THE INTER–BOROUGH EXPRESS

Planning & Environmental Linkages Study

January 2023

Executive Summary

The Interborough Express is advancing with the selection of Light Rail as its mode.

The MTA has selected Light Rail as the mode for the IBX. This report details the analysis and planning that show that Light Rail will provide the best service for riders at the best value.

BACKGROUND

The Corridor

Hidden in plain sight, a 14-mile-long freight rail corridor runs through Brooklyn and Queens. These tracks last provided passenger rail service in 1924. Today, the corridor is one of the few remaining freight rail links in New York City. This freight corridor is comprised of the Long Island Rail Road (LIRR) Bay Ridge Branch and the CSX Fremont Secondary.

This corridor provides opportunity to better connect some of Brooklyn's and Queens' most densely populated and diverse neighborhoods. The area surrounding the corridor is home to 900,000 people and 260,000 jobs.

The Interborough Express

The Interborough Express would take advantage of that opportunity. It would add passenger service to the corridor to better connect these neighborhoods to the MTA's existing transit network, including transfers to 17 subway lines and the Long Island Rail Road. It would also connect them to each other, serving growing demand for travel within and between the vibrant Brooklyn and Queens communities.

The IBX would serve a diverse study area with significant transportation needs:

- **7 in 10** People of color
- **1 in 2** Zero-car households
- **3 in 10** Households below 150% of poverty line
- **1 in 4** Residents with limited English fluency

THE STUDY

Announcement & Interim Report

Citing its potential to be a transformational addition to Brooklyn and Queens, Governor Kathy Hochul directed the MTA in January 2022 to initiate the environmental review process for the Interborough Express. Shortly thereafter, the MTA released an Interim Report summarizing the results of the MTA's previous efforts to evaluate potential passenger options for the corridor.

The Interim Report narrowed the project down to three potential modes:

- Light Rail Transit (LRT), which uses cars smaller in stature than subway cars and can operate both along dedicated tracks and on-street,
- Conventional Rail (CR), which would utilize FRA-compliant vehicles with configuration similar to a subway car, and
- Bus Rapid Transit (BRT), which would feature electric buses operating along a bus-only corridor with the flexibility to operate on-street if needed.

The Planning Study

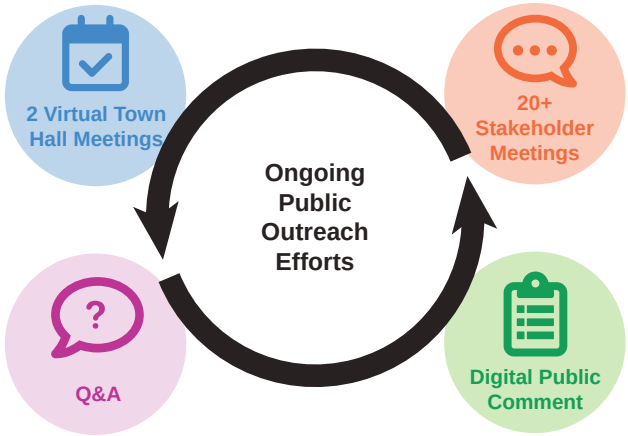
This report is the Planning and Environmental Linkages Study (the Planning Study). It represents the first formal step in the environmental review process. The Planning Study set out to select the **mode,** identify potential **station locations,** and advance **additional engineering, transit planning, and environmental evaluation.**

In this study, the MTA took a deeper dive into potential engineering, planning, and environmental issues, identifying constraints within the existing right-of-way and examining how each mode can adapt to them—and at what cost per rider. Putting these elements together, the relative costs, benefits, and therefore value of each mode could be assessed.

Public Engagement

To inform this work, public engagement was essential. More than 20 stakeholder meetings were held with partners throughout the corridor. Town hall meetings were held in May and September, 2022, and the MTA responded to a variety of questions and comments received live during these meetings. In addition, over 1000 comments were received over a six-month period through the project page.

This helped inform not just the mode selection but potential station locations as well. A station location map was also featured on the project website, and the public was invited to "drop a pin" in locations where stations should be considered.



THE RESULTS

Mode

After this extensive planning, analysis, and public engagement, Light Rail was chosen because it will provide the best service for riders at the best value.

Key factors considered include:

Capacity: Light Rail's quick acceleration and short dwell times make it the fastest of the three options. Combined with trains that can fit up to 360 people, Light Rail can fully meet demand. BRT, on the other hand, is unable to, due to passenger capacity limitations with the buses.

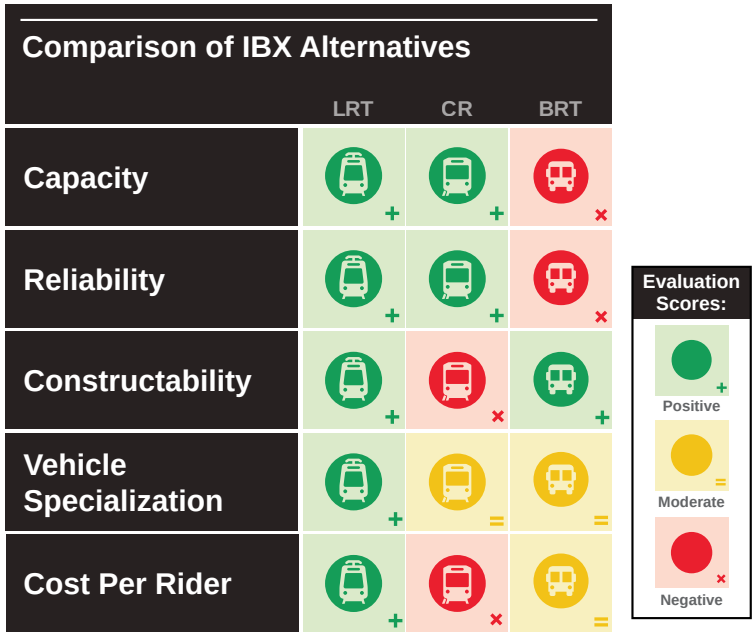
Reliability: Since it can operate in the cut through 96% of the corridor, Light Rail will provide reliable service. BRT risks being bogged down operationally as it turns around on crowded Jackson Heights streets.

Constructability: Light Rail's smaller, more flexible vehicles fit within the constraints of the existing corridor. The fact that it can run on the street allows it to avoid construction of a complex and costly tunnel at a key pinch point, as would be required by Conventional Rail.

Vehicle Specialization: Light Rail vehicles can be procured "off-the-shelf" without modification and can draw on a different pool of potential suppliers than traditional MTA rolling stock. Both Conventional Rail and BRT would require more extensive modifications.

Relative Cost: Thanks to its high ridership (115,000 projected weekday riders) and relatively low construction cost ($5.5B in 2027 $), Light Rail offers the best value, with a cost of $48,000 per daily rider. Conventional Rail had a much higher construction cost and bus rapid transit could not move as many riders.

Along with other technical considerations, and the fact that public input suggested strong support for a rail option, Light Rail was the clear choice as to advance for the Interborough Express.



Proposed LRT Alignment & Potential Stops

Station Locations

The study also identified potential station locations. Although stations may be added, removed, or modified as planning progresses, this preliminary list of stations would allow the IBX to connect to 17 subway lines, the Long Island Rail Road, and major bus corridors. Each station would be fully accessible. The station list also reflects a preliminary review at constructability and opportunities to support surrounding land use.

Additional Engineering, Planning, and Evaluation

Although the right-of-way already exists, this project is not so simple as laying down track and starting service. Substantial reconstruction will be necessary in order to make the Interborough Express possible while preserving vital freight connections.

Areas of focus along the corridor include over 45 overpass bridges, many of which will need to be reconstructed in order to accommodate the new service, as well as a 125-year-old tunnel that will require rehabilitation. Siting support facilities for vehicle maintenance and storage as well as power distribution, ancillary facilities, and prospective stations within or near this narrow right-of-way is also a significant challenge.

Additionally, the project is being designed to not prelude the Cross Harbor Freight Program rail tunnel project, which is undergoing its own environmental review at the Governor's direction.

PROJECT BENEFITS

Projected to transport a significant number of New Yorkers to their destinations, the Light Rail alternative would carry approximately 115,000 passengers each weekday. If built, the IBX would see higher daily ridership than nearly any new transit line built in the U.S. over the last two decades.

Travel time estimates for LRT would be 39 minutes to run from Jackson Heights to Bay Ridge. Dwell time for LRT—the length of time that a vehicle spends in a station to allow passengers to board and alight—is about 30 seconds.

This adds up to major time savings for riders, connecting neighborhoods with poor existing transit links to one another. The IBX would cut travel time significantly for many riders travelling within or between Brooklyn and Queens.

Along with its benefits for individual riders, the IBX would enhance entire neighborhoods and strengthen Brooklyn and Queens as a whole. By creating new connections to job centers like Brooklyn Army Terminal and Broadway Junction and educational insitutions like Brooklyn College, the IBX would open up new possibilities for New Yorkers all across the city.

NEXT STEPS

With the Planning Study completed, the MTA will seek to begin the environmental review process and preliminary engineering in early 2023.

The IBX is one of nearly two dozen expansion projects being evaluated under the MTA's 20 Year Needs Assessment. Through this process, potential expansion projects will be assessed on a level playing field to determine which meet the MTA's strategic goals most effectively. If this project is determined to meet the MTA's strategic goals, construction funding will need to be identified before the project enters a future Capital Program. Public engagement will continue as the project progresses.

Today

Getting from home in East Bushwick to your class at Brooklyn College could take you an hour. You're routed with 2 transfers and one is out of system!

You could have a slightly faster route... but that requires transferring to an infrequent bus.

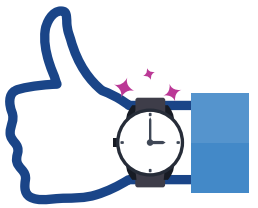
With the IBX

With a high-frequency transit line built along the IBX, you could have a one-seat ride from home to work, eliminating the time currently spent transferring between trains and reducing time spent waiting on the platform or in motion. That's:

30 *minutes saved per trip*

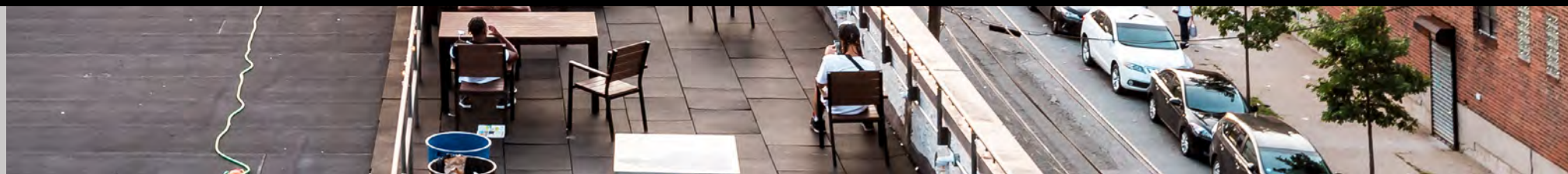
60 *minutes saved per day*

261 *hours saved per year*



That's a week and a half of travel time saved!

Introduction



INTRODUCTION

Hidden in plain sight, a 14-mile-long freight rail corridor runs through Brooklyn and Queens. These tracks last provided passenger rail service in 1924. Today, the corridor is one of the few remaining freight rail links in New York City.

This freight corridor is comprised of the Long Island Rail Road (LIRR) Bay Ridge Branch and the CSX Fremont Secondary (see map to the right). The combined right-of-way of these two lines presents an attractive opportunity to better connect some of Brooklyn's and Queens' most densely populated neighborhoods via a new transit link, dubbed the **Interborough Express (IBX)**.

In 2022, the MTA released the IBX Interim Report, which conceived of the line and three alternative transit modes. By using an existing right-of-way, the MTA could eliminate some of the costs and community disruption associated with constructing transit infrastructure. New York City has long contended with limited direct rapid transit links between the outer boroughs. A new rapid transit line along this alignment would connect up to 17 existing subway lines, providing a new rapid transit link between Queens and Brooklyn without going into Manhattan and provides a public transit station in underserved neighborhoods where none currently exist.

This Planning and Environmental Linkages Study (Planning Study) further evaluates three alternative transit modes identified in the *IBX Feasibility Study*. A wide range of factors, including engineering, transit planning, the environment, and public input were assessed to identify the most promising alternative to advance to the next phase of evaluation and design.

This Planning Study further explores options for building a new transit line between Queens and Brooklyn along an existing freight corridor.

Overview map of the existing freight rail corridor, subway connections, and the primary study area. Note that while most of the IBX corridor runs along the Bay Ridge Branch, a portion includes the Fremont Secondary.

BACKGROUND

The IBX Interim Report published in January 2022 outlined the project's needs, goals, and objectives; this report refines some of those original recommendations to meet the requirements for the National Environmental Policy Act (NEPA) assessment to come:

> *The purpose of the IBX is to provide fast, direct, and reliable transit service connecting Brooklyn and Queens using the existing Bay Ridge Branch and Fremont Secondary freight corridors between the Brooklyn Army Terminal and Roosevelt Avenue in Jackson Heights.*

The needs from the Interim Report were refined to align them with guidance from the Federal Transit Administration (FTA), focusing them on the subject of transportation. Non-transportation-related needs were moved to the project's goals and objectives.

A. **Need for efficient, direct, and reliable transit service connecting Brooklyn and Queens –** This need will identify deficiencies in the existing travel between the two boroughs, including travel time, routing, and delays due to roadway congestion;

B. **Need for connections to existing transit that serves Brooklyn and Queens –** This need will identify the existing deficiencies in making connections between existing subway and transit systems along the IBX corridor; and,

C. **Need for easier access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services –** This need will identify existing and foreseeable problems in making connections along the corridor between communities, job centers, and targeted growth areas in the two boroughs.

Subsequently, MTA refined the five project goals. There is a wide variety of options for implementing transit along the Bay Ridge Branch and Fremont Secondary freight corridors. Defining clear goals helped MTA evaluate and narrow down the alternatives to the best one.

The FTA's Standard Operating Procedures (SOPs) for Managing the Environmental Review Process, No. 4, provides guidance on preparing a purpose and need statement within a NEPA context. FTA's SOPs provide the following key guidance:

- A purpose and need is typically developed during planning and is refined during NEPA.
- In making refinements, "a project's purpose and need should exhibit continuity from planning, through each project development phase, to project approval."
- During NEPA, the statements in a purpose and need should be transportation focused, i.e.:
  - The purpose is what MTA intends to accomplish with the project; and
  - The needs are the transportation problems that the project would address.

Goals and Objectives

MTA refined the IBX goals and objectives during the Planning Study, retaining the original themes from the Interim Report.

1. **Support the economic health and development of local communities –** promote transit-oriented development, opportunities for public-private investment, and potential enhancements to neighborhood land use.
2. **Maximize the use of the existing right of way for new transit services –** avoid the use of adjacent roadways (either at-grade or above-grade) or other public or private spaces.
3. **Accommodate transit and freight systems within the existing freight railroad corridors –** operate both rail freight and potential transit service within the same corridor while minimizing the need for additional right of way and potential right of way-related impacts.
4. **Avoid or minimize environmental issues –** efficiently utilizing the existing infrastructure and maximizing our assets.
5. **Provide cost-effective transit service improvements –** compare construction risks and capital cost relative to other alternatives under consideration.

1876: Line opens as part of the New York and Manhattan Beach Railway.

1906-15: Line placed in trenches and viaducts to eliminate grade crossings.

1918: New York Connecting Rail completed, linking the Bay Ridge Branch to the mainland via Hell Gate Bridge.

1924: Passenger service ends due to declining tourist traffic to Manhattan Beach. Line devoted to freight.

1996: The Regional Plan Association (RPA) first proposes a new circumferential passenger transit service along the Bay Ridge Branch.

1997: New York & Atlantic Railway takes over freight operations along the line. (Today the railroad operates a single daily round-trip freight train with plans for a second).

2000: First feasibility study for Cross-Harbor Rail Tunnel connecting Bay Ridge Branch to New Jersey.

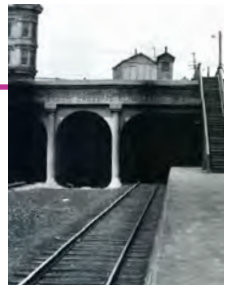
2008: Port Authority takes over operations of car float ferrying trains from the Bay Ridge Branch to New Jersey. (Traffic on the car float service has grown five-fold since 2008).

2014: Initial Environmental Impact Statement for Cross-Harbor Freight Program projects 21 additional freight trains a day on the Bay Ridge Branch.

2017: The RPA's Fourth Regional Plan envisions the Bay Ridge Branch as part of its flagship Triboro RX subway line.

2020: MTA initiates the *IBX Feasibility Study*.

2022: MTA advances the feasibility study to the PEL phase.



Kouwenhoven Station (now East New York Station), c. 1905.

New York & Atlantic Railway train at Atlantic Avenue crossing, 2000.

Triboro RX Proposal, RPA Fourth Regional Plan.

CORRIDOR BACKGROUND

History

The Bay Ridge Branch opened in 1876 as part of the New York, Bay Ridge, and Jamaica Railroad. The line extended from Bay Ridge to the crossing of the Brooklyn, Bath, and Coney Island Railroad near New Utrecht. From 1877 to 1883 a series of expansions extended the Bay Ridge tracks to the current terminus at Fresh Pond Junction and a connection to the LIRR Montauk Line. The line started out primarily as a passenger railroad, but declining ridership forced the end of passenger service in 1924. The entire branch was electrified starting in 1927 for the operation of freight trains. Electric operation of freight trains ended in 1968 with the switch to diesel-powered locomotives. The branch currently serves clients in Brooklyn, Queens, and Nassau and Suffolk Counties by connection with the Montauk Line.

Today, the corridor is divided into two parts. The northern portion in Queens, known as the Fremont Secondary, is owned by CSX and is used by freight trains traveling from Long Island to the Bronx and New England. The southern portion of the corridor, the Bay Ridge Branch, is owned by LIRR and operated by New York & Atlantic Railway, serving several freight customers, Brooklyn port facilities, and a car float to New Jersey. The corridor sees about one round-trip train per day.

Previous and Ongoing Studies

Previous studies have looked at restoring passenger service on the Bay Ridge Branch and Fremont Secondary. The Regional Plan Association's Third and Fourth Regional Plans proposed using the corridor as part of a new passenger rail line linking Brooklyn, Queens, and the Bronx, dubbed the Triboro RX.[1] With Metro-North Penn Station Access entering construction in the Bronx, one geography included in the Triboro RX plan is already being implemented.

The Bay Ridge Branch is also a critical piece of the Port Authority of New York and New Jersey's (PANYNJ's) Cross-Harbor Freight Program, which envisions a freight rail tunnel linking the Bay Ridge Branch to Jersey City, New Jersey. The tunnel would save freight trains from making an up-to-280-mile detour to cross the Hudson River near Albany, and would result in a reduction of cross-harbor truck traffic. The project is in a Tier II Environmental Impact Study as of 2022,[2] which currently projects freight traffic on the Bay Ridge Branch of over 21 trains per day.

1 **"The Fourth Regional Plan."** Regional Plan Association, 2017.

2 **"Cross Harbor Freight Program."** Port Authority of New York and New Jersey.

STUDY AREA CHARACTERISTICS

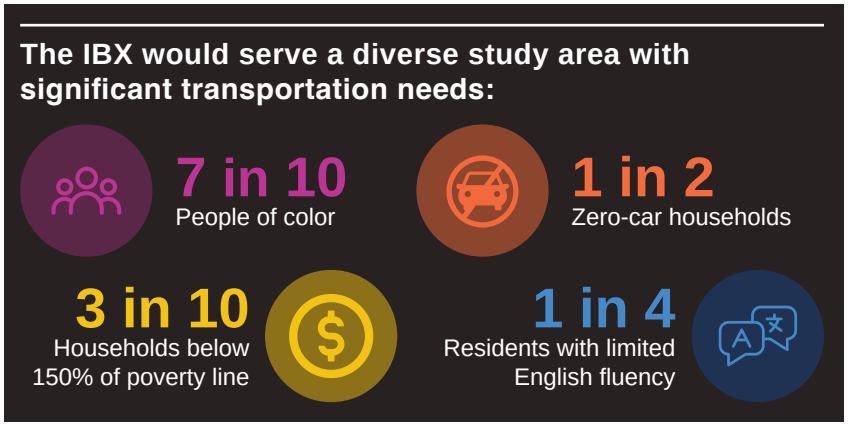
Context

Running from Bay Ridge in Brooklyn to Jackson Heights in Queens, the IBX Corridor would wind its way through some of New York City's most diverse neighborhoods. In such dense, walkable neighborhoods, transit is the norm.

The IBX Corridor is significant for two reasons: its potential to access areas currently served by existing subway routes, and its potential to connect areas in Brooklyn and Queens that lack direct rapid transit connections to each other and to transit connections in Long Island.

The IBX Corridor intersects with 17 of the city's subway lines, which provide access to Manhattan and other parts of New York City. The northern terminal is planned to be adjacent to the Jackson Heights–Roosevelt Avenue/74th Street station, which is among the busiest subway stations in Queens.[3] It is also within walking distance of the Woodside LIRR station, which provides connections to points east on Long Island and to Penn Station. The corridor also intersects the East New York LIRR station. The IBX Corridor would bring much needed transit service to residents of underserved areas such as East Flatbush, Maspeth, and neighborhoods served by only one subway line, such as Middle Village and Canarsie.

With the exception of the G Crosstown subway line, New York City lacks high-frequency transit that connects the outer boroughs. This often results in difficult and circuitous trips from one outer borough to another. While the B82–Select Bus Service runs roughly parallel to the southern part of the IBX, it does not follow the corridor north of Canarsie. For example, a Bushwick resident working in Midwood would have to either transfer subways in Manhattan or take three different trains to stay within Brooklyn. The IBX would provide a one-seat ride for this trip.



Population in the study area, defined as a ½ mile buffer around the corridor. **(US Census, 2019)**

Socioeconomic Conditions

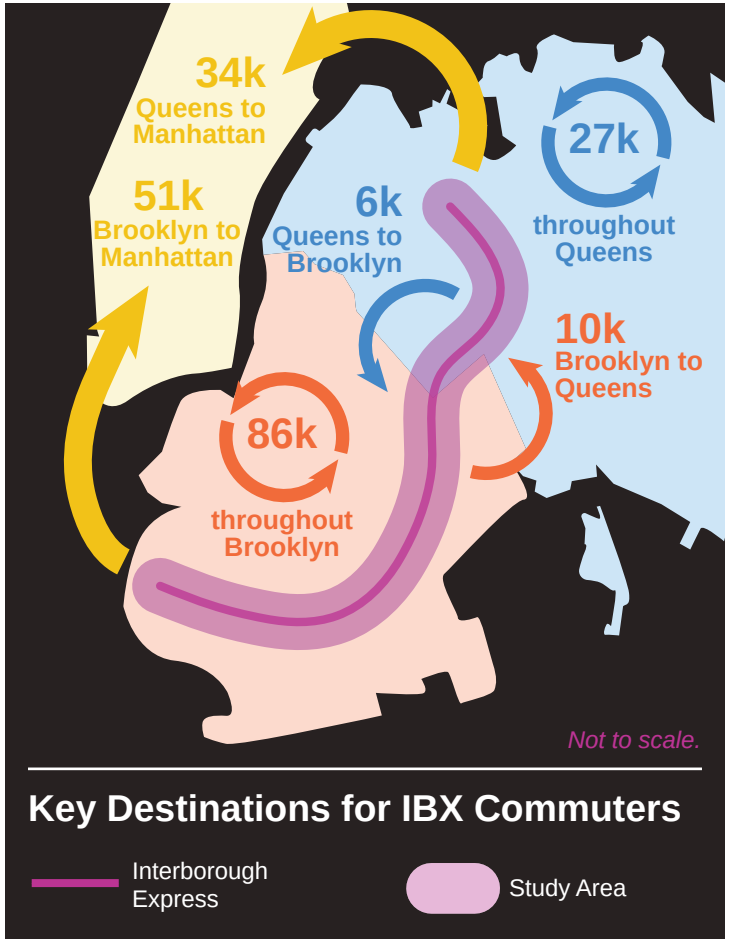
In keeping with the needs and goals of the project, the IBX would bring new transit connections to historically underserved communities. Of the census tracts that fall in the IBX study area, 65% of them are classified as "Environmental Justice Areas," and a further 21% are classified as "Potential Environmental Justice Areas."[4]

On the whole, almost three-quarters of the population served by the IBX are people of color and one in four people has limited fluency in English. A third of households are below 150% of the poverty line. Providing additional reliable, high-frequency transit options for households in the study corridor, half of which do not own a car, would increase mobility and access to economic opportunities for them.

The IBX Corridor intersects with 17 of the city's subway lines and links dozens of neighborhoods within Brooklyn and Queens that lack high-frequency transit connections.

3 As of 2019. "**Facts and Figures: Annual Subway Ridership 2014–2019."** Metropolitan Transportation Authority. 2020.

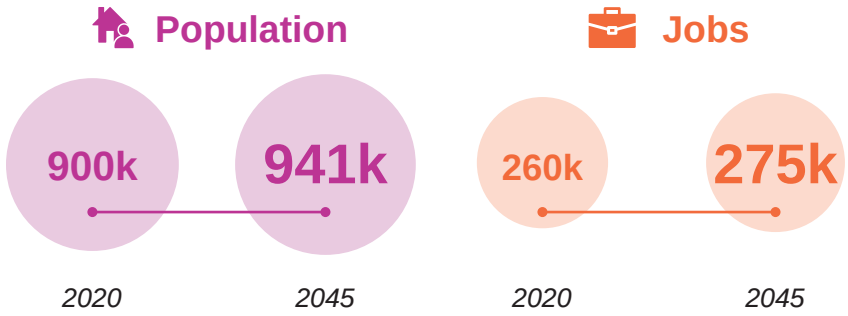
4 **New York City Local Law 64 (2017)** defines "Environmental Justice Area" as a census tract with at least 23.59% of the population below the poverty line, or with at least 51.1% of the population belonging to a minority community. Tracts that straddle the threshold for either variable are identified as "Potential Environmental Justice Areas."



Above: Travel flows between the study area and Manhattan, Brooklyn, and Queens. **Below:** Q52 Select Bus showing high capacity articulated bus vehicle.

Jobs and Population

The area adjacent to the IBX corridor is expected to add tens of thousands of new residents and jobs over the next 25 years.[5] Since 2008, the outer boroughs accounted for 48 percent of the City's total job growth, while Manhattan's share of private sector employment has declined from 64 percent in 1990 to 59 percent in 2018.[6] Improved transit infrastructure will help these neighborhoods better absorb and accommodate new residents and jobs.



Travel Patterns

The existing rail transit network in the study area is focused on linking Brooklyn and Queens to Manhattan, but the majority of commute trips today are currently contained within Brooklyn and Queens. Approximately 86,000 commute trips from the study area remain within Brooklyn, and approximately 27,000 remain within Queens. Another 16,000 trips occur between the two boroughs, for a total of approximately 129,000 trips. This is higher than the 85,000 trips that cross the East River to Manhattan.[7]

Poor transit links between Brooklyn and Queens result in increased car usage. Approximately half of the commutes between Brooklyn and Queens in the study area occur by car, compared to fewer than 15 percent of commutes between the study area and Manhattan. The IBX could help reduce car commutes while redirecting these trips from overburdened Manhattan-bound subway lines.

5 NYMTC (Feb 2016), **2010-2050 Total Population/Employment 2050 County Level Forecast Data.**

6 Between 2009 and 2018. **"New York City Employment Trends."** Office of the New York State Comptroller. April 2019

7 Bureau of Transportation Statistics. **Census Transportation Planning Package, 2012-16.**


IBX
Roosevelt Av
IBX
Roosevelt Av
IBX

Alternatives Analysis

OVERVIEW OF ALTERNATIVES

The Planning Study evaluated three alternatives that were identified for further investigation in the Interim Report: Light Rail Transit, Conventional Rail, and Bus Rapid Transit.

These three alternatives underwent engineering, transit planning, and environmental evaluation, allowing MTA to consider additional measures not previously assessed in the Interim Report. The alternatives would traverse the 14-mile IBX corridor from the Brooklyn Army Terminal in Bay Ridge, Brooklyn, to a terminal at Roosevelt Avenue in Jackson Heights, Queens. It is envisioned that all three alternatives would be electrically powered and would operate on their own dedicated alignment primarily within the existing freight rail corridor.

Alternatives

a. Light Rail Transit (LRT)

Light Rail uses tram-like trains that would operate both in their own dedicated right of way and on streets. The LRT alternative envisions a two-track service that is alongside but physically separated from the freight rail line, similar to CR and consistent with FRA requirements. Most of the line would run side-by-side with the freight tracks, with a short segment of the LRT alternative potentially operating on existing streets.

b. Conventional Rail (CR)

Conventional Rail would have two dedicated passenger rail tracks running largely alongside the existing freight rail line. CR would use Federal Railroad Administration (FRA)-compliant electrical multiple units (EMUs). The rail cars would be configured similarly to subway cars that allow for faster boarding, alighting and greater standing room while operating at high frequencies.

c. Bus Rapid Transit (BRT)

Bus Rapid Transit describes bus service that mimics LRT by operating in its own dedicated right of way alongside but separated from the freight rail line. As with the LRT alternative, a short segment of the line would potentially operate on existing streets.

	LRT	CR	BRT
Length (route miles)	14	14	14
Potential Station Count	19	19	19
Train Consists/Buses Required	24	22	26
Peak Frequency (minutes)	5	5	5
Daily Ridership Estimate (2045) (thousands)	115	120	76
% of Line Operating in the Freight Rail Corridor	94%	100%	94%
Estimated Runtime (minutes)	39	45	41
Cost Per New Daily Rider (thousands)	$48	$70	$53
Annual Operating and Maintenance Costs (2027 Dollars) (millions)	$83.2	$79.6	$60.8
Construction Costs* (2027 Dollars) (billions)	$5.54	$8.44	$4.03

*The base construction cost includes the cost of constructing the project and maintaining existing freight capacity. It does not include the cost of rolling stock nor additional costs to fully upgrade freight capacity to provide for two tracks between Bay Ridge and Fresh Pond Yard.

a. Light Rail Trainst (LRT)


b. Conventional Rail (CR)

c. Bus Rapid Transit (BRT)

Public Engagement

Outreach was an important element of the Planning Study. The MTA conducted outreach to agency partners, advocates, and the public during the PEL Study. More than 20 meetings with stakeholders were conducted, including meetings with elected officials, business groups, and civic organizations. These meetings were an opportunity to share priorities, feedback, and comments. The MTA hosted virtual town hall meetings during the Planning Study in May 2022 and September 2022. The public was invited to ask questions during these virtual meetings, with many answered live during the broadcast or in a chat feature with subject matter experts. A project website **(https://new.mta.info/project/interborough-express)** was also created and includes a public comment feature, as well as an interactive "station location" map, in which the public can provide feedback regarding station preference. The MTA also met regularly with its the Technical Advisory Committee, consisting of key agency partners and external stakeholders, throughout the Study.

MEASURES USED TO EVALUATE THE ALTERNATIVES

MTA identified measures to evaluate and compare the three alternatives from the perspectives of the purpose and need, goals and objectives, engineering, transit planning, and public input. While all measures listed are important for comparing the benefits and challenges of the alternatives, several measures are considered to be major differentiators among the alternatives in the Planning Study. These measures are shown below.

MTA refined the project's purpose and need statement, taking into consideration the engineering, traffic, and environmental measures evaluated during the Planning Study. Because the Planning Study serves as a point of transition between the 2021 Feasibility Study and the future, federal environmental review process, the MTA also refined the purpose and need in accordance with federal requirements.

Does the alternative meet the project purpose and need?

Project Purpose:

Provide fast, direct, and reliable transit service connecting Brooklyn and Queens using the existing Bay Ridge Branch and Fremont Secondary freight corridors between Brooklyn Army Terminal and Roosevelt Avenue in Jackson Heights.

Project Need:

- **Need for efficient, direct, and reliable transit service connecting Brooklyn and Queens –** Can the alternative provide reliable passenger service? Is there potential for transfers between stations at Roosevelt Avenue (ease of transfer)?
- **Need to connect to existing transit systems that serve Brooklyn and Queens –** Would the alternative connect to existing subway and bus lines in the corridor?
- **Need to improve access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services –** Would the alternative improve access and connections to and among communities and job centers in the corridor?

Goals and Objectives

A list of project goals and objectives was originally reported in the 2021 Interim Report and Alternatives Analysis. MTA refined the project's goals and objectives during the Planning Study for the same reasons as for the refined purpose and need. These refinements retain the original themes of the purpose and need, and the goals and objectives, and are consistent with the original themes.

- **Support the economic health and development of local communities –** Does the alternative have the potential to conflict with proposed development plans?
- **Maximize the use of the existing right of way for new transit services –** Can new transit service operate in the existing freight railroad corridor? Would additional right of way be needed to provide required separation from freight operations?
- **Accommodate transit and freight systems within the existing freight railroad corridors –** Can new transit service and existing freight railroad service be accommodated in the existing freight railroad corridor? Would intrusion (crossing) of freight rail operations be required to operate transit service? Would the alternative require relocation of freight tracks or other infrastructure?
- **Avoid or minimize environmental issues –** Would parks, recreation areas, and open space properties need to be acquired for additional right of way? How many historic architectural resources would be directly impacted within existing right of way or within additional right of way? How many potential archaeological sites may be directly impacted? Could the project cause a visual change? How much of the right of way would be in adopted flood hazard areas? Is there potential for operational noise impacts to residences?
- **Provide cost-effective transit service improvements (based on preliminary cost estimates) –** What would be the capital cost for the alternative? What would be the operations and maintenance (O&M) costs for the alternative? What would be the annualized capital cost per rider? What would be the annualized O&M costs per rider?

Engineering Factors

- **Tunnel requirements –** Can the vehicle for each alternative operate in the existing tunnels and under what conditions can operation occur? Does the alternative avoid construction of a new tunnel under All Faiths Cemetery?
- **Street operations in Queens –** Does the alternative require operations on Metropolitan Avenue, 69th Street, and Roosevelt Avenue? What is the potential for the alternative to disrupt roadway operations on Roosevelt Avenue?
- **Terminal location –** Is the alternative constrained in its ability to provide an efficient terminal station at Roosevelt Avenue?

Transit Planning

- **Ridership –** Can the alternative meet 2045 ridership demand? Is the vehicle operating headway sufficient to meet the projected ridership demand?
- **Operational complexity and risk –** Does the alternative require special operations in tunnels (i.e., mechanical guidance and signalized crossings)? Is there a risk to the operating schedule because of tunnel operating complexity?

While the Planning Study evaluated the three alternatives based on the factors and measures listed above, the following factors were identified as key differentiators. These five factors provided distinction between the three alternatives from an operating, cost and construction perspective and guided the selection of the Preferred Alternative.

- **Meets Demand**
- **Reliable Service**
- **Construction Risk**
- **Vehicle Specialization**
- **Relative Cost**

ENGINEERING CONSTRAINTS AND DESIGN REFINEMENTS

Since the release of the Interim Report, the MTA has continued to refine the design of the three alternatives to address constraints along the corridor. The following section describes the key constraints and the design changes that were made to each alternative in order to mitigate them.

