

4. Transportation

As the commercial and economic hub of the region, 8 million daily trips are made to and from Manhattan's CBD.¹ These trips comprise vehicular trips (e.g., auto, truck, motorcycle), transit (e.g., subway, commuter rail, bus, ferry), and pedestrian and bicycle trips. Trips to and from the Manhattan CBD are generated throughout the 28-county transportation planning region used in this analysis.

Because of the size of the region and the extent of the analysis, this transportation chapter includes five subchapters:

- Subchapter 4A, Regional Transportation Effects and Modeling
- Subchapter 4B, Highways and Local Intersections
- Subchapter 4C, Transit
- Subchapter 4D, Parking
- Subchapter 4E, Pedestrians and Bicycles

A comprehensive analysis of the relevant transportation effects of the CBD Tolling Alternative is provided in each of those subchapters, along with description of the analytical framework and process used to assess the effects discussed therein. Broadly, the process entailed data collection, regional model development, simulations, and quantitative and/or qualitative analyses. Initial context is provided in the following sections to describe the density and complexity of the regional transportation network, particularly when traveling to the Manhattan CBD.

4.1 ROADWAY ACCESS TO THE MANHATTAN CBD

Manhattan is separated from the rest of New York City by the Harlem River, East River, and New York Harbor and from New Jersey by the Hudson River, with 20 vehicular bridges and tunnels connecting to Manhattan. **Figure 4-1** shows the crossings into Manhattan, and **Figure 4-2** shows all vehicular entry and exit points for the Manhattan CBD. **Table 4-1** and **Table 4-2** list the bridges and tunnels, and **Table 4-3** lists the existing (2022) toll rates for automobiles at each of the tolled crossings.

¹ New York Metropolitan Transportation Council, *Hub Bound Travel Data Report 2017*.

Figure 4-1. Existing Vehicular Crossings to Manhattan



Source: ArcGIS Online, <https://www.arcgis.com/index.html>.

Figure 4-2. Vehicular Entry and Exit Points for the Manhattan CBD



- Manhattan CBD (as defined by the MTA Reform and Traffic Mobility Act)
- Vehicular Entry/Exit Point: One-Way Traffic
- Vehicular Entry/Exit Point: Two-Way Traffic
- Vehicular Entry/Exit Point: Authorized Vehicles Only
(General traffic is not permitted in Central Park; park drives are for use by authorized vehicles only)

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Source: ArcGIS Online, <https://www.arcgis.com/index.html>.

Table 4-1. Bridges and Tunnels Connecting to Manhattan CBD

| BRIDGE OR TUNNEL | LOCATION | JURISDICTION | BRIDGE/TUNNEL TOLL |
|---------------------------|------------------------------------------------|--------------|-----------------------------------|
| Brooklyn Bridge | East River–Between Brooklyn and Manhattan | NYCDOT | Untolled |
| Manhattan Bridge | East River–Between Brooklyn and Manhattan | NYCDOT | Untolled |
| Williamsburg Bridge | East River–Between Brooklyn and Manhattan | NYCDOT | Untolled |
| Ed Koch Queensboro Bridge | East River–Between Queens and Manhattan | NYCDOT | Untolled |
| Queens-Midtown Tunnel | East River–Between Queens and Manhattan | TBTA | Inbound and outbound ¹ |
| Hugh L. Carey Tunnel | New York Harbor–Between Brooklyn and Manhattan | TBTA | Inbound and outbound ¹ |
| Holland Tunnel | Hudson River–Between New Jersey and Manhattan | PANYNJ | Inbound ¹ |
| Lincoln Tunnel | Hudson River–Between New Jersey and Manhattan | PANYNJ | Inbound ¹ |

Notes:

¹ Inbound = To or entering Manhattan; Outbound = From or leaving Manhattan.

NYCDOT = New York City Department of Transportation.

TBTA = Triborough Bridge and Tunnel Authority.

PANYNJ = Port Authority of New York and New Jersey.

