Southwest	15	17	D	15	12	E

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

TABLE 20-100
2025 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2025 Future Without the Proposed Action			2025 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
11th Ave. @ 33rd St.	Southeast	15	3,657	A	15	shortfall	F
11th Ave. @ 34th St.	Southwest	18	2,343	A	18	14	E
10th Ave. @ 33rd St.	Southeast	9	716	A	9	shortfall	F
	Southwest	12	1,047	A	12	9	E
9th Ave. @ 33rd St.	Southeast	15	141	A	15	Shortfall	F
	Southwest	15	180	A	15	13	E
8th Ave. @ 34th St.	Southeast	15	17	D	15	14	E

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

TABLE 20-101
2025 FUTURE WITH THE PROPOSED ACTION – CORNER LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2025 Future Without the Proposed Action			2025 Future With the Proposed Action		
		Curb Radii	SF/P	LOS	Curb Radii	SF/P	LOS
12th Ave. @ 34th St.	Southeast	12	301	A	12	10	F
11th Ave. @ 34th St.	Southwest	18	354	A	18	shortfall	F
10th Ave. @ 33rd St.	Southeast	9	227	A	9	7	E
	Southwest	12	197	A	12	shortfall	F
9th Ave. @ 33rd St.	Northeast	15	59	B	15	13	E
	Southeast	15	46	B	15	4	F
	Southwest	15	72	B	15	5	F
	Northwest	15	141	A	15	7	E

SF/P – square feet of space per pedestrian

Shortfall= Projected condition of less than one square foot of space per pedestrian

c) Crosswalks

Pedestrian volumes at crosswalks are anticipated to increase in the 2025 Future With the Proposed Action and result in several significant adverse impacts throughout the study area. Table 20-102 through Table 20-106 and Figure 20-15 present the crosswalk locations projected to have significant adverse impacts in the 2025 Future With the Proposed Action compared to the 2025 Future Without the Proposed Action. Of the 214 crosswalks analyzed for the weekday peak hours and 103 crosswalks analyzed for the Special Event peak hours, 23 significant adverse impacts in the AM peak hour, 59 in the Midday peak hour, 32 in the PM peak hour, eight in the weeknight Special Event peak hour, and 14 in the Sunday Special Event peak hour are anticipated.

TABLE 20-102
2025 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (AM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
11th Ave @ 35th St	East	11	399	A	10	E
11th Ave @ 36th St	East	10	333	A	4	F
11th Ave @ 37th St	East	8	548	A	10	E
10th Ave @ 33rd St	North	12	217	A	11	E
	East	14	176	A	13	E
	South	11	145	A	7	E
	West	13	222	A	9	E
10th Ave @ 34th St	West	13	351	A	13	E
10th Ave @ 35th St	West	12	363	A	11	E
10th Ave @ 40th St.	West	13	850	A	14	E
10th Ave @ 41st St.	West	11.1	211	A	14	E
9th Ave @ 33rd St.	South	24	27	C	13	E
	West	13.5	28	C	9	E
8th Ave @ 31st St.	East	14.5	28	C	13	E
8th Ave @ 33rd St.	East	20	19	D	9	E
	West	24	9	E	8	E
8th Ave @ 34th St.	East	13	27	C	13	E
8th Ave @ 39th St.	East	13	9	E	8	E
7th Ave @ 31st St.	North	11	14	E	12	E
7th Ave @ 33rd St	North	11	10	E	9	E
	South	11	8	E	7	E
	West	17	15	D	12	E
7th Ave @ 34th St.	West	18	12	E	11	E

SF/P – square feet of space per pedestrian

**TABLE 20-103
2025 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (MIDDAY PEAK HOUR)**

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
11th Ave @ 29th St	East	13	58	B	14	E
11th Ave @ 30th St	East	13	71	B	9	E
11th Ave @ 35th St	East	11	38	C	8	E
11th Ave @ 36th St	East	10	29	C	5	F
11th Ave @ 37th St	East	8	49	B	9	E
11th Ave @ 38th St	East	8	191	A	8	E
10th Ave @ 29th St	West	13	47	B	8	E
10th Ave @ 30th St	North	14	60	B	14	E
	West	18	65	B	8	E
10th Ave @ 31st St	East	12	48	B	14	E
10th Ave @ 33rd St	North	12	32	C	12	E
	East	14	40	B	10	E
	South	11	28	C	7	E
	West	13	37	C	4	F
10th Ave @ 34th St	North	18	59	B	14	E
	East	13	92	B	13	E
	South	18	101	B	9	E
	West	13	83	B	6	E
10th Ave @ 35th St	North	11	104	B	12	E
	East	12	80	B	9	E
	West	12	63	B	5	F
10th Ave @ 36th St	East	12	139	A	11	E
	West	12	95	B	6	E
10th Ave @ 37th St	North	10	147	A	12	E
	East	13	120	B	12	E
	West	13	120	B	8	E
10th Ave @ 38th St	North	10	217	A	14	E
	East	13	162	A	13	E
	West	13	184	A	11	E
10th Ave @ 39th St	East	10	93	B	10	E
10th Ave @ 40th St	East	13	370	A	13	E
10th Ave @ 41st St	West	11.1	71	B	11	E
9th Ave. @ 30th St.	East	14.3	17	D	9	E
9th Ave. @ 31st St.	East	24	20	D	13	E
	West	13	24	C	12	E
9th Ave. @ 33rd St.	East	24	18	D	10	E
	West	13.5	13	E	6	E
9th Ave. @ 34th St.	East	15	16	D	10	E
	West	15	27	C	13	E
9th Ave. @ 37th St.	East	13	27	C	10	E
	West	13	26	C	11	E
9th Ave. @ 38th St.	East	13	61	B	13	E
9th Ave. @ 39th St.	East	13	39	C	13	E
9th Ave. @ 42nd St.	South	10	19	D	12	E
8th Ave. @ 30th St.	East	12.6	22	D	9	E
8th Ave @ 31st St	East	14.5	28	C	10	E
8th Ave. @ 33rd St.	East	20	12	E	6	E
	West	24	10	E	9	E
8th Ave. @ 34th St.	East	13	17	D	8	E
	West	13	11	E	10	E
8th Ave. @ 37th St.	East	13	17	D	14	E
	West	13	12	E	11	E
8th Ave. @ 39th St.	East	13	12	E	11	E
	West	13	10	E	8	E
7th Ave. @ 31st St.	East	17	16	D	13	E
7th Ave. @ 33rd St.	North	11	11	E	10	E
	South	11	9	E	8	E
	West	17	15	D	11	E
Broadway @ 34 th St	West	28	13	E	12	E

SF/P – square feet of space per pedestrian

TABLE 20-104
2025 FUTURE WITH THE PROPOSED ACTION– CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (PM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
11th Ave @ 36th St	East	10	129	B	11	E
11th Ave @ 38th St	East	8	1722	A	13	E
10th Ave. @ 33rd St.	North	12	203	A	8	E
	East	14	127	B	11	E
	South	11	86	B	5	F
	West	13	112	B	8	E
10th Ave. @ 34th St.	South	18	106	B	10	E
10th Ave. @ 35th St.	West	12	121	B	12	E
9th Ave. @ 33rd St.	South	24	27	C	12	E
	West	13.5	27	C	10	E
9th Ave. @ 42nd St.	South	10	20	D	13	E
8th Ave. @ 30th St.	East	12.6	18	D	11	E
8th Ave. @ 31st St.	East	14.5	31	C	13	E
8th Ave. @ 33rd St.	North	14.5	17	D	13	E
	East	20	10	E	5	F
	West	24	9	E	8	E
8th Ave. @ 34th St.	East	13	15	D	8	E
	West	13	10	E	9	E
8th Ave. @ 37th St.	East	13	12	E	10	E
	West	13	9	E	8	E
8th Ave. @ 39th St.	East	13	8	E	7	E
	West	13	5	F	4	F
8th Ave. @ 42nd St.	South	19	9	E	8	E
7th Ave. @ 31st St.	North	11	12	E	10	E
	East	17	15	D	14	E
	South	11	14	E	13	E
	West	17	16	D	14	E
7th Ave. @ 33rd St.	North	11	8	E	7	E
	South	11	8	E	7	E
	West	17	13	E	11	E
6th Ave. @ 34th St	East	15	13	E	12	E
Broadway @ 34th St	West	28	14	E	13	E

SF/P – square feet of space per pedestrian

TABLE 20-105
2025 FUTURE WITH THE PROPOSED ACTION– CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
12th Ave. @ 34th St.	South	15	6,713	A	14	E
11th Ave. @ 33rd St.	North	11	4,147	A	10	E
	South	11	4,147	A	5	F
11th Ave. @ 34th St.	South	18	1,325	A	9	E
10th Ave. @ 33rd St.	South	11	381	A	2	F
9th Ave. @ 33rd St.	South	24	149	A	11	E
	West	14	192	A	8	E
8th Ave. @ 34th St.	South	20	10	E	9	E

SF/P – square feet of space per pedestrian

**TABLE 20-106
2025 FUTURE WITH THE PROPOSED ACTION – CROSSWALK LOCATIONS WITH SIGNIFICANT
ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)**

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action	
			SF/P	LOS	SF/P	LOS
12th Ave. @ 39th St.	South	15	115	B	12	E
12th Ave. @ 34th St.	South	15	110	B	11	E
11th Ave. @ 30th St.	West	13	346	A	13	E
11th Ave. @ 33rd St.	North	11	2,765	A	14	E
	South	11	4,147	A	3	F
11th Ave. @ 34th St.	East	12	172	A	9	E
	South	18	177	A	7	E
	West	13	217	A	11	E
11th Ave. @ 39th St.	East	11	2,121	A	14	E
10th Ave. @ 33rd St.	South	11	89	B	2	F
9th Ave. @ 31st St.	West	13	122	B	14	E
9th Ave. @ 33rd St.	South	24	68	B	8	E
	West	13.5	70	B	6	E
8th Ave. @ 33rd St.	East	20	21	D	14	E

SF/P – square feet of space per pedestrian

d) Bicycle Facilities

As described in the 2010 Future With the Proposed Action, the 2025 Future With the Proposed Action includes the closing of West 33rd, West 39th, West 40th and West 41st Streets, west of Eleventh Avenue. As the existing bicycle routes on these streets end at Eleventh Avenue, no significant adverse impacts to utilization are anticipated due to the Proposed Action.