Street-Level Transit Intersections

The BRT and LRT alternatives were initially designed to be elevated above the freight tracks in Brooklyn to maintain separation from freight operations and enable convenient street-grade transfers. Running at street level would create 24 new transit intersections. During the PEL Study it was determined that the new intersections may cause unnecessary delays and disruptions by bringing transit operations into contact with street-level vehicular and pedestrian traffic.

Design Refinement:

BRT and LRT have been redesigned to operate in the freight rail cut at the same grade as the freight tracks, similar to the CR alternative, which eliminates the 24 proposed transit intersections originally proposed in Brooklyn. Unlike CR, however, BRT and LRT would still exit the IBX corridor at Metropolitan Avenue and travel on-street around All Faiths Cemetery, as envisioned in the Interim Report.

All Faiths Cemetery Tunnel - Metropolitan Avenue to Juniper Boulevard South

The existing freight rail corridor travels underneath Metropolitan Avenue and All Faiths Cemetery via an existing tunnel. LRT and BRT have the capability to leave the cut of the freight rail corridor and travel along the street for approximately two-thirds of a mile along Metropolitan Avenue, 69 Street, and 69 Place before returning to the corridor after Juniper Boulevard South. However, operation in the street may affect streetscape conditions, which will be studied in future project phases. Due to the presence of the third rail, CR cannot exit onto the street, but the tunnel is too narrow to accommodate new tracks.

Design Refinement:

CR would operate in a newly constructed tunnel that runs parallel to the existing freight tunnel. The tunnel must be designed and constructed to be deep enough to avoid any surface or subsurface disturbance to the cemetery and its structures.

Connection at Roosevelt Avenue to Broadway

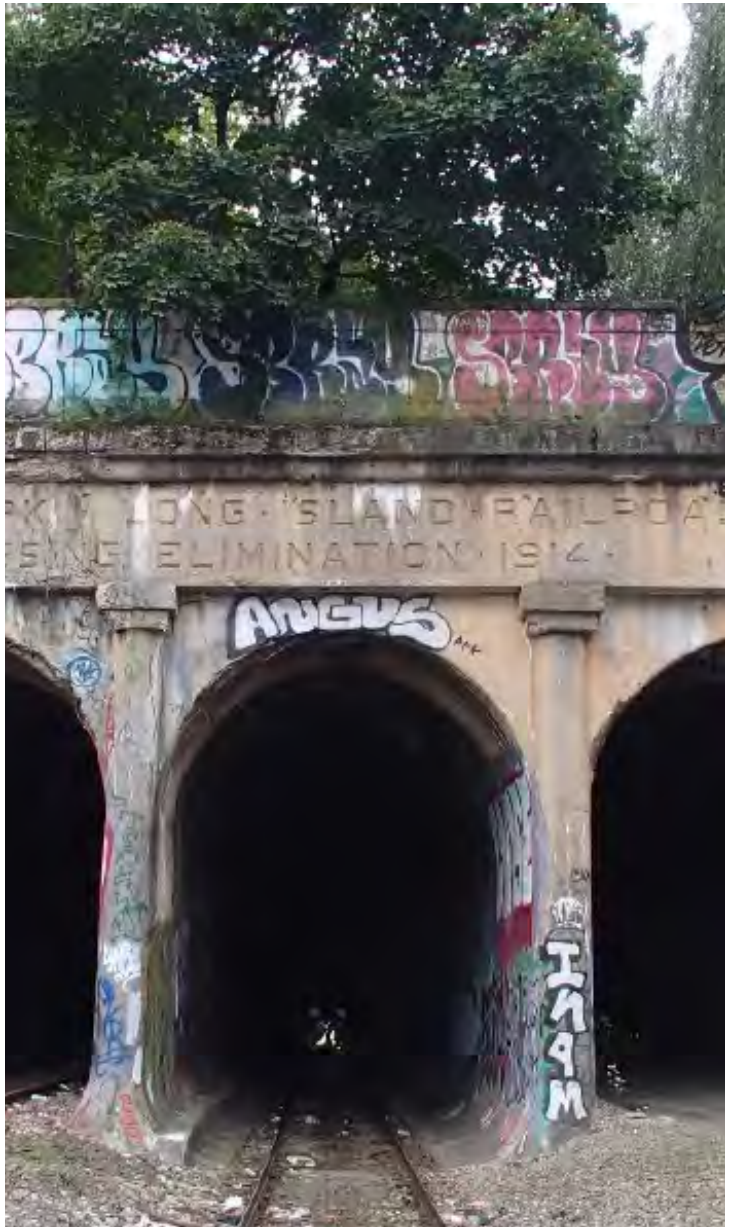
The Roosevelt Avenue terminus of the IBX poses design challenges for LRT and BRT as both modes were designed to run on-street to the transit hub at Jackson Heights–Roosevelt Avenue. Weekday traffic simulations conducted during the PEL Study found that LRT operations on Roosevelt Avenue could be prone to delay and disruption and would deteriorate traffic operations to unsatisfactory levels in peak periods. BRT could also face similar reliability and traffic congestion issues because of street operations. Even with bus lanes, it is anticipated that scheduled service could not be reliably maintained during peak morning and evening commuting periods.

Design Refinement:

As LRT trains can operate in both directions without the need of a turning loop, the alignment of the LRT alternative was redesigned to terminate in the cut of the freight rail corridor at Roosevelt Avenue, similar to the CR alternative.

Unlike CR and LRT, BRT must exit the freight rail cut at Roosevelt Avenue, as originally planned, because there is insufficient space for a bus to turn around in the cut without interrupting freight operations. It must contend with the challenges of running on the street to arrive at the Jackson Heights-Roosevelt Avenue station.

Conceptual rendering of an LRT terminal at Roosevelt Avenue.



The East New York Tunnel, constructed over 100 years ago, would be rehabilitated for IBX service.

East New York Tunnel

The passageways of the East New York Tunnel are 14 feet wide, which creates constraints for equipment selection and operations. Standard LIRR rolling stock is too wide to fit within the tunnel while including enough space for emergency egress. Articulated BRT buses cannot meet fire protection and emergency evacuation requirements under standard operations in such a narrow tunnel.

Design Refinement:

The CR alternative would require the procurement of narrower cars that are modified to meet FRA requirements. PATH cars, operated by the Port Authority of New York and New Jersey, are an example of such vehicles.

Each passageway of the East New York Tunnel is only wide enough to accommodate one emergency egress safety walk for BRT. In order to provide the safety walk on the side of a standard bus with right-side passenger doors and comply with fire life safety and emergency egress requirements, the BRT alignment would purposely be directed to a left-hand operation through the tunnels. Buses would switch to the opposite lane at a signalized intersection before entering and after exiting the tunnel to provide passenger access to emergency evacuation routes. In addition, buses would be modified with a mechanical guidance system to help steer it through the tunnel.

Operating Alongside Freight Trains

As the IBX alignment runs along an active freight corridor, measures must be taken to ensure adherence to FRA requirements for safe side-by-side operation of freight and transit.

Design Refinement:

The IBX has been designed to ensure a minimum acceptable distance between transit and freight rails. In addition, a fencing system would be installed between freight and transit operations with a vehicle intrusion detection system to detect incidents that could affect either operation.

Interactions with Port Authority's Cross Harbor Freight Program (CHFP)

The Port Authority is planning to use the Bay Ridge Branch as the Brooklyn portal for its proposed new freight rail tunnel underneath New York Harbor connecting New Jersey to Brooklyn. The limited right of way of the Bay Ridge Branch must be able to accommodate the infrastructure requirements of both the IBX and CHFP.

Design Refinement:

During the development of the Planning Study, MTA and Port Authority staff and consultants met on a regular basis to coordinate on project design. Alignments have been modified to ensure that neither project precludes the other from construction and operation. Such coordination will continue throughout the planning and design phases of the respective projects.

Maintenance and Storage Facilities

The Planning Study identified the need for new storage and maintenance facilities for all three alternatives. Existing MTA facilities for storage and maintenance of BRT and CR would not be sufficient for a new IBX fleet, and facilities do not currently exist for the maintenance and storage of LRT equipment.

Design Refinement:

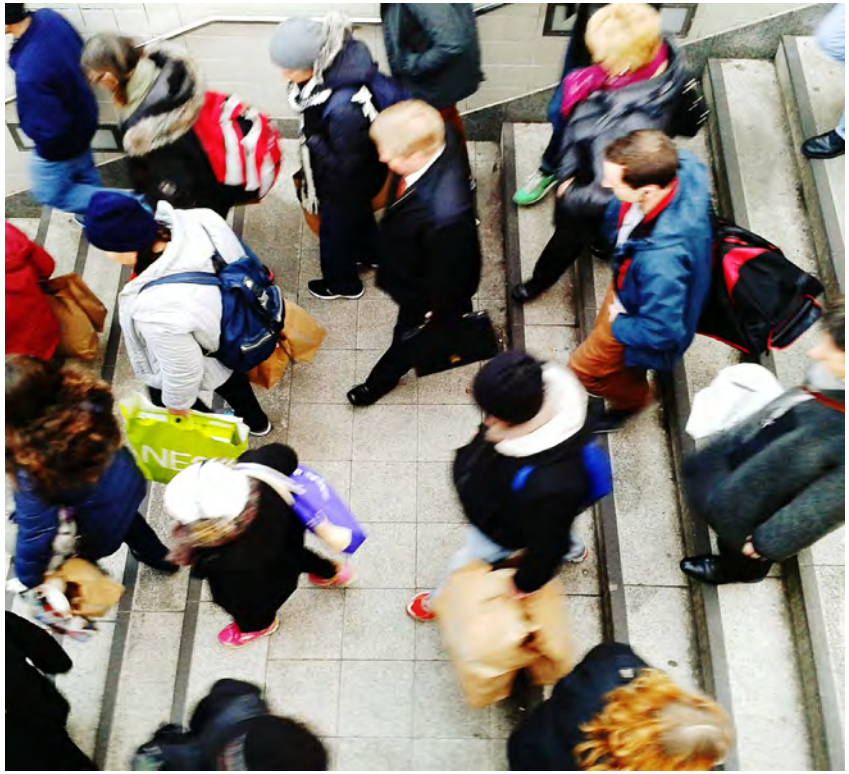
The Brooklyn terminus of the alignment for all three alternatives has been shifted further west to include a station at the Brooklyn Army Terminal. A facility is proposed for maintenance and storage of any of the three alternatives near the terminal station. Potential locations could be an elevated facility adjacent to the 65th Street Rail Yard or the area currently occupied by the parking lot for the Brooklyn Army Terminal. The existing parking could be relocated to a deck constructed over the proposed facility.

Forecasted Ridership Demand versus Alternatives' Passenger Capacity

Ridership forecasts completed in August 2022 found that BRT would have insufficient capacity to handle projected peak period demand. Unlike LRT and CR which can lengthen trains to meet demand, BRT is limited to a 60-foot bus length.

Design Refinement:

Based on modeling, even if the frequency of BRT buses was adjusted from every five to every 2.5 minutes, it still would not meet peak demand. (In any event, such a high frequency could not be achieved for BRT, given the constraints near the Roosevelt Avenue terminus.).



Frequency and vehicle size help increase capacity to meet demand and prevent crowding.

Estimated Runtime (minutes)	**39**
Daily Ridership Estimate (2045) (thousands)	**115**
Cost Per New Daily Rider (thousands)	**$48**
Construction Costs* (2027 Dollars) (billions)	**$5.54**

*The base construction cost includes the cost of constructing the project and maintaining existing freight capacity. It does not include the cost of rolling stock nor additional costs to fully upgrade freight capacity to provide for two tracks between Bay Ridge and Fresh Pond Yard.

LIGHT RAIL TRANSIT

LRT would operate in the existing freight rail corridor, except for a short street-running portion around All Faiths Cemetery in Queens. In the existing freight corridor, LRT would require two dedicated tracks alongside the freight rail lines. Because LRT is not FRA-compliant, the tracks would have to be physically separated from the freight tracks for safety reasons, as well as the installation of an intrusion detection system. LRT service would operate at five-minute peak headways.

Challenges

LRT would require operation of a new class of vehicle that is not used in other MTA services. The new class of vehicle would require new specialized maintenance and storage facilities to operate and maintain the vehicles and system. This facility could potentially be constructed at the Brooklyn Army Terminal. New operational arrangements would also be required.

Benefits

LRT would meet the project purpose and need. It would carry a similar number of riders as CR and over 50% more than BRT. The operating headway and per-train capacity of LRT is sufficient to achieve forecasted 2045 ridership demand, and because of that capability, LRT can provide reliable passenger service.

LRT can accommodate a terminal station in the cut at Roosevelt Avenue with a free in-system transfer. Because LRT would operate in the cut, it would not disrupt roadway operations on Roosevelt Avenue.

LRT can be operated in existing tunnels with no special operations and no new tunnel under All Faiths Cemetery would be required.

LRT service could be expanded in the future. LRT avoids or minimizes environmental issues to a greater extent than the other alternatives.

The capital cost for LRT would be lower than the capital cost for CR and higher than the capital cost for BRT. However, because of the ridership capacity of LRT, the annualized capital cost per rider would be the lowest among the three alternatives. The O&M cost for LRT would be similar to that for CR and higher than the O&M cost for BRT.

Light Rail Transit Alternative Evaluation

1	Meets project purpose and need
2	Meets forecasted 2045 ridership demand
3	Provide reliable passenger service
4	Capital cost estimate
5	Avoids construction of new tunnel under All Faiths Cemetery
6	Ability to provide terminal station at Roosevelt Avenue
7	Potential to disrupt roadway operations on Roosevelt Avenue
8	Ability to expand service in future
9	Standard operation of equipment in tunnels
10	Avoids or minimizes environmental issues

Evaluation Scores:

+ Positive
= Moderate
× Negative

Estimated Runtime (minutes)	**45**
Daily Ridership Estimate (2045) (thousands)	**120**
Cost Per New Daily Rider (thousands)	**$70**
Construction Costs* (2027 Dollars) (billions)	**$8.44**

*The base construction cost includes the cost of constructing the project and maintaining existing freight capacity. It does not include the cost of rolling stock nor additional costs to fully upgrade freight capacity to provide for two tracks between Bay Ridge and Fresh Pond Yard.

CONVENTIONAL RAIL

CR service would operate exclusively in the existing freight rail corridor at five-minute peak headways. The CR alignment would operate on dedicated tracks parallel to the existing freight service. This alternative does not include any street running operations. Due to capacity constraints at existing MTA facilities, a new storage and maintenance facility would be required, potentially at the Brooklyn Army Terminal.

This mode would provide a terminal station in the existing freight cut at Roosevelt Avenue, with a free transfer to transit connections at Roosevelt Avenue and Broadway. Because CR would operate in the existing freight cut, it would not disrupt roadway operations on Roosevelt Avenue.

Challenges

CR is the only alternative that would require a new tunnel under All Faiths Cemetery. The existing tunnel under All Faiths Cemetery could not be utilized for CR because four track operations cannot be accommodated in the tunnel. As a result, the capital cost for CR would be higher than the capital cost for LRT and BRT, and would add significant risk and complexity to the project. The additional capital cost results in a substantially higher annualized capital cost per rider for CR compared to LRT and BRT. The O&M cost for CR would be similar to that for LRT and roughly double the O&M cost for BRT.

Furthermore, CR would require specialized, FRA-compliant heavy rail rolling stock. This poses a significant challenge, especially given the other demands on the limited pool of rolling stock manufacturers in the United States.

Benefits

CR would meet the project's purpose and need. It would have similar ridership to LRT, which is substantially better than BRT ridership. The operating headway of CR is also sufficient to achieve forecasted 2045 ridership demand, and because of that capability, CR can provide reliable passenger service.

CR service could be expanded in the future. It requires no special operations in tunnels and does not require any on-street operations. CR avoids or minimizes environmental issues to a greater extent than BRT.

Conventional Rail Alternative Evaluation

1	Meets project purpose and need	+
2	Meets forecasted 2045 ridership demand	+
3	Provide reliable passenger service	+
4	Capital cost estimate	×
5	Avoids construction of new tunnel under All Faiths Cemetery	×
6	Ability to provide terminal station at Roosevelt Avenue	+
7	Potential to disrupt roadway operations on Roosevelt Avenue	+
8	Ability to expand service in future	+
9	Standard operation of equipment in tunnels	+
10	Avoids or minimizes environmental issues	=

Evaluation Scores:

+	=	×
Positive	Moderate	Negative

Estimated Runtime (minutes)	**41**
Daily Ridership Estimate (2045) (thousands)	**76**
Cost Per New Daily Rider (thousands)	**$53**
Construction Costs* (2027 Dollars) (billions)	**$4.03**

*The base construction cost includes the cost of constructing the project and maintaining existing freight capacity. It does not include the cost of rolling stock nor additional costs to fully upgrade freight capacity to provide for two tracks between Bay Ridge and Fresh Pond Yard.

BUS RAPID TRANSIT

BRT would operate in dedicated bus-only lanes primarily within the existing freight rail corridor. In addition, it would operate in-street along Roosevelt Avenue, 75th Street, and Broadway at its terminus in Queens. Additionally, BRT would operate in-street from Metropolitan Avenue to Juniper Boulevard South, similar to LRT. The lanes in the existing freight corridor would be alongside but separate from the existing freight rail lines for safety reasons. BRT vehicles are smaller than subway cars and able to operate on the street in addition to the freight rail corridor. Service would operate at 5-minute peak headways.

Challenges

BRT would not meet all the elements of the project purpose and need because it cannot achieve the forecasted 2045 ridership demand. The passenger capacity on BRT is approximately 65% of LRT or CR. MTA analyzed the potential for operating up to 2.5 minute peak headways; however, it still fell substantially short of the forecasted 2045 ridership demand for the project. As a result of these findings, BRT would not provide reliable transit service and it cannot be expanded in the future.

Unlike CR and LRT, BRT must exit the freight rail cut and operate on-street at the Roosevelt Avenue terminus in Queens because there is not enough space for a bus to turn around in the cut without interrupting freight operations.

Operating BRT in the existing East New York Tunnel would require special equipment and operations (i.e., a mechanical guidance system and signalized crossings). However, BRT would not require a new tunnel under All Faiths Cemetery. BRT would terminate curbside on Broadway at Roosevelt Avenue; however, BRT operations in-street would experience roadway congestion and service reliability issues.

Although BRT is similar to other bus services that MTA currently operates, due to capacity constraints, a new maintenance facility would be required to service BRT vehicles.

Benefits

The capital cost for BRT would be the lowest among the alternatives. However, because of the ridership capacity constraints of BRT, the annualized capital cost per rider would be higher than LRT, but lower than CR. The O&M cost for BRT would be lower than the O&M cost for LRT and CR.

BRT alignment along Roosevelt Avenue and Broadway.

Evaluation Scores:

+	=	×
Positive	Moderate	Negative

Bus Rapid Transit Alternative Evaluation

1	Meets project purpose and need	=
2	Meets forecasted 2045 ridership demand	×
3	Provide reliable passenger service	×
4	Capital cost estimate	+
5	Avoids construction of new tunnel under All Faiths Cemetery	+
6	Ability to provide terminal station at Roosevelt Avenue	=
7	Potential to disrupt roadway operations on Roosevelt Avenue	×
8	Ability to expand service in future	×
9	Standard operation of equipment in tunnels	=
10	Avoids or minimizes environmental issues	×

SELECTION OF THE PREFERRED ALTERNATIVE

After considering the results of the Planning Study and feedback from the MTA's robust public outreach efforts, the LRT alternative has been determined to best meet the goals and objectives of the project.

This decision was based on specific differentiating measures that were identified in relation to: the purpose and need of providing reliable service that meets forecasted demand; the goal of developing cost-effective transit service improvements; the relative construction risk; and operational and fleet requirements of the alternative. The table on page 27 summarizes the evaluation of the three alternatives.

Meets Demand

During the Planning Study, ridership demand along the IBX corridor was forecasted out to 2045. At five-minute headways, LRT and CR are expected to meet projected ridership estimates. BRT does not meet the projected demand, even when the frequency of service was increased to 2.5-minute headways.

Reliable Service

Service is considered reliable when it meets operational frequencies, stays on schedule, and avoids delays. Traffic analyses conducted during the PEL Study indicated that BRT would experience delays on the street-running segment of its alignment along Roosevelt Avenue. Furthermore, non-standard operations at East New York Tunnel, which requires signalized intersections for left-hand running through the tunnel, may further delay BRT service. The LRT and CR alignments do not have street-running segments along Roosevelt Avenue and have standard operating patterns through East New York Tunnel, and are thus able to provide reliable transit service.

Construction Risk

The project’s degree of construction risk is related to the complexity of construction. LRT and BRT have similar construction requirements, which primarily include the reconstruction of active freight track. In addition to this, CR requires construction of a new tunnel under All Faiths Cemetery because the existing freight tunnel is not wide enough to accommodate IBX tracks. These components increase the construction complexity and risk of CR compared with LRT and BRT.

Vehicle Specialization

The width of the passageways of the East New York Tunnel creates constraints for the vehicles that each alternative could use for IBX operations. CR would require a new class of specialized vehicle not in use by other MTA services. This would necessitate a complex procurement process. Furthermore, it would add to the demand on a limited pool of rolling stock manufacturers in the United States.

LRT requires operation of a standard LRT vehicle that would not require modification, although it would be a new class of vehicle that is not used in other MTA services. The vehicles would require new operating and maintenance arrangements and separate maintenance facilities.

For BRT, a standard low-floor, 60-foot articulated bus would need to be modified to install a mechanical guidance system. Precedents of this kind of modification exist in other transit systems in the US and abroad.

Relative Cost

The overall capital cost for each alternative was estimated and compared. CR is expected to be the most expensive alternative, driven in part by the cost of the new tunnel under All Faiths Cemetery. This tunnel is not required for LRT or BRT. LRT has a lower capital cost than CR, but it is more costly than BRT because it requires substations, overhead catenary power supply and the installation of rail.

Comparison of IBX Alternatives

	LRT	CR	BRT
Capacity	+	+	×
Reliability	+	+	×
Constructability	+	×	+
Vehicle Specialization	+	=	=
Cost Per Rider	+	×	=

Evaluation Scores:

+	=	×
Positive	Moderate	Negative

The Preferred Alternative

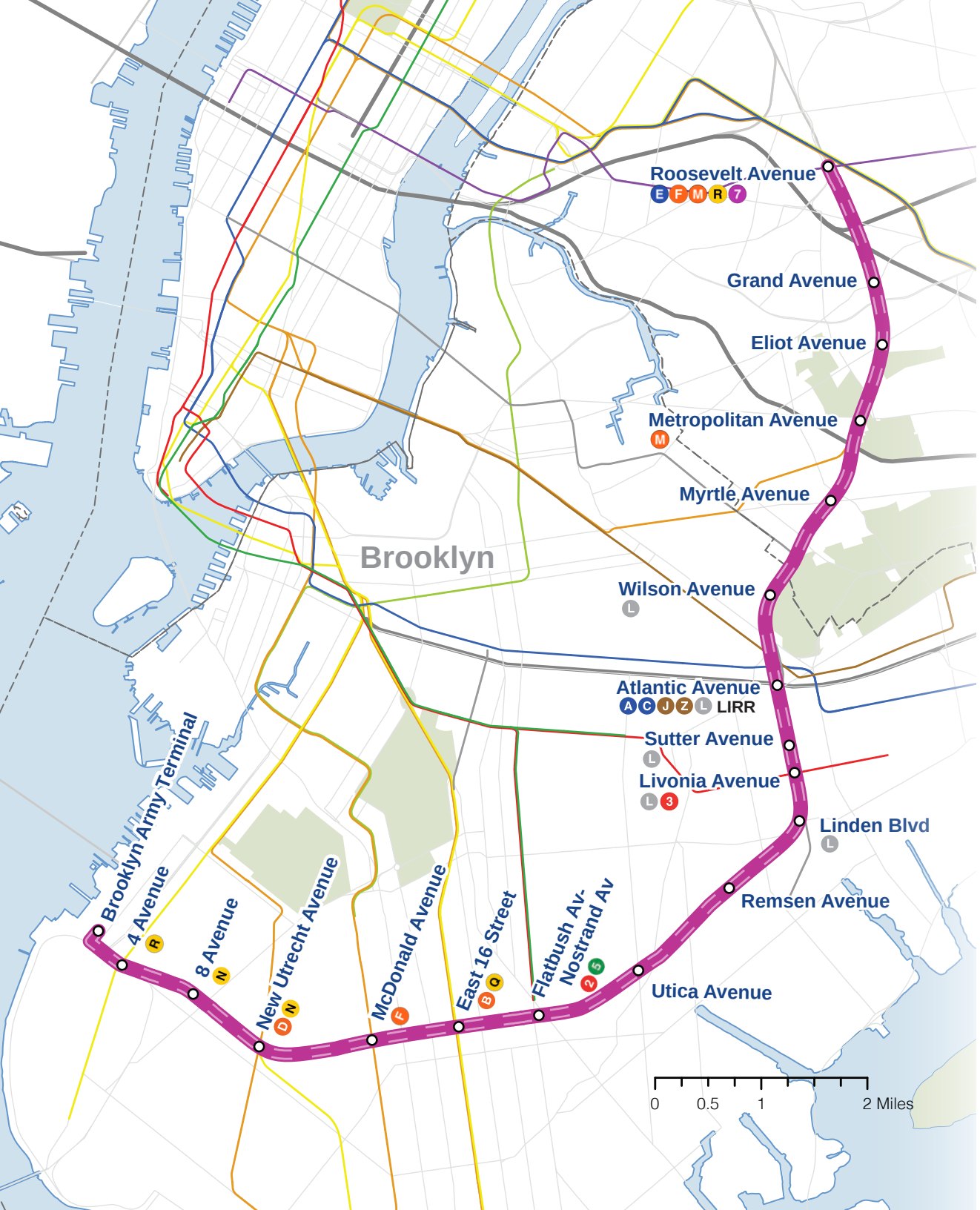
After considering the benefits and challenges of LRT, CR, and BRT, the LRT alternative has been selected for further study in the environmental review phase.

LRT is best positioned to meet the metrics set forth as part of this study. As a mode, it would meet project's stated purpose and need as well as reliably accommodate 2045 ridership targets. It would also accommodate a terminal station in Queens at Roosevelt Avenue without disrupting roadway operations, have the ability to expand service in the future, require no special operations in tunnels, and avoid or minimize environmental issues when compared to the other two modes.

While CR would also meet the project purpose and need, it would require a new tunnel under All Faiths Cemetery. The need for this new tunnel would add construction and maintenance complexity to the project, and substantially increase the capital cost without providing significantly greater benefit to the public. The procurement of specialized, FRA-compliant heavy rail rolling stock also poses a significant challenge.

BRT does not meet the project purpose and need, cannot meet ridership demand, and would require special equipment and operations in the East New York Tunnel.

After considering these and other planning and environmental conditions, LRT outperforms CR and BRT as potential transit modes.



Proposed LRT Alignment & Potential Stops

One of the project's primary objectives is to accommodate new IBX stations in areas that would maximize connections to other transit modes along the right-of-way. This can be accomplished in areas near existing subway stations and major arterial roadways within the study area. Stations were also considered in areas with supportive underlying land uses, as well as existing or planned developments within the corridor. Additionally, we incorporated public feedback received via the "station location mapper" tool featured on the project homepage to inform our station location program.

Although stations may be added, removed, or modified as planning progresses, this preliminary list of stations would allow the IBX to connect to 17 subway lines and the Long Island Rail Road and major bus corridors. Each station would be fully accessible.

The IBX will also require a new maintenance and yard facility. In collaboration with the City of New York and EDC, the MTA is working to site the yard, along with a station, in the vicinity of Brooklyn Army Terminal and the existing 65th Street Yard.

Cost

Cost

One of the Interborough Express' key advantages is the fact that it is located within an existing rail right-of-way. Assembling a new right-of-way through dense neighborhoods would be prohibitively expensive, involving expensive property acquisition, lengthy legal processes, and much more expensive construction methods like tunneling.

But while the existing corridor helps, constructing the project will not be simple—far from it. Beyond laying new track, constructing stations, and purchasing rolling stock, much more work will be needed to get the IBX ready for passenger service.

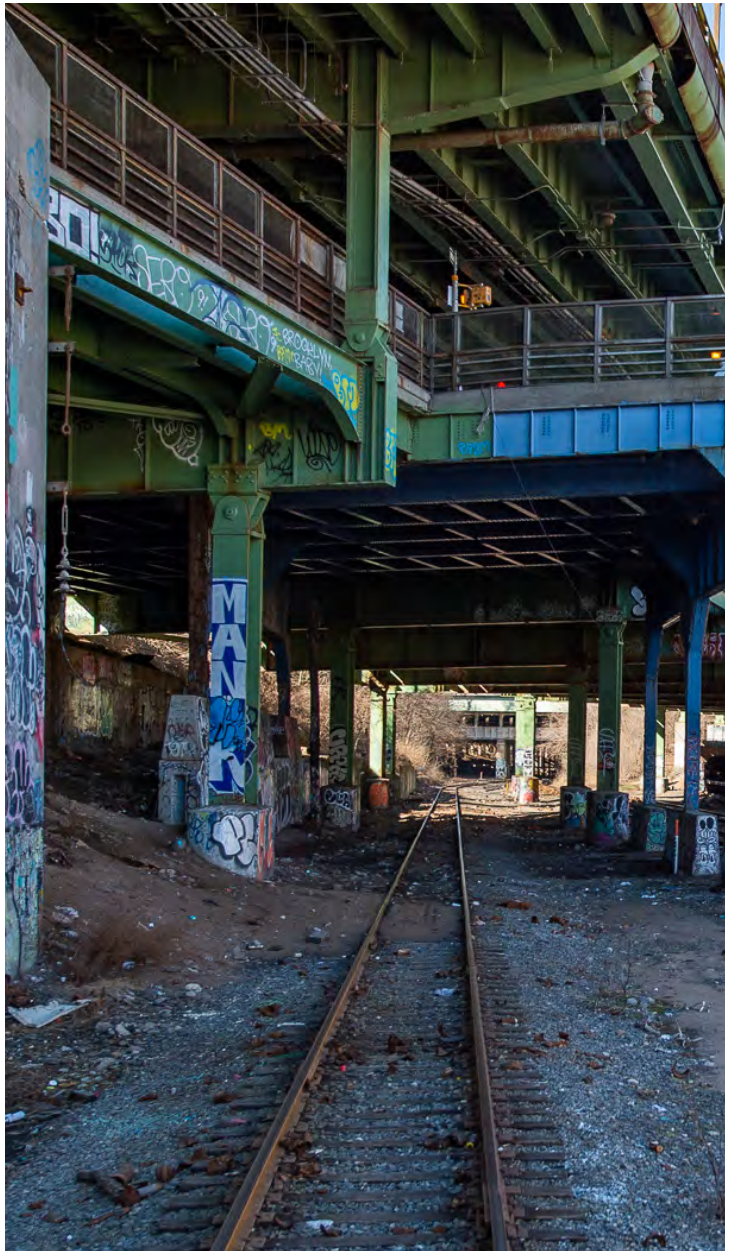
This includes reconstructing nearly the entire corridor to make space for passenger service, including:

- Reconstructing up to 45 bridges, widening at least 10 miles of embankment and viaduct to make space for additional tracks
- Renovating the nearly 150-year-old East New York tunnel to meet modern operational and safety requirements
- Relocating portions of the Buckeye pipeline

In addition to making space, investment is also needed to create the back-of-house infrastructure needed to operate the service, including:

- Traction power substations and distribution systems to power the trains
- Communications and signal systems to support operations
- A new maintenance facility to store and service the rolling stock

This adds up to a major megaproject. It's a project the modern MTA is well-positioned to deliver, but with complexities and challenges to work through nevertheless.

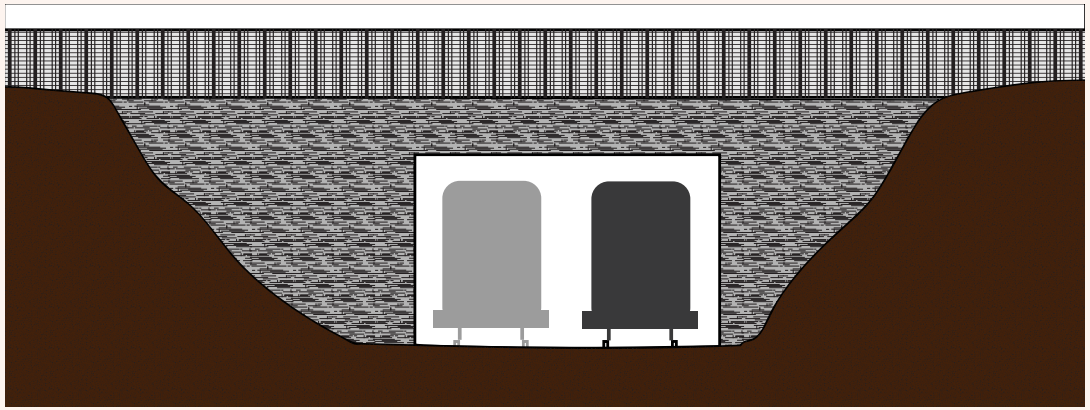


IBX Route conditions under 5th Avenue & Interstate 278/Gowanus Expressway

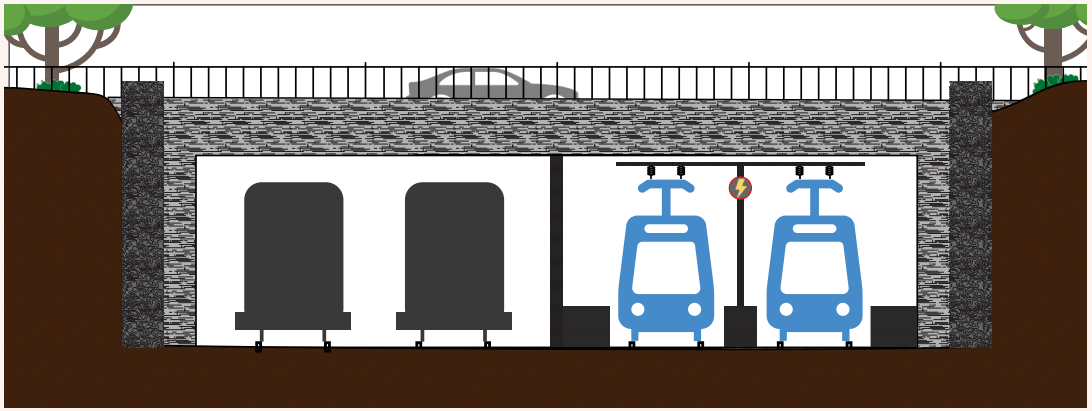
SPOTLIGHT: BRIDGE RECONSTRUCTION

The need to widen existing bridge underpasses helps illustrate the challenge. The corridor has space for only two tracks along most of its length (and for the last several decades, only one track has been in regular use.) The primary challenge of the IBX project will be to make enough space for the addition of tracks for passenger service—meaning that three or even four tracks will need to pass under a bridge, depending on the needs of the freight service.

Current Configuration



4-Track Configuration



Reconstructing these bridges is a major driver of complexity and cost, especially at interconnected locations like New Utrecht Avenue which feature not just street bridges but elevated transit structures as well.

Fortunately, MTA Construction & Development has experience dealing with exactly this sort of challenge. The LIRR Third Track project was opened for revenue service in 2022 on time and under budget. It included 7 similar bridge reconstruction projects, primarily to eliminate grade crossings or ensure proper clearance.