Table 4-2. Bridges Connecting to Manhattan Outside the Manhattan CBD

| BRIDGE | LOCATION | JURISDICTION | BRIDGE/TUNNEL TOLL |
|----------------------------------|------------------------------------------------------------------|--------------|-----------------------------------|
| Broadway Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| University Heights Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Washington Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Alexander Hamilton Bridge (I-95) | Harlem River–Between Bronx and Manhattan | NYSDOT | Untolled |
| Macombs Dam Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| 145th Street Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Madison Avenue Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Third Avenue Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Willis Avenue Bridge | Harlem River–Between Bronx and Manhattan | NYCDOT | Untolled |
| Robert F. Kennedy Bridge | Harlem River and East River–Between Bronx, Queens, and Manhattan | TBTA | Inbound and outbound ¹ |
| Henry Hudson Bridge (Route 9A) | Harlem River–Between Bronx and Manhattan | TBTA | Inbound and outbound ¹ |
| George Washington Bridge (I-95) | Hudson River–Between New Jersey and Manhattan | PANYNJ | Inbound ¹ |

Notes: Vehicles use these bridges to reach Manhattan and then travel by Manhattan streets to the Manhattan CBD.

¹ Inbound = To or entering Manhattan; Outbound = From or leaving Manhattan.

NYCDOT = New York City Department of Transportation.

NYSDOT = New York State Department of Transportation

TBTA = Triborough Bridge and Tunnel Authority.

PANYNJ = Port Authority of New York and New Jersey.

Table 4-3. Existing (2022) Passenger Vehicle Toll Rates on Bridges and Tunnels Connecting to Manhattan

| AGENCY | BRIDGE OR TUNNEL | TOLL DIRECTION ¹ | TOLL AMOUNT:.* E-ZPass Peak | TOLL AMOUNT:.* E-ZPass Off-Peak | OTHER TOLL AMOUNTS* |
|--------|--------------------------|-----------------------------|--------------------------------|------------------------------------|------------------------------------------------|
| TBTA | Hugh L. Carey Tunnel | Inbound and outbound | \$6.55 | \$6.55 | Tolls by Mail = \$10.17 Mid-Tier = \$8.36 |
| TBTA | Queens-Midtown Tunnel | Inbound and outbound | \$6.55 | \$6.55 | Tolls by Mail = \$10.17 Mid-Tier = \$8.36 |
| TBTA | Robert F. Kennedy Bridge | Inbound and outbound | \$6.55 | \$6.55 | Tolls by Mail = \$10.17 Mid-Tier = \$8.36 |
| TBTA | Henry Hudson Bridge | Inbound and outbound | \$3.00 | \$3.00 | Tolls by Mail = \$7.50 Mid-Tier = \$4.62 |
| PANYNJ | Holland Tunnel | Inbound | \$13.75 | \$11.75 | Tolls by Mail = \$16.00 |
| PANYNJ | Lincoln Tunnel | Inbound | \$13.75 | \$11.75 | Cash Toll = \$16.00 Tolls by Mail = \$16.00 |
| PANYNJ | George Washington Bridge | Inbound | \$13.75 | \$11.75 | Tolls by Mail = \$16.00 |

¹. Inbound = To or entering Manhattan; Outbound = From or leaving Manhattan.

* Toll amounts are for vehicles with two axles and single rear wheels; higher rates apply to other vehicle classes.

Discount plans are available for certain vehicles. For more information see <https://new.mta.info/fares-and-tolls/bridges-and-tunnels/tolls-by-vehicle/cars> and <https://www.panynj.gov/bridges-tunnels/tolls.html>.

For PANYNJ facilities, E-ZPass rates apply to E-ZPass accounts issued at the E-ZPass New York and New Jersey Customer Service Centers. For TBTA facilities, E-ZPass rates apply to E-ZPass accounts issued at the New York Customer Service Center (NYCSC).

For E-ZPass accounts not issued at the NYCSC, customers pay the Tolls by Mail rate. The Mid-Tier toll rate applies to E-ZPass NYCSC customers when not using their properly mounted NYCSC E-ZPass tags, leading to charges being posted to their accounts based on their license plate.