K. 2025 PROPOSED MITIGATION

As discussed in Section J, the 2025 Future With the Proposed Action would result in significant adverse impacts of varying degrees during multiple peak hours throughout the study area. (Measures to mitigate significant adverse impacts to transit and pedestrians resulting from the implementation of proposed traffic mitigation measures are also included.) Proposed mitigation measures for each of the elements projected to have one or more significant adverse impacts are described below. Mitigation has been proposed only where measures are practicable and feasible; where such measures are not available, the significant adverse impacts would remain unmitigated. These mitigation measures have been identified conceptually but would still require further analyses to determine their feasibility.

1. Transit Network

a) Subway Stations

Mitigation measures for subway station elements are primarily based on widening the element to provide sufficient capacity to support the projected volume of passengers moving through the element or providing an alternative route (e.g., installing a new stairway). For staircases, passageways, and corridors, widenings are recommended based on preliminary review to ensure there are no fatal flaws to the mitigation due to existing station infrastructure. Because of physical constraints, the envelope of space available for widening of existing escalators is limited. Instead, proposed mitigation for escalators is based on replacement of existing escalators with higher speed models. The nominal capacity for an escalator width at the hips of 32 inches, width at the treads of 24 inches will increase from 40 persons per minute (90 feet per minute) to 50 persons per minute (120 feet per minute). The nominal capacity for an escalator width at the hips of 48 inches, width at the treads of 40 inches will increase from 78 persons per minute (90 feet per minute) to 95 persons per minute (120 feet per minute). Implementation of these measures could provide additional capacity to mitigate some or all of the anticipated significant adverse impacts. The recommended mitigation measure for turnstile significant adverse impacts is the installation of additional turnstiles, if sufficient space is available.

Table 20-107 presents the number of station elements analyzed, indicating those that are subject to significant adverse impacts (requiring mitigation to return the element to an acceptable LOS), those that are not subject to significant adverse impacts, those that can be mitigated, and those that cannot be mitigated in the 2025 Future With the Proposed Action for the peak hours. Capital costs for implementation of the proposed mitigation measures are presented in Chapter 5.

The proposed measures would primarily provide additional capacity at stairways connecting the No. 7 Subway line platform with the Seventh Avenue line platforms or to the mezzanine levels (at Times Square–42nd Street Station) and the No. 7 line platform with the Lexington Avenue line platforms or the mezzanine levels (at Grand Central–42nd Street Station). Implementation of these measures would mitigate significant increases in stairway and mezzanine crowding, to provide adequate capacity for transferring between the subway lines.

TABLE 20-107
2025 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF SUBWAY STATION ELEMENT
SIGNIFICANT ADVERSE IMPACTS AND MITIGATION

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	311	290	21	0
PM	311	297	14	0
Weeknight	49	48	1	0
Sunday	49	48	1	0

Table 20-108 through Table 20-111 present the operating conditions of all station elements anticipated to have significant adverse impacts in the 2025 Future With the Proposed Action. The tables also present the recommended mitigation and the projected improved operating condition due to the mitigation. Upon implementation of the proposed mitigation measures, no unmitigated significant impacts would remain in any of the analysis periods.

**TABLE 20-108
SUBWAY STATION ELEMENTS – MITIGATED OPERATING CONDITIONS (AM PEAK HOUR)**

Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action and Mitigation		Mitigation
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	
34th Street–Herald Square (B, D, F, N, Q, R, V, W)							
<i>Control Area Booth A25 – Northeast Corner of 32nd Street and Sixth Avenue</i>							
Stairway H&M 300	0.77	C	1.26	D	0.83	C	Widen stairway (2 ft)
<i>Control Area Booth N507–Northwest Corner of 32nd Street and Sixth Avenue</i>							
Stairway H&M 307	2.01	F	2.24	F	1.90	F	Re-open existing closed stairway (H&M 303, 304, 305)
Escalator E222	0.93	E	1.04	F	0.89	E	Re-open existing closed stairway (H&M 303, 304, 305)
Escalator E223	1.32	F	1.55	F	1.31	F	Re-open existing closed stairway (H&M 303, 304, 305)
Times Square–42nd Street (N, Q, R, W, 1, 2, 3, 7, 9, and 42nd Street Shuttle)							
<i>Lower Mezzanine to No. 7 Line Platform</i>							
Stairway PL5	0.34	A	1.41	E	0.90	C	Widen stairway (3 ft)
Stairway PL7AB	0.34	A	1.38	E	0.97	C	Add stairway PL4 back
Stairway PL8AB	0.58	B	1.36	E	0.96	C	Widen stairway (3 ft)
<i>Seventh Avenue Platform (northbound)</i>							
Stairway ML6/ML8	0.53	B	1.35	E	0.97	C	Construct new stairway
Stairway ML10/ML12	0.91	C	1.73	F	0.97	C	Construct new stairway
<i>Seventh Avenue Platform (southbound)</i>							
Stairway ML5/ML7	1.25	D	2.07	F	1.24	D	Construct new stairway
Stairway ML9/ML11	0.43	A	1.25	D	0.99	C	Construct new stairway
Stairway P3/P5	1.34	E	1.76	F	1.30	D	Construct new stairway
Stairway P7/P9	0.88	C	1.30	D	0.98	C	Construct new stairway
42nd Street–Port Authority Bus Terminal (A, C, and E)							
<i>42nd Street and Eighth Avenue (northwest corner)</i>							
High Entrance/Exit Turnstile	1.05	F	1.21	F	0.64	D	Install third HEET
Grand Central–42nd Street (4, 5, 6, 7, 42nd Street Shuttle)							
<i>Lexington Avenue Line Platform (southbound)</i>							
Stairway P12	1.63	E	1.68	F	1.26	D	Add back Stairway P16
Stairway P14	2.39	F	2.47	F	1.89	F	Add back Stairway P16
Stairway P22	1.78	F	1.87	F	0.72	C	Construct new stairway
Stairway U5	0.75	C	1.31	D	0.94	C	Widen stairway (2 ft)
Stairway U7	0.78	C	1.37	E	0.97	C	Widen stairway (2 ft)
<i>Lexington Avenue Line Platform (northbound)</i>							
Stairway P23	1.30	D	1.40	E	0.72	C	Construct new stairway
<i>Control Area Booth 238 (Connection to Metro-North)</i>							
Stairway M6ABC/ M7ABC	1.20	D	1.51	E	0.75	C	Construct new escalator

TABLE 20-109
SUBWAY STATION ELEMENTS – MITIGATED OPERATING CONDITIONS (PM PEAK HOUR)

Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action and Mitigation		Mitigation
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	
34th Street–Herald Square (B, D, F, N, Q, R, V, W)							
<i>Control Area Booth A25 – Northeast Corner of 32nd Street and Sixth Avenue</i>							
Stairway H&M 300	0.95	C	1.50	E	0.99	C	Widen stairway (2 ft)
<i>Control Area Booth N507–Northwest Corner of 32nd Street and Sixth Avenue</i>							
Escalator E221	1.56	F	1.80	F	1.53	F	Re-open existing closed stairway (H&M 303, 304, 305)
Escalator E223	1.25	F	1.28	F	1.09	F	Re-open existing closed stairway (H&M 303, 304, 305)
Escalator E224	0.87	E	1.11	F	0.95	E	Re-open existing closed stairway (H&M 303, 304, 305)
Times Square–42nd Street (1, 2, 3, 7, 9, N, Q, R, W, and 42nd Street Shuttle)							
<i>Lower Mezzanine to No. 7 Subway Platform</i>							
Stairway PL5	0.31	A	1.09	D	0.51	B	Widen stairway (3 ft)
Stairway PL7AB	0.87	C	1.51	E	0.99	C	Add stairway PL4 back
Stairway PL8AB	0.79	C	1.27	D	0.91	C	Widen stairway (3 ft)
Escalator E-216 (Up)	0.09	A	1.01	F	0.90	E	Replace with higher speed escalator
<i>Seventh Avenue Platform (northbound)</i>							
Stairway ML6/ML8	0.68	B	1.26	D	0.71	C	Construct new stairway
Stairway P4/P6	1.16	D	1.44	E	0.99	C	Construct new stairway
<i>Seventh Avenue Platform (southbound)</i>							
Stairway ML5/ML7	0.75	C	1.33	E	0.78	C	Construct new stairway
Stairway P3/P5	1.02	D	1.49	E	0.95	C	Construct new stairway
42nd Street–Port Authority Bus Terminal (A, C, E)							
<i>42nd Street and Eighth Avenue (northwest corner)</i>							
High Entrance/Exit Turnstile	1.16	F	1.28	F	0.68	D	Install third HEET
Grand Central–42nd Street (4, 5, 6, 7, 42nd Street Shuttle)							
<i>Lexington Avenue Line Platform (southbound)</i>							
Stairway P14	1.93	F	1.98	F	1.46	E	Add back Stairway P16