Innovative construction techniques like these, combined with strong project management, helped MTA C&D deliver the Third Track project on time and under-budget, saving $100M over the course of the project.

Cost Estimates

To help us plan for the project, this Planning Study also included a cost estimate. This was an important exercise, both to help us understand the relative cost of the modes considered and to plan for our preferred alternative.

The cost estimate includes the cost of building the physical infrastructure and systems to operate the new service. It does not include the cost procure rolling stock. It also does not include any additional costs to fully upgrade freight capacity to provide for two tracks between Bay Ridge and Fresh Pond Yard; the current estimate maintains the existing freight capacity.

The estimates included in this report are in 2027 dollars, adjusting for inflation out to a possible mid-point of construction. It is impossible at this stage to predict the pace of inflation or the timing of construction with perfect accuracy; the assumptions made in this document include 3.5% average inflation and a construction midpoint aligned with the middle of the next MTA Capital Plan, which will run from 2025 to 2029. This is consistent with the assumptions that will be made for all projects under consideration as part of the MTA's Comparative Evaluation process.

The cost estimate also includes contingency. At this preliminary stage of the project, it is prudent to include significant contingency in the estimate to account for potential site conditions and engineering challenges that may be discovered as the project develops further.

RESULTS

Cost Table - Light Rail Only

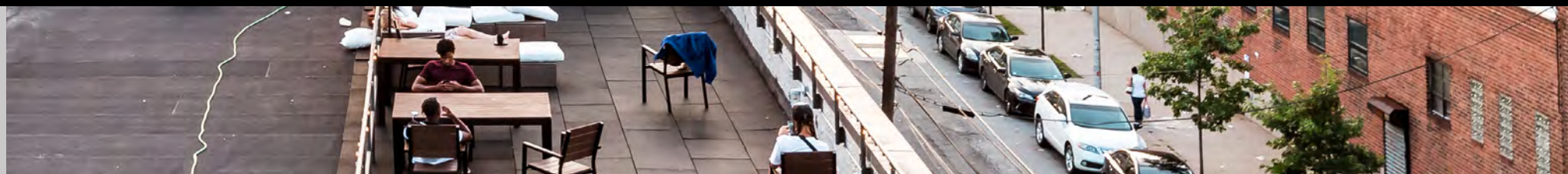
CATEGORY	COST 2027 $ (Billions)
Construction Costs	$5.54

Cost per Rider - $48,600

The cost estimate reflects the extent and complexity of the work required to deliver the project, the need to consider inflation for a future build year, and the need to include contingency given the preliminary stage of project development. With those factors taken into account, the cost estimate for LRT is $5.54 billion in construction costs.

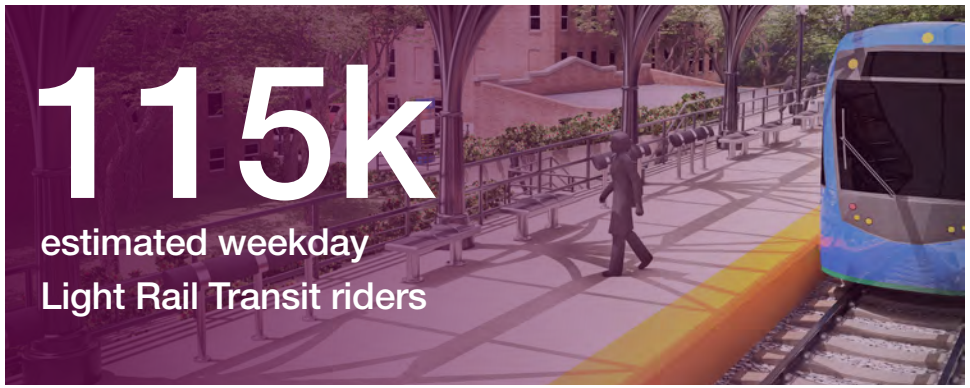
Given the wide range of neighborhoods and riders who would benefit from the project along the 14 mile corridor, these costs represent a great value. In fact, its cost per rider of $48,600 (in 2027 dollars) compares favorably to other recent projects under consideration across the country.

Project Benefits



SIGNIFICANT RIDERSHIP DEMAND

Projected to transport a significant number of New Yorkers to their destinations, the Light Rail alternative would carry approximately 115,000 passengers each weekday. If built, the IBX would see higher daily ridership than nearly any new transit line built in the U.S. over the last two decades.



Estimated Weekday Ridership for the LRT alternative

Among the three project modes analyzed, LRT would result in the greatest reduction of vehicle miles traveled (VMT), which means less emissions from private and for-hire vehicles and greater carbon savings in the communities served by the project.

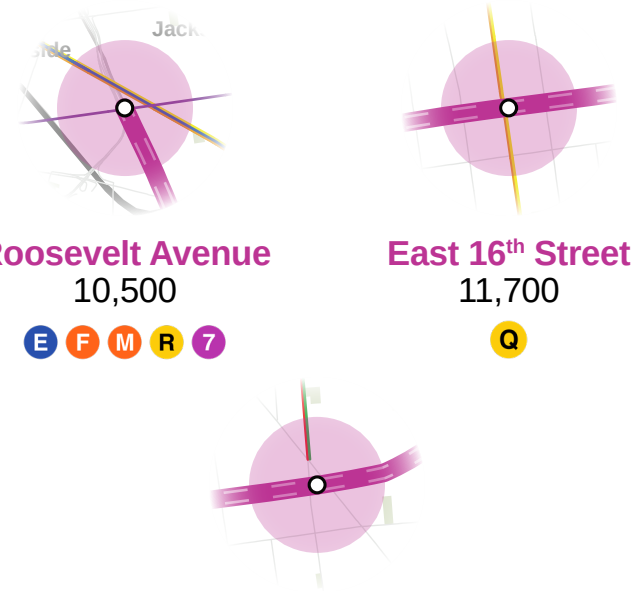
Some Prospective Transfer Stations with Highest Projected IBX Ridership

LRT ridership estimates project that the following prospective stations would have the highest weekday ridership:

- **Roosevelt Avenue** connecting to: E F M R 7
- **East 16th Street** connecting to: Q
- **Flatbush Avenue** connecting to: 2 5

All of these prospective transfer stations would be busy transit hubs, allowing IBX riders to connect to the subway, bus, and Long Island Rail Road.

Some Prospective Transfer Stations with Highest Projected IBX Ridership



Approximately 115,000 passengers would use the new transit service each weekday, which would potentially save riders hundreds of hours of travel time a year by avoiding transfers or long routings. The project would also benefit new and existing residents in the neighborhoods adjacent to the corridor, a significant share of whom are people of color and/or low-income. The project would also draw additional activity to developing commercial hubs.

Today

Getting from home in East Bushwick to your class at Brooklyn College could take you an hour. You're routed with 2 transfers and one is out of system!

Wilson Avenue Station L

Flatbush Avenue - Brooklyn College 2 5

You could have a slightly faster route... but that requires transferring to an infrequent bus.

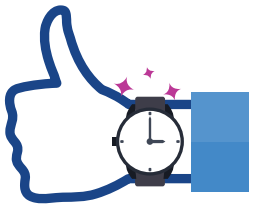
With the IBX

With a high-frequency transit line built along the IBX, you could have a one-seat ride from home to work, eliminating the time currently spent transferring between trains and reducing time spent waiting on the platform or in motion. That's:

30 *minutes saved per trip*

60 *minutes saved per day*

261 *hours saved per year*



That's a week and a half of travel time saved!

39 minutes

Roosevelt Avenue – Brooklyn Army Terminal

LRT End-to-End Runtime

REDUCED TRAVEL TIME

Travel time estimates for LRT would be 39 minutes to run from Jackson Heights to Bay Ridge. Dwell time for LRT—the length of time that a vehicle spends in a station to allow passengers to board and alight—is about 30 seconds.

One of the most significant benefits of the IBX is that it would connect neighborhoods with poor existing transit links to each other. For example, today a resident of Midwood commuting to Broadway Junction has to take the Q to Atlantic Avenue-Barclays Center and then transfer to the LIRR, or take the Q to the Franklin Avenue Shuttle S in order to connect to the A—either way, a trip of at least 40 minutes. The IBX could cut travel time in half—on a one-seat ride.

Among the three project modes analyzed, LRT would result in the greatest reduction of vehicle miles traveled (VMT), which means less emissions from private and for-hire vehicles and greater carbon savings in the communities served by the project.

COMMUNITY DEVELOPMENT

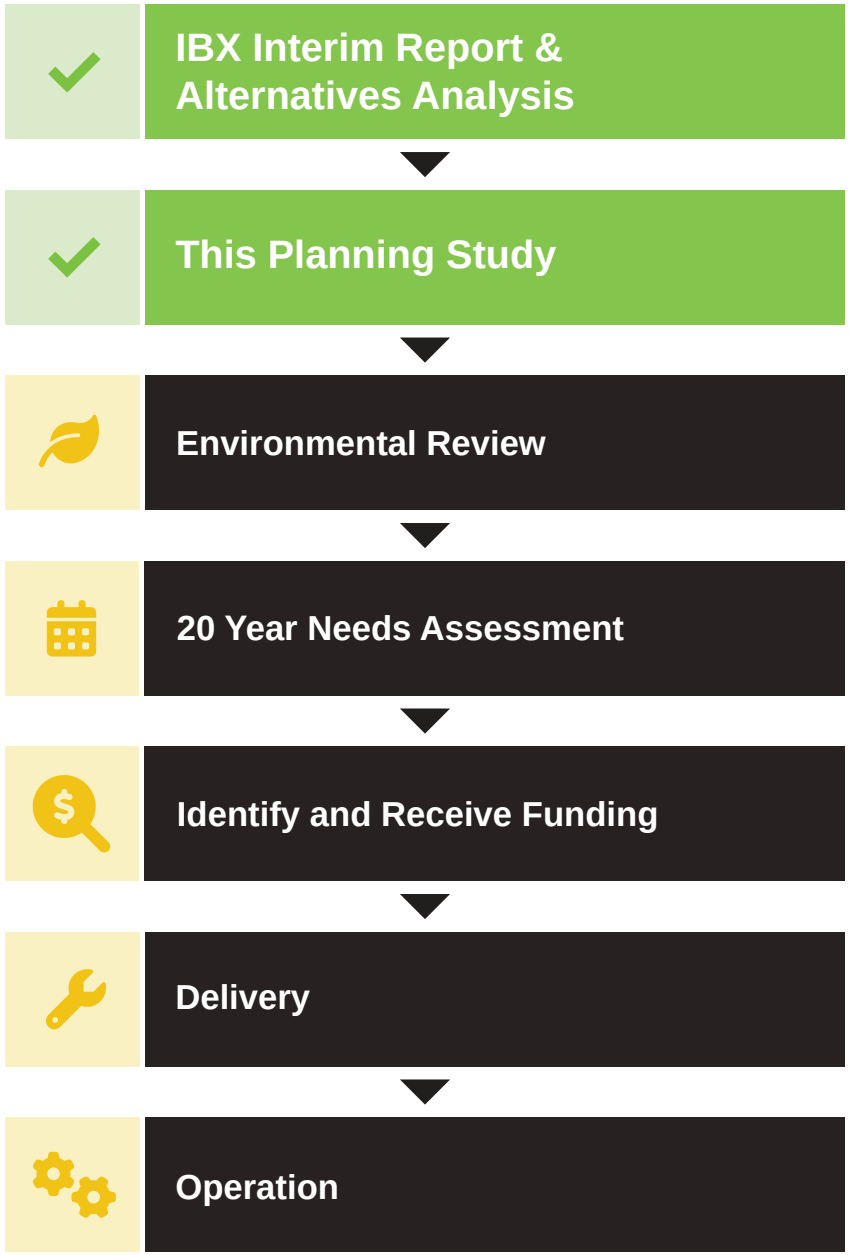
New York is a city of neighborhoods and the IBX would connect many of these communities more effectively, improving access to jobs, housing, education, and recreation. This in turn would improve the chance for the success of current and future plans to strengthen these existing communities. These plans include:

- The **East New York Neighborhood Plan** encourages major commercial development and economic investment, complementing the industrial and manufacturing uses within the East New York Industrial Business Zone.
- New York State's **Vital Brooklyn Initiative** has invested $664 million in healthcare facilities in central Brooklyn, such as Brookdale, many of which are proximate to the IBX.
- New York City's **Sunset Park Vision Plan** involves significant commercial development near what would be the southern terminus of the IBX.
- Brooklyn College's **Facilities Master Plan** calls for significant development on its campus, which is adjacent to the IBX.

MTA will collaborate with New York City and its planning and development agencies to proactively consider such economic development, healthcare, and housing opportunities in parallel with our transportation planning.

Top: Brooklyn Army Terminal, at the southern terminus of the IBX, is a major maritime and industrial hub. **Middle:** Map snapshot of the East New York Industrial Business Zone. **Above**: Retail corridor in Jackson Heights, Queens.

Next Steps for IBX



NEXT STEPS

The IBX Project has the potential to be a transformative force that will improve the lives of tens of thousands of New Yorkers. It also represents a rare opportunity to take advantage of an existing right of way to build a major new transit line.

The completion of this Planning Study moves the project closer to its realization. With the identification of Light Rail Transit as the preferred mode, the next steps will be environmental review, followed potentially by funding, design, and construction. Concurrently, the MTA's planning process involves preparation of a Twenty-Year Needs Assessment for potential project inclusion in future capital programs. This assessment includes a comparative evaluation of costs, benefits, and other metrics to determine which projects best meet the MTA's strategic goals. Projects with the greatest benefit will be prioritized and may be included in the Twenty-Year Needs Assessment and future Capital Programs.

PHOTOGRAPHY CREDITS

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Page 12: *Top:* New York City Department of Transportation.

Page 15: b. (LRT): Sardaka, Wikimedia Commons (CC-BY-SA 4.0). c. (BRT): Greater Cleveland Regional Transit Authority website.

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ACKNOWLEDGMENTS

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THE INTER–BOROUGH EXPRESS

Planning & Environmental Linkages Study

January 2023

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Appendix

Volume 1:
Planning and Environmental Linkages Study

THE INTER–
BOROUGH
EXPRESS

APPENDIX CONTENTS

Appendix 1.1 Analysis of Existing Conditions and No Build Alternative

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

Contents

1 Introduction

1.1 Purpose and Overview

The purpose of this Planning and Environmental Linkages (PEL) Study is to compare the three modal alternatives from the previous Interborough Express Feasibility Study and Alternatives Analysis (hereafter "the IBX Feasibility Study") and recommend a locally preferred alternative (LPA) mode for more detailed study during the National Environmental Policy Act (NEPA) process. This PEL study will form a critical building block in the development of the eventual NEPA document.

The IBX Feasibility Study served as the first step in the development and screening process for IBX alternatives. During the IBX Feasibility Study, many alternative modes were examined and found to be deficient and eliminated from consideration. The remaining three modal alternatives – conventional rail (CR), Light Rail Transit (LRT), and Bus Rapid Transit (BRT) – were retained for further study.

The PEL Study will supplement work from the previous IBX Feasibility Study by preliminarily identifying potential natural and built environment resources and completing additional engineering evaluations to further evaluate the three modal alternatives.

As part of this PEL Study, further studies will be recommended during NEPA to comply with federal requirements. In addition to the PEL Study, a draft Notice of Intent and a Scoping Booklet will be prepared to facilitate necessary approvals to begin the NEPA process.

1.2 Analysis of Existing Conditions and No Build Alternative

The IBX corridor, which extends from Bay Ridge in southwestern Brooklyn to Jackson Heights in northwestern Queens, is currently utilized exclusively for freight transport via all-diesel rail. This corridor consists of the Long Island Rail Road (LIRR)-owned Bay Ridge Branch and the CSX-owned Fremont Secondary. The corridor was identified as a potential location for new transit service that would provide more direct transit options to serve the population and job growth areas in Brooklyn and Queens, while relieving congestion on existing Manhattan-bound subway lines. This study is intended to determine the feasibility of adding passenger service options to the corridor without interfering with existing and planned freight operations, which are projected to grow in scope and scale in the near- and long-term.

The corridor is a vital link in the freight rail network in the New York City and Long Island region. The Port Authority of New York and New Jersey (PANYNJ) is currently preparing a Phase II Environmental Impact Statement (EIS) for its Cross-Harbor Freight Program (CHFP) to improve the movement of freight across New York Harbor. The current plans under this study are discussed later in this memo.

Figure 1 shows the Study Area established in the IBX Feasibility Study for the assessment of transit operations in this corridor. The Primary Study area is defined by the corridor's generalized walkshed – the approximate walking distance that potential future passengers would be willing to walk to connect with these services. For the purposes of this study, that walking distance is assumed to be roughly one half-mile. The Primary Study area is drawn to exclude the Hell Gate line, which is owned and operated by AMTRAK. The study does not consider actions involving that rail line.

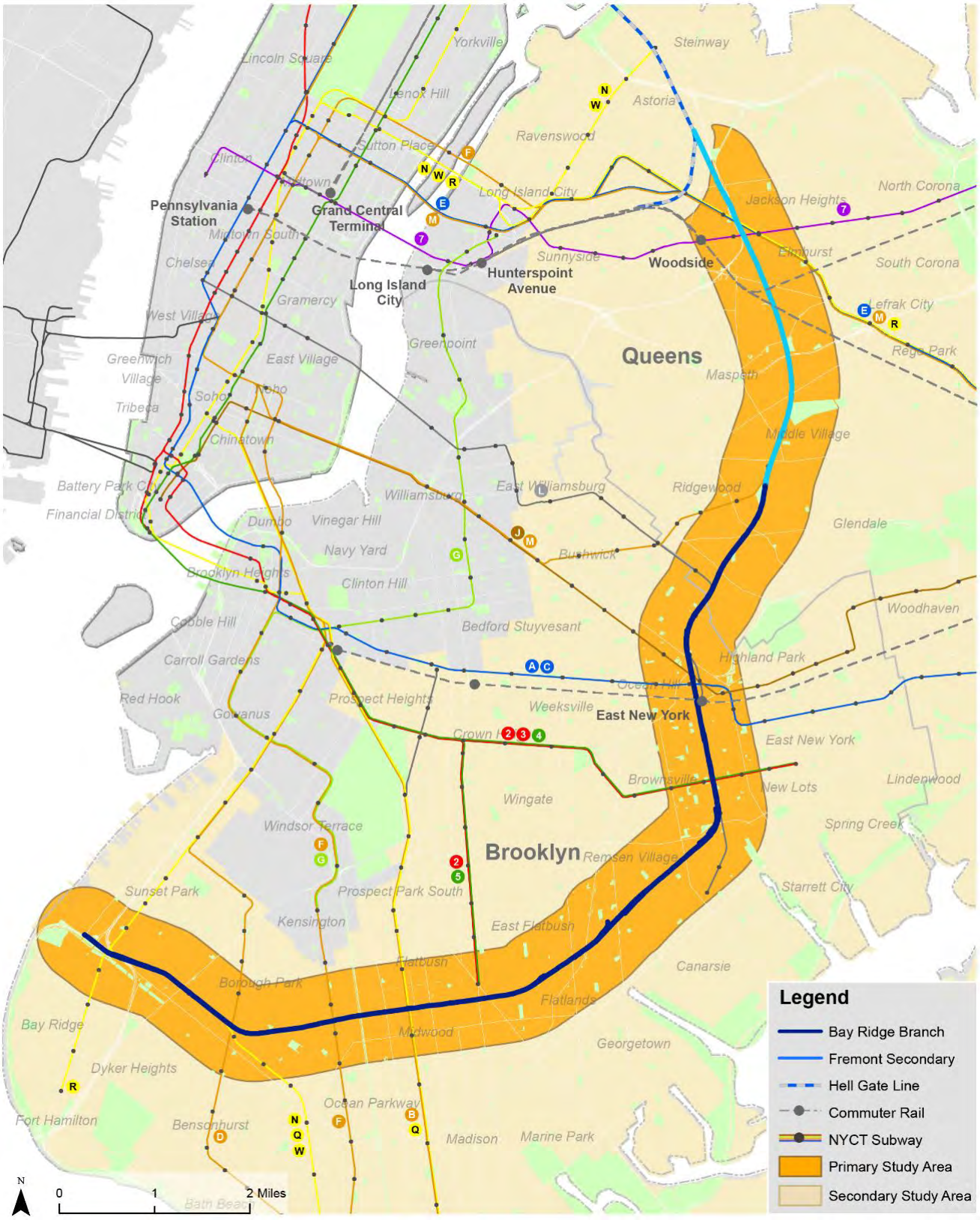
The Secondary Study Area includes most of Brooklyn and Queens and is drawn along Census Tract boundaries to capture areas served by subway and commuter lines and major bus routes that cross the IBX Corridor. While other travel markets and New York City neighborhoods are discussed in this study, the main purpose of the study is to assess travel needs within the Primary and Secondary Study Areas to determine how improved transit services could expand the role of transit in those areas.

This Technical Memo:

- assesses current and planned transportation services within the areas potentially served by new transit options in the study corridor, including transit and roadway-based operations, and
- describes current and projected demographic patterns and characteristics of these areas, including their recent and projected population and employment growth patterns.

Subsequent sections examine the present travel patterns of workers and residents and on journey-to-work trips occurring during the AM and PM peak periods that comprise a major component of potential demand. Most of this analysis centers on the Primary Study Area.

Figure 1: IBX Study Area

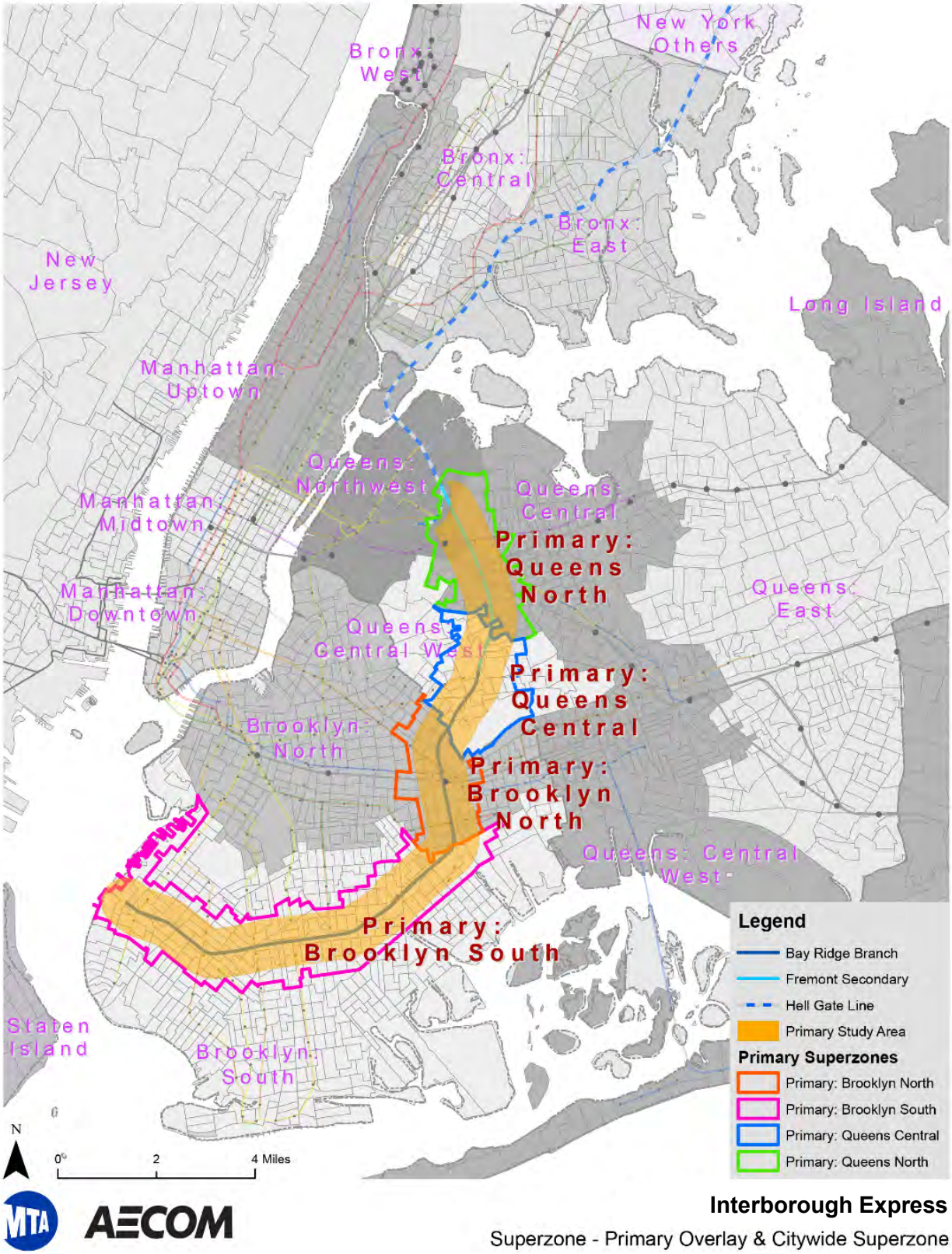


Note The maps and tables of land use and zoning in the northern portion of the corridor defined as Woodside/Elmhurst (Segment 6) later in this memo reflect a larger Primary Study Area north of Roosevelt Ave. This does not impact the evaluation of the alternatives in this PEL Study because the land use and zoning issues are consistent for each of the alternatives considered. As such, land use and zoning are not projected to be a differentiator among the alternatives.

The Primary Study Area for IBX is comprised of 262 Census Tracts (within approximately a half-mile of the IBX alignment) and 1,281 Census Tracts total within the Secondary Study Area, as defined in Section 1. The Primary Study Area is comprised of four subdistrict zones (see **Figure 2**): Brooklyn South, Brooklyn North, Queens Central, and Queens North. The Secondary Study Area is comprised of six Superzones: Brooklyn North, Brooklyn South, Queens Northwest, Queens Central, Queens Central West, and Queens East. The Superzones forming the Secondary Study Area include the 262 Census Tracts within the Primary Study Area.

These Superzones are aggregated Transportation Analysis Zones (TAZs) from the New York Metropolitan Transportation Council (NYMTC). The Superzones will be used for transit modeling in future analyses. The Superzones reflect an initial intermediate grouping to support demographic and travel pattern analysis. This initial grouping is based on transit patterns and orientation, neighborhood features, and commuting characteristics. Exact Superzone boundaries can be modified as needed as the study progresses to better align with evolving analysis.

Figure 2: IBX Primary Study Area



Interborough Express

Superzone - Primary Overlay & Citywide Superzone

2 Existing Conditions

2.1 Inventory of Current and Planned Transportation Service

Existing Transportation Services

Brooklyn and Queens collectively have a resident population of approximately 5 million people (2014-2018 5-Year Estimate American Community Survey ACS data). Moving people and the goods through and across these two boroughs requires a complex and redundant multimodal transportation network. Buses, subways, and commuter rail trains play a vital role in moving commuters and other passengers into and out of the Central Business District (CBD) of Manhattan, as well as a wide range of other trip-generating destinations within Brooklyn, Queens, and other nearby areas (i.e., Staten Island, the Bronx, and Long Island).

The roadway network in the Primary and Secondary Study Areas is comprised of local, collector and arterial roads, and parkways and Interstate highways. These roadways, including designated truck routes and connecting tunnels and bridges to other boroughs, transport vehicles through the Study Area. No current routes offer a continuous parallel option to the IBX alignment between Bay Ridge, Brooklyn and Jackson Heights, Queens. Existing roadway connections among neighborhoods of eastern Brooklyn such as Canarsie, Brownsville, and Bushwick are often indirect and may be cumbersome to traverse. These roadways experience high traffic volumes and contain large numbers of stop- and signal-controlled intersections. Single-lane roadways are common in the Study Area. The following sections outline travel options to and from the Study Area via bus, rail, and other modes.

Existing Bus Service

The Queens bus network currently features a total of 100 routes, of which 19 travel through the Primary Study Area. While local and express bus service covers most of the borough, travelers from many neighborhoods within the Study Area must transfer between bus lines at least once to reach destinations within the borough. Under the Queens Bus Network Redesign program, which has not yet been finalized, many routes within the Primary Study Area will be redesigned to accommodate faster travel, more reliable service, and better connectivity.

The Brooklyn bus network currently has 66 routes, 32 of which travel through the Primary Study Area.[1] **Figure 3** illustrates the breadth of local, Select Bus Service (SBS), and express bus routes serving the Study Area. SBS is the MTA designation for routes with BRT characteristics, including camera-enforced bus lanes, longer distances between stops, and vehicular turn restrictions. Buses in Queens and Brooklyn carried approximately 1.26 million riders in 2019[2] on an average weekday, a slight increase from the 1.24 million in 2018.

Table 1 and **Table 2** show the top five routes by average weekday and average weekend boardings in 2019, respectively.[3] These routes include:

- B6 – from Bensonhurst to East New York
- B35 – with both local and Limited bus services from Brownsville to Sunset Park

[1] Express buses excluded from Primary Study Area counts but included in total borough counts. Brooklyn SBS/Local routes counted as a single route as that is how MTA reports bus ridership.
[2] http://web.mta.info/nyct/facts/ridership/
[3] This section reflects current bus operations. The MTA has initiated Borough-wide Bus Route Redesign strategies for both Queens and Brooklyn, which may result in route additions, deletions, and

- B44 – extending from Williamsburg to Sheepshead Bay, with both local and SBS services on that corridor
- B46 – including local bus service from Kings Plaza to Williamsburg and SBS service from Kings Plaza to Bedford-Stuyvesant
- Q58 -- with both local and Limited bus services from Jamaica, Queens to Ridgewood, Queens

Table 1: Top 5 Bus Routes by Average Weekday Boardings in the Primary Study Area

Route	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
B46Lcl/SBS	46,422	44,431	43,463	41,786	38,120	36,375	-10,047	-21.64%
B6	41,812	41,175	41,320	40,135	35,963	34,062	-7,750	-18.54%
B44Lcl/SBS	36,016	37,021	37,418	34,877	32,334	31,375	-4,641	-12.89%
Q58	29,464	29,027	29,412	28,810	27,940	27,638	-1,826	-6.20%
B35	32,353	33,016	31,886	29,899	27,273	24,887	-7,466	-23.08%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 2: Top 5 Bus Routes by Average Weekend Boardings in the Primary Study Area

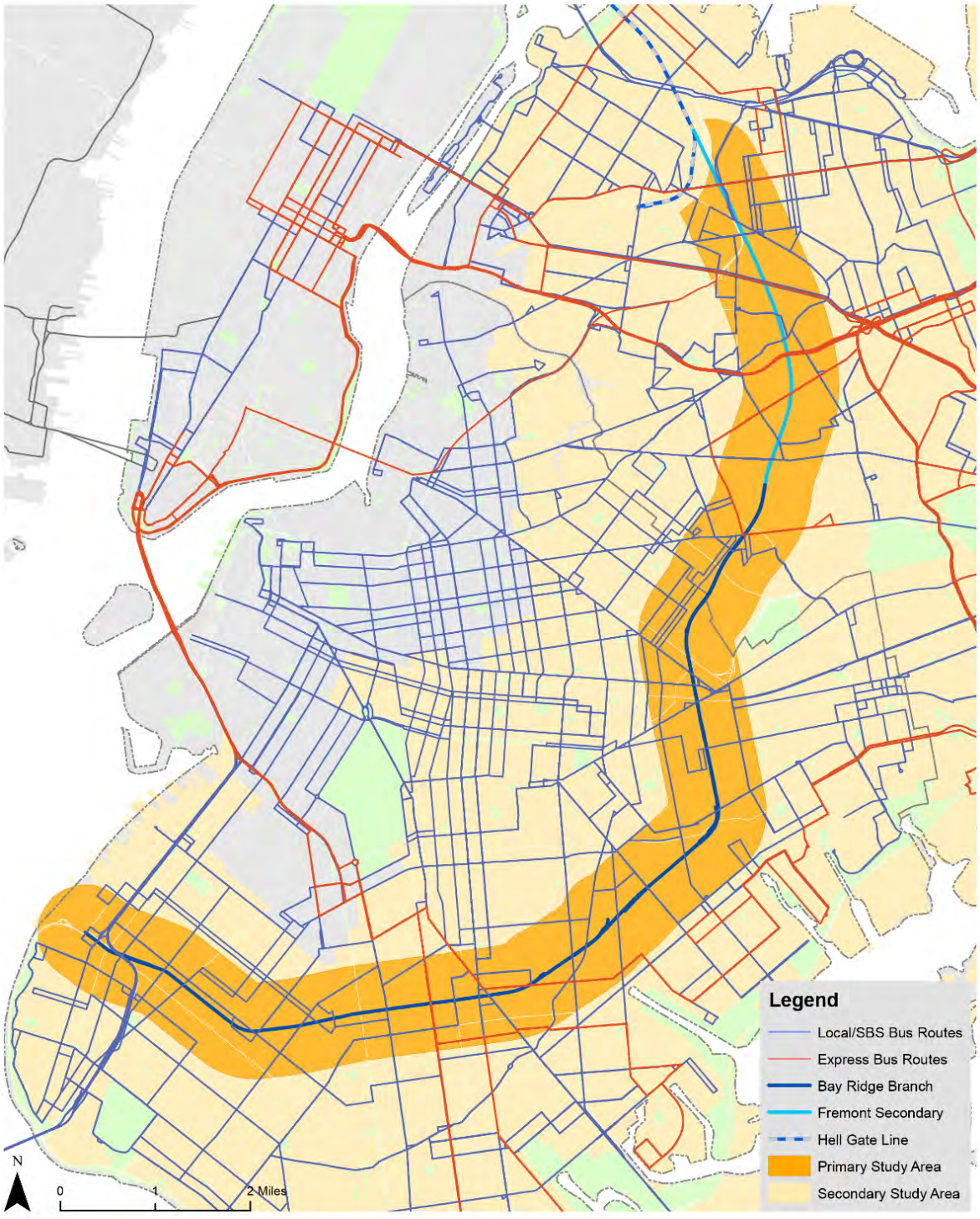
Route	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
B46Lcl/SBS	60,838	58,186	54,891	52,719	50,493	48,997	-11,841	-19.46%
B6	50,420	50,297	47,748	45,584	41,246	39,536	-10,884	-21.59%
B44Lcl/SBS	44,385	44,980	44,282	41,823	39,175	38,484	-5,901	-13.30%
Q58	41,953	40,320	39,811	39,407	38,006	38,561	-3,392	-8.09%
B35	45,987	47,613	44,345	42,231	38,486	33,627	-12,360	-26.88%

Source: MTA - *http://web.mta.info/nyct/facts/ridership*

The changes in overall weekday and weekend ridership on these routes over the 2014-2019 period – approximately 17% and 18%, respectively – are somewhat higher than the citywide averages of weekday and weekend reductions of 13% and 14%, respectively.

modifications. See section **Planned and Proposed Bus Service Changes** on page 27 for additional details.

Figure 3: Bus Routes Intersecting Primary Study Area



Source: AECOM

Table 3 shows the top five routes for average weekday boarding increases. Between 2014 and 2019, average weekday boardings on these bus routes increased by 16.3 percent. This is counter to the citywide average, which decreased by 13 percent and 14 percent for weekday and weekend respectively (excluding express routes) during this period. The citywide trend has been observed nationwide, which has been caused by multiple factors, including but not limited to the state of the economy, increasing general traffic congestion, and the impacts of reduced service reliability.