Peak hours for PANYNJ crossings are weekdays 6:00 a.m. to 10:00 a.m. and 4:00 p.m. to 8:00 p.m. and weekends 11:00 a.m. to 9:00 p.m. TBTA does not vary its tolls by time of day.

From Brooklyn, motor vehicles can enter the Manhattan CBD using the Hugh L. Carey Tunnel beneath New York Harbor and the Brooklyn Bridge, Manhattan Bridge, and Williamsburg Bridge across the East River. From Queens, vehicles can use the Queens-Midtown Tunnel, which is the western terminus of the Long Island Expressway (I-495) and runs beneath the East River to connect with multiple streets between East 34th and East 41st Streets and Second and Third Avenues, or the Ed Koch Queensboro Bridge, which reaches Manhattan between East 59th and East 60th Streets at the Manhattan CBD boundary and connects to multiple streets between East 57th and East 62nd Streets. From New Jersey, vehicles can enter the Manhattan CBD using the Holland and Lincoln Tunnels beneath the Hudson River. Motorists from outside the Manhattan CBD can also enter via southbound roadways that enter the Manhattan CBD at 60th Street.

Motorists using the Hugh L. Carey Tunnel and Queens-Midtown Tunnel pay a toll to TBTA, which operates those tunnels and charges a toll in both directions. Motorists using the Holland and Lincoln Tunnels pay a toll to the PANYNJ, which operates those tunnels and charges a toll only in the inbound (to Manhattan) direction. Motorists using the four East River bridges, which are under the jurisdiction of NYCDOT, do not pay a toll.

Some vehicles enter the Manhattan CBD from the north using Manhattan's local street grid or the two highways on its periphery: the West Side Highway/Route 9A and Franklin D. Roosevelt (FDR) Drive. Those vehicles can enter Manhattan using untolled bridges over the Harlem River from the Bronx or one of three

other TBTA and PANYNJ crossings: the Robert F. Kennedy Bridge from the Bronx and Queens, a TBTA facility that is tolled in both directions; the Henry Hudson Bridge over the Harlem River from the Bronx, a TBTA facility that is tolled in both directions; and the George Washington Bridge over the Hudson River from New Jersey, a PANYNJ facility that is tolled in the inbound (to Manhattan) direction.²

Motorists must use the river crossings or the West Side Highway/Route 9A and the FDR Drive to access the region's interstate highways located outside the Manhattan CBD. From the Holland Tunnel, vehicles may connect to the New Jersey Turnpike Extension (I-78) and NJ Route 139 to US Routes 1 and 9. From the Lincoln Tunnel, vehicles may connect via NJ Route 495 to the New Jersey Turnpike (I-95) and NJ Routes 3 and 17. From the Hugh L. Carey Tunnel, vehicles may access the Gowanus Expressway (I-278) and Prospect Expressway (NY Route 27) in Brooklyn. The Williamsburg Bridge has direct access to the Brooklyn-Queens Expressway (I-278) in Brooklyn, and the Brooklyn and Manhattan Bridges have ramp connections to the Brooklyn-Queens Expressway near their Brooklyn landings. The Queens-Midtown Tunnel leads directly to the Long Island Expressway (I-495) in Queens. Motorists can access the interstate network north of the Manhattan CBD (I-80, I-87, I-95, and I-278, multiple parkways, and New York and New Jersey state highways) via the West Side Highway/Route 9A and Henry Hudson Parkway or the FDR Drive, either directly or using various connecting roadways. Some facilities such as the FDR Drive and certain parkways prohibit trucks and buses.