TABLE 20-110
SUBWAY STATION ELEMENTS – MITIGATED OPERATING CONDITIONS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Station/Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action and Mitigation		Mitigation
	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	v/svcd or v/c Ratio*	LOS	
Grand Central–42nd Street (4, 5, 6, 7, 42nd Street Shuttle)							
<i>Lower Mezzanine to No. 7 Platform</i>							
Escalator E209 (Up/Down)	0.05	A	1.20	F	0.99	E	Replace with higher speed escalator

**TABLE 20-111
SUBWAY STATION ELEMENTS – MITIGATED OPERATING CONDITIONS (SUNDAY SPECIAL EVENT
PEAK HOUR)**

Station/ Elements	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action and Mitigation		Mitigation
	V/SVCD or V/C Ratio*	LOS	V/SVCD or V/C Ratio*	LOS	V/SVCD or V/C Ratio*	LOS	
Grand Central–42nd Street (4, 5, 6, 7, 42nd Street Shuttle)							
<i>Lower Mezzanine to No. 7 Platform</i>							
Escalator E207 (Up)	0.05	A	1.19	F	0.98	E	Replace with higher speed escalator

AM Peak Hour

- 34th Street–Herald Square (B, D, F, N, Q, R, V, and W)
 - Stairway H&M 300 could be mitigated by widening the stairway by two feet. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.26, to LOS C, with a v/svcd of 0.83.
 - Stairway H&M 307, Escalator E222, and Escalator E223 could be mitigated by re-opening the existing, but closed stairway at the southwest corner of Sixth Avenue at 33rd Street (including widening the stairway and recreating a street level vestibule). Implementation of this mitigation measure would improve the operating conditions of Stairway H&M 307 from LOS F, with a v/svcd ratio of 2.24, to LOS E, with a v/svcd of 1.90, Escalator E222 from LOS F with a v/svcd ratio of 1.04 to LOS E with a v/svcd ratio of 0.89, and Escalator E223 from LOS F with a v/svcd ratio of 1.55 to LOS F with a v/svcd ratio of 1.31.
- 42nd Street–Port Authority Bus Terminal Station (A, C, and E routes)
 - The HEET at the northwest corner of Eighth Avenue and West 42nd Street could be successfully mitigated by installation of a third HEET at the same location (to supplement the two existing HEETs). Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.21, to LOS D, with a v/svcd of 0.64. (Note: this measure has been included in mitigation for the 2010 Future With the Proposed Action.)
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W)
 - Stairway PL5 could be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.41, to LOS C, with a v/svcd of 0.90.
 - Stairway PL7AB could be mitigated by reconstructing a previously removed stairway (Stairway PL4). Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.38, to LOS C, with a v/svcd of 0.97.
 - Stairway PL8AB could be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.36, to LOS C, with a v/svcd of 0.96. (Note: this measure has been included in mitigation for the potential impact in the 2010 Future With the Proposed Action.) Stairway ML6/ML8 and ML10/ML12 could both be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the operating conditions of Stairway ML6/ML8 from LOS E, with a v/svcd ratio of 1.35, to LOS C, with a v/svcd of 0.97, and Stairway ML10/ML12 from LOS F, with a v/svcd ratio of 1.73, to LOS C, with a v/svcd of 0.97. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been included in mitigation for the potential impact at Stairway ML6/ML8 in the 2010 Future with the Proposed Action.) Stairway ML5/ML7 and Stairway ML9/ML11 could both be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the operating conditions of Stairway ML5/MI7 from LOS F, with a v/svcd ratio of 2.07, to LOS D, with a v/svcd of 1.24 and Stairway ML9/ML11 from LOS D, with a v/svcd ratio of 1.25, to LOS C, with a v/svcd of 0.99. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been

included in mitigation for the potential impact at Stairway ML5/ML7 in the 2010 Future With the Proposed Action.)

- Stairway ML9/ML11 could be mitigated by construction of a new stairway. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.25, to LOS C, with a v/svcd of 0.99.
- Stairway P3/P5 and Stairway P7/P9 could both be mitigated by construction of a new stairway and extension of the Upper Mezzanine. Implementation of this mitigation measure would improve the operating conditions of Stairway P3/P5 from LOS F, with a v/svcd ratio of 1.76, to LOS D, with a v/svcd of 1.30 and Stairway P7/P9 from LOS D, with a v/svcd ratio of 1.30, to LOS C, with a v/svcd of 0.98. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been included in mitigation for the potential impact at Stairway P3/P5 in the 2010 Future With the Proposed Action.)
- Grand Central–42nd Street Station (4, 5, 6, 7, and S)
 - Stairway P12 and Stairway P14 could both be mitigated by reconstructing a previously removed stairway (Stairway P16) to the Lexington Avenue Line Platform (southbound). Implementation of this mitigation measure would improve the operating conditions of Stairway P12 from LOS F, with a v/svcd ratio of 1.68, to LOS D, with a v/svcd ratio of 1.26 and Stairway P14 from LOS F, with a v/svcd ratio of 2.47, to LOS F, with a v/svcd ratio of 1.89.
 - Stairway P22 could be mitigated by construction of a new stairway. Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.87, to LOS C, with a v/svcd of 0.72.
 - Stairway U5 and Stairway U7 could both be mitigated by widening the stairways by two feet. Implementation of this mitigation measure would improve the operating conditions of Stairway U5 from LOS D, with a v/svcd ratio of 1.31, to LOS C, with a v/svcd of 0.94 and Stairway U7 from LOS E, with a v/svcd ratio of 1.37, to LOS D, with a v/svcd of 0.97. (Note: this measure has been included in mitigation for the potential impact at Stairway U7 in the 2010 Future with the Proposed Action.)
 - Stairway P23 could be mitigated by construction of a new stairway. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.40, to LOS C, with a v/svcd of 0.72.
 - Stairway M6ABC/M7ABC, providing connection to commuter rail service and street level, could be mitigated by replacing a portion of the stairway with a new high-speed escalator. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.51, to LOS C, with a v/svcd of 0.75. (Note: this measure has been included in mitigation for the potential impact at Stairway M6ABC/M7ABC in the 2010 Future With the Proposed Action.)

PM Peak Hour

- 34th Street–Herald Square (B, D, F, N, Q, R, V, and W)
 - Stairway H&M 300 could be mitigated by widening the stairway by two feet. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.55, to LOS C, with a v/svcd of 0.99.

- Escalator 221, Escalator E223, and Escalator E224 could be mitigated by re-opening the existing, but closed stairway at the southwest corner of Sixth Avenue at 33rd Street. Implementation of this mitigation measure would improve the operating conditions of Escalator 221 from LOS F, with a v/svcd ratio of 1.80, to LOS F, with a v/svcd of 1.53, Escalator E223 from LOS F with a v/svcd ratio of 1.28 to LOS FE with a v/svcd ratio of 1.09, and Escalator E224 from LOS F with a v/svcd ratio of 1.11 to LOS E with a v/svcd ratio of 0.95.
- 42nd Street–Port Authority Bus Terminal Station (A, C, and E)
 - The HEET at the northwest corner of Eighth Avenue and West 42nd Street could be successfully mitigated by installation of a third HEET at the same location (to supplement the two existing HEETs). Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.28, to LOS D, with a v/svcd of 0.68. (Note: this measure has been included in mitigation for the potential impact in the 2010 Future With the Proposed Action).
- Times Square–42nd Street Station (1, 2, 3, 7, 9, N, Q, R, S, and W)
 - Stairway PL5 could be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.09, to LOS B, with a v/svcd of 0.51.
 - Stairway PL7AB could be mitigated by reconstructing a previously removed stairway (Stairway PL4). Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.51, to LOS C, with a v/svcd of 0.99.
 - Stairway PL8AB could be mitigated by widening the stairway by three feet. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.27, to LOS C, with a v/svcd of 0.91. (Note: this measure has been included in mitigation for the potential impact in the 2010 Future With the Proposed Action).
 - Stairway ML6/ML8 could be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.26, to LOS C, with a v/svcd of 0.71. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been included in mitigation for the potential impact at Stairway ML6/ML8 in the 2010 Future With the Proposed Action.)
 - Stairway P4/P6 could be mitigated by construction of a new stairway and extension of the Upper Mezzanine. Implementation of this mitigation measure would improve the operating conditions from LOS D, with a v/svcd ratio of 1.44, to LOS C, with a v/svcd of 0.99. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station.
 - Stairway ML5/ML7 could be mitigated by construction of a new stairway and extension of the Lower Mezzanine. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.33, to LOS C, with a v/svcd of 0.78. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been included in mitigation for the potential impact at Stairway ML5/ML7 in the 2010 Future With the Proposed Action.)