Table 3: Bus Routes with Greatest Percentage Increase in Weekday Boardings in the Primary Study Area

Route	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
Q70	3,419	4,048	4,183	4,670	5,090	5,829	2,410	70.49%
B4	5,442	5,653	6,195	6,207	6,192	6,069	627	11.52%
B13	5,536	5,844	6,290	6,193	6,084	6,259	723	13.06%
B9	12,687	12,785	14,404	14,495	14,416	13,857	1,170	9.22%
B70	6,059	5,394	5,387	5,942	6,229	6,520	461	7.6%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

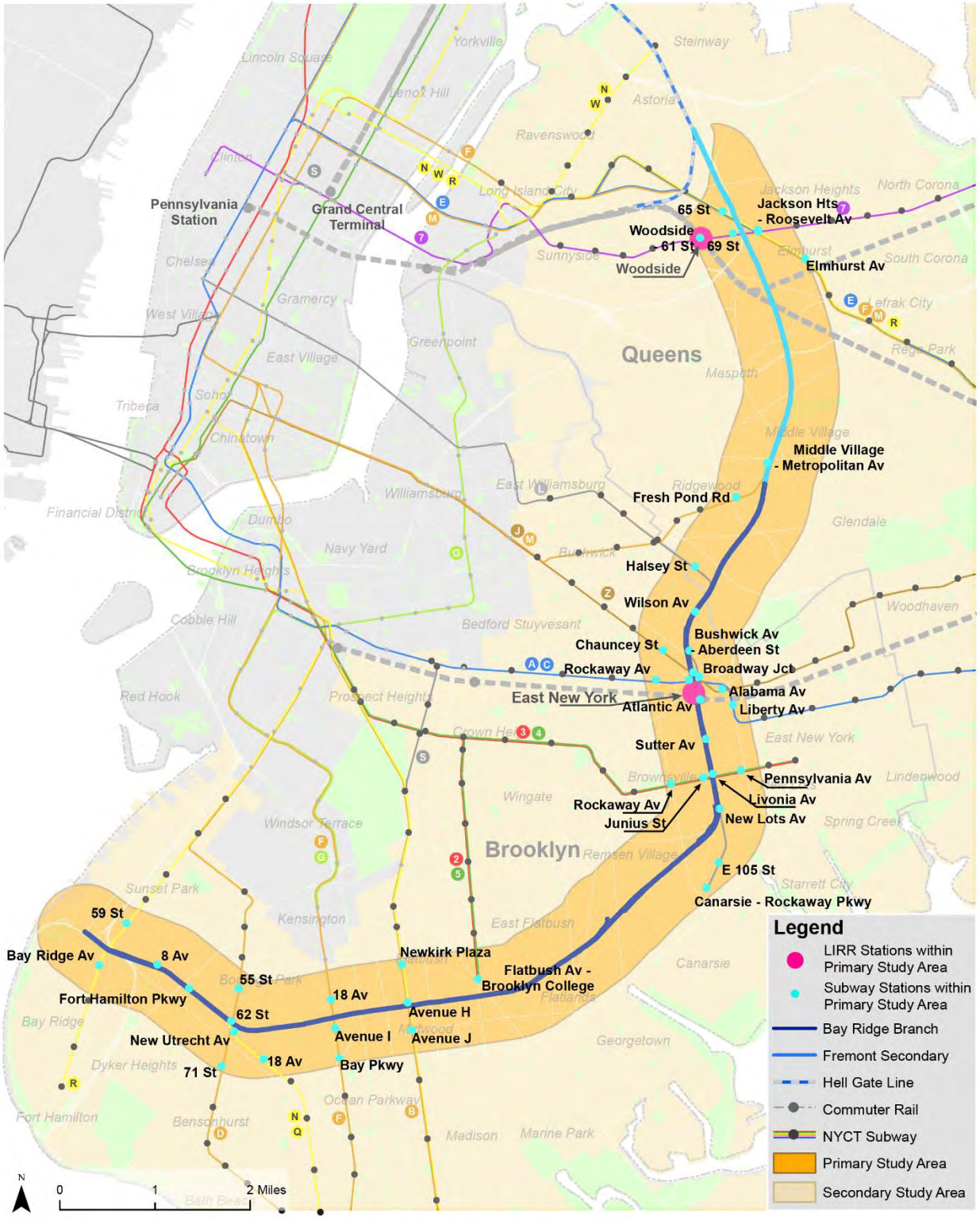
The ridership statistics reflected above have dropped substantially since the onset of the COVID-19 pandemic. At its lowest point in April 2020, bus ridership was at 23 percent of 2019 ridership.[4] While these numbers have recovered somewhat, bus ridership has not yet recovered to pre-COVID levels. More detailed information about the recovery of ridership and longer-term projections post-COVID will be explored during the NEPA environmental review studies.

Existing Subway Service

A total of 17 subway lines serve the boroughs of Brooklyn and Queens, with 40 subway stations in the Primary Study Area (see **Figure 4**). The lines passing through the Primary Study Area include the A, B, C, D, E, F, J, L, M, N, Q, R, Z, 2, 3, 4, 5, and 7. Only the G, Shuttles, W, 1, and 6 do not have scheduled service to the Primary Study Area. The F, M, and R lines intersect the proposed Corridor twice, once in each borough. However, within the Primary Study Area, one major transfer complex – Broadway Junction –permits customers to move between lines, meaning that many customers must travel to Downtown Brooklyn or Manhattan to transfer between trains. Overall, subway stations in the Study Area had an aggregate average daily ridership of 268,197 in 2019. Although there were a range of percentage changes across all the station, the overall daily volume was essentially the same as the 268,974 recorded in 2018.

[4] https://new.mta.info/agency/new-york-city-transit/subway-bus-ridership-2020

Figure 4: Subway and Commuter Rail Lines



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Subway / Commuter Rail

Information about the subway stations located in the Primary Study Area, including the lines that serve them and their ADA status, are listed in **Table 4**. This Table also describes the proximity of each station to the study corridor.

"Adjacent" means the subway station is within walking distance of the study corridor, approximately 250 feet, so that a potential transfer station can be considered. "Within Walkshed" means the subway station falls within a half-mile walking distance from the study corridor. Stations listed as "Within Walkshed" are not close enough to the study corridor to support a direct transfer connection to new rail passenger service.

Table 4 Subway Stations within the Primary Study Area

MTA GTFS Station ID	Station Name	Routes	ADA Access	Geographic Relationship to Study Corridor
247	Flatbush Av-Brooklyn College	2, 5	Yes	Within Walkshed
253	Rockaway Av	A, C	No	Within Walkshed
A50	Rockaway Av	3	No	Within Walkshed
254	Junius St	3	No	Within Walkshed
255	Pennsylvania Av	3	No	Within Walkshed
710	Broadway-74th St	E, F, M, R, 7	Yes	Within Walkshed
711	Fisk Av-69th St	7	No	Within Walkshed
712	Woodside Av-61st St	7	Yes	Within Walkshed
A51	Broadway Junction-East New York	A, C, J, L	No	Adjacent
A52	Liberty Av	A, C	No	Within Walkshed
B15	55th St	D	No	Within Walkshed
B16	62nd St	D, N	Yes	Adjacent
B17	71st St	D	No	Within Walkshed
D31	Newkirk Plaza	B, Q	No	Within Walkshed
D32	Av H	B, Q	Yes	Adjacent
D33	Av J	B, Q	No	Within Walkshed
F30	18th Av	F	No	Within Walkshed
N05	18th Av	N	No	Within Walkshed
F31	Av I	F	No	Within Walkshed
F32	Bay Parkway	F	No	Within Walkshed
G13	Elmhurst Av	M, R	No	Within Walkshed
G14	Jackson Heights-Roosevelt Ave	E, F, M, R, 7	Yes	Within Walkshed
G15	65th St	M, R	No	Within Walkshed
J24	Alabama Av	J	No	Within Walkshed
J28	Chauncey St	J, Z	No	Within Walkshed
L19	Halsey St	J	No	Within Walkshed
L20	Wilson Av	L	Yes	Adjacent
L21	Bushwick Av	L	No	Adjacent
L24	Atlantic Av	L	No	Within Walkshed

MTA GTFS Station ID	Station Name	Routes	ADA Access	Geographic Relationship to Study Corridor
L25	Sutter Av	L	No	Adjacent
L26	Livonia Av	L	No	Adjacent
L27	New Lots Av	L	No	Adjacent
L28	East 105th St	L	No	Within Walkshed
L29	Canarsie - Rockaway Parkway	L	Yes	Within Walkshed
M01	Middle Village Metropolitan Ave	M	Yes	Adjacent
M04	Fresh Pond Rd	M	No	Within Walkshed
N02	8th Av	N	Yes	Adjacent
N03	Fort Hamilton Parkway	D	No	Adjacent
N04	New Utrecht Av	D, N	Yes	Within Walkshed
R41	59th St	N, R	No	Within Walkshed
R42	Bay Ridge Av	R	No	Within Walkshed

Table 5 and **Table 6** show the top five subway stations in the Study Area for average weekday ridership and average weekend ridership, respectively. Over this six-year period, ridership at these stations has fluctuated slightly up and down but down over all due to lower levels in 2018-2019.

Table 5: Top 5 Subway Stations by Average Weekday Ridership in the Primary Study Area

Station	Line	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
74-Broadway/ Roosevelt Av	7, E/F/M/R	51,285	51,925	52,296	52,018	51,766	52,159	874	1.70%
Flatbush Av-Brooklyn College	2/5	21,865	21,666	21,268	20,691	19,763	19,572	-2,293	-10.49%
Woodside-61 St	7	16,807	17,007	17,236	16,945	16,501	16,684	-123	-0.73%
Elmhurst Av	M/R	13,568	13,588	13,508	12,967	12,463	12,362	-1,206	-8.89%
59 St	N/R	12,871	13,048	13,144	16,759	12,301	11,240	-1631	-12.67%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 6: Top 5 Subway Stations by Average Weekend Ridership in the Primary Study Area

Station	Line	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
74-Broadway/ Roosevelt Av	7, E/F/M/R	73,919	73,373	72,305	70,841	69,953	69,584	-4,335	-5.86%
Woodside-61 St	7	19,669	20,127	20,360	21,067	19,796	20,097	428	2.18%
59 St	N/R	14,966	15,344	14,917	19,650	15,980	14,830	-136	-0.91%
Flatbush Av-Brooklyn College	2/5	16,274	17,805	16,443	15,653	14,507	12,762	-3,512	-21.58%
8 Av	N	17,434	15,960	17,252	16,278	14,040	15,213	-2,221	-12.74%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 7 and **Table 8** show the top five subway stations in the Study Area for ridership increases and decreases, respectively, between 2014 and 2019. Of the five stations with steady or increasing ridership growth and an overall 10 percent increase over this period, three involve three L stops. Two of the five stations with an overall ridership decline are in southern Brooklyn.

Table 7: Top 5 Subway Stations with Greatest Percentage Increase in Weekday Ridership in the Primary Study Area

Station	Line	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
Bushwick Av-Aberdeen St	L	1,683	1,874	2,105	2,112	2,079	2,015	332	19.73%
71 St	D	4,682	4,802	6,501	5,905	5,607	5,499	817	17.45%
Avenue H	Q	2,961	2,994	3,183	3,329	3,418	3,354	393	13.27%
Atlantic Av	L	1,725	1,384	1,455	1,821	1,842	1,593	-132	-7.65%
Wilson Av	L	4,248	4,437	3,812	4,564	4,468	4,292	44	1.04%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 8: Top 5 Subway Stations with Greatest Percentage Decrease in Weekday Ridership in the Primary Study Area

Station	Line	2014	2015	2016	2017	2018	2019	2014-2019 Change	2014-2019 % Change
Pennsylvania Av	3	5,718	6,997	2,485	3,503	4,331	4,493	-1,225	-21.42%
Middle Village-Metropolitan Av	M	4,318	4,489	4,530	3,064	3,225	3,726	-592	-13.71%
Rockaway Av	3	5,735	1,690	5,122	5,642	4,747	4,780	-955	-16.65%
Alabama Av	J	2,448	2,520	2,585	2,424	2,147	2,089	-359	-14.67%
Fresh Pond Rd	M	5,677	6,002	6,130	4,223	4,716	5,882	205	3.61%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

As with bus ridership, the subway ridership statistics reflected above have dropped substantially since the onset of the COVID-19 pandemic. At its lowest point in April 2020, subway ridership was at 8 percent of 2019 ridership.[5] While these numbers have recovered somewhat, ridership on the subway has not as yet recovered to pre-COVID levels. For the week of August 1, 2022, ridership stood at 58 percent of 2019's comparable average.[6] More detailed information about the recovery of ridership and longer-term projections post-COVID will be explored during the NEPA environmental review studies. Estimated future ridership in a future no-build scenario is explored in **Section 3.2** of this memo.

Existing LIRR service

LIRR has 11 branches (excluding the seasonal Belmont Branch) that connect all four counties (Kings County, Queens County, Nassau County, and Suffolk County) on Long Island, as shown in **Figure 4**.

[5] https://new.mta.info/agency/new-york-city-transit/subway-bus-ridership-2020
[6] https://new.mta.info/coronavirus/ridership, accessed August 10,2020.

In New York City, the service has three main terminals – Penn Station, Atlantic Terminal, and Hunterspoint Ave./Long Island City.

As with other travel modes, LIRR ridership suffered due to the COVID-19 pandemic. For the week of August 1, 2022, ridership stood at 64 percent of 2019's comparable average.[7] Prior to 2020, though LIRR had experienced an increase in overall ridership since 2014. The top three branches with the highest increase in ridership since 2015 are Ronkonkoma, Babylon and Hempstead (**Table 9**).

Table 9: LIRR Ridership 2015-2019*

Branch	2015	2016	2017	2018	2019	2015-2019 Change	2015-2019 Change %
City Zone	7,057,723	7,387,923	7,171,230	7,239,713	7,347,433	289,710	4.10%
Babylon	18,242,236	18,348,401	18,085,955	18,306,985	19,817,420	1,575,184	8.63%
Far Rockaway	5,931,677	6,127,963	6,245,366	6,402,693	4,510,460	-1,421,217	-23.96%
Hempstead	4,031,759	4,163,361	4,251,182	4,329,862	4,321,410	289,651	7.18%
Long Beach	4,822,457	4,923,744	4,898,829	4,849,085	6,373,620	1,551,163	32.17%
Montauk	2,303,670	2,306,084	2,348,119	2,424,499	2,383,600	79,930	3.47%
Oyster Bay	1,837,035	1,901,569	1,924,288	1,929,263	1,900,020	62,985	3.43%
*Port Jefferson***	18,705,294	19,036,912	19,086,565	19,114,377	15,702,290	-3,003,004	-16.05%
Port Washington	13,802,816	14,087,743	14,084,690	14,242,594	13,329,520	-473,296	-3.43%
*Ronkonkoma****	9,964,746	10,057,813	10,003,535	9,841,068	14,483,250	4,518,504	45.34%
*West Hempstead*****	948,633	1,010,165	1,059,082	1,092,420	898,800	-49,833	-5.25%
Total	**87,648,046**	**89,351,678**	**89,158,841**	**89,772,559**	**91,067,823**	**3,419,777**	**3.90%**

***Port Jefferson Branch includes ridership from Huntington Branch*
**** Ronkonkoma Branch includes ridership from Greenport Branch. Increase in 2019 likely due to completion of Double Track project in 2018, allowing for increase in bi-directional service*
***** Significant increase from 2014 to 2018 because of resumption of weekend service in late 2014.*
Source: MTA Long Island Rail Road Ridership Book (2014, 2015, 2016, 2017, 2018, Draft 2019)

Excepting the Port Washington Branch, existing LIRR service through Queens and Brooklyn is located in the LIRR's City Terminal Zone. The Terminal Zone includes 10 stations in Manhattan, Queens, and Brooklyn, including three terminals – Penn Station, Atlantic Terminal, and Hunterspoint Ave./Long Island City.

Of these 10 stations, Woodside and East New York serve the Primary Study area (**Table 10**).

Table 10 LIRR Stations within the Primary Study Area

Station Name	Branch	ADA Access	Geographic Relationship to Study Corridor
Woodside	Port Washington City Zone	Yes	Within Walkshed
East New York	Atlantic Branch	No	Adjacent

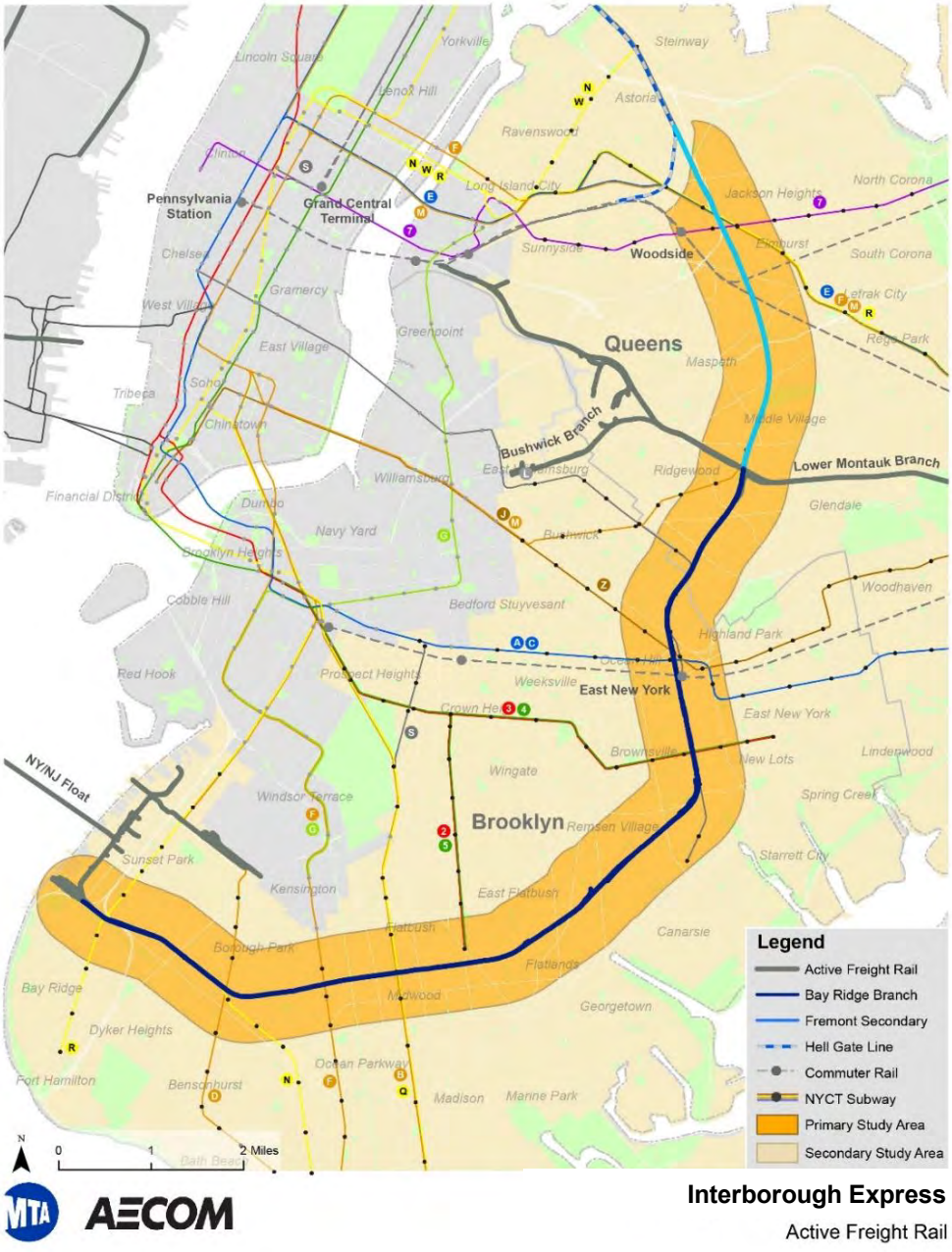
[7] https://new.mta.info/coronavirus/ridership, accessed August 10, 2020.

The 2012-2014 LIRR Origin and Destination Report indicates that Woodside station had 7,172 average weekdays daily boardings and alightings – the busiest of the ten City Terminal Zone stations, excluding the western terminals and Jamaica Station. For East New York station, there were 1,358 weekdays daily ons and offs during the same time period.

Existing Freight Rail Operation

Freight rail service is provided on the Bay Ridge Branch (between Bay Ridge, Brooklyn and just north of Fresh Pond, Queens) by the New York and Atlantic Railway (NY&A) under contract with the MTA. The contract was signed in 1997 and extends until 2027. The Fremont Secondary portion of the right of way (ROW), extending from Fresh Pond, Queens and continuing to the Amtrak Hell Gate Line in Astoria, is owned and maintained by CSX, as indicated on the New York State Rail map. The active freight rail lines that intersect with the study corridor are shown on **Figure 5**

Figure 5: Active Freight Rail Map



The Bay Ridge Branch and Fremont Secondary rail segments together are critically important to freight rail in the New York City and Long Island region. Freight rail traffic on the entire LIRR network has increased substantially over the past two decades, growing from approximately 10,000 carloads annually in 1996 to approximately 30,000 carloads in 2018. This figure includes trips that either originate or terminate on the LIRR system, on either the Bay Ridge Branch or Fremont Secondary. The other end of the rail trip generally includes locations in Long Island or New Jersey, but also points in New England and throughout the national freight rail system. **Table 11** indicates Annual Number of Cars conducting freight rail operations along the NY&A.

Table 11: Revenue Carloads of Freight Rail Operations on NY&A, 2018-2019

Year	Total Revenue Carloads forwarded or received by customers on Bay Ridge Branch	Total Branch Volume (revenue cars originating at, or destined to, 65th St Carfloat)
2018	352	2,912 Forwarded 4,428 Received
2019	427	3,169 Forwarded 2,713 Received

Source: NY&A

The maximum authorized speed along the Bay Ridge Branch is 10 mph due to current track maintenance standards for freight rail and the absence of an automatic signaling system. The average run time along the branch is approximately 75-80 minutes, excluding stops to service customers (**Table 12**). However, travel time is impacted by requirements to load and unload cars at various sidings along the ROW.

Freight rail operations traffic accesses LIRR territory in two ways:

1. Via Rail Float: Railcars are shipped to and from the Bay Ridge branch via the New York/New Jersey Rail (NYNJ) carfloat. Inbound cars arrive at the 65th Street Yard in Bay Ridge. From there, freight travels east to Fresh Pond Junction, where it can be transferred to the LIRR's Lower Montauk Branch for shipment east to Long Island, or west to customers in Queens and Bushwick, Brooklyn. Outbound freight traffic accesses the carfloat via the Bay Ridge Branch. On average, one freight train utilizes the float each day
2. Via CSX over Hell Gate Bridge. Freight traffic bound for Long Island traveling along the Fremont Secondary is transported by CSX (and other freight rail providers with operating rights) along the line to Fresh Pond Junction, where it is interchanged with NY&A. Conversely, outbound freight traffic is picked up by CSX and transported north via the Fremont Secondary and onto the Hell Gate Bridge north to the Bronx and the rest of the mainland United States. At its northern end, the Fremont Secondary line merges with the tracks from Sunnyside Yard. The Fremont Secondary carries higher volumes of through freight movement than the Bay Ridge Branch, which only carries one freight train per day.

There is, on average, one daily freight round trip between Fresh Pond and 65th Street, between 7:00PM and 2:00AM, with approximately 15 cars per train (as of 2019). Freight customers and switches are shown in **Figure 6** and **Table 12**, based on data provided by NY&A.

Figure 6 Freight Customers Map

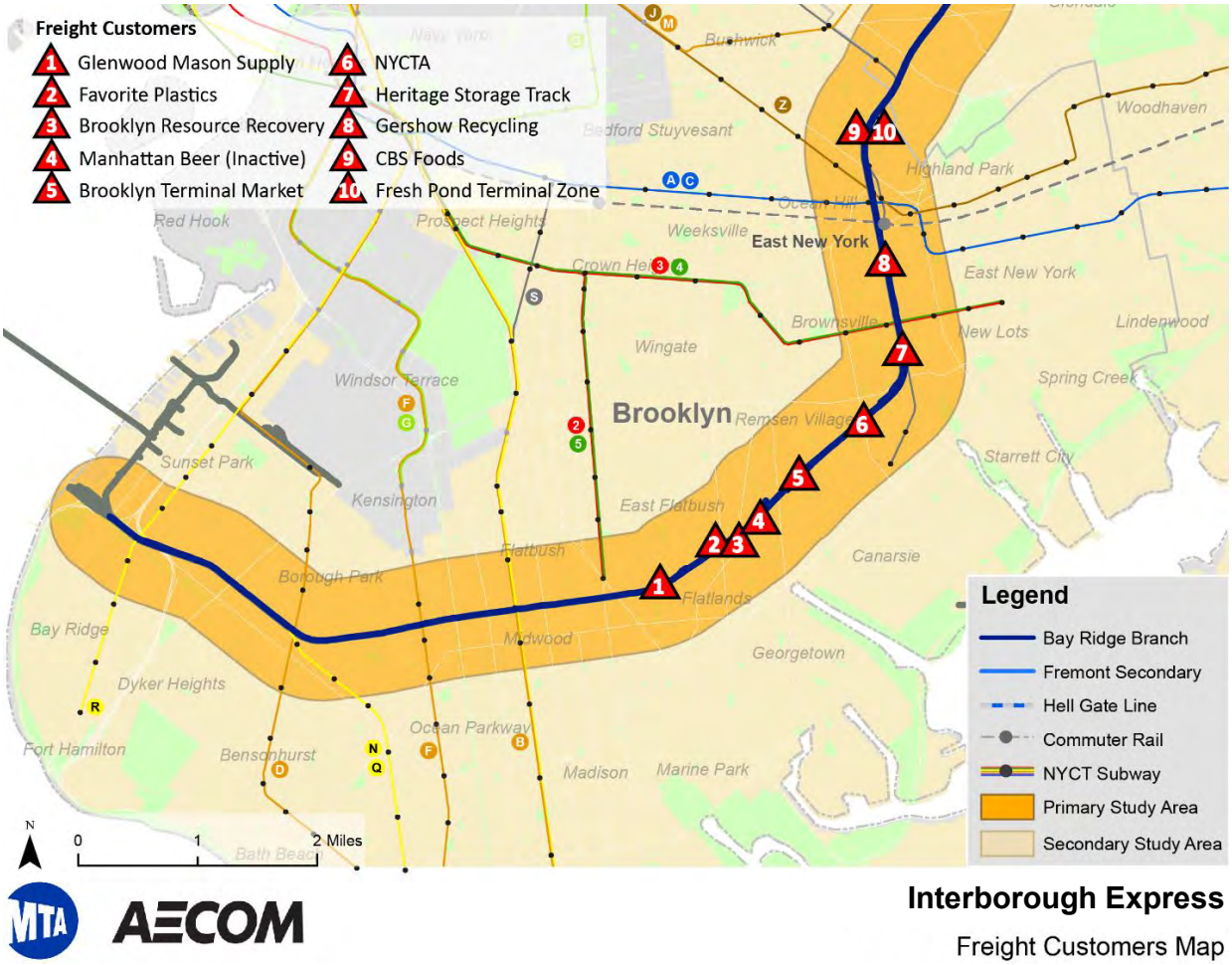


Table 12: Freight Customers and Switches along the Bay Ridge Branch

No.	**Customer**	**Approximate Location and Description**
1	Glenwood Mason Supply	MP 5.5, approximately 250' east of Albany Avenue overgrade bridge. Siding on north side of ROW.
2	Favorite Plastics	MP 6.3, approximately 200' west of Kings Highway bridge. Siding on south side of ROW.
3	Brooklyn Resource Recovery	Double ended siding from MP 6.3 (Kings Highway bridge) to MP 6.7 (East 83rd St bridge). South side of ROW.
4	Manhattan Beer (Inactive)	MP 6.4, approximately 800' east of Kings Highway Bridge. Siding on north side of ROW.
5	Brooklyn Terminal Market	MP 7.1, approximately 200' east of Remsen Avenue bridge. Siding on south side of ROW.
6	NYCTA (Linden Shop and Yard)	Accessed via the NYCTA run around track (MP7.6 to MP 8.2); approximately between Rockaway Avenue bridge and New Lots Avenue bridge. East point trailing switch to Linden Shop and Yard located on runaround track at approximately MP 8.1 (east of Linden Boulevard bridge).

No.	Customer	Approximate Location and Description
7	Heritage Storage Track	MP 8.3. Approximately 400' west of NYCTA yard access bridge. Storage track is approximately 1,000' long on east (railroad south) side of ROW.
8	Gershow Recycling	MP 9.2, approximately 60' east of Glenmore Avenue overgrade bridge. 700' siding on west (railroad north) side of ROW.
9	CBS Foods	MP 10.1, approximately 500' west of Central Avenue bridge. Siding on west (railroad north) side of ROW.
10	Fresh Pond Terminal Zone	Fremont Yard ▪ East of Central Avenue Bridge (approximately MP 10.1), ROW expands to four tracks between Cooper and Myrtle Avenue bridges for approximately 1 mile. Interchange Tracks ▪ ROW narrows to two tracks, then expands to four tracks from west of 65th Street Bridge to Fresh Pond Truss bridge. ▪ Due to capacity constraints in Fresh Pond Yard, the four tracks that comprise Fremont Yard and the interchange tracks are in regular use for staging and assembling trains.

Source: NY&A, LIRR, 2020

Additional freight operations occur on the portion of the LIRR-owned Montauk Branch that runs between Long Island City and Jamaica stations, in Queens. This section is known as the Lower Montauk Branch. The line generally operates at street level with grade crossings, cut sections, and viaducts in some areas. Passenger operations along the Lower Montauk were discontinued in 1998, and control of the branch was subsequently transferred to NY&A for freight operations. A 2018[8] study to evaluate options to restore passenger transit service to the Lower Montauk Branch has not yet resulted in further definitive actions to reinstate passenger service at any location.

Existing Other Transportation Services

Ferry service

Since launching in 2017, the NYC Ferry service has connected the Bronx, Brooklyn, Manhattan, and Queens with 21 landings along waterfront communities. This service is discrete from the Staten Island Ferry connecting Staten Island and lower Manhattan. Currently, the South Brooklyn ferry route serves Sunset Park – Brooklyn Army Terminal (see **Table 13**) which is adjacent to the southern end of the IBX Corridor. This route includes stops at Wall Street Pier 11, DUMBO (Brooklyn Bridge Park Pier 1), Atlantic Avenue (Brooklyn Bridge Park Pier 6), Red Hook (Atlantic Basin) and Bay Ridge.

Ridership at Sunset Park – Brooklyn Army Terminal is higher on weekdays fall through spring. Ridership peaks significantly during summer weekends because this route connects to the beaches at the Far Rockaways.

[8] https://www1.nyc.gov/html/dot/html/about/lower-montauk-study.shtml

Table 13: Average Daily Ferry Ridership at Sunset Park – Brooklyn Army Terminal, by Quarter

	Average Weekday Ridership	Average Weekend Ridership
2017 Q2	280	266
2017 Q3	407	694
2017 Q4	232	178
2018 Q1	100	98
2018 Q2	312	320
2018 Q3	501	626
2018 Q4	191	108
2019 Q1	190	81
2019 Q2	370	532
2019 Q3	489	895
2019 Q4	258	162

Source: NYC Ferry https://www.ferry.nyc/reports-statistics/

Citi Bike service

Since 2013, Citi Bike has steadily expanded its bike network across areas of Manhattan, Brooklyn, and Queens. Service expansion into Bushwick, Brooklyn and Ridgewood, Queens, both adjacent to the Study Area, began in late October 2019. Prior to this date, the Study Area did not overlap with Citi Bike service territory

Ridership between November 2019 and January 2020 in the Study Area has since increased by 64 percent overall, as shown on **Table 14**. It is assumed that ridership will continue to increase, especially during the summer months, and as the bike share's coverage area and network density increase.

Table 14: Citi Bike Ridership by Month starting or ending within the Study Area

Month	Total number of rides starting or ending within the Study Area	% Increase (from previous month)
November 2019	1,356	--
December 2019	2,188	61%
January 2020	2,232	2%

Source: NYC Bike Share, LLC

Commuter Vans

Commuter vans are vans and minibuses holding between nine and 20 passengers that can be licensed by the Taxi and Limousine Commission (TLC) to operate in specific territories. Licensed commuter vans are not permitted to duplicate MTA bus routes, stop at bus stops, or accept street-hail passengers. Most commuter vans operating in the City do so outside of the regulations and without a license.

In 2017, the New York City Department of Transportation (NYCDOT) conducted a study of commuter van operations around the City, including those that serve parts of Queens and Brooklyn. As part of the study, a passenger survey was conducted. Nearly two-thirds of the 207 passengers surveyed use MTA at least weekly, and one-quarter have an unlimited MetroCard. For many passengers, commuter vans therefore complement, rather than replace, mass transit.

Within the Study Area, commuter vans operate in several locations (see **Table 15** for van volumes and passenger boardings):

- Sunset Park
  - Primarily non-stop service to/from Manhattan Chinatown, with some service to Flushing
- Elmhurst
  - Non-stop service to/from Manhattan Chinatown
- Flatbush Avenue
  - Operating between Kings Plaza and Downtown Brooklyn, with stops along the route
  - Within the Study Area the primary focal point is the Flatbush Avenue-Brooklyn College 2/5 subway station
  - 500-1,000 weekday boardings in the Study Area
- Utica Ave
  - Operating between Kings Plaza and Eastern Parkway, with stops along the route
  - Within the Study Area the primary focal point is at Kings Highway
  - Kings Highway recorded less than 100 weekday boardings
  - Flatlands Avenue, just outside the Study Area, recorded 100-500 boardings

Table 15: Commuter Van Volumes and Boardings in the Study Area

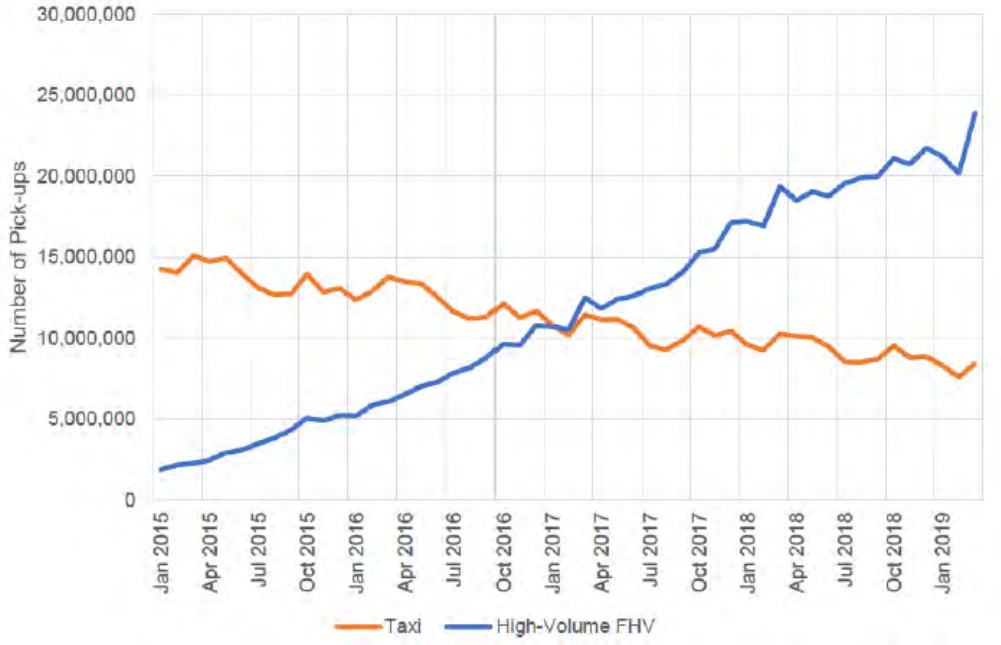
Market	Weekday Van Volumes	Weekday Passenger Boardings
Chinatown (Manhattan) – Sunset Park	600	9,100
Chinatown (Manhattan) – Elmhurst	50	500
Sunset Park – Flushing	50	500
Flatbush Avenue (Downtown Brooklyn to Kings Plaza)	700	11,600
Utica Avenue (Eastern Parkway to Kings Plaza)	600	3,300

Source: NYC DOT Commuter Van Study

Taxis & For-Hire Vehicles

Prior to the COVID-19 pandemic, For-Hire Vehicles (FHV) – i.e., rideshare companies such as Uber and Lyft – saw steady growth through 2018, while taxi trips declined. High-volume FHVs[9] had surpassed the number of taxi trips since early 2017 (see **Figure 7**).