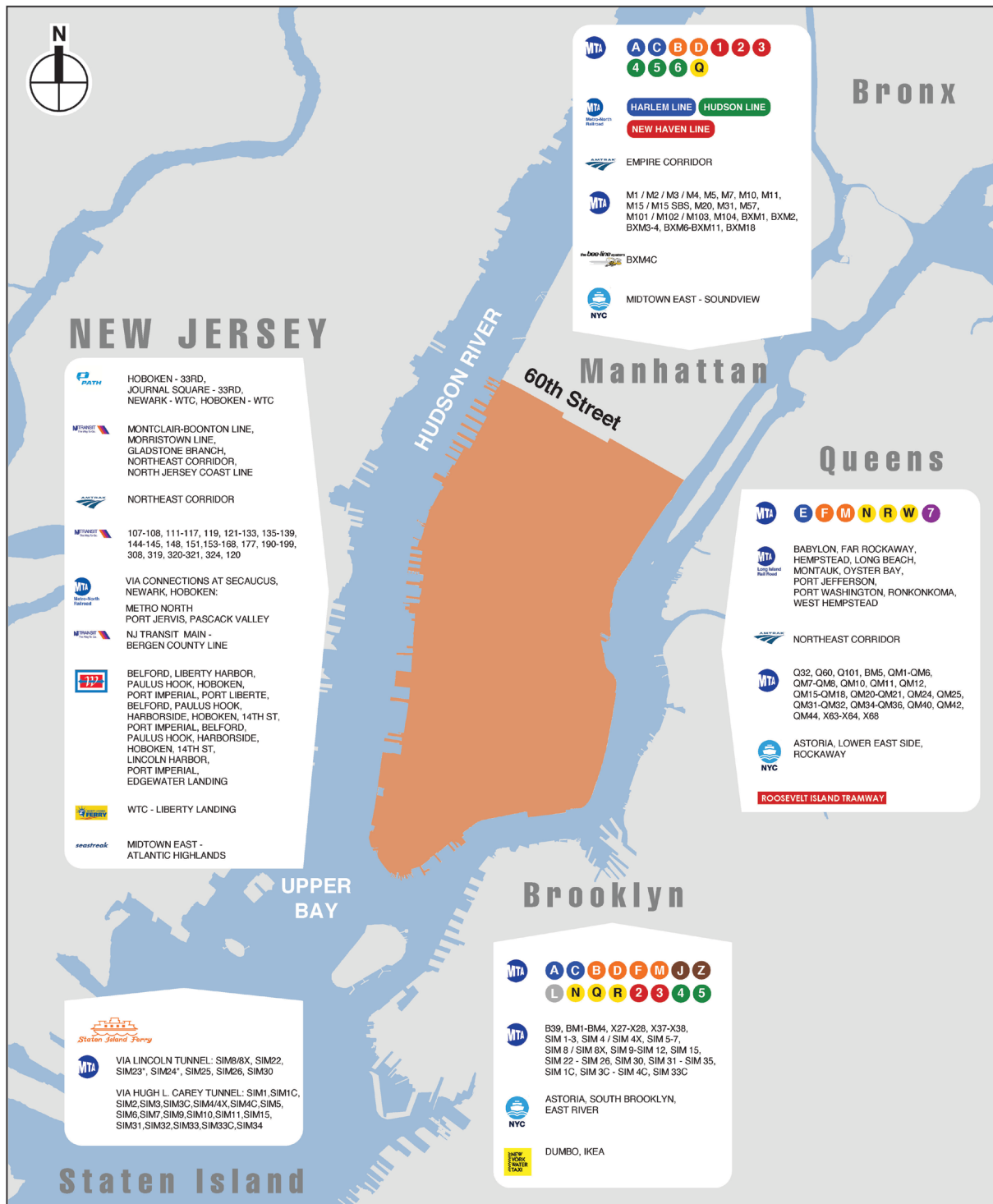
4.2 TRANSIT ACCESS TO THE MANHATTAN CBD

The New York metropolitan region has a robust transit network, much of it operating 24 hours per day/7 days per week/365 days per year, and the Manhattan CBD is the hub for much of it. People traveling to the Manhattan CBD can arrive by rail, subway, bus, tram, ferry, and paratransit (**Figure 4-3**).³