- Stairway P3/P5 could be mitigated by construction of a new stairway and extension of the Upper Mezzanine. Implementation of this mitigation measure would improve the operating conditions from LOS E, with a v/svcd ratio of 1.49, to LOS C, with a v/svcd of 0.95. Construction of this measure would require track outages on the Seventh Avenue Express line tracks during selected nights and weekends for approximately two years, based on similar work at Atlantic Avenue station. (Note: this measure has been included in mitigation for the potential impact at Stairway P3/P5 in the 2010 Future With the Proposed Action.)
- Escalator E-216 (up) could be mitigated by replacing the existing escalator with a higher speed model. Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.01, to LOS E, with a v/svcd of 0.90.
- Grand Central–42nd Street Station (4, 5, 6, 7, and S)
 - Stairway P14 could be mitigated by reconstructing a previously removed stairway (Stairway P16) on the Lexington Avenue line platform (southbound). Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.98, to LOS E, with a v/svcd ratio of 1.46.

Weeknight Special Event Peak Hour

- Grand Central–42nd Street Station (4, 5, 6, 7, and S)
 - Escalator E-209 (up/down) providing access between the Lower Mezzanine and the No. 7 line platform could be mitigated by replacing the existing escalator with a higher speed model. Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.20, to LOS E, with a v/svcd of 0.99. (Note: this measure has been included in mitigation for the potential impact in the 2010 Future With the Proposed Action.)

Sunday Special Event Peak Hour

- Grand Central–42nd Street Station (4, 5, 6, 7, and S)
 - Escalator E-207 (up) providing access between the Lower Mezzanine and the No. 7 line platform could be mitigated by replacing the existing escalator with a higher speed model. Implementation of this mitigation measure would improve the operating conditions from LOS F, with a v/svcd ratio of 1.19, to LOS E, with a v/svcd of 0.98. (Note: this measure has been included in mitigation for the potential impact in the 2010 Future With the Proposed Action.)

b) Bus Routes

The MTA NYCT's general policy is to provide additional bus service where demand warrants, taking into account financial and operational constraints. Additional buses would therefore be added by 2010 and 2025 to the existing service plan to meet projected demands. In the event that additional standard buses could not provide sufficient capacity, the M-34/M-16 and M-11 could be converted to articulated bus service. According to the MTA NYCT guidelines, standard buses provide a capacity of 65 passengers per bus, while articulated buses service 93 passengers per bus. Table 20-112 presents the routes with projected shortfalls under current service plans attributable to the Proposed Action and the measures to eliminate these deficits. A total of 66 additional articulated buses and four additional standard buses would be required to mitigate the potential impact (see Table 20-113). As presented in Table 20-114, all routes could provide sufficient capacity either by increasing the existing standard vehicle service, or by converting the route to articulated service and adding additional vehicles.

Table 20-114 through Table 20-117 present the bus service conditions in the 2025 Future With the Proposed Condition, after implementation of the proposed mitigation measures.

TABLE 20-112
2025 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE ADJUSTMENTS TO ACCOMMODATE PROJECTED DEMANDS

Route	Direction	Buses per Hour ¹	Hourly Capacity ²	2025 Project-Generated Trips	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/Deficit)	Required Service Adjustment	Result
AM Peak Hour									
M-10/ M-20 ³	SB	12	780	469	997	83	-217	Increase Service	16 standard vehicles required (4 additional vehicles on route)
M-11	NB	7	455	304	704	101	-249	Convert Route to Articulated Vehicles; Increase service	8 articulated vehicles required (1 additional vehicle on route)
	SB	9	585	2,230	2,944	327	-2,359		32 articulated vehicles required (23 additional vehicles on route)
M-34/ M-16 ³	EB	14	910	59	927	66	-17	Convert Route to Articulated Vehicles; Increase service	10 articulated vehicles required (4 fewer vehicles on route)
	WB	14	910	2,031	2,886	206	-1,976		32 articulated vehicles required (18 additional vehicles on route)
M-42	WB	14	910	1,277	1,758	126	-848	Increase service	28 standard vehicles required (14 additional vehicles on route)
Q-32	WB	9	585	181	660	73	-75	Increase service	11 standard vehicles required (2 additional vehicles on route)
PM Peak Hour									
M-10/ M-20 ³	NB	13	845	1,040	1,626	125	-781	Increase service	26 standard vehicles required (13 additional vehicles on route)
M-11	NB	7	455	2,634	3,081	440	-2,626	Convert Route to Articulated Vehicles; Increase service	34 articulated vehicles required (27 additional vehicles on route)
	SB	7	455	462	939	134	-484		11 articulated vehicles required (4 additional vehicles on route)
M-34/ M-16 ³	EB	12	780	2,018	2,826	236	-2,046	Convert Route to Articulated Vehicles; Increase service	31 articulated vehicles required (19 additional vehicles on route)
	WB	12	780	282	1,148	96	-368		13 articulated vehicles required (1 additional vehicle on route)
M-42	EB	13	845	1,545	2,047	157	-1,202	Increase service	32 standard vehicles required (19 additional vehicles on route)
	WB	16	1,040	262	1,250	78	-210		20 standard vehicles required (4 additional vehicles on route)
Q-32	EB	8	520	213	709	89	-189	Increase service	11 standard vehicles required (3 additional vehicles on route)
Weeknight Special Event Peak Hour									
M-11	NB	6	390	247	412	69	-22	Increase service	7 standard vehicles required (1 additional vehicles on route)
	SB	7	455	563	737	105	-282		12 standard vehicles required (5 additional vehicles on route)
M-34/ M-16 ³	WB	8	520	1,441	1,690	211	-1,170	Increase service	26 standard vehicles required (18 additional vehicles on route)
Sunday Special Event Peak Hour									
M-10/ M-20 ³	NB	10	650	277	703	70	-53	Increase service	11 standard vehicles required (1 additional vehicle on route)
M-11	NB	6	390	404	700	117	-310	Increase service	11 standard vehicles required (5 additional vehicles on route)
	SB	7	455	498	1,021	146	-566		16 standard vehicles required (9 additional vehicles on route)
M-34/ M-16 ³	EB	8	520	946	1,351	169	-831	Increase service	21 standard vehicles required (13 additional vehicles on route)
	WB	8	520	341	756	94	-236		12 standard vehicles required (4 additional vehicles on route)
M-42	EB	6	390	223	419	70	-29	Increase service	7 standard vehicles required (1 additional vehicle on route)
	WB	5	325	219	327	65	-2		6 standard vehicles required (1 additional vehicle on route)

1 All data are for peak load points.

2 Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

3 Data include both routes, which service the same corridor within the study area.

**TABLE 20-113
2025 FUTURE WITH THE PROPOSED ACTION – NET ADDITIONAL BUSES RECOMMENDED FOR
MITIGATION**

Route	Maximum Number of Vehicles Serving Route (Existing)	Maximum Number of Vehicles Required to Serve Route (2025)	Net Additional Vehicles
M-10/M-20	13 Standard	26 Standard	13
M-11	9 Standard	34 Articulated	25
M-34/M-16	14 Standard	32 Articulated	18
M-42	16 Standard	28 Standard	12
Q-32	9 Standard	11 Standard	2
Total Standard	61	65	4
Total Articulated	0	66	66

**TABLE 20-114
2025 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (AM PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	13	65	845	411	32	434
	SB	18	65	1,170	802	45	368
M-5	NB	4	65	260	194	49	66
	SB	11	65	715	612	56	103
M-6	NB	4	65	260	211	53	49
	SB	4	65	260	134	34	126
M-7	NB	4	65	260	196	49	64
	SB	8	65	520	515	64	5
M-10/ M-20 ³	NB	12	65	780	600	50	180
	SB*	16	65	1,040	997	62	43
M-11	NB***	8	93	744	704	88	40
	SB***	32	93	2,976	2,944	92	32
M-23	EB	11	93	1,023	677	62	346
	WB	11	93	1,023	667	61	356
M-34/ M-16 ³	EB***	10	93	930	927	93	3
	WB***	32	93	2,976	2,886	90	90
M-42	EB	34	65	2,210	2,033	60	177
	WB**	28	65	1,820	1,758	63	62
M-50/ M-27 ³	EB	23	65	1,495	1,089	47	406
	WB	9	65	585	359	40	226
M-104	NB	8	65	520	292	37	228
	SB	11	65	715	439	40	276
Q-32	EB	9	65	585	262	29	323
	WB**	11	65	715	660	60	55

1. All data are for peak load points.
 2. Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).
 3. Data include both routes, which service the same corridor within the study area.
- * Denotes proposed increase in service.
 ** Denotes proposed conversion to articulated service.
 *** Denotes both proposed conversion to articulated service and increase in service.

TABLE 20-115
2025 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (PM PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	14	65	910	642	46	268
	SB	7	65	455	335	48	120
M-5	NB	6	65	390	282	47	108
	SB	7	65	455	192	27	263
M-6	NB	8	65	520	329	41	191
	SB	6	65	390	202	34	188
M-7	NB	9	65	585	521	58	64
	SB	8	65	520	323	40	197
M-10/ M-20 ³	NB*	26	65	1,690	1,626	63	64
	SB	12	65	780	508	42	272
M-11	NB***	34	93	3,162	3,081	91	81
	SB***	11	93	1,023	939	85	84
M-23	EB	10	93	930	607	61	323
	WB	11	93	1023	777	71	246
M-34/ M-16 ³	EB***	31	93	2,883	2,826	91	57
	WB***	13	93	1,209	1,148	88	61
M-42	EB*	32	65	2,080	2,047	64	33
	WB*	20	65	1,300	1,250	63	50
M-50/ M-27 ³	EB	11	65	715	361	33	354
	WB	12	65	780	390	33	390
M-104	NB	14	65	910	721	52	189
	SB	12	65	780	324	27	456
Q-32	EB	11*	65	715	709	64	6
	WB	8	65	520	194	24	326

¹ All data are for peak load points.

² Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

³ Data include both routes, which service the same corridor within the study area.

* Denotes proposed increase in service.

** Denotes proposed conversion to articulated service.

*** Denotes both proposed conversion to articulated service and increase in service.

**TABLE 20-116
2025 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	7	65	455	225	32	230
	SB	5	65	325	113	23	212
M-5	NB	7	65	455	201	29	254
	SB	5	65	325	80	16	245
M-6	NB	5	65	325	116	23	209
	SB	4	65	260	59	15	201
M-7	NB	8	65	520	229	29	291
	SB	6	65	390	123	21	267
M-10/ M-20 ³	NB	12	65	780	530	44	250
	SB	13	65	845	404	31	441
M-11	NB*	7	65	455	412	59	43
	SB*	12	65	780	737	61	43
M-23	EB	6	93	558	215	36	343
	WB	7	93	651	266	38	385
M-34/ M-16 ³	EB	7	65	455	278	40	177
	WB*	26	65	1,690	1,690	65	0
M-42	EB	5	65	325	205	41	120
	WB	6	65	390	225	38	165
M-50/ M-27 ³	EB	9	65	585	126	14	459
	WB	10	65	650	119	12	531
M-104	NB	10	65	650	314	31	336
	SB	9	65	585	162	18	423
Q-32	EB	7	65	455	349	50	106
	WB	6	65	390	97	16	293

¹ All data are for peak load points.

² Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

³ Data include both routes, which service the same corridor within the study area.

* Denotes proposed increase in service.

TABLE 20-117
2025 FUTURE WITH THE PROPOSED ACTION – BUS SERVICE CONDITIONS FOLLOWING
REQUIRED SERVICE ADJUSTMENTS (SUNDAY SPECIAL EVENT PEAK HOUR)

Route	Direction	Buses per Hour ¹	Capacity per Bus	Hourly Capacity ²	2025 Future With the Proposed Action Hourly Volume ¹	Average Volume per Bus	Hourly Capacity (Surplus/ Deficit)
M-4	NB	8	65	520	193	24	327
	SB	7	65	455	189	27	266
M-5	NB	6	65	390	231	39	159
	SB	5	65	325	183	37	142
M-6	NB	7	65	455	236	34	219
	SB	6	65	390	152	25	238
M-7	NB	8	65	520	323	40	197
	SB	9	65	585	146	16	439
M-10/ M-20 ³	NB	11	65	715	703	64	12
	SB	10	65	650	423	42	227
M-11	NB*	11	65	715	700	64	15
	SB*	16	65	1,040	1,021	64	19
M-23	EB	7	93	651	371	53	280
	WB	7	93	651	354	51	297
M-34/ M-16 ³	EB*	21	65	1,365	1,351	64	14
	WB*	12	65	780	756	63	24
M-42	EB*	7	65	455	419	60	36
	WB*	6	65	390	327	55	63
M-50/ M-27 ³	EB	5	65	325	55	11	270
	WB	5	65	325	84	17	241
M-104	NB	15	65	975	557	37	418
	SB	14	65	910	381	27	529
Q-32	EB	8	65	520	314	39	206
	WB	8	65	520	224	28	296

¹ All data are for peak load points.

² Hourly capacity based on MTA NYCT guideline of 65 passengers per bus and 93 passengers per articulated bus (for M-23).

³ Data include both routes, which service the same corridor within the study area.

* Denotes proposed increase in service.

Based on the MTA NYCT's on-going 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 practicable. The 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.

2. Pedestrian Conditions

Standard mitigation for projected significant adverse impacts to pedestrian conditions includes the construction of wider sidewalks and corners, and the repainting of crosswalks for additional width. As part of the Proposed Action, widening of certain sidewalks would be required for site development. Mandatory sidewalk widenings that have been incorporated into the analysis for the Future With the Proposed Action are presented in Figure 20-10.

Above-grade pedestrian bridges are proposed for locations at Twelfth Avenue at West 33rd Street to provide a direct connection into the plaza leading to the proposed Multi-Use Facility and at Twelfth Avenue between West 39th and West 40th Streets to provide a connection to the east side of Twelfth Avenue. These two proposed pedestrian bridges would mitigate potential pedestrian significant adverse impacts along Twelfth Avenue in the Special Event peak hours (this measure was also included as mitigation in the traffic analysis (see Chapter 19, "Traffic and Parking").

In the Special Event peak hours, mitigation would also include limiting West 30th Street and West 33rd Street each to one lane of vehicular traffic, with the remaining space dedicated to pedestrian movements. Certain pedestrian adverse significant impacts cannot be mitigated without resulting in significant adverse impacts on traffic conditions beyond those identified in the traffic analysis.

a) Sidewalks

Table 20-118 presents a summary of the number of sidewalk locations analyzed, not impacted, mitigated, and not mitigated for all five peak hours.

Of the 413 sidewalk locations analyzed for the weekday peak hours, one significant impact is anticipated during the PM peak hour (the southern sidewalk at West 33rd Street, east of Tenth Avenue). Table 20-119 presents the sidewalk location that would have a significant adverse impact in the 2010 Future With the Proposed Action, and the effectiveness of widening the sidewalk at this location. Standard mitigation measures would not be sufficient to mitigate this impact.

During the Special Event peak hours, the pedestrian volumes are anticipated to result in additional significant adverse impacts to sidewalk operations. Table 20-120 and Table 20-121 present the sidewalk locations that are projected to be subject to significant adverse impacts in the 2025 Future With the Proposed Action compared to the Future Without the Proposed Action, in the Special Event peak hours. Most significant adverse impacts are projected to occur along West 33rd, West 34th, and West 35th Streets. Out of the 193 sidewalk elements analyzed for the Special Event peak hours, seven significant adverse impacts would be anticipated to occur. Upon incorporation of operational mitigation measures (including dedicating all except one lane of West 31st and West 33rd Streets as pedestrian routes), unmitigated significant adverse impacts would remain at three sidewalk locations each during the weeknight and Sunday Special Event peak hours (western sidewalk of Eleventh Avenue, north of West 33rd Street; western sidewalk of Eleventh Avenue, south of West 34th Street; and western sidewalk of Ninth Avenue, south of West 33rd Street).

TABLE 20-118
2025 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF SIDEWALK SIGNIFICANT ADVERSE IMPACTS

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	413	413	0	0
Midday	413	413	0	0
PM	413	412	0	1
Weeknight	193	186	4	3
Sunday	193	186	4	3

TABLE 20-119
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(PM PEAK HOUR)

Intersection	Sidewalk Location	2025 Future Without the Proposed Action					2025 Future With the Proposed Action					2025 Future With the Proposed Action with Mitigation					
		15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	Result
			Effective Width	Actual Width				Effective Width	Actual Width				Effective Width	Actual Width			
10th Ave. @ 33rd St.	4	138	10	13	5	B	1,737	10	13	16	E	1,737	10	13	16	E	Unmitigated

Mitigated significant adverse impacts denoted by shading.
 p/f/m – Pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

TABLE 20-120
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)

Intersection	Side walk Location	2025 Future Without the Proposed Action					2025 Future With the Proposed Action					2025 Future With the Proposed Action with Mitigation					
		15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	Result
			Effective Width	Actual Width				Effective Width	Actual Width				Effective Width	Actual Width			
11th Ave. @ 33rd St.	1	3	12	15	4	B	3,660	12	15	24	E	2,703	12	15	19	E	Unmitigated
	4	2	10	13	4	B	1,811	10	13	16	E	1,811	30	35	8	C	Mitigated through operational management of route
11th Ave. @ 34th St.	6	3	12	15	4	B	3,664	12	15	24	E	2,707	12	15	19	E	Unmitigated
10th Ave. @ 33rd St.	4	44	10	13	4	B	3,939	10	13	30	F	3,939	30	35	13	D	Mitigated through operational management of route
	7	6	10	13	4	B	2,926	10	13	24	E	2,926	30	35	11	D	Mitigated through operational management of route
9th Ave. @ 33rd St.	6	63	12	15	4	B	3,306	17	20	17	E	3,306	17	20	17	E	Unmitigated
	7	129	10	13	5	B	4,502	15	18	24	E	4,502	35	40	13	D	Mitigated through operational management of route

Mitigated significant adverse impacts denoted by shading.
 p/f/m – Pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

TABLE 20-121
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – SIDEWALK LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Sidewalk Location	2025 Future Without the Proposed Action					2025 Future With the Proposed Action					2025 Future With the Proposed Action with Mitigation					
		15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	15 Min Vol. Two-Way	Sidewalk Width (feet)		p/f/m	LOS	Result
			Effective Width	Actual Width				Effective Width	Actual Width				Effective Width	Actual Width			
11th Ave. @ 33rd St.	1	4	12	15	4	B	4,535	12	15	29	F	3,456	12	15	23	E	Unmitigated
	4	2	10	13	4	B	2,286	10	13	19	E	2,286	30	35	9	C	Mitigated through operational management of route
11th Ave. @ 34th St.	6	6	12	15	4	B	4,757	12	15	30	F	3,678	12	15	24	E	Unmitigated
10th Ave. @ 33rd St.	4	150	10	13	5	B	4,287	10	13	33	F	4,287	30	35	14	D	Mitigated through operational management of route
	7	60	10	13	4	B	3,260	10	13	26	F	3,260	30	35	11	D	Mitigated through operational management of route
9th Ave. @ 33rd St.	6	85	12	15	4	B	3,591	17	20	18	E	3,591	17	20	18	E	Unmitigated
	7	201	10	13	5	B	4,970	15	18	26	F	4,970	35	40	13	D	Mitigated through operational management of route

Mitigated significant adverse impacts denoted by shading.
 p/f/m – Pedestrians per foot of width per minute
 See Figure 20-8 for sidewalk location key.

b) Corners

Of the 192 corners analyzed for the weekday peak hours and 90 corners analyzed for the Special Event peak hours, 10 significant adverse impacts in the AM peak hour, 19 in the Midday peak hour, 18 in the PM peak hour, seven in the weeknight Special Event peak hour, and eight in the Sunday Special Event peak hour are anticipated. Table 20-122 presents a summary of the number of corner locations analyzed, without impacts, mitigated, and not mitigated for all five peak hours.