Figure 7: High-Volume FHV and Taxi Trips, 2015-2018, Citywide

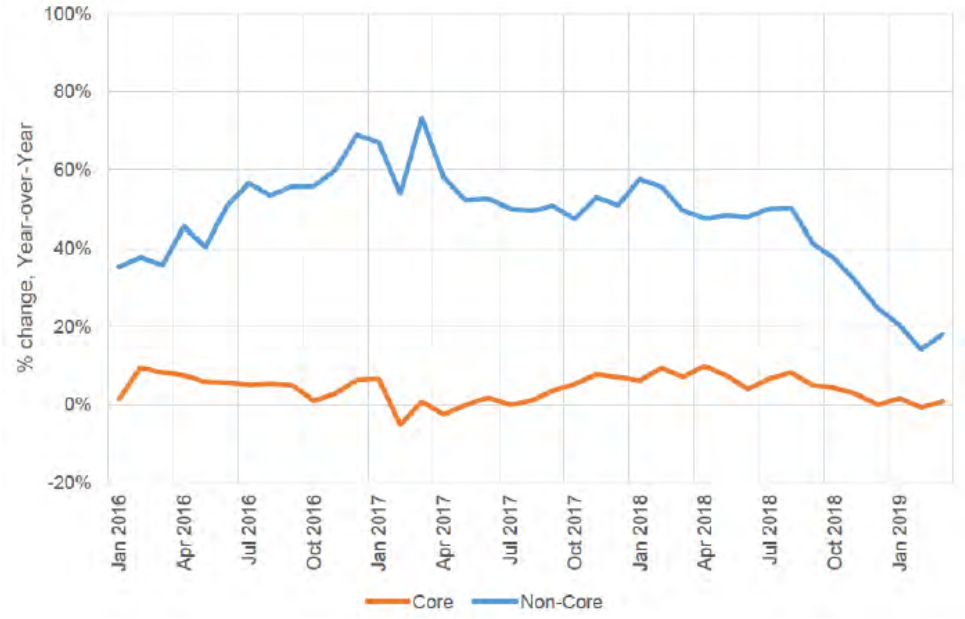


Source: Improving Efficiency and Managing Growth in New York's For-Hire Vehicle Sector, NYC TLC & DOT, June 2019

In August 2018, the New York City Council voted to place Uber and Lyft under a moratorium that prevents them from adding new vehicle licenses. The moratorium was originally intended to last one year but was subsequently extended until August 2020. Despite this moratorium, FHV trips continue to grow over years (see **Figure 8**), though at a slower pace of increase than prior to the moratorium. The figure further indicates that the highest percentage of growth occurred outside the Manhattan core (which is defined as south of 96th Street). Further updating and analysis of this data will be undertaken in the NEPA phase of this project.

[9] Defined as businesses that currently dispatch or plan to dispatch more than 10,000 FHV trips in New York City per day under a single brand, trade, or operating name; https://www1.nyc.gov/site/tlc/businesses/high-volume-for-hire-services.page

Figure 8: Monthly FHV Trips % Change, Year-over-Year



Source: Improving Efficiency and Managing Growth in New York's For-Hire Vehicle Sector, NYC TLC & DOT, June 2019

Existing Traffic Status

Several major traffic corridors cross the Primary Study Area. Based on the Annual Average Daily Traffic (AADT) figures provided by New York Department of Transportation using Transcom data, the traffic volume of major roadway (North to South) is shown below and **Figure 9**.

The following roadways with AADT of at least 70,000 cross the Primary Study Area:

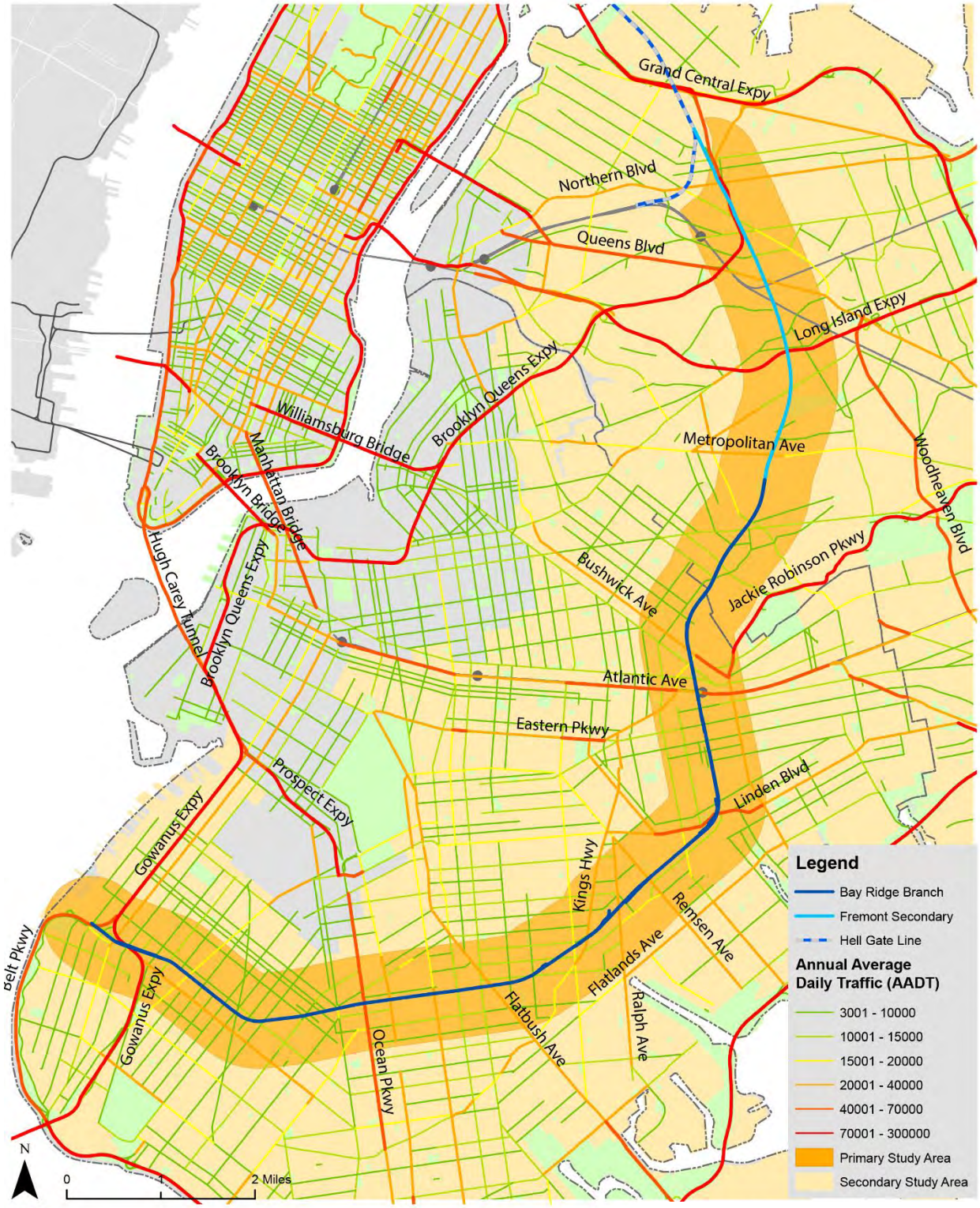
- Brooklyn-Queens Expressway (N-S): 141,184
- Long Island Expressway (E-W): 104,105
- Jackie Robinson Parkway (E-W): 86,564
- Gowanus Expressway(N-S): 99,205

The following roadways with AADT of between 40,000 and 50,000 cross the Primary Study Area:

- Queens Boulevard (E-W): 43,033
- Atlantic Ave (E-W): 48,036
- Linden Boulevard (E-W): 44,062
- Ocean Parkway (N-S): 43,017
- Belt Parkway (E-W): 48,678

Most of the roadways listed above provide east-west connections. These roadways facilitate access between the Primary Study Area and Manhattan. However, the Brooklyn-Queens Expressway is the only direct north-south connection between Queens and Brooklyn. The proposed project would provide an alternative north-south transit connection, potentially relieving traffic demand on the Brooklyn-Queens Expressway.

Figure 9 Annual Average Daily Traffic Map



Interborough Express

Annual Average Daily Traffic (AADT) Map

Planned Changes to Transportation Services

Planned LIRR Service Changes - East Side Access

The East Side Access (ESA) project will provide new LIRR service to Grand Central Terminal on the east side of Manhattan, supplementing existing service to Penn Station on Manhattan's West Side and Atlantic Terminal in Brooklyn. It is one of the largest transportation infrastructure projects currently underway in the United States.

The project encompasses work in multiple locations in Manhattan, Queens, and the Bronx and includes more than 8 miles of tunneling. When completed, ESA will serve approximately 162,000 customers a day[10], providing a faster and easier commute from Long Island and Queens to the East Side of the Manhattan CBD in a new 8-track terminal and concourse below Grand Central Terminal. Revenue service is forecasted for December 2022.

Figure 10: East Side Access Project Overview

Source: MTA Capital Program

Planned LIRR Service Changes - Long Island Rail Road Expansion Project

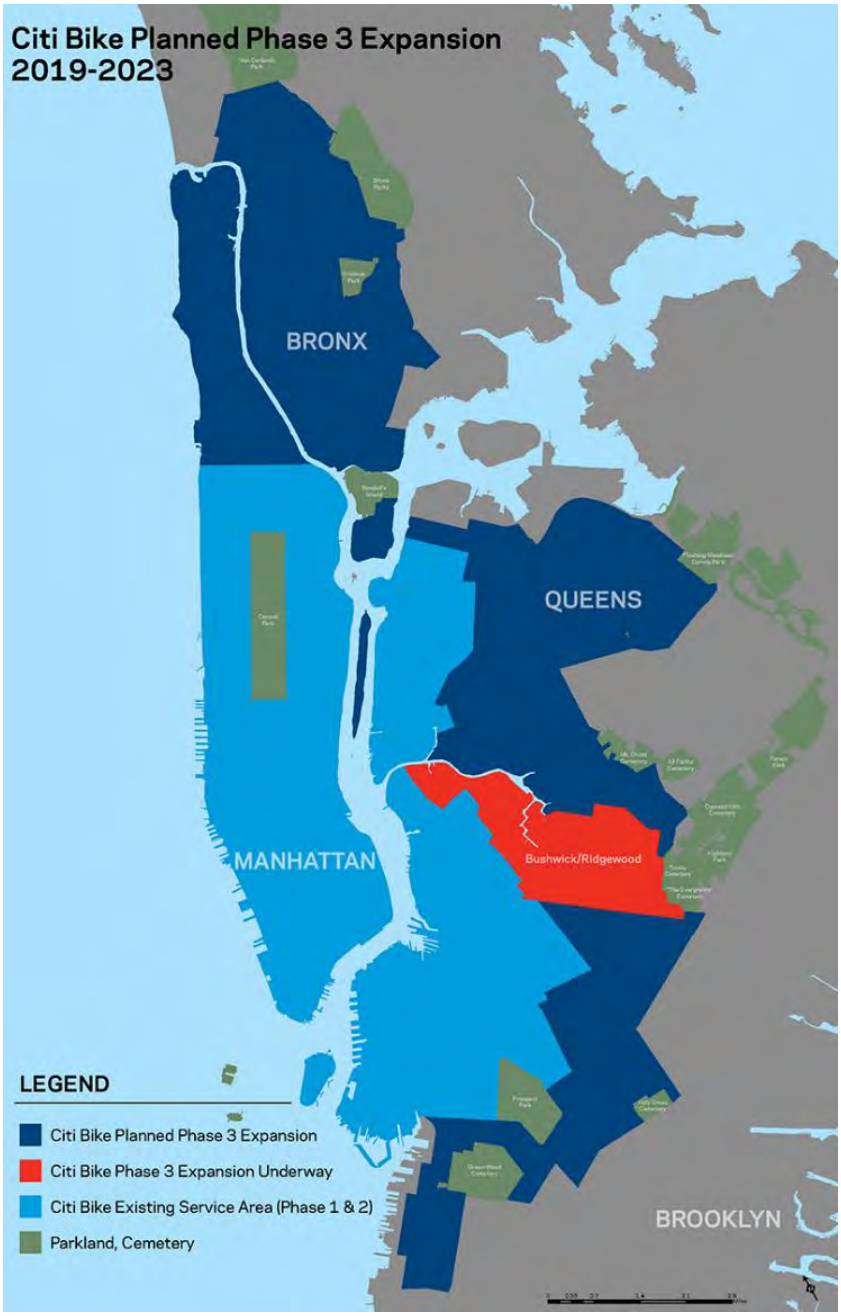
The construction of 9.8 miles of an additional track between Floral Park and Hicksville will reduce train congestion and delays and enable true bi-directional service during peak hours with a more reliable rail network. This work includes several related projects, including the construction of parking garages, retaining walls, improvements to rail bridges, and the removal of eight street-level grade crossings. Construction is being managed to minimize the impact on daily routines, with extensive mitigation and public outreach efforts in local communities. Portions of this project have entered revenue service, with the overall project expected to be complete by late 2022.

[10] http://web.mta.info/capital/esa_alt.html

Citi Bike

By 2023, Citi Bike will expand into parts of the Study Area in Queens and Brooklyn as part of their Phase 3 expansion (**Figure 11**).[11] It is assumed that Citi Bike ridership will continue to increase with the inclusion of these new docks.

Figure 11: Citi Bike Phase 3 Expansion



*Source: NYC Bike Share, LLC (*https://www.citibikenyc.com/blog/major-citi-bike-expansion-map-revealed#:~:text=)

[11] https://www.citibikenyc.com/blog/major-citi-bike-expansion-map-revealed#:~:text=

Congestion Pricing

In October 2019, MTA Bridges and Tunnels (TBTA) announced that it had entered a six-year contract with a consultant to design, build, operate, and maintain the toll system equipment and infrastructure required to implement the first-of-its-kind Central Business District Tolling Program (CBDTP) in New York City. The goal of the program is to reduce congestion on Manhattan's crowded streets while providing billions in funding to the MTA Capital Program. One outcome of congestion pricing may be increased transit utilization, as travelers seek to avoid new vehicle access fees. The project's Environmental Assessment (EA) was released to the public in August 2022[12] and anticipates the project to be implemented by November 2023.

Planned and Proposed Bus Service Changes

As part of the Fast Forward Plan[13], MTA is investing time and resources into careful reviews of bus service patterns in each borough to better match service with current and future travel demands. Bus network redesign plans for both Brooklyn and Queens have been initiated.

A draft proposal of the new Queens bus network was released in December 2019, for which an Existing Conditions Report was published in January 2020.[14] Driven by customer feedback received through outreach efforts in 2020, the MTA decided to iterate the process and published the New Draft Plan in March 2022. Outreach events are ongoing through the summer of 2022 to engage public feedback. Although changes in bus routes and station locations can be expected, the redesign is not expected to result in meaningful changes in ridership.

MTA initiated Public Open Houses in October 2019 for a Brooklyn Bus Network Redesign, and an existing conditions report has been published on the MTA's website.[15] A draft redesign plan proposing changes to existing bus service in Brooklyn has yet to be published.

Separate from these network redesigns, NYCDOT, NYC Department of City Planning (DCP), and MTA continually coordinate on updates to the City's bus system, creating ongoing improvements to specific bus stop locations and intersections; making strategic technological investments, such as transit signal priority on buses; and exploring and testing technologies such as electric buses to continually improve bus operations for customers.

Metro-North Railroad Penn Station Access Project

Although no current Metro-North Railroad (MNR) service travels through the Study Area, the ongoing Penn Station Access project will bring MNR trains into Penn Station via the Hell Gate Bridge. The opening of ESA will allow LIRR trains to travel into Grand Central Terminal, which will in turn create capacity to route New Haven Line trains into Penn Station, with four new stations in the Bronx along the Hell Gate Branch. Initial service will see 106 MNR trains traveling across the Hell Gate Bridge per day. At full implementation, operations are expected to increase up to approximately 152 trains per day. Construction of the project is expected to begin by Fall 2022, with an anticipated completion by 2027.[16]

[12] https://new.mta.info/project/CBDTP/environmental-assessment
[13] https://fastforward.mta.info/
[14] https://new.mta.info/project/queens-bus-network-redesign
[15] https://new.mta.info/system_modernization/brooklynbusredesign
[16] https://new.mta.info/project/penn-station-access

New York City (NYC) Ferry Service

NYC Ferry's planned addition of two routes in 2020 and 2021, as shown on **Figure 12**[17] have been implemented – one from Staten Island connecting St. George with Battery Park and Midtown West and a second from Brooklyn and operating between Coney Island and Lower Manhattan.

Figure 12: NYC Ferry Existing and Planned Routes, 2022

*Source: NYC Ferry (*https://www.ferry.nyc/)

Utica Avenue Corridor Study

The ongoing Utica Avenue Transit Improvements Study[18] included exploring whether a subway extension, BRT line, or light rail line might be feasibly implemented along the Utica Avenue corridor

[17] https://www.ferry.nyc/
[18] https://new.mta.info/system_modernization/utica_avenue

south of Eastern Parkway or Fulton Street. This study also analyzed existing subway line improvements. See **Figure 13** for the location of Utica Avenue within the Study Area.

Specifically, the study analyzed potential improvements to the Eastern Parkway (IRT) subway line at Nostrand Junction, Utica Avenue Terminal, and New Lots Avenue Terminal, allowing for improved services along the whole line. It will also look at opportunities for expanded railcar storage. These improvements could be implemented separately from a full new Utica Avenue transit implementation. The study analyzed proposed alternatives for service along the Utica Avenue corridor, proposing BRT, subway, and combined BRT and subway alternatives for future consideration during the next planning and design phases.[19]

Figure 13: Utica Avenue Transit Improvements Study: Corridor Location

Source: WSP

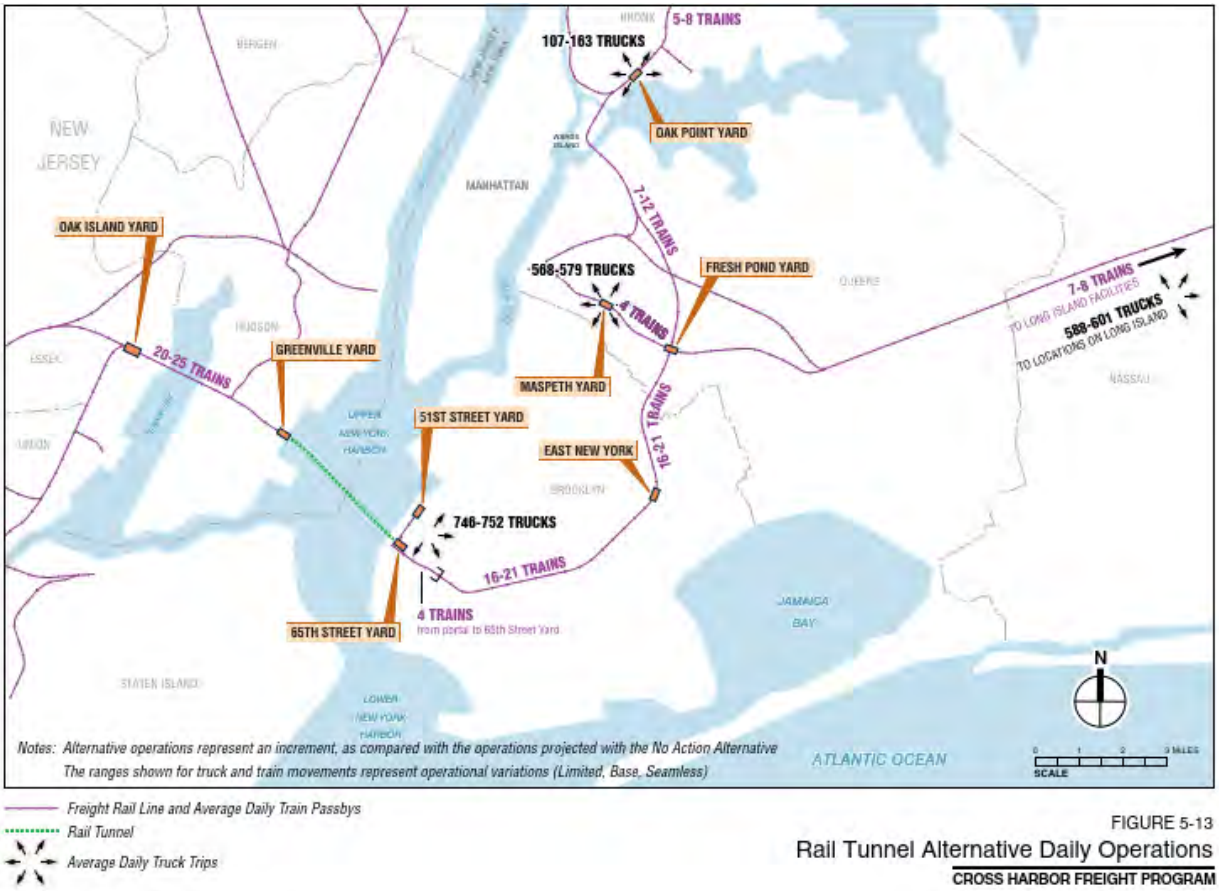
[19] https://new.mta.info/project/utica-avenue-transit-improvements-study

Planned Freight Rail Operations – Cross-Harbor Freight Program

The PANYNJ's Cross Harbor Freight Program (CHFP) is one of the proposed changes to freight infrastructure within the region and would have the largest direct effect on the Bay Ridge Branch. The Tier I EIS, released in September 2015, selected two preferred alternatives for further study as part of the Tier II EIS. One of the alternatives would construct a Cross-Harbor Rail Tunnel from New Jersey to Brooklyn. The tunnel would have its eastern portal on the Bay Ridge Branch and utilize the Branch to reach the rest of Long Island, with the line upgraded to double-stack clearances in a future phase of the project. The Rail Tunnel Alternative is recommended to utilize a Seamless Operating Scenario, which reflects reductions in interchange delays and costs in the east-of-Hudson region. With the proposed tunnel, upwards of 21 trains per day are projected to operate along the Bay Ridge Branch, as shown on **Figure 14**.

The CHFP tunnel portal and tracks and the IBX alignment will share the same ROW, requiring collaboration between both projects to arrive at a configuration that would incorporate trackage or travel lanes for both projects. The design of the IBX alignment is planned to accommodate the freight tracks alongside public transit infrastructure.

Figure 14: Proposed Cross Harbor Freight Program Map: Rail Tunnel Alternative Daily Operations



Source: Cross-Harbor Freight Program DEIS

While the Tier I EIS projections in 2015 were considered reasonable for constructing a year 2035 'maximum freight operations' scenario, several additional factors should be noted:

- The Tier I EIS projections are currently being re-evaluated as part of the ongoing Tier II EIS, and may be revised or refined, although substantial differences from the Tier I figures are not anticipated.
- Additionally, NY&A may construct additional freight rail infrastructure, such as new sidings and switches, that could grow freight operations independent of the Cross-Harbor Freight Program; CSX may make similar capacity-enhancing improvements to its Fremont Secondary section of the corridor, having recently completed an approximately 1-mile-long extension of double tracking.
- Similarly, NYCEDC has announced its Freight NYC initiative, and has already identified potential locations along the Bay Ridge Branch for new or upgraded freight rail trainload facilities.

NY&A shared the following future projections for the corridor, which are from the Cross-Harbor program:

- NYCEDC has identified the New Lots Avenue area as a site for a potential rail-served transload facility
- NY&A is investigating the possibility of expanding the Heritage Paper siding as a public team track because of an existing concrete dock
- NY&A is exploring expanding yard capacity at East NY between the exit portal of the tunnel and Livonia Avenue as an additional support / storage yard
- NY&A believes that there is the possibility of creating a transload / unloading facility between 8th Avenue and 14th Avenue just north of the interchange yard as either an aggregate unloading area or public team track with unloading docks.

While the CHFP is not an MTA project, the MTA and PANYNJ are working together to ensure the two projects are compatible with each other. As of late 2022, the Port Authority is resuming preparation of a Tier II EIS for the project.

MTA Late Shift Pilot Program

As of this writing, MTA is currently developing a pilot program to create last mile connections with FHVs. A request for proposals (RFP) was issued to solicit proposals from shared mobility partners. The RFP is for creative and cost-effective on-demand shared dynamically-routed mobility service during nighttime hours in New York City's outer borough areas where bus service is less frequent than subway service or is unavailable.

Future Potential Development Zones

There are various portions of the Primary and Secondary Study Areas where no current or planned land use changes are contemplated but which contain sufficient soft sites and infrastructure to support a greater density of residential and commercial uses. These are areas where it can be reasonably assumed that land use changes will occur in the near future, particularly if the addition of IBX transit service increases access to these locations. Among the portions of the Primary and Secondary Study Areas where these conditions exist include the following:

- The 61st Street corridor in Sunset Park and Borough Park, Brooklyn: Located east of 8th Avenue and west of 14th Avenue between 61st and 62nd Streets in Brooklyn, this portion of the corridor intersects two existing NYCT subway stations (the 8th Ave station, Fort Hamilton Parkway station, and New Utrecht Avenue station on the BMT Sea Beach Line, and the 62nd Street station on the BMT West End line) and is appurtenant to several growing, housing-constrained communities. Predominantly low-density, several properties in this area have

received zoning variances for greater density from both the Department of City Planning and the Board of Standards and Appeals, indicating a demand and willingness for increased density.

- The Ditmas Ave Corridor: Located south of Ditmas Avenue between East 56th Street and Rockaway Avenue in Brooklyn, this portion of the Primary and Secondary Study Areas consists of several large light industrial parcels adjacent to the Bay Ridge Branch corridor with low-density residential districts bordering to both the north and south. The addition of transit service has the potential to draw a greater concentration of commercial activity in this area, possibly justifying higher density commercial or mixed-used districts.
- The Van Sinderen Ave Corridor: Located along Van Sinderen Avenue between New Lots Avenue to the south and East New York Avenue to the north, this area is bordered by industrial zoned parcels with lower density residential and commercial properties extending to both the east and west.

Future potential development zones have been explored in more detail in the PEL Study's Land Use and Economic Development Impacts Analysis technical memorandum, including land use and development trends, and how IBX service may interact with these trends in each segment of the corridor.

2.2 Study Area Travel Pattern and Mode Choice

Section 1.2 explained the division of the relevant areas of the City and surrounding areas into a set of geographic areas referred to as Superzones, with four such zones in Queens, two in Brooklyn and three zones within Manhattan. Of particular interest is Manhattan south of 59th Street, due to its role as the major employment center for the City and the entire region. Other areas are not expected to play a major role in generating trips to and from the Primary Study Area. These peripheral areas are treated in a more generalized and aggregated manner (e.g., "Long Island").

Data on employment location and journey to work mode choice can be understood in greater detail by analyzing the characteristics of residents who make certain mode choices, and by seeking to understand the extent to which these choices are discretionary by zone. To provide this greater granularity, all the data in this section are presented either at the Superzone Level or at the level of the four sections of the Primary Study Area – Primary Brooklyn North and South, and Primary Queens Central and North – based on neighborhood characteristics and current transit service in those areas.

Where and How Primary Study Area Residents Commute

Table 16 presents the number of residents within the four areas within the Primary Study Area who commute to work, their primary destination and the modes they use to commute to these destinations. A detailed breakdown is provided for each of the four Primary Study Area sections. The bottom row of the table aggregates totals for the overall Primary Study Area. These same distributions are presented in percentage terms in **Table 17**.

Table 16: Primary Study Area Work Trip Destinations and Travel Mode

JTW: Residents at Primary Area		Brooklyn	Queens	Manhattan CBD	Others	Total
Primary: Brooklyn South	**All Modes**	**69,623**	**6,357**	**32,840**	**14,618**	**123,438**
	Auto	23,533	3,148	3,190	5,241	35,112
	Bus	9,665	649	2,837	1,761	14,912
	Subway	13,173	2,147	25,800	6,550	47,670
	Railroad	209	54	445	493	1,201
	Others	23,043	359	568	573	24,543
Primary: Brooklyn North	**All Modes**	**16,586**	**3,661**	**10,337**	**4,090**	**34,674**
	Auto	4,214	1,418	688	1,172	7,492
	Bus	2,249	437	339	243	3,268
	Subway	6,192	1,637	8,783	2,482	19,094
	Railroad	135	53	266	83	537
	Others	3,796	116	261	110	4,283
Primary: Queens Central	**All Modes**	**2,967**	**8,278**	**5,946**	**3,181**	**20,372**
	Auto	1,491	4,145	676	1,533	7,845
	Bus	241	995	526	139	1,901
	Subway	1,062	859	4,555	1,382	7,858
	Railroad	30	14	81	54	179
	Others	143	2,265	108	73	2,589
Primary: Queens North	**All Modes**	**2,935**	**18,352**	**21,634**	**9,854**	**52,775**
	Auto	1,252	6,557	1,818	3,388	13,015
	Bus	198	1,834	1,252	416	3,700
	Subway	1,331	5,108	17,934	5,282	29,655
	Railroad	24	139	397	396	956
	Others	130	4,714	233	372	5,449
All Primary Area	**All Modes**	**92,111**	**36,648**	**70,757**	**31,743**	**231,259**
	Auto	**30,490**	**15,268**	**6,372**	**11,334**	**63,464**
	Bus	**12,353**	**3,915**	**4,954**	**2,559**	**23,781**
	Subway	**21,758**	**9,751**	**57,072**	**15,696**	**104,277**
	Railroad	**398**	**260**	**1,189**	**1,026**	**2,873**
	Others	**27,112**	**7,454**	**1,170**	**1,128**	**36,864**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes Bicycle, Walk, Motorcycle, and Work at Home

Table 17: Percentage Distribution of Primary Area Work Trips by Destination and Mode

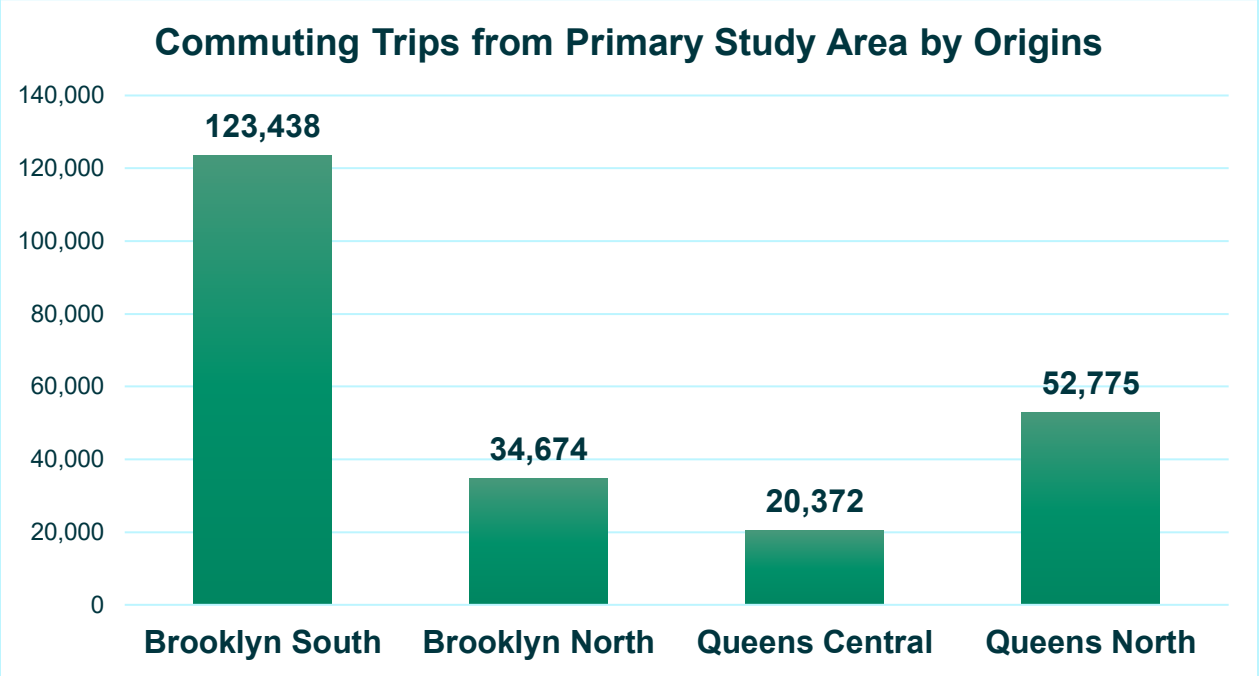
JTW: Residents at Primary Area		Brooklyn	Queens	Manhattan CBD	Others	Total
Primary: Brooklyn South	**All Modes**	**56%**	**5%**	**27%**	**12%**	**100%**
	Auto	34%	50%	10%	36%	28%
	Bus	14%	10%	9%	12%	12%
	Subway	19%	34%	79%	45%	39%
	Railroad	0%	1%	1%	3%	1%
	Others	33%	6%	2%	4%	20%
Primary: Brooklyn North	**All Modes**	**48%**	**11%**	**30%**	**12%**	**100%**
	Auto	25%	39%	7%	29%	22%
	Bus	14%	12%	3%	6%	9%
	Subway	37%	45%	85%	61%	55%
	Railroad	1%	1%	3%	2%	2%
	Others	23%	3%	3%	3%	12%
Primary: Queens Central	**All Modes**	**15%**	**41%**	**29%**	**16%**	**100%**
	Auto	50%	50%	11%	48%	39%
	Bus	8%	12%	9%	4%	9%
	Subway	36%	10%	77%	43%	39%
	Railroad	1%	0%	1%	2%	1%
	Others	5%	27%	2%	2%	13%
Primary: Queens North	**All Modes**	**6%**	**35%**	**41%**	**19%**	**100%**
	Auto	43%	36%	8%	34%	25%
	Bus	7%	10%	6%	4%	7%
	Subway	45%	28%	83%	54%	56%
	Railroad	1%	1%	2%	4%	2%
	Others	4%	26%	1%	4%	10%
All Primary Area	**All Modes**	**40%**	**16%**	**31%**	**14%**	**100%**
	Auto	**33%**	**42%**	**9%**	**36%**	**27%**
	Bus	**13%**	**11%**	**7%**	**8%**	**10%**
	Subway	**24%**	**27%**	**81%**	**49%**	**45%**
	Railroad	**0%**	**1%**	**2%**	**3%**	**1%**
	Others	**29%**	**20%**	**2%**	**4%**	**16%**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes Bicycle, Walk, Motorcycle, and Work at Home

The data presented here will be further analyzed as part of the NEPA environmental review process, which will include analyses and descriptions of travel patterns as they relate to the Study Area.