² TBTA collects tolls at its facilities using open-road, cashless tolling. Tolls are charged to E-ZPass accounts for those who have E-ZPass tags. For vehicles without E-ZPass tags, customers may participate in the regional Tolls by Mail program through which license plate images are matched with information from the relevant Department of Motor Vehicles and a bill is sent to the registered vehicle owner. Motorists can also set up temporary, short-term accounts (for example, if they are planning to use a rental car in New York City). PANYNJ accepts E-ZPass at all of its bridges and tunnels, including the Holland and Lincoln Tunnels and the George Washington Bridge. The Holland Tunnel and the George Washington Bridge operate with cashless tolling. PANYNJ currently allows cash toll collection at the Lincoln Tunnel but is transitioning it to cashless tolling.

³ A limited number of people also arrive by helicopter at one of three heliports in Manhattan and by seaplane using the Midtown Skyport on the East River.

Figure 4-3. Transit Routes to/from the Manhattan Central Business District (2019)



Notes: Private bus operators connect commuters to various locations within the Manhattan CBD; those routes are not displayed here.
 * Operated by Academy Bus

Manhattan CBD (Excluding West Side Highway/Route 9A and FDR Drive)

Transit by Sector

Source: WSP 2022

4.2.1 Subways

The New York City subway is the most widely used transit mode for access to the Manhattan CBD by residents of New York City.⁴ It is the largest subway system in the United States, both in terms of miles of track and number of passengers served per year. The subway system comprises 25 routes serving 472 stations across the boroughs of the Bronx, Brooklyn, Manhattan, and Queens with 665 miles of track for transporting passengers (revenue track) with additional track to support operations (nonrevenue track). In 2019, the New York City subway had an average weekday ridership of about 5.5 million people and an annual ridership of 1.66 billion passengers. All but three of the 25 subway routes serve the Manhattan CBD, and the Manhattan CBD contains the system's 10 busiest stations.⁵

New York subway routes form an integrated network with free transfers between routes at many stations in the Manhattan CBD. For example, the Times Square subway station complex, which also includes stations on Sixth and Eighth Avenues, provides free connections between 16 subway routes (A, C, and E; N, Q, R, W, S, and Nos. 1, 2, 3, 7; and B, D, F, and M). The World Trade Center-Fulton Street Station complex in Lower Manhattan provides free transfers between 12 subway routes (E; N, R, and W; and A, C, J, Z, and Nos. 2, 3, 4, 5).⁶ The subway also connects with regional transit hubs in the Manhattan CBD, allowing for connections from other modes. These include two stations with direct pedestrian connections to Penn Station New York and Moynihan Train Hall, a station complex beneath Grand Central Terminal, and a connection from the Times Square station complex via the 42nd Street-Port Authority Bus Terminal subway station to the Port Authority Bus Terminal.

In fall 2019, 2,228,000 people entered the Manhattan CBD by subway on an average weekday, which accounted for 58 percent of all people who entered the Manhattan CBD.⁷

4.2.2 Port Authority Trans-Hudson

Port Authority Trans-Hudson (PATH) is a rapid transit system serving Newark, Harrison, Hoboken, and Jersey City in New Jersey, as well as Lower and Midtown Manhattan in New York City. PANYNJ operates the PATH system, which comprises four routes and 13 stations (six in the Manhattan CBD and seven in New Jersey). PATH trains run from either Newark or Hoboken and into the Manhattan CBD with Manhattan termini at the World Trade Center and 33rd Street, just south of Penn Station New York. The system is just about 14 miles total in length. The PATH trains that terminate at West 33rd Street make intermediate stops within the Manhattan CBD. Trains that go to the World Trade Center make only that single stop in Manhattan. PATH train passengers can connect to the New York City subway at multiple PATH stations in

⁴ The subway does not provide access to the Manhattan CBD from Staten Island.

⁵ Metropolitan Transportation Authority. "Subway and Bus Ridership for 2019." <https://new.mta.info/agency/new-york-city-transit/subway-bus-ridership-2019>.