Table 20-123 through Table 20-127 present the corner locations that would have significant adverse impacts in the 2025 Future With the Proposed Action, and the effectiveness of mitigation measures, including modifying traffic signal timings. Upon incorporation of the measures, unmitigated significant adverse impacts would remain at eight corner locations in the AM peak hour, 19 in the Midday peak hour, 18 in the PM peak hour, two in the weeknight Special Event peak hour, and four in the Sunday Special Event peak hour.

TABLE 20-122
2025 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF CORNER SIGNIFICANT ADVERSE
IMPACTS

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	192	182	2	8
Midday	192	173	0	19
PM	192	173	1	18
Weeknight	90	83	5	2
Sunday	90	82	4	4

**TABLE 20-123
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(AM PEAK HOUR)**

Intersection	Corner	2025 Future Without the Proposed Action						2025 Future With the Proposed Action						2025 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
10th Ave. @ 33rd St.	Northeast	2	15	3	13	388	A	2	15	3	13	11	E	2	15	3	13	11	E	Unmitigated
	Southeast	4	13	5	15	332	A	4	13	5	15	7	E	4	13	5	15	7	E	Unmitigated
	Southwest	6	15	7	13	357	A	6	15	7	13	9	E	6	15	7	13	9	E	Unmitigated
10th Ave. @ 35th St.	Southeast	4	9	5	15	616	A	4	9	5	15	14	E	4	9	5	15	15	D	Mitigated through signal timings
9th Ave. @ 33rd St.	Northeast	2	15	3	13	43	B	2	15	3	13	11	E	2	15	3	13	11	E	Unmitigated
	Southeast	4	13	5	15	18	D	4	13	5	15	1	F	4	13	5	15	1	F	Unmitigated
9th Ave. @ 42nd St.	Northeast	2	10	3	11	18	D	2	10	3	11	9	E	2	10	3	11	9	E	Unmitigated
8th Ave. @ 33rd St.	Northwest	1	15	8	14	12	E	1	15	8	14	9	E	1	15	8	14	9	E	Unmitigated
8th Ave. @ 42nd St.	Southeast	4	16	5	12	8	E	4	16	5	12	7	E	4	16	5	12	8	E	Mitigated through signal timings
7th Ave. @ 33rd St.	Southeast	4	13	5	20	16	D	4	13	5	20	13	E	4	13	5	20	13	E	Unmitigated

*Mitigated significant adverse impacts denoted by shading.
SF/P – Square feet of space per pedestrian*

**TABLE 20-124
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(MIDDAY PEAK HOUR)**

Intersection	Corner	2025 Future Without the Proposed Action						2025 Future With the Proposed Action						2025 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
10th Ave. @ 30th St.	Northwest	1	16	8	14	98	B	1	16	8	14	11	E	1	16	8	14	11	E	Unmitigated
10th Ave. @ 33rd St.	Northeast	2	15	3	13	63	B	2	15	3	13	14	E	2	15	3	13	14	E	Unmitigated
	Southeast	4	13	5	15	64	B	4	13	5	15	10	E	4	13	5	15	10	E	Unmitigated
	Southwest	6	15	7	13	59	B	6	15	7	13	3	F	6	15	7	13	3	F	Unmitigated
	Northwest	1	15	8	13	63	B	1	15	8	18	12	E	1	15	8	18	12	E	Unmitigated
10th Ave. @ 34th St.	Southeast	4	20	5	15	130	A	4	20	5	15	9	E	4	20	5	15	10	E	Unmitigated
	Southwest	6	15	7	20	151	A	6	15	7	30	14	E	6	15	7	30	14	E	Unmitigated
10th Ave. @ 35th St.	Southeast	4	9	5	15	179	A	4	9	5	15	6	E	4	9	5	15	6	E	Unmitigated
10th Ave. @ 37th St.	Northeast	2	15	3	12	218	A	2	15	3	12	13	E	2	15	3	12	13	E	Unmitigated
9th Ave. @ 31st St.	Northeast	2	13	3	13	13	E	2	13	3	13	7	E	2	13	3	13	7	E	Unmitigated
9th Ave. @ 33rd St.	Northeast	2	15	3	13	18	D	2	15	3	13	8	E	2	15	3	13	8	E	Unmitigated
	Southeast	4	13	5	15	12	E	4	13	5	15	4	F	4	13	5	15	4	F	Unmitigated
	Northwest	1	15	8	13	27	C	1	15	8	13	10	E	1	15	8	13	10	E	Unmitigated
9th Ave. @ 34th St.	Southwest	6	15	7	20	46	B	6	15	7	20	13	E	6	15	7	20	11	E	Unmitigated
9th Ave. @ 42nd St.	Northeast	2	10	3	11	11	E	2	10	3	11	5	F	2	10	3	11	5	F	Unmitigated
8th Ave. @ 33rd St.	Northwest	1	15	8	14	14	E	1	15	8	14	11	E	1	15	8	14	11	E	Unmitigated
8th Ave. @ 39th St.	Southeast	4	12	5	15	8	E	4	12	5	15	7	E	4	12	5	15	7	E	Unmitigated
	Southwest	6	15	7	12	13	E	6	15	7	12	11	E	6	15	7	12	11	E	Unmitigated
8th Ave. @ 42nd St.	Southeast	4	16	5	12	7	E	4	16	5	12	5	F	4	16	5	12	5	F	Unmitigated

Mitigated significant adverse impacts denoted by shading.
SF/P – Square feet of space per pedestrian

TABLE 20-125
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(PM PEAK HOUR)

Intersection	Corner	2025 Future Without the Proposed Action						2025 Future With the Proposed Action						2025 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
10th Ave. @ 33rd St.	Northeast	2	15	3	13	303	A	2	15	3	13	14	E	2	15	3	13	14	E	Unmitigated
	Southeast	4	13	5	15	207	A	4	13	5	15	9	E	4	13	5	15	10	E	Unmitigated
	Southwest	6	15	7	13	203	A	6	15	7	13	1	F	6	15	7	13	1	F	Unmitigated
	Northwest	1	15	8	13	304	A	1	15	8	18	13	E	1	15	8	18	13	E	Unmitigated
9th Ave. @ 33rd St.	Northeast	2	15	3	13	34	C	2	15	3	13	13	E	2	15	3	13	13	E	Unmitigated
	Southeast	4	13	5	15	18	D	4	13	5	15	6	E	4	13	5	15	6	E	Unmitigated
	Southwest	6	15	7	13	15	D	6	20	7	18	12	E	6	20	7	18	13	E	Unmitigated
	Northwest	1	15	8	13	47	B	1	15	8	13	10	E	1	15	8	13	10	E	Unmitigated
9th Ave. @ 34th St.	Southwest	6	15	7	20	43	B	6	15	7	20	13	E	6	15	7	20	14	E	Unmitigated
	Northwest	1	15	8	20	31	C	1	15	8	20	12	E	1	15	8	20	14	E	Unmitigated
9th Ave. @ 42nd St.	Northeast	2	10	3	11	5	F	2	10	3	11	3	F	2	10	3	11	3	F	Unmitigated
8th Ave. @ 33rd St.	Southeast	4	43	5	43	194	A	4	18	5	20	13	E	4	18	5	20	15	D	Mitigated through signal timing
	Northwest	1	15	8	14	9	E	1	15	8	14	6	E	1	15	8	14	6	E	Unmitigated
8th Ave. @ 34th St. **	Northwest	1	15	8	22	23	D	1	15	8	22	16	D	1	15	8	22	13	E	Unmitigated
8th Ave. @ 39th St.	Southeast	4	12	5	15	16	D	4	12	5	15	14	E	4	12	5	15	14	E	Unmitigated
	Southwest	6	15	7	12	5	F	6	15	7	12	4	F	6	15	7	12	4	F	Unmitigated
	Northwest	1	15	8	12	13	E	1	15	8	12	11	E	1	15	8	12	11	E	Unmitigated
7th Ave. @ 33rd St.	Southeast	4	13	5	20	16	D	4	13	5	20	14	E	4	13	5	20	14	E	Unmitigated
6th Ave. @ 33rd St.	Southwest	6	24	7	13	17	D	6	24	7	13	12	E	6	24	7	13	12	E	Unmitigated