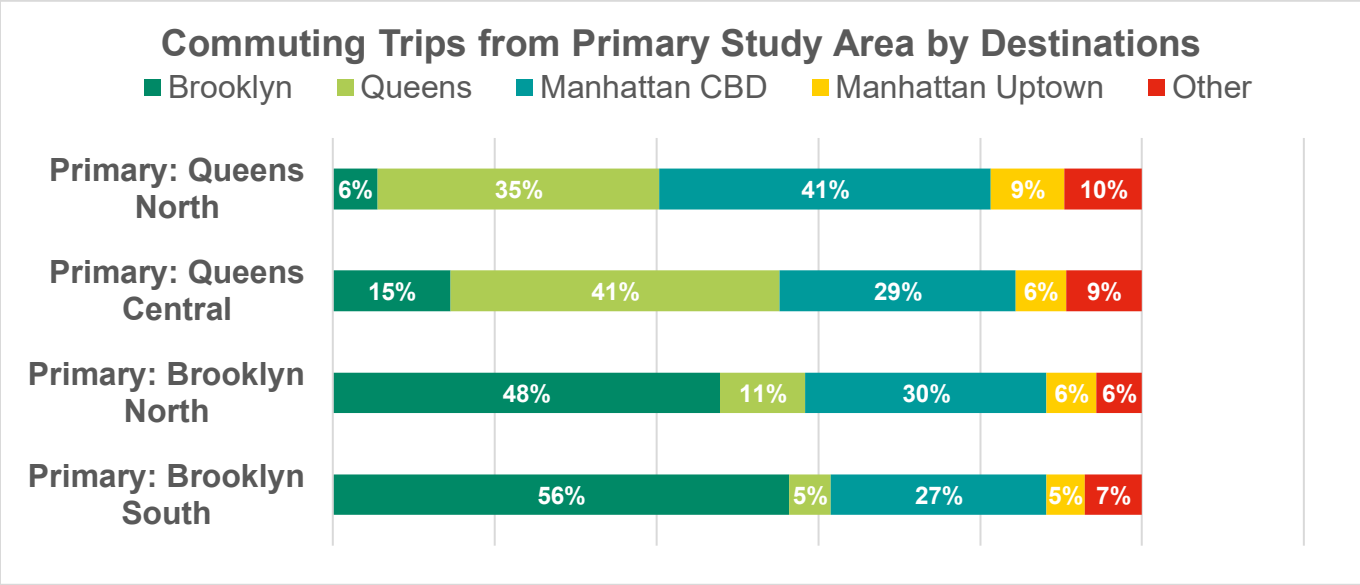
Figure 15 shows the main origins of commuters from the Primary Study Area by segments.

Figure 15: Primary Study Area Residents Traveling to Work



As shown in **Figure 16**, the plurality of trips originating in each zone terminate in the same borough. The lone exception to this rule is Queens North, where 50 percent of outbound trips are destined for Manhattan, and more than two-fifths for the Manhattan CBD alone. This exception is understandable, given Queens North's proximity to the CBD.

Figure 16: Workplace Destination of Primary Study Area Residents



Overall Primary Study Area – 86 percent of Primary Study Area residents work in Brooklyn, Queens, or the Manhattan CBD, with the remaining work locations divided primarily among Manhattan Uptown (north of 59th Street) and Long Island, with very small portions in Staten Island, the Bronx, or elsewhere.

The exact composition of trips differs significantly by zone, however, reflecting such factors as proximity to major transit service and major highways and nearby employment concentrations:

Brooklyn Portion:

- 55 percent of residents from the Brooklyn portion of the Primary Study Area work in Brooklyn, while only 27 percent work in the Manhattan CBD and only 5 percent in Queens
- While overall transit share is close to 60 percent, fully nine in ten trips bound for Manhattan use transit (mostly subway). Brooklyn-to-Queens trips range from 45-56 percent, with a higher transit share for trips from Brooklyn North.
- Auto use is highest for trips destined for Brooklyn (25-35 percent), higher for destinations in Queens (40-50 percent) and lowest for trips to Manhattan (7-10 percent)

Queens Portion

- The workplaces of residents from the Queens portion of the Primary Study Area are more evenly split between Queens (35-41 percent for Queens North and Central) and the Manhattan CBD (41-29 percent, with a heavier share in Queens North), while Queens North and Central have only 15 and 6 percent destined for Brooklyn, respectively.
- Queens North has the largest share of work trips headed for Manhattan Uptown (9 percent)
- Both Queens zones send roughly 5 percent of work trips to Long Island, reflecting the Queens zones' proximity and better connections to those areas.
- While overall transit share from Queens to all destinations combined is close to 60 percent, transit accounts for roughly nine-tenths of Manhattan-bound trips. This rate is significantly higher than the roughly 50 percent of Brooklyn-bound trips that use transit.
- Overall auto use for Queens trips is 29 percent, including 40 percent for intra-borough trips and 46 percent for trips to or from Brooklyn.

In general, density and redundancy of the transit network between individual Superzones are the best predictors of mode split. **Table 18** summarizes mode split and overall trip percentage by Superzone.

Table 18: JTW Transit and Auto Share by Primary Area Zone

	% Total Trips	% Transit	% Auto
Brooklyn South	53%	52%	28%
Queens North	23%	65%	25%
Brooklyn North	15%	66%	22%
Queens Central	9%	49%	39%
Grand Total	**100%**	**57%**	**27%**

Where and How Primary Study Area Employees Commute From

Table 19 depicts the origin of commuters working within the Primary Area and the mode used to access the Primary Area; **Table 20** describes the distribution of these work trip origins and modal shares

Table 19 Primary Study Area Work Trip Origins and Travel Mode

RJTW: Employees at Primary Area		Brooklyn	Queens	Staten Island	Long Island	Others	Total
Primary: Brooklyn South	**All Modes**	**73,774**	**8,337**	**5,248**	**4,153**	**5,370**	**96,882**
	Auto	27,436	5,659	4,654	3,642	1,290	42,681
	Bus	8,898	405	381	22	455	10,161
	Subway	12,920	1,938	120	94	3,146	18,218
	Railroad	208	37	0	311	183	739
	Others	24,309	298	93	84	299	25,083
Primary: Brooklyn North	**All Modes**	**11,118**	**3,398**	**206**	**1,581**	**1,233**	**17,536**
	Auto	3,412	2,315	187	1,508	319	7,741
	Bus	1,513	238	19	0	4	1,774
	Subway	2,454	636	0	8	815	3,913
	Railroad	63	34	0	60	55	212
	Others	3,676	175	0	5	40	3,896
Primary: Queens Central	**All Modes**	**890**	**5,566**	**85**	**1,023**	**473**	**8,037**
	Auto	420	2,449	70	954	57	3,950
	Bus	8	521	0	0	30	559
	Subway	319	398	15	19	378	1,129
	Railroad	0	58	0	19	4	81
	Others	143	2,140	0	31	4	2,318
Primary: Queens North	**All Modes**	**2,242**	**21,266**	**398**	**3,652**	**2,491**	**30,049**
	Auto	965	8,919	294	3,075	1,003	14,256
	Bus	133	2,727	70	25	214	3,169
	Subway	951	4,077	24	103	1,061	6,216
	Railroad	49	129	0	428	144	750
	Others	144	5,414	10	21	69	5,658
All Primary Area	**All Modes**	**88,024**	**38,567**	**5,937**	**10,409**	**9,567**	**152,504**
	Auto	**32,233**	**19,342**	**5,205**	**9,179**	**2,669**	**68,628**
	Bus	**10,552**	**3,891**	**470**	**47**	**703**	**15,663**
	Subway	**16,644**	**7,049**	**159**	**224**	**5,400**	**29,476**
	Railroad	**320**	**258**	**0**	**818**	**386**	**1,782**
	Others	**28,272**	**8,027**	**103**	**141**	**412**	**36,955**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes Bicycle, Walk, Motorcycle, and Work at Home

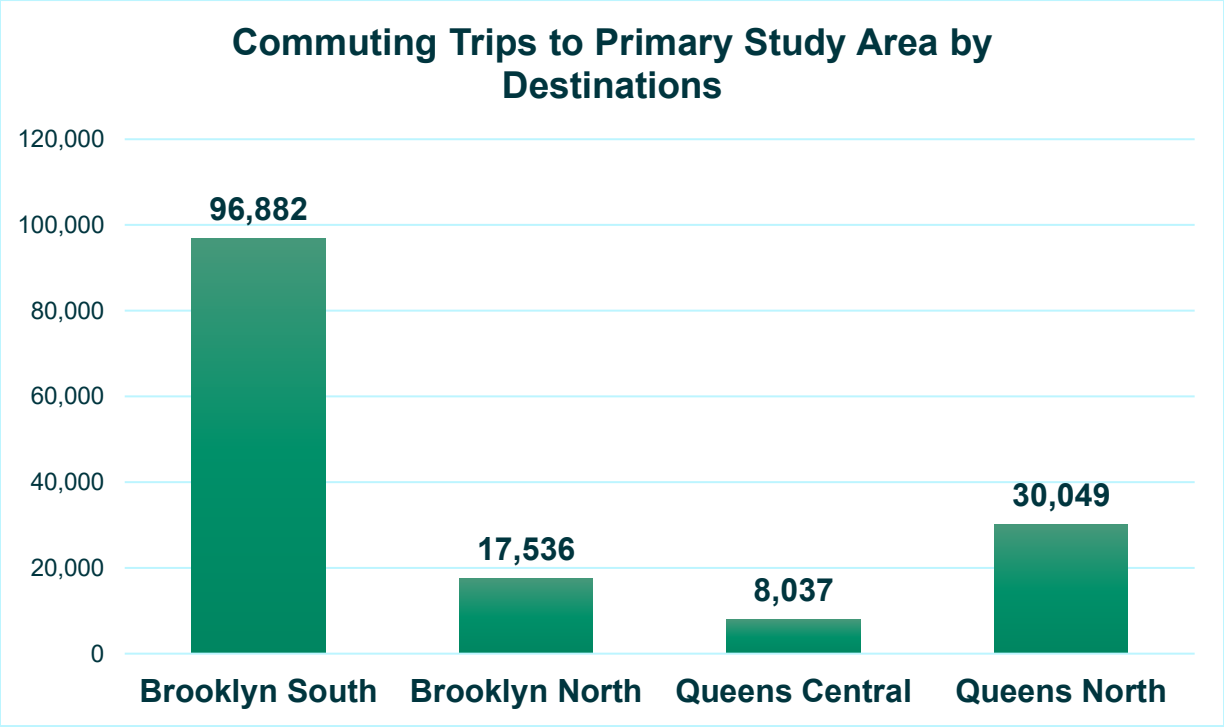
Table 20 Percentage Distribution of Primary Area Work Trips by Origins and Mode

RJTW: Employees at Primary Area		Brooklyn	Queens	Staten Island	Long Island	Others	Total
Primary: Brooklyn South	**All Modes**	**76%**	**9%**	**5%**	**4%**	**6%**	**100%**
	Auto	37%	68%	89%	88%	24%	44%
	Bus	12%	5%	7%	1%	8%	10%
	Subway	18%	23%	2%	2%	59%	19%
	Railroad	0%	0%	0%	7%	3%	1%
	Others	33%	4%	2%	2%	6%	26%
Primary: Brooklyn North	**All Modes**	**63%**	**19%**	**1%**	**9%**	**7%**	**100%**
	Auto	31%	68%	91%	95%	26%	44%
	Bus	14%	7%	9%	0%	0%	10%
	Subway	22%	19%	0%	1%	66%	22%
	Railroad	1%	1%	0%	4%	4%	1%
	Others	33%	5%	0%	0%	3%	22%
Primary: Queens Central	**All Modes**	**11%**	**69%**	**1%**	**13%**	**6%**	**100%**
	Auto	47%	44%	82%	93%	12%	49%
	Bus	1%	9%	0%	0%	6%	7%
	Subway	36%	7%	18%	2%	80%	14%
	Railroad	0%	1%	0%	2%	1%	1%
	Others	16%	38%	0%	3%	1%	29%
Primary: Queens North	**All Modes**	**7%**	**71%**	**1%**	**12%**	**8%**	**100%**
	Auto	43%	42%	74%	84%	40%	47%
	Bus	6%	13%	18%	1%	9%	11%
	Subway	42%	19%	6%	3%	43%	21%
	Railroad	2%	1%	0%	12%	6%	2%
	Others	6%	25%	3%	1%	3%	19%
All Primary Area	**All Modes**	**58%**	**25%**	**4%**	**7%**	**6%**	**100%**
	Auto	**37%**	**50%**	**88%**	**88%**	**28%**	**45%**
	Bus	**12%**	**10%**	**8%**	**0%**	**7%**	**10%**
	Subway	**19%**	**18%**	**3%**	**2%**	**56%**	**19%**
	Railroad	**0%**	**1%**	**0%**	**8%**	**4%**	**1%**
	Others	**32%**	**21%**	**2%**	**1%**	**4%**	**24%**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes Bicycle, walk, Motorcycle, and Work at Home

Figure 17 shows that Brooklyn South is by far the largest employment destination of the four super zones in the Primary Study Area, attracting close to two-thirds (64 percent) of those destined for work along the Corridor. Queens North attracts the second-highest volume of work trips, at just 20 percent.

Figure 17: Destination for Workers Traveling to Work in the Primary Study Area

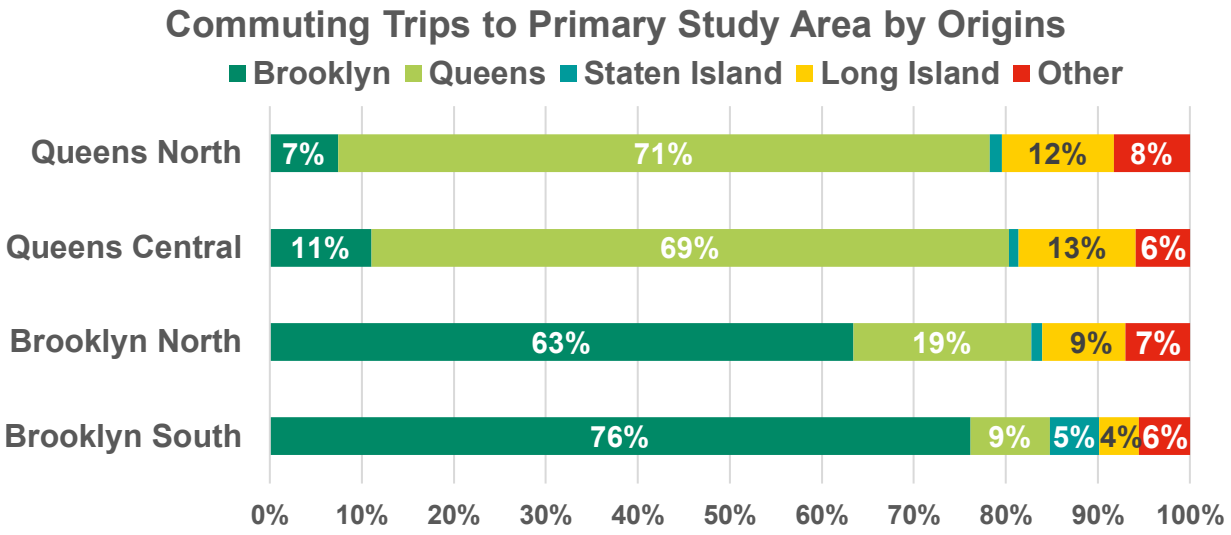


Overall Primary Study Area:

- 83 percent of Primary Study Area employees come from Brooklyn (58 percent) and Queens (23 percent)
- 11 percent of workers come from Staten Island (4 percent) and Long Island (11 percent)

However, as shown in Error! Reference source not found., the patterns of each portion of the Primary Study Area vary considerably, based primarily on proximity to large population and workforce areas, the convenience of nearby major transit service or highway links, and the combination of both large population and employment concentrations within the same section of the borough.

Figure 18: Origin of Workers in the Primary Study Area



Brooklyn Portion:

- 74 percent of workers in the two Brooklyn zones in the Primary Study Area also live in Brooklyn. Only 10 percent live in Queens; 5 percent come from both Staten Island and Long Island.
- Auto share (44 percent) exceeds transit share (31 percent) for trips bound to Brooklyn.
- Auto use is highest for trips from Queens (68 percent) and comprises 90 percent of trips bound for the Primary Study Area from Staten Island and Long Island.

Queens Portion

- 70 percent of workers in the two Queens zones also live in Queens; only 8 percent reside in Brooklyn, while a slightly larger share (12 percent) commutes from Long Island. The Queens North and Central zones have very similar patterns.
- The overall transit share for trips to the two Queens zones is also a relatively low 31 percent, with Queens Central's 22 percent transit share the lowest of any of the four Primary Study Area zones. This low rate is a function of limited transit access.
- Overall auto use for Queens trips is 29 percent, and understandably highest for trips from Staten Island (76 percent) and Long Island (86 percent)

Again, transit network availability and redundancy are the main drivers of mode split. As shown in **Table 21**, the transit share across all zones, including the largest destination zone – Brooklyn South – is between 30-34 percent (Queens Central, representing only 5 percent of total trips, has only a 22 percent transit share). Auto share in each zone is between 45 percent and 49 percent.

Table 21: Transit and Auto Share – Work Trips to Primary Study Area Zones

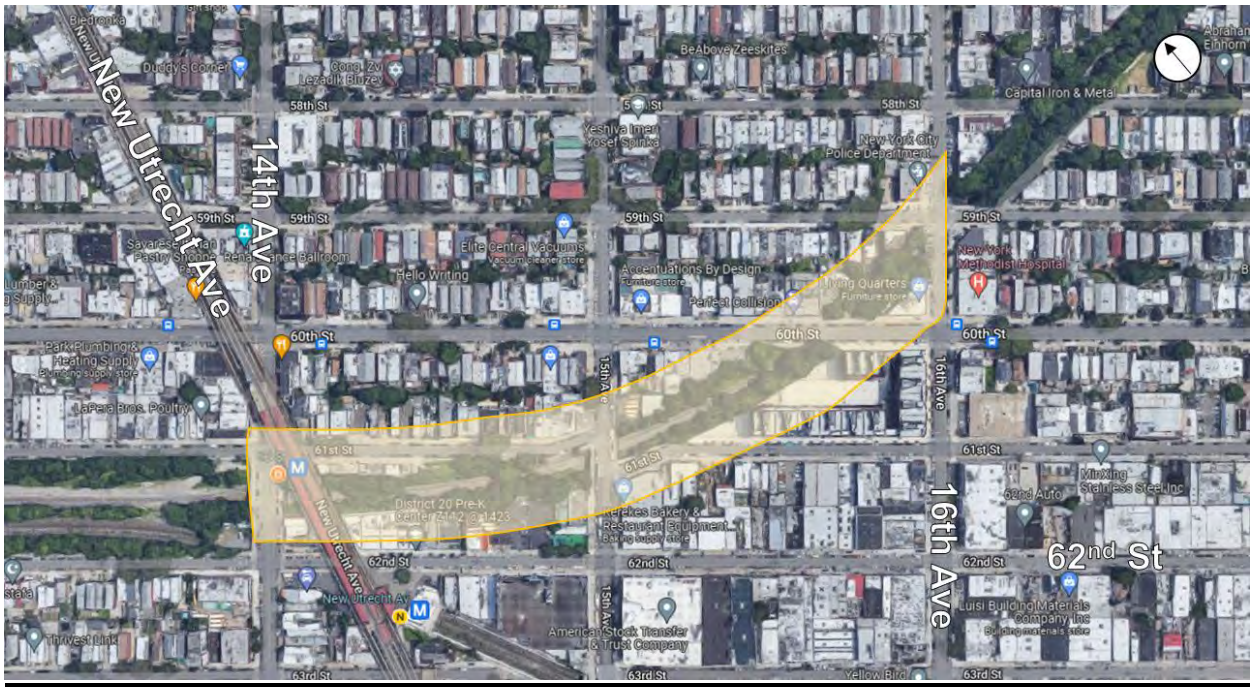
	% Total Trips	% Transit	% Auto
Brooklyn South	64%	30%	44%
Queens North	11%	34%	44%
Brooklyn North	5%	22%	49%
Queens Central	20%	34%	47%
	100%	31%	45%

3 Future No Build Conditions

The No Build Alternative assesses the extent to which already-planned transit service improvements within the Study Area or in surrounding areas would result in a substantial improvement in transit service in the Study Area to address identified congestion and current low transit use patterns in identified markets. The planned service improvements would potentially include the typical mix of possible transportation systems management-type improvements (e.g., bus lanes, traffic signal priority/pre-emption) on key corridors. The following two projects currently projected to occur within the corridor are of particular importance to the planning and design of potential IBX alternatives:

- **Brooklyn Yards** is a proposal for a 12-14-story commercial and residential development that includes an overbuild above the Bay Ridge Branch rail cut with air rights owned by the developer. The project is in pre-certification, and the developer has submitted draft designs for DCP's review. This project would increase demand for transportation services because of the concentration of new residents as well as employees and customers of the commercial establishments.

Figure 19: Approximate boundaries of Brooklyn Yards project



- The **PANYNJ Cross Harbor Freight Program** is an initiative to facilitate the movement of freight across New York Harbor and improve the capacity of the region's freight network while reducing truck traffic congestion. The project involves an underwater rail tunnel that would connect New Jersey to Brooklyn, with a tunnel portal coming to grade in the cut of the Bay Ridge Branch, where IBX service is proposed to operate. Freight rail currently operates on the Bay Ridge Branch, but CHFP would increase the frequency of freight trains and also alleviate road traffic congestion on major freight arteries in the vicinity of the project area. The project is currently undergoing a Tier II EIS and complementary advance planning and engineering work. The MTA and PANYNJ are committed to working collaboratively to ensure these projects remain compatible with one another.

3.1 Potential Growth in Trips within the Study Area

Growth in population and the associated growth in labor force will lead to an increase in journey to work trips, while growth in job opportunities within the area will increase work trips into the Study Area. **Table 22** shows the projected growth in population in the Primary Study Area over the 2020-2045 period while **Table 23** presents the projected growth in employment.

Population and employment projections for the entire boroughs of Brooklyn and Queens are provided for comparison purposes. In terms of maintaining and enhancing sustainable communities, improvements may be needed to promote growth in areas that currently experience high auto use and roadway congestion and relatively low transit use and services. Projections in all four Primary Study Area zones, both in population and employment, generally will have their largest growth in the 2020-2025 period, with gradually more modest growth in the subsequent 5-year periods. This section focuses on the entire 25-year planning horizon.

The two Brooklyn zones are projected to have the largest population and employment growth both in absolute and percentage terms. The Queens zones will experience relatively modest population and job growth over the next 25 years. The main takeaway from these projections is that efforts are needed to increase transit use in the Brooklyn South zone while reducing auto use to Queens and Long Island. Brooklyn North has a modest share of total work trips and a substantial amount of existing transit service that could potentially be more heavily utilized if improved connections to underserved areas along the Bay Ridge Branch were provided.

Overall, the Primary Study Area will have approximately 46,000 new residents and 14,000 additional jobs by 2045 and will need improved transit services and service connections to ensure that transit remains an attractive mode for this growing share of work trips.

3.2 No Build Conditions

Table 22: Projected Growth in Population in the Primary Study Area: 2020-2045

	2020	2025	2030	2035	2040	2045	2045 – 2020 Change
Primary: Brooklyn South	474,300	478,700	482,400	485,800	488,900	491,100	
5-Yr. Change		4,400	3,600	3,400	3,100	2,200	**16,700**
% Change		0.9%	0.8%	0.7%	0.6%	0.5%	**3.5%**
Primary: Brooklyn North	152,400	157,100	161,100	164,800	168,100	170,600	
5-Yr. Change		4,700	3,900	3,700	3,400	2,400	**18,100**
% Change		3.1%	2.5%	2.3%	2.0%	1.5%	**11.9%**
Primary: Queens Central	84,100	84,200	84,300	84,300	84,400	84,500	
5-Yr. Change		100	100	100	100	100	**500**
% Change		0.1%	0.1%	0.1%	0.1%	0.1%	**0.6%**
Primary: Queens North	189,000	190,400	191,600	192,700	193,800	194,500	
5-Yr. Change		1,400	1,200	1,200	1,000	700	**5,500**
% Change		0.7%	0.6%	0.6%	0.5%	0.4%	**2.9%**
ALL Primary Study Area	899,800	919,600	927,000	934,800	941,800	945,400	
5-Yr. Change		19,800	7,400	7,800	7,000	3,600	**45,600**
% Change		2.2%	0.8%	0.9%	0.8%	0.4%	**5.1%**
Brooklyn	2,648,500	2,706,300	2,754,000	2,799,400	2,840,500	2,870,300	
5-Yr. Change		57,800	47,700	45,400	41,100	29,800	**221,800**
% Change		2.2%	1.8%	1.7%	1.6%	1.1%	**8.4%**
Queens	2,330,300	2,353,400	2,373,500	2,394,400	2,412,300	2,425,600	
5-Yr. Change		23,100	20,100	20,900	17,900	13,300	**95,300**
% Change		1.0%	0.9%	0.9%	0.8%	0.6%	**4.1%**

Source: NYMTC 2050 Socioeconomic Data Forecasts

Table 23 Projected Growth in Employment in the Primary Study Area: 2020 – 2045

	2020	2025	2030	2035	2040	2045	2045 – 2020 Change
Primary: Brooklyn South	168,500	170,000	171,300	172,900	174,900	176,900	
5-Yr. Change		1,500	1,300	1,600	2,000	2,000	**8,400**
% Change		0.9%	0.8%	0.9%	1.2%	1.1%	**5.0%**
Primary: Brooklyn North	26,100	26,500	26,800	27,200	27,700	28,200	
5-Yr. Change		400	300	400	500	500	**2,100**
% Change		1.5%	1.1%	1.5%	1.8%	1.8%	**8.0%**
Primary: Queens Central	15,500	15,500	15,600	15,600	15,600	15,600	
5-Yr. Change		0	100	0	0	0	**100**
% Change		0.0%	0.6%	0.0%	0.0%	0.0%	**0.6%**
Primary: Queens North	50,900	51,000	51,100	51,100	51,300	51,400	
5-Yr. Change		100	100	0	200	100	**500**
% Change		0.2%	0.2%	0.0%	0.4%	0.2%	**1.0%**
ALL Primary Study Area	261,000	264,900	266,500	268,800	272,000	274,600	
5-Yr. Change		3,900	1,600	2,300	3,200	2,600	**13,600**
% Change		0.4%	0.2%	0.3%	0.4%	0.3%	**5.2%**
Brooklyn	882,900	895,600	906,800	921,300	939,000	956,400	
5-Yr. Change		12,700	11,200	14,500	17,700	17,400	**73,500**
% Change		0.5%	0.4%	0.5%	0.7%	0.7%	**8.3%**
Queens	737,800	741,700	745,800	751,500	760,700	766,000	
5-Yr. Change		3,900	4,100	5,700	9,200	5,300	**28,200**
% Change		0.2%	0.2%	0.2%	0.4%	0.2%	**3.8%**

Source: NYMTC 2050 Socioeconomic Data Forecasts

4 Transportation Needs

Based on the assessment of current and projected transportation and development patterns within the Primary Study Area, the overall transportation needs in the corridor across all modes have been identified, as well as goals and objectives the proposed project alternatives must support in order to meet those needs. This Purpose and Needs documentation is included in the technical memorandum as "Task 14.3: Refinement of the Problem Statement, Purpose & Need, and Goals & Objectives." A summary of the transportation needs from this document is provided below:

Need 1: Support socioeconomic growth patterns in the Primary and Secondary Study Areas.

Substantial past growth and projected future employment and residential growth within the Primary and Secondary Study Areas will require transit improvements to effectively handle an increased share of the trips generated by this growth.

Need 2: Better connections to and between subway services to optimize travel paths.

Portions of the Primary Study Area are outside of the walkshed of subway stations and require transit improvements that can make effective connections to subway and other transit lines along the corridor.

Need 3: Better transit connection to Study Area worksites.

Trips to Primary Study Area worksites have a much lower transit share and much higher auto share than the comparable rates for all work trips from the area, indicating a need for better connections to current and projected job locations.

Need 4: Take advantage of opportunities to develop lower-cost transit/freight operations that have the benefit of dedicated operating space but at a lower cost and with a shorter timeframe.

Need 5: Coordinate operations of freight and passenger services within the corridor.

Need 6: Reducing congestion on major Study Area roadways by increasing the transit share in travel markets to and from the Study Area

Need better transit access and mobility to increase transit modes' share of trip-making on congested roadways to support sustainable growth.

Appendix 1.2 Refinement of the Problem Statement, Purpose & Need, and Goals & Objectives

Volume 1

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

MAY 2022

IBX

Introduction

This Technical Memorandum (TM) describes and proposes refinements to the problem statement, purpose and need statement, and list of goals and objectives that were reported in the 2021 Interborough Express Feasibility Study and Alternatives Analysis (2021 Feasibility Study, see **Figure 1** for the summary, see **Appendix** for details). The purpose of the proposed refinements is to prepare these tools for the next National Environmental Policy Act (NEPA) phase of project development as discussed in this TM. As a component of the Planning and Linkages (PEL) Study for the Interborough Express Project (the Project), this TM is organized into the following topic areas:

- Problem Statement
- Purpose and Need
- Goals and Objectives

The primary sources of information used in this TM include:

- Interborough Express (formerly known as the Bay Ridge Connector) Feasibility Study and Alternatives Analysis Report (AECOM, May 2021)
- Task 2: Transportation Needs and Purpose and Needs Statement Technical Memorandum, MTA Interborough Express Feasibility and Alternatives Analysis Study (AECOM, June 2020)
- Federal Transit Administration (FTA) Standard Operating Procedures for Managing the Environmental Review Process (2019)
- Council on Environmental Quality's (CEQ) regulations for implementing NEPA (40 CFR 1502.13)
- CEQ's "A Citizen's Guide to the NEPA" (December 2007)

Problem Statement

During the PEL Study, MTA is continuing to evaluate alternatives, specifically the three feasible alternatives (Bus Rapid Transit, Light Rail Transit and Conventional Rail) identified by the 2021 Feasibility Study. As part of the PEL Study, MTA requires additional tools to evaluate these alternatives. The first tool is a problem statement.

A problem statement defines and provides context for the alternatives development and evaluation phases of work, including the current PEL study. The problem statement is a predecessor to the purpose and need statement; it is typically a concise, holistic snapshot of the deficiencies and problems that form the context of a project.

The Problem Statement that was developed for the PEL Study is as follows:

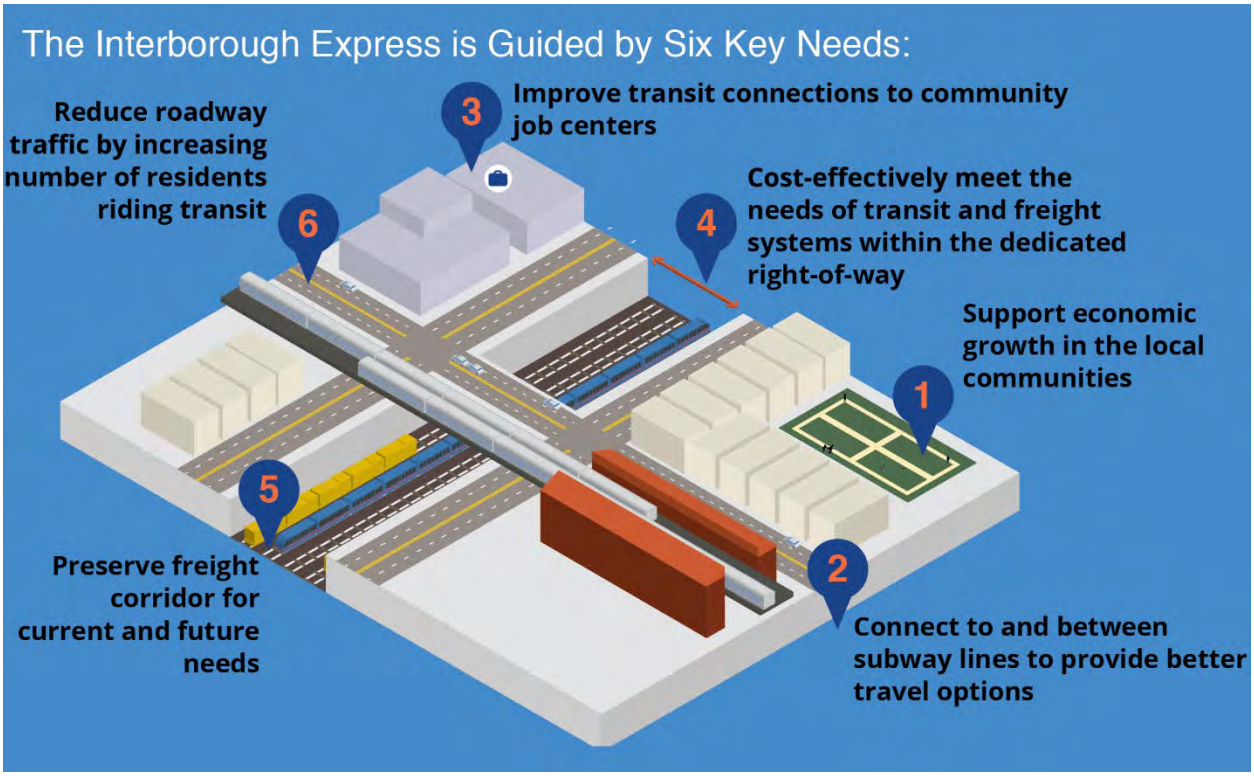
> While Brooklyn and Queens are well served by subway and other transit services to and from Manhattan, these boroughs have long contended with limited direct rapid transit links within and between the boroughs. The 2021 Feasibility Study demonstrated significant existing and foreseeable travel demand for improved intra- and inter-borough transit service. For example, under existing conditions, many Brooklyn transit riders with destinations in Queens must travel into Manhattan on one transit line and then transfer to another line heading out of Manhattan to reach their destination in Queens, resulting in significant travel time (for example, an hour to go from Brooklyn College in Midwood to Roosevelt Avenue in Flushing, Queens via Times Square). These transportation constraints affect all populations but are particularly adverse for underserved populations (such as minority, low-income, and zero-car households) who depend on transit and often hold multiple jobs in these boroughs. These transportation conditions also constrain

residents' transit access to existing and planned employment and an employer's ability to attract the necessary workforce in areas targeted by the City for economic development and redevelopment, such as the East New York Industrial Business Zone.

Refined Purpose and Need

A refined purpose and need statement expands on the problem statement by identifying specific needs for a project that are supported by relevant data and evidence. During the 2021 Feasibility study, MTA evaluated current and foreseeable future transportation issues and needs along the Interborough Express corridor. Six critical needs were identified that helped drive the study (**Figure 1**). In the current PEL Study, MTA is examining the three feasible alternatives in the context of additional engineering, traffic, and environmental measures. This is one reason why the purpose and need must be refined.