⁶ The Cortlandt Street (No. 1 line) subway station is located within the World Trade Center site, but there is no fare-free connection between this station and the World Trade Center-Fulton Street station complex.

⁷ New York Metropolitan Transportation Council. January 2021. *Hub Bound Travel Data Report 2019*. https://www.nymtc.org/Portals/0/Pdf/Hub%20Bound/2019%20Hub%20Bound/DM_TDS_Hub_Bound_Travel_2019.pdf?ver=GS5smEoyHSsHsyX_t_Zriw%3d%3d.

Manhattan, but they must pay an additional fare. In fall 2019, an average of 273,447 people entered and exited the Manhattan CBD via the PATH train on average weekdays.⁸

4.2.3 Commuter Rail

New York City has the largest commuter rail network in the United States and includes MTA's Long Island Rail Road (LIRR) and Metro-North Railroad (Metro-North), as well as New Jersey Transit Corporation (NJ TRANSIT). Two commuter rail stations are in the Manhattan CBD—Grand Central Terminal and Penn Station New York. Metro-North serves Grand Central Terminal, while LIRR and NJ TRANSIT serve Penn Station New York. Projects are underway that will allow for some LIRR service at Grand Central Terminal and some Metro-North service at Penn Station New York.

LIRR operates between Manhattan and Long Island with station stops in Brooklyn and Queens in New York City and Nassau and Suffolk Counties on Long Island. With an average weekday ridership of 301,000 passengers across 735 trains, it is the busiest commuter railroad in North America. LIRR has 124 stations across 11 regularly operating branches and 319 miles of track in customer service. Most LIRR inbound trains terminate at Penn Station New York. Some LIRR trains terminate at Atlantic Terminal in Brooklyn or Hunters Point Terminal in Queens, where passengers can transfer to the subway and continue their trip to the Manhattan CBD. In addition to the Manhattan CBD, LIRR serves major commercial centers in Downtown Brooklyn and Nassau and Suffolk Counties. In fall 2019, an average of 246,843 people entered and exited the Manhattan CBD via LIRR on weekdays.⁹

Metro-North runs service between New York City and its northern suburbs in New York and Connecticut and provides local rail service within the New York City boroughs of Manhattan and the Bronx. Metro-North has five major branches (though some of the branches have multiple spurs) serving 124 stations within the regional study area. Two branches serve Rockland and Orange Counties, which are north of New York City and west of the Hudson River, and share tracks with NJ TRANSIT en route to their terminal in Hoboken, New Jersey. Three branches provide service between Grand Central Terminal and the Bronx, New York counties east of the Hudson River, and Connecticut. According to MTA, the system has an annual ridership of about 87 million people with close to 400 miles of track in customer service. In addition to serving the Manhattan CBD, Metro-North stops at large commercial districts in Yonkers, White Plains, and New Rochelle in New York as well as Stamford and New Haven, Connecticut. In fall 2019, an average of 226,296 people entered and exited the Manhattan CBD via Metro-North on average weekdays.¹⁰

NJ TRANSIT commuter rail connects 13 of the 14 New Jersey counties in the regional study area to the Manhattan CBD through its eight branches that serve the New York metropolitan region with close to 450 miles of track in customer service (excludes the Atlantic City branch). The eastern termini of NJ TRANSIT

⁸ New York Metropolitan Transportation Council. January 2021. *Hub Bound Travel Data Report 2019*. https://www.nymtc.org/Portals/0/Pdf/Hub%20Bound/2019%20Hub%20Bound/DM_TDS_Hub_Bound_Travel_2019.pdf?ver=G55smEoyHSsHsyX_t_Zriw%3d%3d.

⁹ Ibid.