Mitigated significant adverse impacts denoted by shading.
 SF/P – Square feet of space per pedestrian

**TABLE 20-126
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Intersection	Corner	2025 Future Without the Proposed Action						2025 Future With the Proposed Action						2025 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
11th Ave. @ 33rd St.	Southeast	4	13	5	15	3,657	A	4	13	5	20	shortfall	F	4	35	5	20	51	B	Mitigated through operational management of route
11th Ave. @ 34th St.	Southwest	6	15	7	20	2,343	A	6	15	7	20	14	E	6	15	7	20	19	D	Mitigated through signal timing
10th Ave. @ 33rd St.	Southeast	4	13	5	15	716	A	4	13	5	15	shortfall	F	4	35	5	15	6	E	Unmitigated
	Southwest	6	15	7	13	1,047	A	6	15	7	13	9	E	6	15	7	35	28	C	Mitigated through operational management of route
9th Ave. @ 33rd St.	Southeast	4	13	5	15	141	A	4	13	5	15	shortfall	F	4	35	5	15	32	C	Mitigated through operational management of route
	Southwest	6	15	7	13	180	A	6	20	7	18	13	E	6	20	7	40	32	C	Mitigated through operational management of route
8th Ave. @ 34th St.	Southeast	4	22	5	15	17	D	4	22	5	15	14	E	4	22	5	15	10	E	Unmitigated

Mitigated significant adverse impacts denoted by shading.
 SF/P – Square feet of space per pedestrian
 Shortfall= Projected condition of less than one square foot of space per pedestrian

TABLE 20-127
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CORNER LOCATIONS WITH SIGNIFICANT ADVERSE IMPACTS
(SUNDAY SPECIAL EVENT PEAK HOUR)

Intersection	Corner	2025 Future Without the Proposed Action						2025 Future With the Proposed Action						2025 Future With the Proposed Action with Mitigation						
		Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Sidewalk				SF/P	LOS	Result
		Location	Width	Location	Width			Location	Width	Location	Width			Location	Width	Location	Width			
12th Ave. @ 34th St.	Southeast	4	18	5	12	301	A	4	18	5	12	Shortfall	F	4	18	5	12	34	C	Mitigated through Pedestrian Bridge over 12th Ave to entrance to MUF
11th Ave. @ 34th St.	Southwest	6	15	7	20	354	A	6	15	7	20	shortfall	F	6	15	7	20	shortfall	F	Unmitigated
10th Ave. @ 33rd St.	Southeast	4	13	5	15	227	A	4	13	5	15	7	E	4	35	5	15	23	D	Mitigated through operational management of route
	Southwest	6	15	7	13	197	A	6	15	7	13	shortfall	F	6	15	7	35	4	F	Unmitigated
9th Ave. @ 33rd St.	Northeast	2	15	3	13	59	B	2	15	3	13	13	E	2	15	3	13	13	E	Unmitigated
	Southeast	4	13	5	15	46	B	4	13	5	15	4	F	4	35	5	15	28	C	Mitigated through operational management of route
	Southwest	6	15	7	13	72	B	6	20	7	18	5	F	6	20	7	40	21	D	Mitigated through operational management of route
	Northwest	1	15	8	13	141	A	1	15	8	13	7	E	1	15	8	13	7	E	Unmitigated

Mitigated significant adverse impacts denoted by shading.
 SF/P – Square feet of space per pedestrian
 Shortfall= Projected condition of less than one square foot of space per pedestrian

c) Crosswalks

Of the 214 crosswalks analyzed for the weekday peak hours and 103 crosswalks analyzed for the Special Event peak hours, 23 significant adverse impacts in the AM peak hour, 59 in the Midday peak hour, 32 in the PM peak hour, eight in the weeknight Special Event peak hour, and 14 in the Sunday Special Event peak hour are anticipated. Table 20-128 presents a summary of the number of crosswalk locations analyzed, not impacted, mitigated, and without impacts for all five peak hours.

Table 20-129 through Table 20-133 present the crosswalk locations that would have significant adverse impacts in the 2025 Future With the Proposed Action, and the effectiveness of the proposed mitigation measure for each location. The tables indicate the width of widening required to mitigate the projected significant adverse impacts, and denotes where sufficient width is unavailable for sufficient mitigation. Implementation of the proposed widenings and construction of the pedestrian bridge would mitigate a significant number of the significant adverse impacts. (This proposed pedestrian bridge was also included in the traffic analysis, as discussed in Chapter 19, “Traffic and Parking.”) Upon incorporation of the measures, unmitigated significant adverse impacts would remain at seven crosswalk locations in the AM peak hour, 22 in the Midday peak hour, 12 in the PM peak hour, four in the weeknight Special Event peak hour, and seven in the Sunday Special Event peak hour.

TABLE 20-128
2025 FUTURE WITH THE PROPOSED ACTION – SUMMARY OF CROSSWALK SIGNIFICANT
ADVERSE IMPACTS

	Analyzed	Not Impacted	Mitigated Significant Adverse Impacts	Unmitigated Significant Adverse Impacts
AM	214	191	16	7
Midday	214	155	37	22
PM	214	181	21	12
Weeknight	103	95	4	4
Sunday	103	89	7	7

TABLE 20-129
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (AM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
11th Ave @ 35th St	East	11	399	A	10	E	20	19	D	Mitigated through widening
11th Ave @ 36th St	East	10	333	A	4	F	20	9	E	Unmitigated
11th Ave @ 37th St	East	8	548	A	10	E	20	17	D	Mitigated through widening
10th Ave @ 33rd St	North	12	217	A	11	E	17	15	D	Mitigated through widening
	East	14	176	A	13	E	20	19	D	Mitigated through widening
	South	11	145	A	7	E	17	10	E	Unmitigated
	West	13	222	A	9	E	20	14	E	Unmitigated
10th Ave @ 34th St	West	13	351	A	13	E	20	17	D	Mitigated through widening
10th Ave @ 35th St	West	12	363	A	11	E	20	18	D	Mitigated through widening
10th Ave @ 40th St	West	13	850	A	14	E	20	22	D	Mitigated through widening
10th Ave @ 41st St	West	11.1	211	A	14	E	20	25	C	Mitigated through widening
9th Ave @ 33rd St	South	24	27	C	13	E	24	13	E	Unmitigated
	West	13.5	28	C	9	E	20	13	E	Unmitigated
8th Ave @ 31st St	East	14.5	28	C	13	E	20	18	D	Mitigated through widening
8th Ave @ 33rd St	East	20	19	D	9	E	20	9	E	Unmitigated
	West	24	9	E	8	E	24	9	E	Mitigated through signal timing
8th Ave @ 34th St	East	13	27	C	13	E	20	19	D	Mitigated through widening
8th Ave @ 39th St	East	13	9	E	8	E	20	13	E	Mitigated through widening
7th Ave @ 31st St	North	11	14	E	12	E	17	19	D	Mitigated through widening
7th Ave @ 33rd St	North	11	10	E	9	E	17	14	E	Mitigated through widening
	South	11	8	E	7	E	17	11	E	Mitigated through widening
	West	17	15	D	12	E	20	14	E	Unmitigated
7th Ave @ 34th St	West	18	12	E	11	E	20	12	E	Mitigated through widening

SF/P – Square feet of space per pedestrian
Mitigated significant adverse impacts denoted by shading.

TABLE 20-130
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (MIDDAY PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
11th Ave @ 29th St	East	13	58	B	14	E	20	22	D	Mitigated through widening
11th Ave @ 30th St	East	13	71	B	9	E	20	14	E	Unmitigated
11th Ave @ 35th St	East	11	38	C	8	E	20	15	D	Mitigated through widening
11th Ave @ 36th St	East	10	29	C	5	F	20	10	E	Unmitigated
11th Ave @ 37th St	East	8	49	B	9	E	20	19	D	Mitigated through widening
11th Ave @ 38th St	East	8	191	A	8	E	20	21	D	Mitigated through widening
10th Ave @ 29th St	West	13	47	B	8	E	20	12	E	Unmitigated
10th Ave @ 30th St	North	14	60	B	14	E	17	17	D	Mitigated through widening
	West	18	65	B	8	E	20	9	E	Unmitigated
10th Ave @ 31st St	East	12	48	B	14	E	20	23	D	Mitigated through widening
10th Ave @ 33rd St	North	12	32	C	12	E	17	17	D	Mitigated through widening
	East	14	40	B	10	E	20	14	E	Unmitigated
	South	11	28	C	7	E	17	11	E	Unmitigated
	West	13	37	C	4	F	20	6	E	Unmitigated
10th Ave @ 34th St	North	18	59	B	14	E	18	16	D	Mitigated through signal timing
	East	13	92	B	13	E	20	16	D	Mitigated through widening
	South	18	101	B	9	E	18	10	E	Unmitigated
	West	13	83	B	6	E	20	8	E	Unmitigated
10th Ave @ 35th St	North	11	104	B	12	E	17	19	D	Mitigated through widening
	East	12	80	B	9	E	20	16	D	Mitigated through widening
	West	12	63	B	5	F	20	8	E	Unmitigated
10th Ave @ 36th St	East	12	139	A	11	E	20	19	D	Mitigated through widening
	West	12	95	B	6	E	20	11	E	Unmitigated
10th Ave @ 37th St	North	10	147	A	12	E	17	21	D	Mitigated through widening
	East	13	120	B	12	E	20	18	D	Mitigated through widening
	West	13	120	B	8	E	20	13	E	Unmitigated
10th Ave @ 38th St	North	10	217	A	14	E	17	23	D	Mitigated through widening
	East	13	162	A	13	E	20	21	D	Mitigated through widening
	West	13	184	A	11	E	20	18	D	Mitigated through widening
10th Ave @ 39th St	East	10	93	B	10	E	20	19	D	Mitigated through widening
10th Ave @ 40th St	East	13	370	A	13	E	20	20	D	Mitigated through widening
10th Ave @ 41st St	West	11.1	71	B	11	E	20	19	D	Mitigated through widening
9th Ave. @ 30th St.	East	14.3	17	D	9	E	20	13	E	Unmitigated