Figure 1 Project Needs During Feasibility Study



Source: Interborough Express Feasibility Study and Alternatives Analysis Summary Report, 2021

Because the PEL Study serves as a point of transition between the 2021 Feasibility Study and future NEPA actions, the MTA is also refining the purpose in need in anticipation of and to be consistent with federal requirements. The FTA's Standard Operating Procedures (SOPs) for Managing the Environmental Review Process, No. 4, provides guidance on preparing a purpose and need statement within a NEPA context. FTA's SOPs provide the following key guidance:

- A purpose and need is typically developed during planning and is refined during NEPA.
- In making refinements, "a project's purpose and need should exhibit continuity from planning, through each project development phase, to project approval."
- During NEPA, the statements in a purpose and need should be transportation focused, i.e.:

- The purpose is what MTA intends to accomplish with the project; and
- The needs are the transportation problems the project would address.

After reviewing the 2021 Feasibility Study and considering that a purpose statement should be sufficiently narrow to focus on the project corridor, the following purpose statement for the Interborough Express project is recommended:

> Provide fast, direct, and reliable transit service connecting Brooklyn and Queens using the existing Bay Ridge Branch and Fremont Secondary freight corridors (between Bay Ridge and Jackson Heights).

The needs were then refined, starting with those from the 2021 Feasibility Study and refining them to align with FTA's guidance. The primary refinements involved focusing each need on transportation and moving non-transportation needs from the Feasibility Study to the list of goals and objectives. The following refined needs for the Interborough Express project are recommended:

- Need for efficient, direct, and reliable transit service connecting Brooklyn and Queens – This need will identify deficiencies in the existing travel between the two boroughs, including travel time, routing, and delays due to roadway congestion;
- Need to connect to existing subway and transit systems that serve Brooklyn and Queens – This need will identify the existing deficiencies in making connections between existing subway and transit systems along the project corridor; and,
- Need to improve access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services – This need will identify existing and foreseeable problems in making connections along the corridor between communities, job centers, and targeted growth areas in the two boroughs.

Goals and Objectives

In addition to refining the purpose and need, refinements to the goals and objectives in anticipation of the NEPA process are recommended. The FTA allows for establishing goals and objectives during NEPA as tools to evaluate alternatives in addition to the project's purpose and need. In practice, goals and objectives should be measurable and achievable. Topics typically captured in goals and objectives relate to transportation as well as the natural and human environment. Public and agency input can shape the goals and objectives to fit specific project area conditions and concerns.

After reviewing the 2021 Feasibility Study and considering the refinements to the project purpose and need, the following goals and objectives for the Interborough Express project are recommended:

- Support the economic health and development of local communities – This goal will enable comparison of the feasible alternatives in terms of the relative ability to promote transit-oriented development, opportunities for public-private investment, and potential changes to existing community character and land use patterns.
- Maximize the development of proposed new transit services within the existing freight railroad alignment – This goal will enable comparison of the feasible alternatives in terms of the relative ability to avoid the use of adjacent same-grade or above-grade roadways or other public or private spaces.

- Accommodate transit and freight systems within the existing freight railroad corridors – This goal will allow comparison of the feasible alternatives in terms of their ability to operate both rail freight and potential transit service within the same corridor while minimizing the need for additional ROW and potential ROW-related impacts.
- Avoid or minimize adverse impacts to the natural and built environment – This goal will enable the comparison of the feasible alternatives in terms of the ability to avoid or minimize impacts to natural resources and the built environment.
- Provide cost-effective transit service improvements – This goal will enable comparison of the alternatives in terms of construction risks, including capital cost relative to other alternatives under consideration.

Appendix – 2020 Feasibility Study Task 2 Purpose and Need Technical Memorandum

MTA Brooklyn-Queens Connector (BQC) Feasibility and Alternatives Analysis Study

Technical Memorandum

Task 2: Transportation Needs and Purpose and Needs Statement

Prepared for

NY Metropolitan Transportation Authority
Transportation Systems Analysis

Prepared by

The AECOM TEAM
AECOM USA, Inc.
WSP
Integrated Systems Resources, Inc.
Infinity Consulting Corp.
Sobers Consulting, LLC

Revised FINAL June 2020

Contents

2.1 Project Purpose

The main purpose of the study is to assess travel needs along the Long Island Rail Road (LIRR) Bay Ridge Branch (BRB) and CSX Fremont Secondary (FS) rights-of-way (ROW), referred to in this study as the "Brooklyn-Queens Connector," and in the adjacent Primary and Secondary Study Areas. The study is intended to determine how utilizing this ROW for transit and freight could improve transit in these areas.

2.2 Introduction

The Brooklyn-Queens Connector (BQC) Feasibility and Alternatives Analysis Study (Bay Ridge Connector Study) was proposed by the Metropolitan Transportation Authority (MTA) to assess the feasibility of adding passenger transit service to the ROW. The ROW, which extends from Bay Ridge in southwestern Brooklyn to Astoria in northwestern Queens, is currently utilized exclusively for freight transport via all-diesel rail. The rail corridor consists of the LIRR-owned BRB and the CSX-owned FS. The corridor was identified as a potential location for new service that would provide more direct transit options to serve new job growth in the outer boroughs of New York City while relieving congestion on current Manhattan-bound subway lines. This study is intended to determine the feasibility of adding passenger service options to the corridor without interfering with existing and planned passenger operations on the Hell Gate Line (Amtrak and Metro-North) north of the Fremont Secondary, or with existing freight operations that are projected to grow in scope and scale in the near- and long-term future.

The corridor is a vital link in the freight rail network in the New York City and Long Island region. Freight activity, measured in "carloads," has increased considerably over the past two decades on both the BRB and the FS. The New York City Economic Development Corporation (NYCEDC) and the Port Authority of New York and New Jersey (PANYNJ) have both completed studies to assess the possible major expansion of rail freight operations involving the corridor and connecting rail lines. The PANYNJ is currently preparing a Phase II Environmental Impact Statement for its Cross-Harbor Freight Program to improve the movement of freight across New York Harbor. Rail freight is a key focus of this work.

The Study will focus on the reintroduction of passenger service along the BRB and the provision of new passenger service along the FS. The study will consider a wide range of possible transit modes and service, including commuter rail, heavy rail transit and light rail transit modes, as well as bus rapid transit (BRT) and other surface transit options. A primary objective is to provide rail transit or similar services to currently underserved areas in Brooklyn and Queens.

The corridor was identified as a potential means of achieving these goals because it forms an orbital connecting route that has numerous intersection points with the primarily radial subway and commuter rail operations. The geometry and alignment of the corridor suggest that it could potentially divert trips between non-CBD points from overburdened Manhattan-bound subway lines, while freeing up capacity for more direct CBD-bound travel.

Figure 1 shows the Study Area established for the assessment of transit operations in this corridor. The Primary Study area is defined by the corridor's generalized walkshed – the approximate walking distance that potential future passengers would be willing to walk to connect with these services. For the purposes of this study, that walking distance is assumed to be roughly one half-mile. The Primary Study

area is drawn to exclude the Amtrak Hell Gate line. The study does not consider actions involving that rail line.

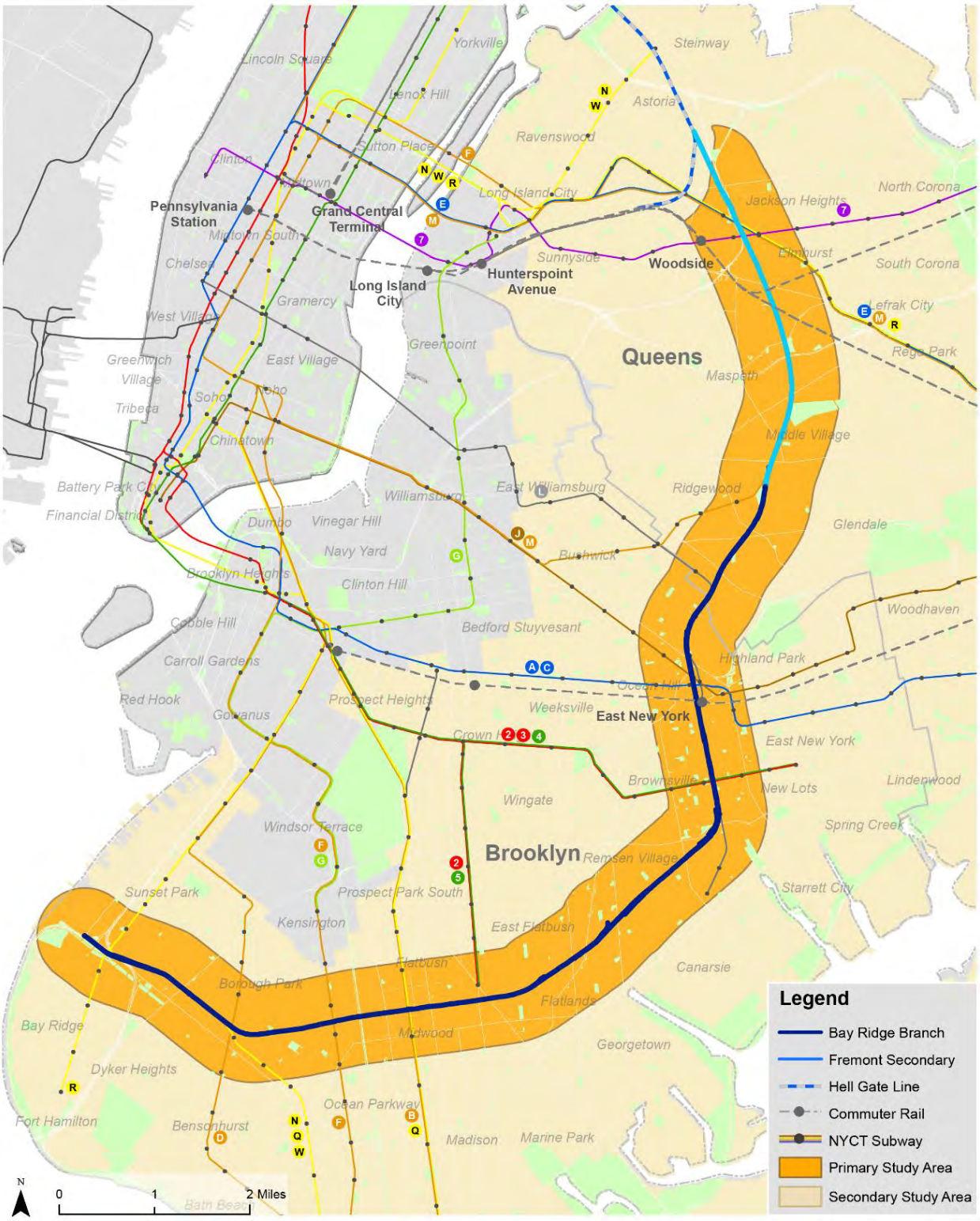
The Secondary Area includes most of Brooklyn and Queens and is drawn along Census Tract boundaries to capture areas served by subway and commuter lines and major bus routes that cross the BRC Corridor. While other travel markets and New York City neighborhoods are discussed in this study, the main purpose of the study is to assess travel needs within the Primary and Secondary Study Areas to determine how improved transit services could expand the role of transit in those areas.

This Technical Memo assesses current and planned transportation services within the areas potentially served by new transit options in the study corridor, including transit and highway-based operations. The Memo also describes current and projected future demographic patterns and characteristics of these areas, including their recent and projected population and employment growth patterns. Subsequent sections examine the present travel patterns of Study Area workers and residents and on journey-to-work trips occurring during the AM and PM peak periods that comprise a major component of potential demand. Most of this analysis centers on the Primary Study Area.

This review of current travel patterns describes both where residents travel to work and the modes they use. The review provides the same information for workers in the Primary Study Areas –where these workers originate and what mode they use for these trips. This information is considered collectively to define the overall transportation needs of the corridor to meet future travel needs, with a primary focus on the potential need for improved transit services.

The final section of this memo is a Project Purpose and Need Statement. This Statement summarizes the conclusions of the preceding sections and identifies five primary planning goals and related objectives to be accomplished over the course of this study.

Figure 1: Brooklyn-Queens Connector - Study Area



2.3 Inventory of Current and Planned Transportation Service

2.3.1 Existing Transportation Services

Brooklyn and Queens collectively have a resident population of approximately 5 million people (2014-2018 5-Year Estimate American Community Survey ACS data). Moving people and the goods through and across these two boroughs requires a complex and redundant multimodal transportation network. Buses, subways, and commuter rail trains play a vital role in moving commuters and other passengers into and out of the Central Business District (CBD) of Manhattan, as well as a wide range of other trip-generating destinations within Brooklyn, Queens, and other nearby areas (i.e., Staten Island, the Bronx, and Long Island).

The roadway network in the Primary and Secondary Study Areas is comprised of local, collector and arterial roads, and parkways and Interstate highways. These roadways, including designated truck routes and connecting tunnels and bridges to other boroughs, transport vehicles through the Study Area. No current routes offer a continuous parallel option to the BRC alignment between Bay Ridge, Brooklyn and Astoria, Queens. Existing roadway connections among neighborhoods of eastern Brooklyn such as Canarsie, Brownsville, and Bushwick are cumbersome to traverse. These roadways experience high traffic volumes and contain large numbers of stop- and signal-controlled intersections. Single-lane roadways are common in the Study Area. The following sections outline travel options to and from the Study area via bus, rail, and other modes.

2.3.1.1 Existing Bus Service

The Queens bus network features a total of 100 routes, of which 19 travel through the Primary Study Area. While local and express bus service covers most of the borough, travelers from many neighborhoods within the Study Area must transfer between bus lines at least once to reach destinations within the borough.

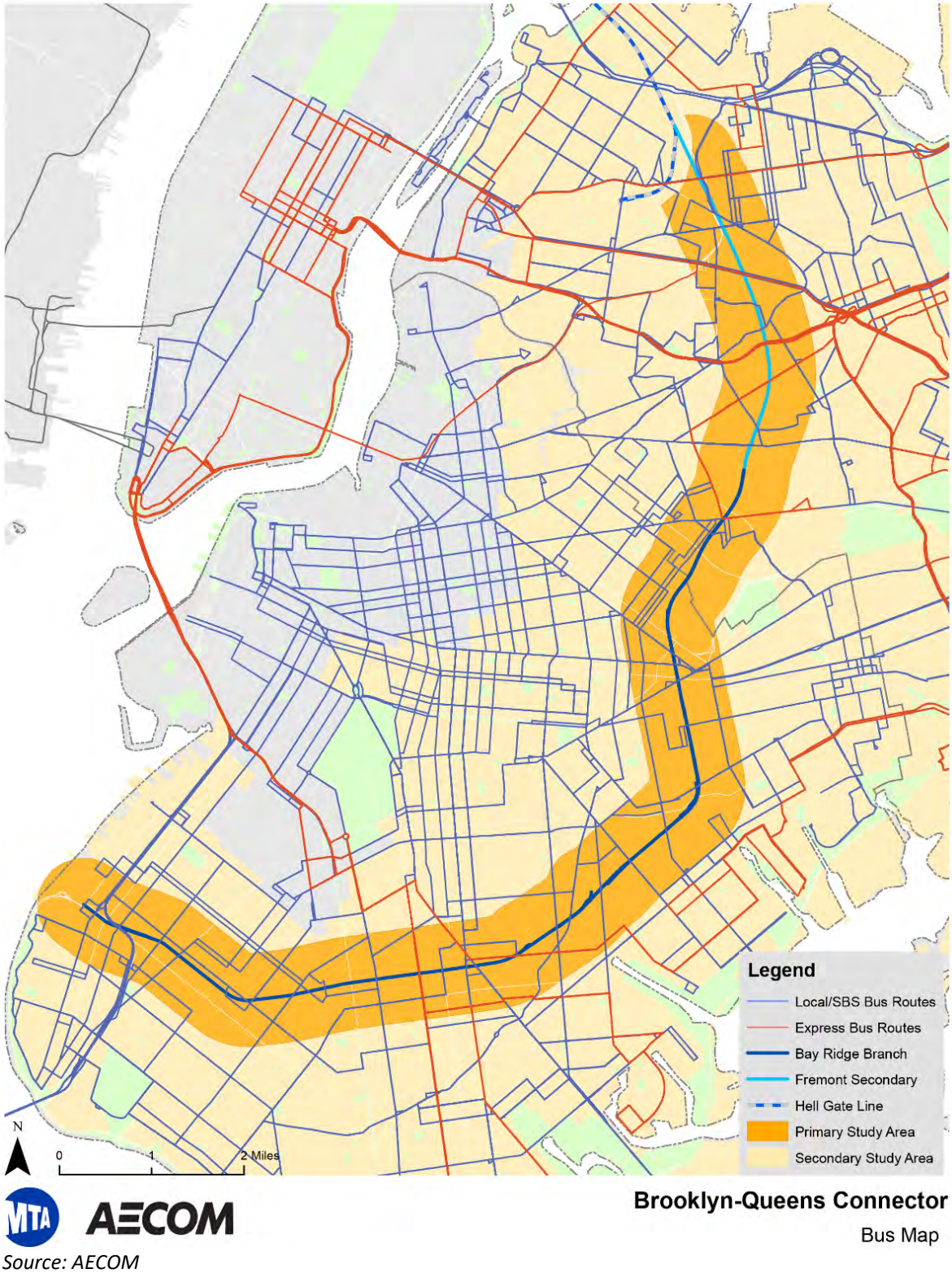
The Brooklyn bus network has 66 routes, 32 of which travel through the Primary Study Area.[1] **Figure 2** illustrates the breadth of local, and Select Bus Service (SBS) and express bus routes serving the Study Area. SBS is the MTA designation for routes designed with bus rapid transit characteristics, including camera-enforced bus lanes, longer distances between stops, and vehicular turn restrictions. Buses in Queens and Brooklyn carry over 1.3 million riders[2] on an average weekday. The routes that pass through the Primary Study area accounted for 621,084 average weekday boardings in 2018, with 437,897 boardings on the Brooklyn routes and 183,187 boardings on the Queens routes. **Table 1** and **Table 2** show the top five routes by average weekday and average weekend boardings, respectively. [3] These routes include:

- B6 – from Bensonhurst to East New York
- B35 – with both local and Limited bus services from Brownsville to Sunset Park

[1] Express buses excluded from Primary Study Area counts but included in total borough counts. Brooklyn SBS/Local routes counted as a single route as that is how MTA reports bus ridership.
[2] http://web.mta.info/nyct/facts/ridership/
[3] This section reflects current bus operations. The MTA has initiated Borough-wide Bus Route Redesign strategies for both Queens and Brooklyn, which may result in route additions, deletions and modifications. See section for 2.2.2.1 for additional details on planned changes.

- B44 – extending from Williamsburg to Sheepshead Bay, with both local and SBS services on that corridor
- B46 – including local bus service from Kings Plaza to Williamsburg and SBS service from Kings Plaza to Bedford-Stuyvesant
- Q58 -- with both local and Limited bus services from Jamaica, Queens to Ridgewood, Queens

Figure 2: Bus Routes Intersecting Primary Study Area



Source: AECOM

Table 1: Top 5 Bus Routes by Average Weekday Boardings in the Primary Study Area

Route	2013	2014	2015	2016	2017	2018	2013-2018 Change	2013-2018 % Change
B46Lcl/SBS	47,863	46,422	44,431	43,463	41,786	38,120	-9,743	-20.4%
B6	41,940	41,812	41,175	41,320	40,135	35,963	-5,977	-14.3%
B44Lcl/SBS	37,786	36,016	37,021	37,418	34,877	32,334	-5,452	-14.4%
Q58	28,967	29,464	29,027	29,412	28,810	27,940	-1,027	-3.5%
B35	33,070	32,353	33,016	31,886	29,899	27,273	-5,797	-17.5%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 2: Top 5 Bus Routes by Average Weekend Boardings in the Primary Study Area

Route	2013	2014	2015	2016	2017	2018	2013-2018 Change	2013-2018 % Change
B46Lcl/SBS	61,218	60,838	58,186	54,891	52,719	50,493	-10,725	-17.5%
B6	49,066	50,420	50,297	47,748	45,584	41,246	-7,820	-15.9%
B44Lcl/SBS	45,861	44,385	44,980	44,282	41,823	39,175	-6,686	-14.6%
Q58	41,515	41,953	40,320	39,811	39,407	38,006	-3,509	-8.5%
B35	45,628	45,987	47,613	44,345	42,231	38,486	-7,142	-15.7%

Source: MTA - http://web.mta.info/nyct/facts/ridership

Between 2013 and 2018, average weekday boardings on bus routes in the Primary Study Area declined by 85,246, 12.1% which is less than the citywide average of 14.5% (excluding express routes). A similar trend has been observed nationwide which has been caused by multiple factors, including but not limited to the state of the economy, increasing general traffic congestion, and the impacts of reduced service reliability. **Table 3** shows the top five routes for average weekday boarding increases.

Table 3: Bus Routes with Greatest Percentage Increase in Weekday Boardings in the Primary Study Area

Route	2013	2014	2015	2016	2017	2018	2013-2018 Change	2013-2018 % Change
*Q70**	949	3,419	4,048	4,183	4,670	5,090	4,141	176.1%
B4	5,089	5,442	5,653	6,195	6,207	6,192	1,103	21.7%
B13	5,433	5,536	5,844	6,290	6,193	6,084	651	12.0%
B9	13,110	12,687	12,785	14,404	14,495	14,416	1,306	10.0%
B70	6,059	5,394	5,387	5,942	6,229	6,520	461	7.6%

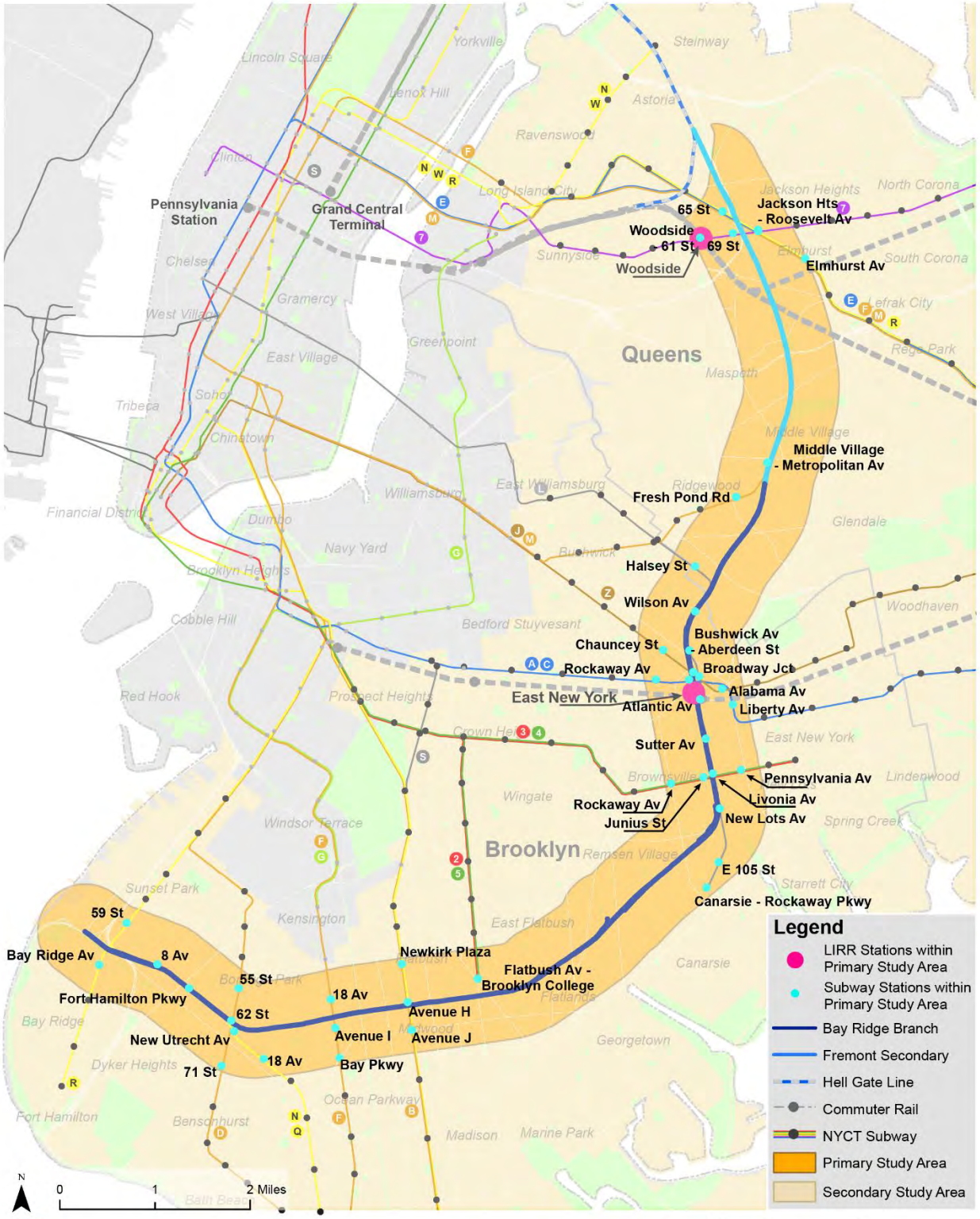
Source: MTA - http://web.mta.info/nyct/facts/ridership/

**Change calculated between 2014-2018, as Q70 began operations on 9/8/13. Upgraded to SBS on 9/25/16*

2.3.1.2 Existing Subway Service

A total of 17 subway lines serve at least some neighborhoods in the boroughs of Brooklyn and Queens, with 40 subway stations in the Primary Study Area (see **Figure 3**). The lines passing through the Primary Study Area include the A, B, C, D, E, F, J, L, M, N, Q, R, Z, 2, 3, 4, 5, and 7. Only the G, Shuttles, W, 1, and 6 do not have scheduled service to the Primary Study Area. The F, M, and R lines intersect the proposed Corridor twice, once in each borough. However, within the Primary Study Area, one major transfer complex – Broadway Junction –permits customers to move between lines, meaning that many customers must travel to Downtown Brooklyn or Manhattan to transfer between trains. Overall, subway stations in the Study Area had an aggregate average daily ridership of 276,981 in 2018. Excluding stations closed for renovations in 2013 and 2018, ridership decreased 1.9% from 2013.

Figure 3: Subway and Commuter Rail Lines



Brooklyn-Queens Connector

Subway / Commuter Rail

Information about the subway stations located in the Primary Study Area, including the lines that serve them and their ADA status, are listed in **Table 4**. This Table also describes the proximity of each station to the project ROW, using two categories described in more detail below.

"Adjacent" means the subway station is within walking distance of the study corridor, and that the distance is so minimal that a potential transfer station can be considered. "Within Walkshed" means the subway station falls within a half-mile walking distance from the study corridor. Stations listed as "Within Walkshed" are not close enough to the ROW to support a direct transfer connection to new rail passenger service.

Table 4 Subway Stations within the Primary Study Area

MTA GTFS Station ID	Station Name	Routes	ADA Access	Geographic Relationship to Study Corridor
247	Flatbush Av-Brooklyn College	2, 5	Yes	Within Walkshed
253	Rockaway Av	A, C	No	Within Walkshed
A50	Rockaway Av	3	No	Within Walkshed
254	Junius St	3	No	Within Walkshed
255	Pennsylvania Av	3	No	Within Walkshed
710	Broadway-74th St	E, F, M, R, 7	Yes	Within Walkshed
711	Fisk Av-69th St	7	No	Within Walkshed
712	Woodside Av-61st St	7	Yes	Within Walkshed
A51	Broadway Junction-East New York	A, C, J, L	No	Adjacent
A52	Liberty Av	A, C	No	Within Walkshed
B15	55th St	D	No	Within Walkshed
B16	62nd St	D, N	Yes	Adjacent
B17	71st St	D	No	Within Walkshed
D31	Newkirk Plaza	B, Q	No	Within Walkshed
D32	Av H	B, Q	Yes	Adjacent
D33	Av J	B, Q	No	Within Walkshed
F30	18th Av	F	No	Within Walkshed
N05	18th Av	N	No	Within Walkshed
F31	Av I	F	No	Within Walkshed
F32	Bay Parkway	F	No	Within Walkshed
G13	Elmhurst Av	M, R	No	Within Walkshed
G14	Jackson Heights-Roosevelt Ave	E, F, M, R, 7	Yes	Within Walkshed
G15	65th St	M, R	No	Within Walkshed
J24	Alabama Av	J	No	Within Walkshed
J28	Chauncey St	J, Z	No	Within Walkshed
L19	Halsey St	J	No	Within Walkshed
L20	Wilson Av	L	Yes	Adjacent
L21	Bushwick Av	L	No	Adjacent
L24	Atlantic Av	L	No	Within Walkshed
L25	Sutter Av	L	No	Adjacent

L26	Livonia Av	L	No	Adjacent
L27	New Lots Av	L	No	Adjacent
L28	East 105th St	L	No	Within Walkshed
L29	Canarsie - Rockaway Parkway	L	Yes	Within Walkshed
M01	Middle Village Metropolitan Ave	M	Yes	Adjacent
M04	Fresh Pond Rd	M	No	Within Walkshed
N02	8th Av	N	Yes	Adjacent
N03	Fort Hamilton Parkway	D	No	Adjacent
N04	New Utrecht Av	D, N	Yes	Within Walkshed
R41	59th St	N, R	No	Within Walkshed
R42	Bay Ridge Av	R	No	Within Walkshed

Table 5 and **Table 6** show the top five subway stations in the study area for average weekday ridership and average weekend ridership, respectively.

Table 5: Top 5 Subway Stations by Average Weekday Ridership in the Primary Study Area

Station	**Line**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2013-2018 Change**	**2013-2018 % Change**
74-Broadway/ Roosevelt Av	7, E/F/M/R	50,841	51,285	51,925	52,296	52,018	51,766	925	1.8%
Flatbush Av-Brooklyn College	2/5	21,941	21,865	21,666	21,268	20,691	19,763	-2,178	-9.9%
Woodside-61 St	7	16,559	16,807	17,007	17,236	16,945	16,501	-58	-0.4%
Elmhurst Av	M/R	13,597	13,568	13,588	13,508	12,967	12,463	-1,134	-8.3%
59 St	N/R	12,506	12,871	13,048	13,144	16,759	12,301	-205	-1.6%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 6: Top 5 Subway Stations by Average Weekend Ridership in the Primary Study Area

Station	**Line**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2013-2018 Change**	**2013-2018 % Change**
74-Broadway/ Roosevelt Av	7, E/F/M/R	71,930	73,919	73,373	72,305	70,841	69,953	-1,977	-2.7%
Woodside-61 St	7	20,432	19,669	20,127	20,360	21,067	19,796	-636	-3.1%
59 St	N/R	14,372	14,966	15,344	14,917	19,650	15,980	1,608	11.2%
Flatbush Av-Brooklyn College	2/5	17,982	16,274	17,805	16,443	15,653	14,507	-3,475	-19.3%
8 Av	N	16,484	17,434	15,960	17,252	16,278	14,040	-2,444	-14.8%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 7 and **Table 8** show the top five subway stations in the study area for ridership increases and decreases, respectively, between 2013 and 2018. The five stations with the largest ridership growth are all located in Brooklyn and include three L stops. Four of the five stations with the ridership declines are in southern Brooklyn.

Table 7: Top 5 Subway Stations with Greatest Percentage Increase in Weekday Ridership in the Primary Study Area

Station	Line	2013	2014	2015	2016	2017	2018	2013-2018 Change	2013-2018 % Change
Bushwick Av-Aberdeen St	L	1,509	1,683	1,874	2,105	2,112	2,079	570	37.8%
71 St	D	4,538	4,682	4,802	6,501	5,905	5,607	1,069	23.6%
Avenue H	Q	2,861	2,961	2,994	3,183	3,329	3,418	557	19.5%
Atlantic Av	L	1,580	1,725	1,384	1,455	1,821	1,842	262	16.6%
Wilson Av	L	3,865	4,248	4,437	3,812	4,564	4,468	603	15.6%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

Table 8: Top 5 Subway Stations with Greatest Percentage Decrease in Weekday Ridership in the Primary Study Area

Station	Line	2013	2014	2015	2016	2017	2018	2013-2018 Change	2013-2018 % Change
Pennsylvania Av	3	5,675	5,718	6,997	2,485	3,503	4,331	-1,344	-23.7%
Middle Village-Metropolitan Av	M	4,092	4,318	4,489	4,530	3,064	3,225	-867	-21.2%
Rockaway Av	3	5,632	5,735	1,690	5,122	5,642	4,747	-885	-15.7%
Alabama Av	J	2,443	2,448	2,520	2,585	2,424	2,147	-296	-12.1%
Fresh Pond Rd	M	5,333	5,677	6,002	6,130	4,223	4,716	-617	-11.6%

Source: MTA - http://web.mta.info/nyct/facts/ridership/

2.3.1.3 Existing Long Island Rail Road service

Long Island Rail Road (LIRR) has 11 branches (excluding the seasonal Belmont Branch) that connect all four Counties (Kings County, Queens County, Nassau County, Suffolk County) on Long Island, as shown in **Figure 3**. In New York City, the service has three main terminals – Penn Station, Atlantic Terminal, and Hunterspoint Ave./Long Island City.

LIRR has experienced an increase in overall ridership since 2014. The top three branches with the highest increase in ridership since 2014 are West Hempstead, Far Rockaway, and Hempstead (**Table 9**).

*Table 9: Long Island Rail Road Ridership 2014-2018**

Branch	2014	2015	2016	2017	2018	2014-2018 Change	2014-2018 Change %
City Zone	6,793,300	7,057,723	7,387,923	7,171,230	7,239,713	446,413	6.6%
Babylon	17,956,348	18,242,236	18,348,401	18,085,955	18,306,985	350,637	2.0%
Far Rockaway	5,753,156	5,931,677	6,127,963	6,245,366	6,402,693	649,537	11.3%
Hempstead	3,903,415	4,031,759	4,163,361	4,251,182	4,329,862	426,447	10.9%
Long Beach	4,680,914	4,822,457	4,923,744	4,898,829	4,849,085	168,171	3.6%
Montauk	2,247,711	2,303,670	2,306,084	2,348,119	2,424,499	176,788	7.9%
Oyster Bay	1,755,844	1,837,035	1,901,569	1,924,288	1,929,263	173,419	9.9%
*Port Jefferson***	18,651,978	18,705,294	19,036,912	19,086,565	19,114,377	462,399	2.5%
Port Washington	13,307,163	13,802,816	14,087,743	14,084,690	14,242,594	935,431	7.0%
*Ronkonkoma****	9,921,356	9,964,746	10,057,813	10,003,535	9,841,068	-80,288	-0.8%
*West Hempstead*****	897,062	948,633	1,010,165	1,059,082	1,092,420	195,358	21.8%
Total	**85,868,247**	**87,648,046**	**89,351,678**	**89,158,841**	**89,772,559**	**3,904,312**	**4.5%**

**Port Jefferson Branch includes ridership from Huntington Branch
*** Ronkonkoma Branch includes ridership from Greenport Branch. Slightly decrease in 2018 due to several weekend outage for the Double Track project
**** Significant increase from 2014 to 2018 because of resumption of weekend service in late 2014.
Source: MTA Long Island Rail Road Ridership Book (2014, 2015, 2016, 2017, 2018)

Excepting the Port Washington Branch, existing LIRR service through Queens and Brooklyn is located in the LIRR's City Terminal Zone. The Terminal Zone includes 10 stations in Manhattan, Queens, and Brooklyn, including four terminals – Jamaica Station, Penn Station, Atlantic Terminal, and Hunterspoint Ave./Long Island City.