¹⁰ Ibid.

trains are Penn Station New York, Newark Penn Station, or the Hoboken Terminal. From Newark, passengers can transfer to a Penn Station New York-bound commuter rail train or can access PATH. From Hoboken, commuters can transfer to PATH or a ferry to complete the journey into the Manhattan CBD. In fall 2019, an average of 212,191 people entered and exited the Manhattan CBD via NJ TRANSIT commuter rail on average weekdays.¹¹

4.2.4 Buses

New York City and the regional study area have an extensive network of buses. Commuter buses typically provide direct service between New York City neighborhoods or suburban communities and the Manhattan CBD and other employment centers in the region. Express or limited stop buses provide higher speed service on the more heavily patronized routes, and local buses operate throughout New York City and other counties in the regional study area. MTA has two subsidiaries—New York City Transit and MTA Bus—that operate bus service in New York City. NJ TRANSIT is the primary operator of commuter, express, and local buses in New Jersey, although some private bus operators provide both commuter and local bus services. Multiple public and private bus operators serve the suburban counties of New York and Connecticut.

MTA operates an extensive network of buses in New York City. Combined, New York City Transit and MTA Bus operate 234 local routes, 20 Select Bus Service routes (with payment prior to boarding to reduce dwell times at stops), and 73 commuter/express bus routes. The Manhattan CBD is well-served by buses. Express bus services available from Queens, Brooklyn, the Bronx, and Staten Island offer service to locations in Lower and Midtown Manhattan. The Manhattan CBD has multiple Select Bus Service routes (M14A, M14D, M15, and M23, M34, and M34A), which operate higher speed service with fewer stops than the local bus routes. Local bus routes (some of which have limited service with fewer stops) operate on most north-south avenues through the Manhattan CBD with continued service to Upper Manhattan. Crosstown local bus routes operate between the east and west sides of Manhattan on most two-way crosstown streets (e.g., Houston Street, 14th Street, 23rd Street, 34th Street, 42nd Street, and 57th Street). Crosstown service is available on pairs of one-way streets (e.g., St. Marks Place/Eighth Street and Ninth Street, 49th Street and 50th Street, and East 59th and East 60th Streets). Riders receive one free transfer between local, limited, and Select Bus Service routes and other local and Select Bus Service routes as well as the subway within two hours of the first swipe of a MetroCard. Customers may transfer to or from a commuter bus from a local bus, Select Bus Service bus, or subway, but they must pay the difference in the fare. Riders must pay for a transfer to an express service unless using an Unlimited Express Bus MetroCard.

The busiest bus route in all of New York City is the M15 local/M15 Select Bus Service, which operates along First and Second Avenues in Manhattan from the South Ferry Terminal in Lower Manhattan to 126th Street in the East Harlem neighborhood of Upper Manhattan.

¹¹ New York Metropolitan Transportation Council. January 2021. *Hub Bound Travel Data Report 2019*. https://www.nymtc.org/Portals/0/Pdf/Hub%20Bound/2019%20Hub%20Bound/DM_TDS_Hub_Bound_Travel_2019.pdf?ver=GS5smEoyHSsHsyX_t_Zriw%3d%3d.

New York City in cooperation with MTA, has included an extensive bus lane network throughout Manhattan and other boroughs to increase bus operating speeds and provide a degree of priority to buses over general traffic lanes.

NJ TRANSIT buses and private bus companies serve New Jersey counties in the regional study area. NJ TRANSIT operates an extensive network of commuter and local bus routes. Many commuter buses provide one-seat ride service between cities and towns in New Jersey and the Port Authority Bus Terminal in the Manhattan CBD, meaning travelers do not need to transfer between buses or from buses to trains to get to the Manhattan CBD. More than 65 NJ TRANSIT bus routes operate between New Jersey and the Port Authority Bus Terminal (PABT). While not every town in New Jersey has one-seat ride service to the Manhattan CBD, NJ TRANSIT provides bus service to all 14 New Jersey counties in the regional study area. Other private bus operators (e.g., Academy Bus Lines, Coach USA, and Trans-Bridge Bus Lines) operate between New Jersey communities within the regional study area (including park-and-ride lots), and either the PABT or curbside stops within the Manhattan CBD.