**TABLE 20-130 (CONTINUED)
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (MIDDAY PEAK HOUR)**

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
9th Ave. @ 31st St.	East	24	20	D	13	E	24	13	E	Unmitigated
	West	13	24	C	12	E	20	18	D	Mitigated through widening
9th Ave. @ 33rd St.	East	24	18	D	10	E	24	10	E	Unmitigated
	West	13.5	13	E	6	E	20	9	E	Unmitigated
9th Ave. @ 34th St.	East	15	16	D	10	E	20	13	E	Unmitigated
	West	15	27	C	13	E	20	17	D	Mitigated through widening
9th Ave. @ 37th St.	East	13	27	C	10	E	20	15	D	Mitigated through widening
	West	13	26	C	11	E	20	16	D	Mitigated through widening
9th Ave. @ 38th St.	East	13	61	B	13	E	20	20	D	Mitigated through widening
9th Ave. @ 39th St.	East	13	39	C	13	E	20	19	D	Mitigated through widening
9th Ave. @ 42nd St.	South	10	19	D	12	E	17	20	D	Mitigated through widening
8th Ave. @ 30th St.	East	12.6	22	D	9	E	20	15	D	Mitigated through widening
8th Ave @ 31st St	East	14.5	28	C	10	E	20	13	E	Unmitigated
8th Ave. @ 33rd St.	East	20	12	E	6	E	20	6	E	Unmitigated
	West	24	10	E	9	E	24	10	E	Mitigated through signal timing
8th Ave. @ 34th St.	East	13	17	D	8	E	20	12	E	Unmitigated
	West	13	11	E	10	E	20	13	E	Mitigated through widening
8th Ave. @ 37th St.	East	13	17	D	14	E	20	21	D	Mitigated through widening
	West	13	12	E	11	E	20	17	D	Mitigated through widening
8th Ave. @ 39th St.	East	13	12	E	11	E	20	17	D	Mitigated through widening
	West	13	10	E	8	E	20	13	E	Mitigated through widening
7th Ave. @ 31st St.	East	17	16	D	13	E	23	18	D	Mitigated through widening
7th Ave. @ 33rd St.	North	11	11	E	10	E	17	15	D	Mitigated through widening
	South	11	9	E	8	E	17	12	E	Mitigated through widening
	West	17	15	D	11	E	20	12	E	Unmitigated
Broadway @ 34th St	West	28	13	E	12	E	28	12	E	Unmitigated

*SF/P – Square feet of space per pedestrian
Mitigated significant adverse impacts denoted by shading.*

TABLE 20-131
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (PM PEAK HOUR)

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
11th Ave @ 36th St	East	10	129	B	11	E	20	23	D	Mitigated through widening
11th Ave @ 38th St	East	8	1722	A	13	E	20	32	C	Mitigated through widening
10th Ave. @ 33rd St.	North	12	203	A	8	E	17	12	E	Unmitigated
	East	14	127	B	11	E	20	15	D	Mitigated through widening
	South	11	86	B	5	F	17	8	E	Unmitigated
	West	13	112	B	8	E	20	12	E	Unmitigated
10th Ave. @ 34th St.	South	18	106	B	10	E	18	12	E	Unmitigated
10th Ave. @ 35th St.	West	12	121	B	12	E	20	20	D	Mitigated through widening
9th Ave. @ 33rd St.	South	24	27	C	12	E	24	13	E	Unmitigated
	West	13.5	27	C	10	E	20	14	E	Unmitigated
9th Ave. @ 42nd St.	South	10	20	D	13	E	17	23	D	Mitigated through widening
8th Ave. @ 30th St.	East	12.6	18	D	11	E	20	17	D	Mitigated through widening
8th Ave. @ 31st St.	East	14.5	31	C	13	E	20	19	D	Mitigated through widening
8th Ave. @ 33rd St.	North	14.5	17	D	13	E	17	14	E	Unmitigated
	East	20	10	E	5	F	20	6	E	Unmitigated
	West	24	9	E	8	E	24	9	E	Mitigated through signal timing
8th Ave. @ 34th St.	North	20	22	D	15	D	20	13	E	Unmitigated
	East	13	15	D	8	E	20	12	E	Unmitigated
	West	13	10	E	9	E	20	13	E	Mitigated through widening
8th Ave. @ 37th St.	East	13	12	E	10	E	20	16	D	Mitigated through widening
	West	13	9	E	8	E	20	12	E	Mitigated through widening
8th Ave. @ 39th St.	East	13	8	E	7	E	20	12	E	Mitigated through widening
	West	13	5	F	4	F	20	7	E	Mitigated through widening
8th Ave. @ 42nd St.	South	19	9	E	8	E	20	9	E	Mitigated through widening
7th Ave. @ 31st St.	North	11	12	E	10	E	17	16	D	Mitigated through widening
	East	17	15	D	14	E	23	18	D	Mitigated through widening
	South	11	14	E	13	E	17	21	D	Mitigated through widening
	West	17	16	D	14	E	23	18	D	Mitigated through widening
7th Ave. @ 33rd St.	North	11	8	E	7	E	17	11	E	Mitigated through widening
	South	11	8	E	7	E	17	11	E	Mitigated through widening
	West	17	13	E	11	E	20	12	E	Unmitigated
6th Ave. @ 34th St	East	15	13	E	12	E	20	16	D	Mitigated through widening
Broadway@ 34th St	West	28	14	E	13	E	28	13	E	Unmitigated

SF/P – Square feet of space per pedestrian
 Mitigated significant adverse impacts denoted by shading.

**TABLE 20-132
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (WEEKNIGHT SPECIAL EVENT PEAK HOUR)**

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
12th Ave. @ 34th St.	South	15	6,713	A	14	E	17	8,448	A	Mitigated through pedestrian bridge over 12th Ave to plaza in front of proposed MUF
11th Ave. @ 33rd St.	North	11	4,147	A	10	E	17	15	D	Mitigated through widening
	South	11	4,147	A	5	F	39	16	D	Mitigated through operational management of route
11th Ave. @ 34th St.	South	18	1,325	A	9	E	20	12	E	Unmitigated
10th Ave. @ 33rd St.	South	11	381	A	2	F	39	9	E	Unmitigated
9th Ave. @ 33rd St.	South	24	149	A	11	E	46	21	D	Mitigated through operational management of route
	West	14	192	A	8	E	20	12	E	Unmitigated
8th Ave. @ 34th St.	South	20	10	E	9	E	20	8	E	Unmitigated

SF/P – Square feet of space per pedestrian
Mitigated significant adverse impacts denoted by shading.

**TABLE 20-133
2025 FUTURE WITH THE PROPOSED ACTION WITH MITIGATION – CROSSWALK LOCATIONS
WITH SIGNIFICANT ADVERSE IMPACTS (SUNDAY SPECIAL EVENT PEAK HOUR)**

Intersection	Crosswalk	Crosswalk Width (feet)	2025 Future Without the Proposed Action		2025 Future With the Proposed Action		2025 Future With the Proposed Action with Mitigation			
			SF/P	LOS	SF/P	LOS	Proposed Crosswalk Width (feet)	SF/P	LOS	Result
12th Ave. @ 39th St.	South	15	115	B	12	E	15	6,769	A	Mitigated through pedestrian bridge over 12th Ave. between 39th and 40th Street
12th Ave. @ 34th St.	South	15	110	B	11	E	17	127	B	Mitigated through pedestrian bridge over 12th Ave to plaza in front of proposed MUF
11th Ave. @ 30th St.	West	13	346	A	13	E	20	20	D	Mitigated through widening
11th Ave. @ 33rd St.	North	11	2,765	A	14	E	17	22	D	Mitigated through widening
	South	11	4,147	A	3	F	39	12	E	Unmitigated
11th Ave. @ 34th St.	East	12	172	A	9	E	20	10	E	Unmitigated
	South	18	177	A	7	E	20	9	E	Unmitigated
	West	13	217	A	11	E	20	11	E	Unmitigated
11th Ave. @ 39th St.	East	11	2,121	A	14	E	20	19	D	Mitigated through widening
10th Ave. @ 33rd St.	South	11	89	B	2	F	39	8	E	Unmitigated
9th Ave. @ 31st St.	West	13	122	B	14	E	20	22	D	Mitigated through widening
9th Ave. @ 33rd St.	South	24	68	B	8	E	46	16	D	Mitigated through operational management of route
	West	13.5	70	B	6	E	20	9	E	Unmitigated
8th Ave. @ 33rd St.	East	20	21	D	14	E	20	12	E	Unmitigated

SF/P – Square feet of space per pedestrian
Mitigated adverse impacts denoted by shading.