Limited bus connections are available from Long Island, New York counties north of New York City, and Connecticut to the Manhattan CBD. The Westchester County Department of Transportation's Bee-Line operates an express bus route to the Manhattan CBD from Westchester County. Coach USA operates commuter buses between towns in Rockland and Orange Counties, New York, and the PABT. Hampton Jitney is a private bus service between towns in eastern Long Island (Suffolk County, New York) and the Manhattan CBD. Other private bus operators offer limited operations between communities within the regional study area and either the PABT or curbside stops within the Manhattan CBD.

In the fall 2019, an average of 276,000 people entered and exited the Manhattan CBD by bus on average weekdays.¹²

4.2.5 Ferries

The following ferry operators, both privately owned and publicly owned, provide service to the Manhattan CBD from the other boroughs of New York City and waterfront communities in New Jersey:

- The New York City Economic Development Corporation owns NYC Ferry. The NYC Ferry service is a network of six ferry routes (with a seventh planned) that connects certain waterfront neighborhoods in the Bronx, Queens, Brooklyn, and Staten Island with various piers in the Manhattan CBD, including Wall Street, East 34th Street, and Midtown West at West 37th Street/Pier 79. There are also stops at Stuyvesant Cove (East River at East 20th Street) and Corlears Hook (East River at Jackson Street) within the Manhattan CBD, but only one ferry route serves each of these stops.

¹² New York Metropolitan Transportation Council. January 2021. *Hub Bound Travel Data Report 2019*. https://www.nymtc.org/Portals/0/Pdf/Hub%20Bound/2019%20Hub%20Bound/DM_TDS_Hub_Bound_Travel_2019.pdf?ver=GS5smEoyHSsHsyX_t_Zriw%3d%3d.

- NYCDOT operates the Staten Island Ferry between the South Ferry Terminal in Lower Manhattan and the St. George Ferry Terminal in Staten Island.
- New York Waterway is a privately operated ferry system that operates service on multiple routes across the Hudson River between eight piers in Bergen and Hudson Counties in New Jersey and four piers in Midtown and Lower Manhattan.
- Seastreak is a privately owned ferry service that operates between East 34th Street and the Battery Maritime Building piers on the East River in the Manhattan CBD and either Atlantic Highlands or Sandy Hook Beach in Monmouth County, New Jersey.

In the fall 2019, an average of 118,525 people entered and exited the Manhattan CBD via ferry service on average weekdays.¹³

4.2.6 Tram

The Roosevelt Island tram connects Roosevelt Island (an island in the East River between Queens and Manhattan) with Manhattan. The Manhattan terminus is located on Second Avenue between East 59th and East 60th Streets. The entire trip takes about 3 minutes, and the system transports more than 2 million passengers annually. The F subway line also provides service between Roosevelt Island and Manhattan.

4.3 BICYCLE AND PEDESTRIAN ACCESS TO THE MANHATTAN CBD

People may reach the Manhattan CBD on foot or by bicycle. The north–south avenues that cross 60th Street have sidewalks, and bicycle lanes are available on Amsterdam Avenue, Columbus Avenue, Central Park West, Second Avenue, and First Avenue. Shared-use bicycle and pedestrian paths are also along the Hudson and East Rivers. From Brooklyn and Queens, people may cross the Ed Koch Queensboro, Williamsburg, Manhattan, and Brooklyn Bridges by bicycle or on foot. There is no direct bicycle or pedestrian access between New Jersey and the Manhattan CBD as pedestrians are prohibited from the tunnel crossings.¹⁴

¹³ New York Metropolitan Transportation Council. January 2021. *Hub Bound Travel Data Report 2019*. https://www.nymtc.org/Portals/0/Pdf/Hub%20Bound/2019%20Hub%20Bound/DM_TDS_Hub_Bound_Travel_2019.pdf?ver=GS5smEoyHSsHsyX_t_Zriw%3d%3d.

¹⁴ Pedestrians and bicyclists are permitted to cross the George Washington Bridge and can reach the Manhattan CBD using the Hudson River Greenway or one of Manhattan’s north–south avenues.