Of these 10 stations, Woodside and East New York serve the Primary Study area (**Table 10**).

Table 10 LIRR Stations within the Primary Study Area

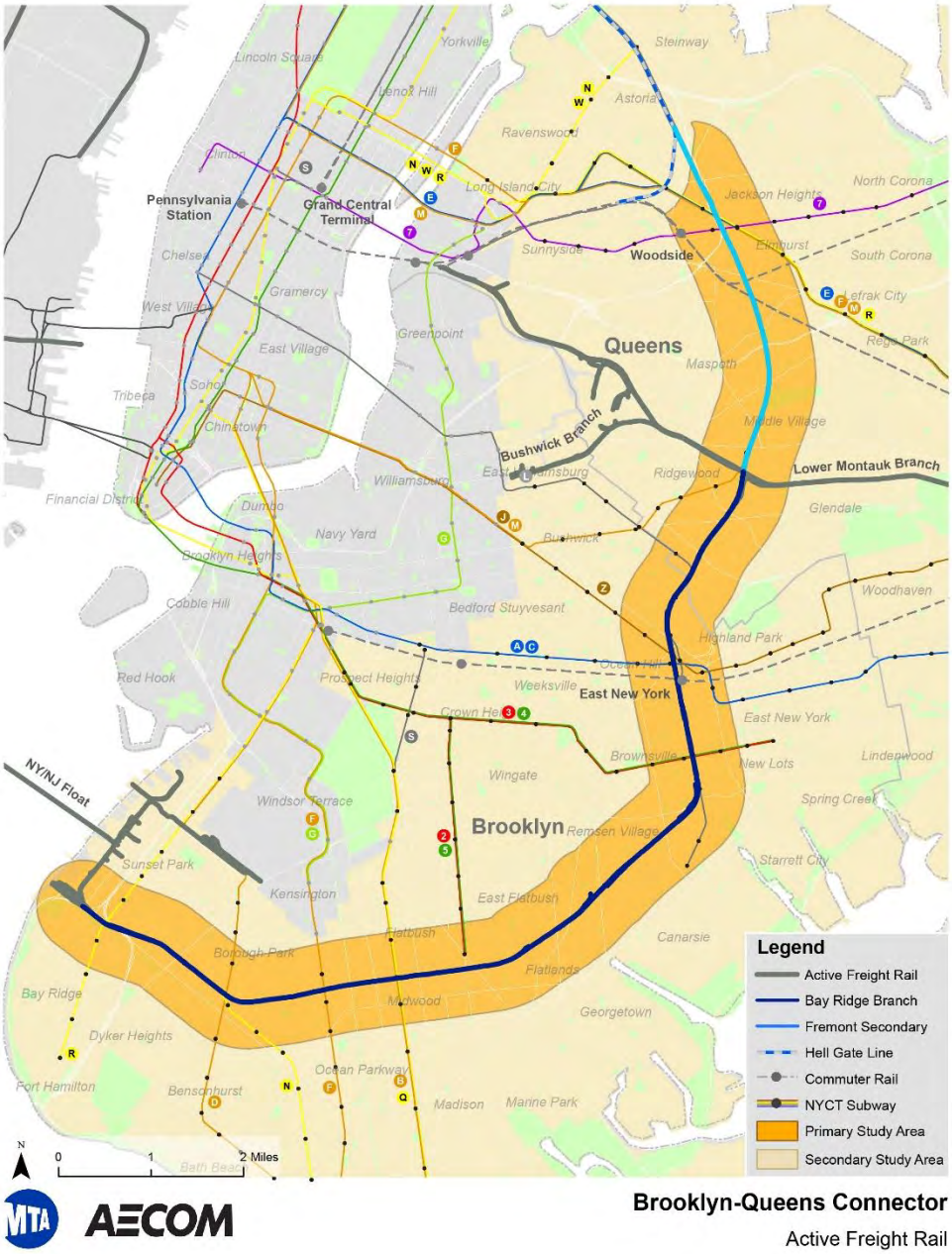
Station Name	Branch	ADA Access	Geographic Relationship to Study Corridor
Woodside	Port Washington City Zone	Yes	Within Walkshed
East New York	Atlantic Branch	No	Adjacent

The 2012-2014 LIRR Origin and Destination Report indicates that Woodside station had 7,172 average weekdays daily ons and offs – the busiest of the ten City Terminal Zone stations, excluding the western terminals and Jamaica. For East New York station, there were 1,358 weekdays daily ons and offs during the same time period.

2.3.1.4 Existing Freight Rail Operation

Freight rail service is provided on the Bay Ridge Branch (between Bay Ridge, Brooklyn and just north of Fresh Pond, Queens) by the New York and Atlantic Railway (NY&A) under contract with the MTA. The contract was signed in 1997 and extends until 2027. The FS portion of the ROW (extending from Fresh Pond, Queens and continuing to the Amtrak Hell Gate Line in Astoria) is owned and maintained by CSX, as indicated on the New York State Rail map. The active freight rail lines that intersect with the study corridor are shown on **Figure 4**.

Figure 4: Active Freight Rail Map



The Bay Ridge Branch and Fremont Secondary together are critically important to freight rail in the New York City and Long Island region. Freight rail traffic on the entire LIRR network has increased substantially over the past two decades, growing from approximately 10,000 carloads annually in 1996 to approximately 30,000 carloads in 2018, according to the MTA. This figure includes trips that either originate or terminate on the LIRR system, on either the BRB or FS. The other end of the rail trip generally includes locations in Long Island or New Jersey, but also points in New England and throughout the national freight rail system.

Table 11 indicates Annual Number of Cars conducting freight rail operations along the NY&A.

Table 11: Revenue Carloads of Freight Rail Operations on NY&A, 2018-2019

Year	Total Revenue Carloads forwarded or received by customers on Bay Ridge Branch	Total Branch Volume (revenue cars originating at, or destined to, 65th St carfloat)
2018	352	2,912 Forwarded 4,428 Received
2019	427	3,169 Forwarded 2,713 Received

Source: NY&A

The maximum authorized speed along the Bay Ridge Branch is 10 mph due to current track maintenance standards for freight rail and the absence of an automatic signaling system. The average run time along the branch is approximately 75-80 minutes, excluding stops to service customers (**Table 12**). However, travel time is impacted by requirements to load and unload cars at various sidings along the right of way.

Freight rail operations traffic accesses LIRR territory in two ways:

1. Via Rail Float: Railcars are shipped to and from the Bay Ridge branch via the New York/New Jersey Rail (NYNJ) carfloat. Inbound cars arrive at the 65th Street Yard in Bay Ridge. From there, freight travels east to Fresh Pond Junction, where it can be transferred to the LIRR's Lower Montauk Branch for shipment east to Long Island, or west to customers in Queens and Bushwick, Brooklyn. Outbound freight traffic accesses the carfloat via the Bay Ridge Branch. On average, one freight train utilizes the float each day
2. Via CSX over Hell Gate Bridge. Freight traffic bound for Long Island traveling along the Fremont Secondary is transported by CSX (and other freight rail providers with operating rights) along the line to Fresh Pond Junction, where it is interchanged with NY&A. Conversely, outbound freight traffic is picked up by CSX and transported north via the Fremont Secondary and onto the Hell Gate Bridge north to the Bronx and the rest of the mainland United States. At its northern end, the Fremont Secondary line merges with the tracks from Sunnyside Yard. The Fremont Secondary carries higher volumes of through freight movement than the Bay Ridge Branch, which only carries one freight train per day.

There is, on average, one daily freight round trip between Fresh Pond and 65th Street, between 7:00pm and 2:00am, with approximately 15 cars per train (as of 2019). Freight Customers and Switches are provided in **Figure 5** and **Table 12**, based on data provided by NY&A.

Figure 5 Freight Customers Map

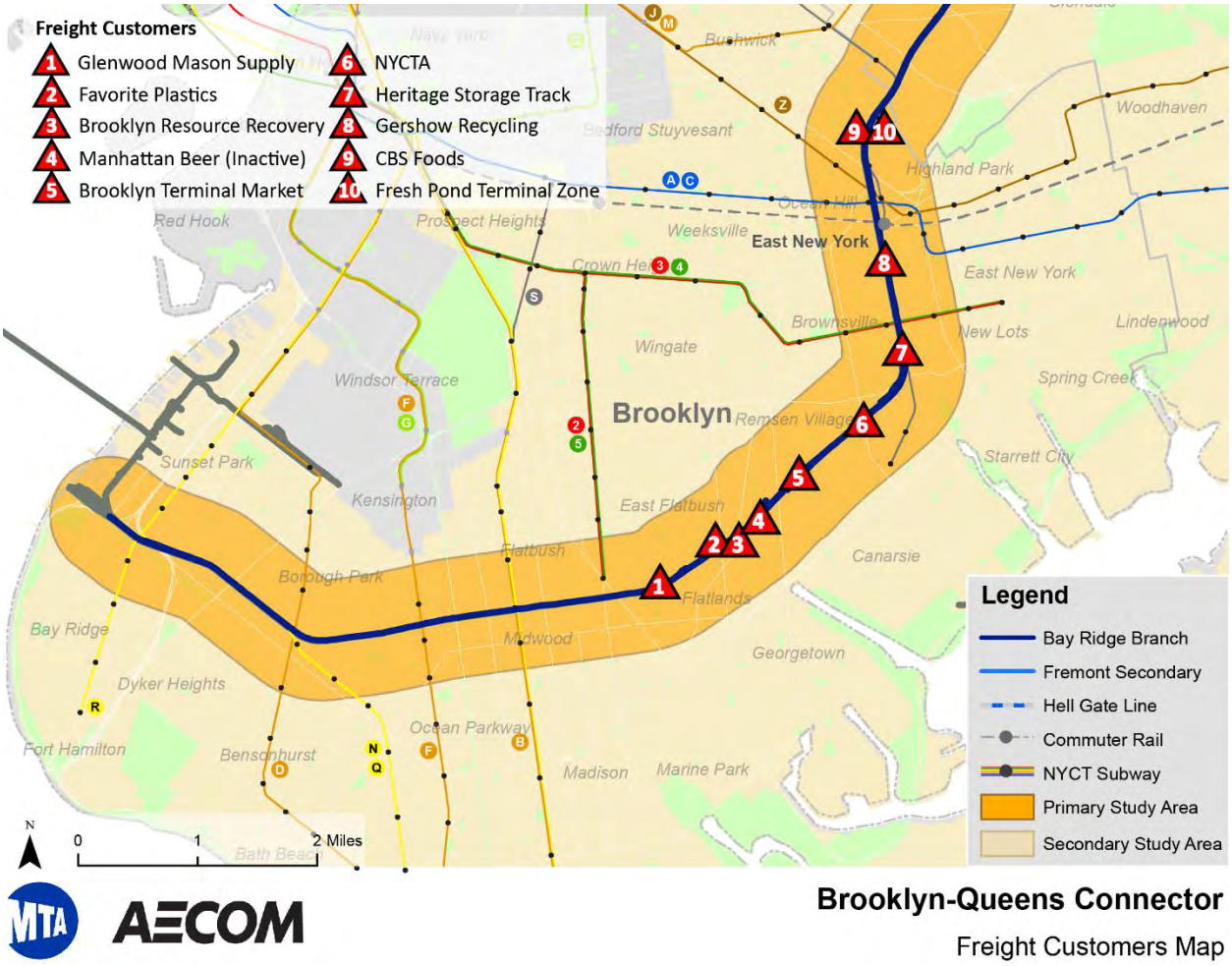


Table 12: Freight Customers and Switches along the Bay Ridge Branch

No.	Customer	Approximate Location and Description
1	Glenwood Mason Supply	MP 5.5, approximately 250' east of Albany Avenue overgrade bridge. Siding on north side of ROW
2	Favorite Plastics	MP 6.3, approximately 200' west of Kings Highway bridge. Siding on south side of ROW
3	Brooklyn Resource Recovery	Double ended siding from MP 6.3 (Kings Highway bridge) to MP 6.7 (East 83rd St bridge). South side of ROW
4	Manhattan Beer (Inactive)	MP 6.4, approximately 800' east of Kings Highway Bridge. Siding on north side of ROW
5	Brooklyn Terminal Market	MP 7.1, approximately 200' east of Remsen Avenue bridge. Siding on south side of ROW
6	NYCTA (Linden Shop and Yard)	Accessed via the NYCTA run around track (MP7.6 to MP 8.2); approximately between Rockaway Avenue bridge and New Lots Avenue bridge. East point trailing switch to Linden Shop and Yard located on runaround track at approximately MP 8.1 (east of Linden Boulevard bridge).

No.	Customer	Approximate Location and Description
7	Heritage Storage Track	MP 8.3. Approximately 400' west of NYCTA yard access bridge. Storage track is approximately 1,000' long on east (railroad south) side of ROW.
8	Gershow Recycling	MP 9.2, approximately 60' east of Glenmore Avenue overgrade bridge. 700' siding on west (railroad north) side of ROW
9	CBS Foods	MP 10.1, approximately 500' west of Central Avenue bridge. Siding on west (railroad north) side of ROW
10	Fresh Pond Terminal Zone	Fremont Yard ▪ East of Central Avenue Bridge (approximately MP 10.1), ROW expands to four tracks between Cooper and Myrtle Avenue bridges for approximately 1 mile. Interchange Tracks ▪ ROW narrows to two tracks, then expands to four tracks from west of 65th Street Bridge to Fresh Pond Truss bridge. ▪ Due to capacity constraints in Fresh Pond Yard, the four tracks that comprise Fremont Yard and the interchange tracks are in regular use for staging and assembling trains.

Source: NY&A, LIRR, 2020

Additional freight operations occur on the portion of the LIRR-owned Montauk Branch that runs between Long Island City and Jamaica stations, in Queens. This section is known as the Lower Montauk Branch. The line generally operates at street level with grade crossings, with cut sections and viaducts in some areas. Passenger operations along the Lower Montauk were discontinued in 1998, and control of the branch was subsequently transferred to NY&A for freight operations. A 2018[4] study to evaluate options to restore passenger transit service to the Lower Montauk Branch has not yet resulted in further definitive actions to reinstate passenger service at any location.

2.3.1.5 Existing Other Transportation Services

2.3.1.5.1 Ferry service

Since launching in 2017, the NYC Ferry service has connected the Bronx, Brooklyn, Manhattan and Queens with 21 landings along waterfront communities. This service is discrete from the Staten Island Ferry connecting Staten Island and lower Manhattan. Currently, the South Brooklyn ferry route serves Sunset Park – Brooklyn Army Terminal (see **Table 13**) which is adjacent to the southern end of the BRC Corridor. This route includes stops at Wall Street Pier 11, DUMBO (Brooklyn Bridge Park Pier 1), Atlantic Avenue (Brooklyn Bridge Park Pier 6), Red Hook (Atlantic Basin) and Bay Ridge.

Ridership at Sunset Park – Brooklyn Army Terminal is higher on weekdays fall through spring. Ridership peaks significantly during summer weekends because this route connects to the beaches at the Far Rockaways.

[4] https://www1.nyc.gov/html/dot/html/about/lower-montauk-study.shtml

Table 13: Average Daily Ridership at Sunset Park – Brooklyn Army Terminal, by Quarter

	Average Week Day Ridership	Average Weekend Ridership
2017 Q2	280	266
2017 Q3	407	694
2017 Q4	232	178
2018 Q1	100	98
2018 Q2	312	320
2018 Q3	501	626
2018 Q4	191	108
2019 Q1	190	81
2019 Q2	370	532
2019 Q3	489	895
2019 Q4	258	162

Source: NYC Ferry https://www.ferry.nyc/reports-statistics/

2.3.1.5.2 Citi Bike service

Since 2013, Citi Bike has steadily expanded its bike network across areas of Manhattan, Brooklyn, and Queens. Service expansion into Bushwick, Brooklyn and Ridgewood, Queens, both adjacent to the Study Area, began in late October 2019. Prior to this date, the Study Area did not overlap with Citi Bike service territory

Ridership between November 2019 and January 2020 in the Study Area has since increased by 64 percent overall, as shown on **Table 14**. It is assumed that ridership will continue to increase, especially during the summer months, and as the bike share's coverage area and network density increase.

Table 14: Citi Bike Ridership by Month starting or ending within the Study Area

Month	**Total number of rides starting or ending within the study area**	**% increase (from previous month)**
November 2019	1,356	--
December 2019	2,188	61%
January 2020	2,232	2%

Source: NYC Bike Share, LLC

2.3.1.5.3 Commuter Vans

Commuter vans are vans and minibuses holding between nine and 20 passengers that can be licensed by the Taxi and Limousine Commission (TLC) to operate in specific territories. Licensed commuter vans are not permitted to duplicate MTA bus routes, stop at bus stops, or accept street-hail passengers. Most commuter vans operating in the City do so outside of the regulations and without a license.

In 2017, the New York City Department of Transportation (NYCDOT) conducted a study of commuter van operations around the City, including those that serve parts of Queens and Brooklyn. As part of the study, a passenger survey was conducted. Nearly two-thirds of the 207 passengers surveyed use MTA at least weekly; one-quarter have and unlimited MetroCard. For many passengers, commuter vans therefore complement, rather than replace, mass transit.

Within the Bay Ridge Connector study area, commuter vans operate in several locations (see **Table 15** for van volumes and passenger boardings):

- Sunset Park
  - Primarily non-stop service to/from Manhattan Chinatown, with some service to Flushing
- Elmhurst (on edge of study area)
  - Non-stop service to/from Manhattan Chinatown
- Flatbush Avenue
  - Operating between Kings Plaza and Downtown Brooklyn, with stops along the route
  - Within the study area the primary focal point is the Flatbush Avenue-Brooklyn College 2/5 subway station
  - 500-1,000 weekday boardings in the Study Area
- Utica Ave
  - Operating between Kings Plaza and Eastern Parkway, with stops along the route
  - Within the study area the primary focal point is at Kings Highway
  - Kings Highway recorded less than 100 weekday boardings
  - Flatlands Avenue, just outside the Study Area, recorded 100-500 boardings

Table 15: Commuter Van Volumes and Boardings in the Study Area

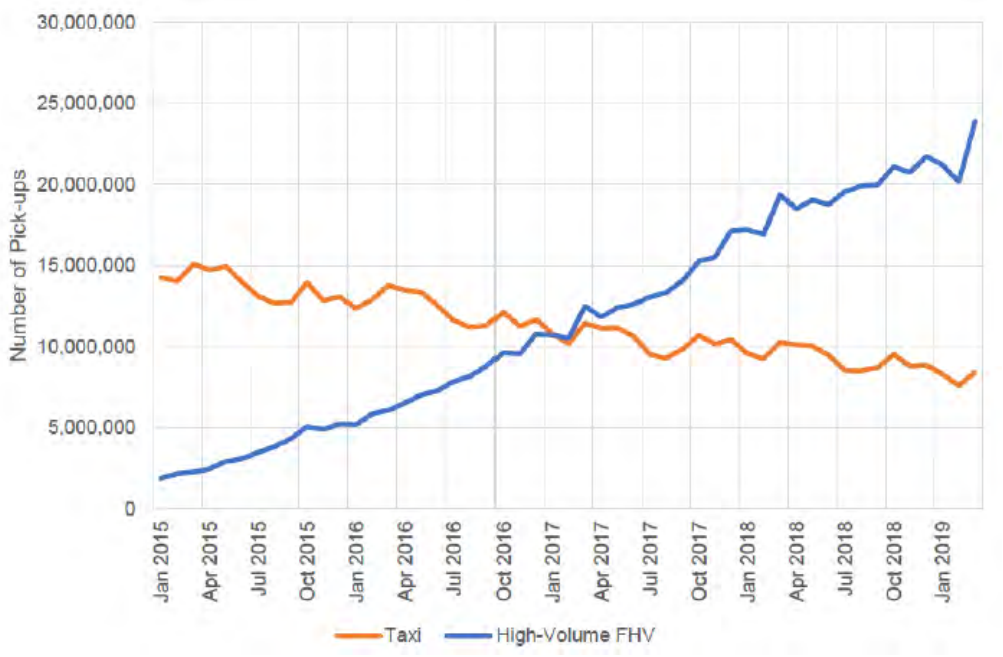
Market	Weekday Van Volumes	Weekday Passenger Boardings
Chinatown (Manhattan) – Sunset Park	600	9,100
Chinatown (Manhattan) – Elmhurst	50	500
Sunset Park – Flushing	50	500
Flatbush Avenue (Downtown Brooklyn to Kings Plaza)	700	11,600
Utica Avenue (Eastern Parkway to Kings Plaza)	600	3,300

Source: NYC DOT Commuter Van Study

2.3.1.5.4 Taxis & For-Hire Vehicles

For-Hire Vehicles (FHVs) have seen steady growth through 2018, while taxi trips have declined. High-volume For-Hire Services[5] have surpassed the number of taxi trips since early 2017 (see **Figure 6**).

Figure 6: High-Volume FHV and Taxi Trips, 2015-2018, Citywide

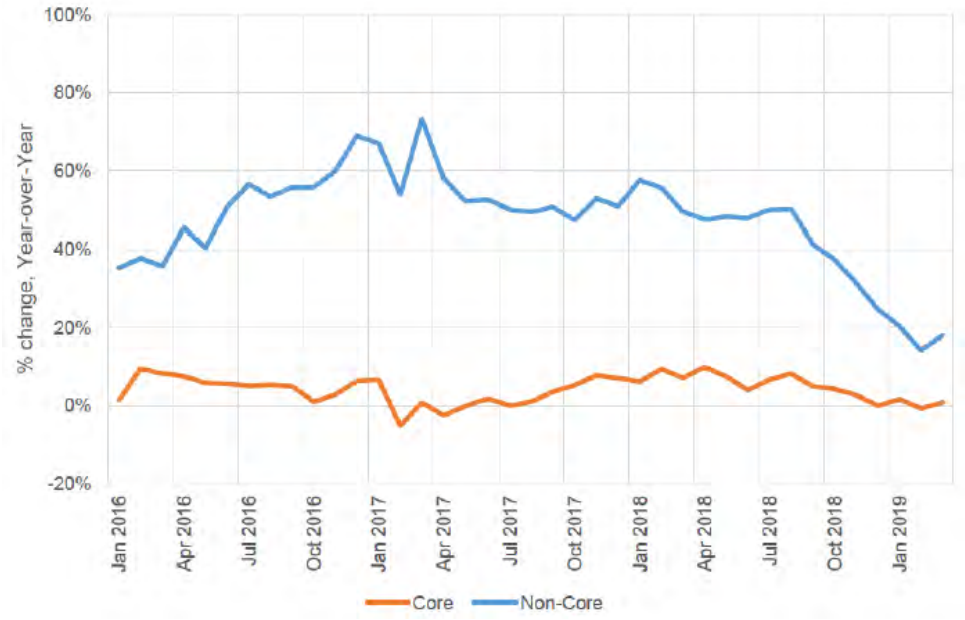


Source: Improving Efficiency and Managing Growth in New York's For-Hire Vehicle Sector, NYC TLC & DOT, June 2019

[5] Defined as businesses that currently dispatch or plan to dispatch more than 10,000 FHV trips in New York City per day under a single brand, trade, or operating name; https://www1.nyc.gov/site/tlc/businesses/high-volume-for-hire-services.page

In August 2018, the New York City Council voted to place Uber and Lyft under a moratorium that prevents them from adding new vehicle licenses. The moratorium was originally intended to last one year but was subsequently extended until August 2020. Despite this moratorium, FHV trips continue to grow over years (see **Figure 7**)), though at a slower pace of increase than prior to the moratorium. The figure further indicates that the highest percentage of growth occurred outside the Manhattan core (which is defined as south of 96th Street).

Figure 7: Monthly Trips % Change, Year-over-Year



Source: Improving Efficiency and Managing Growth in New York's For-Hire Vehicle Sector, NYC TLC & DOT, June 2019

2.3.1.6 Existing Traffic Status

Several major traffic corridors cross the Primary Study area. Based on the Annual Average Daily Traffic (AADT) figures provided by New York Department of Transportation using Transcom data, the traffic volume of major roadway (North to South) is shown below and **Figure 8**.

The following roadways with AADT of at least 70,000 cross the Primary Study Area:

- Brooklyn-Queens Expressway (N-S): 141,184
- Long Island Expressway (E-W): 104,105
- Jackie Robinson Parkway (E-W): 86,564
- Gowanus Expressway(N-S): 99,205

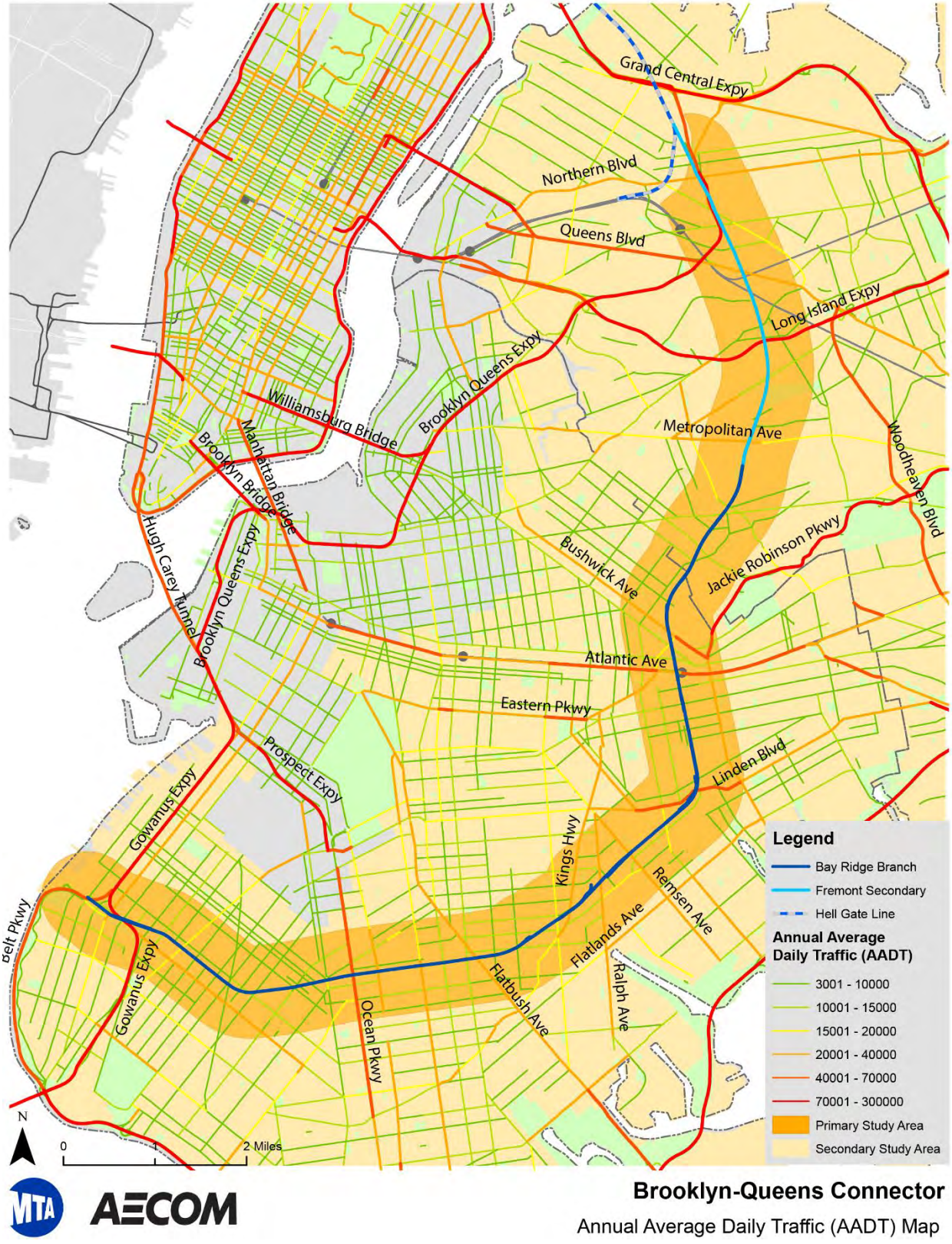
The following roadways with AADT of between 40,000 and 50,000 cross the Primary Study Area:

- Queens Boulevard (E-W): 43,033
- Atlantic Ave (E-W): 48,036
- Linden Boulevard (E-W): 44,062

- Ocean Parkway (N-S): 43,017
- Belt Parkway (E-W): 48,678

Most of the roadways listed above provide east-west connections. These roadways facilitate access between the Primary Study Area and Manhattan. However, the Brooklyn Queens Expressway is the only direct north-south connection between Queens and Brooklyn. The proposed project would provide an alternative north-south transit connection, potentially relieving traffic demand on the Brooklyn Queens Expressway.

Figure 8 Annual Average Daily Traffic Map



2.3.2 Planned Changes to Transportation Services

2.3.2.1 Planned LIRR Service Changes - East Side Access

The East Side Access (ESA) project will provide new Long Island Rail Road (LIRR) service to Grand Central Terminal on the east side of Manhattan, supplementing existing service to Penn Station on Manhattan's West Side and Atlantic Terminal in Brooklyn. It is one of the largest transportation infrastructure projects currently underway in the United States.

The project encompasses work in multiple locations in Manhattan, Queens, and the Bronx and includes more than eight miles of tunneling. When completed, ESA will serve approximately 162,000 customers a day[6], providing a faster and easier commute from Long Island and Queens to the East Side of the Manhattan CBD in a new 8-track terminal and concourse below Grand Central Terminal. Revenue service is forecasted for December 2022.

Figure 9: East Side Access Project Overview

Source: MTA Capital Program

2.3.2.2 Planned LIRR Service Changes - Long Island Rail Road Expansion Project

The construction of 9.8 miles of an additional track between Floral Park and Hicksville will reduce train congestion and delays and enable true bi-directional service during peak hours with a more reliable rail network. This work includes several related projects, including the construction of parking garages, retaining walls, improvements to rail bridges, and the removal of eight street-level grade crossings. Construction is being managed to minimize the impact on daily routines, with extensive mitigation and

[6] http://web.mta.info/capital/esa_alt.html

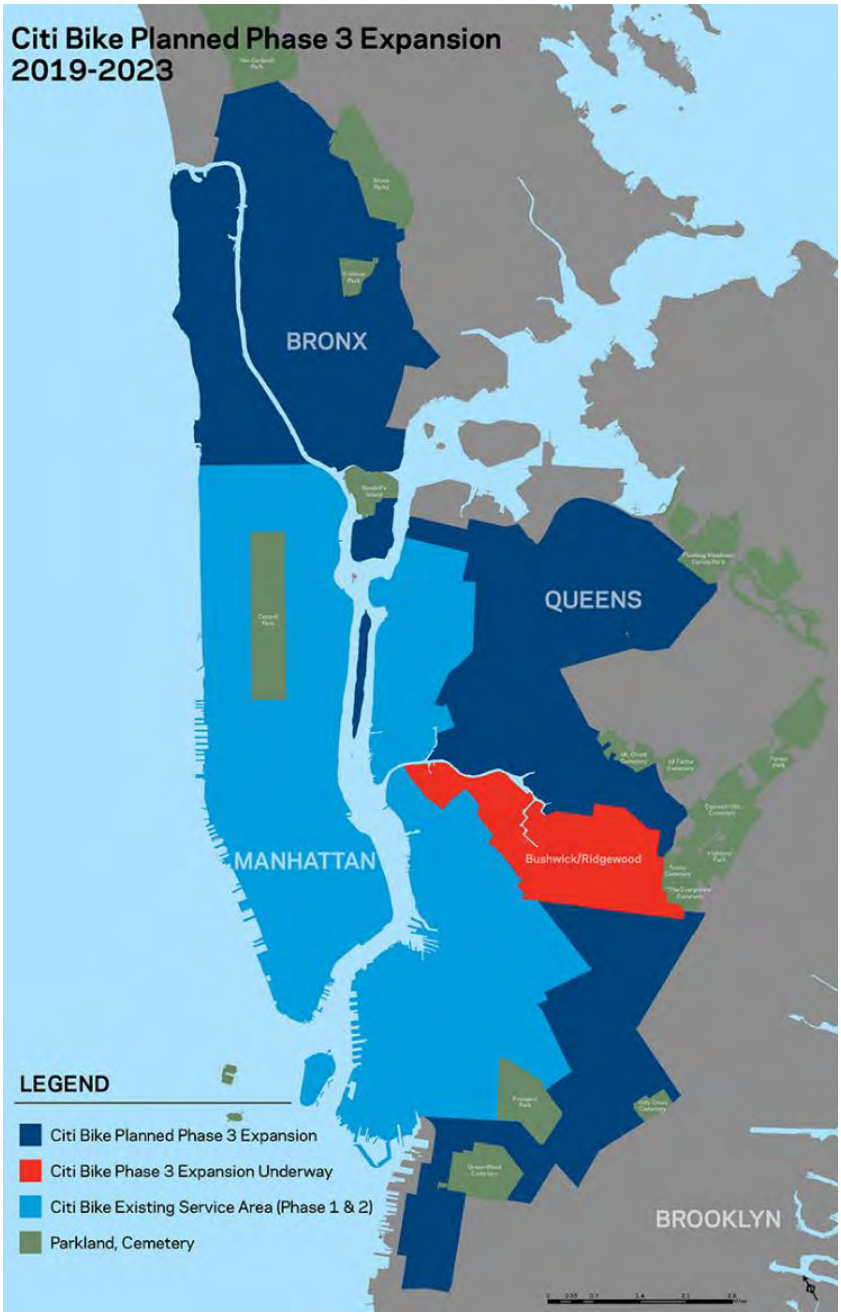
public outreach efforts in local communities. The overall project is expected to be completed by late 2022.

2.3.2.3 Citi Bike

By 2023, Citi Bike will expand into parts of the Study Area in Queens and Brooklyn as part of their Phase 3 expansion (**Figure 10**).[7] It is assumed that Citi Bike ridership will continue to increase with the inclusion of these new docks.

[7] https://www.citibikenyc.com/blog/major-citi-bike-expansion-map-revealed#:~:text=

Figure 10: Citi Bike Phase 3 Expansion



*Source: NYC Bike Share, LLC (*https://www.citibikenyc.com/blog/major-citi-bike-expansion-map-revealed#:~:text=)

2.3.2.4 Congestion Pricing

In October 2019, MTA Bridges and Tunnels (TBTA) announced that it had entered a six-year contract with a consultant to design, build, operate and maintain the toll system equipment and infrastructure required to implement the first-of-its-kind Central Business District Tolling Program (CBDTP) in New York City. The goal of the program is to reduce congestion on Manhattan's crowded streets while providing billions in funding to the MTA Capital Program. One outcome of congestion pricing may be increased

transit utilization, as travelers seek to avoid new vehicle access fees. CBDTP is expected to be fully operational in 2021.

2.3.2.5 Planned and Proposed Bus Service Changes

As part of the Fast Forward Plan[8], MTA is investing time and resources into careful reviews of bus service patterns in each borough to better match service with current and future travel demands. As of early 2020, both Brooklyn and Queens have bus network redesign plans in progress.

A draft proposal of the new Queens bus network was released in December 2019. MTA released an Existing Conditions Report for it in January 2020. The full draft network redesign is scheduled for public release in the second quarter of 2020.

The MTA is conducting public outreach to solicit feedback from bus riders on their needs and wishes. The final plans for Queens and Brooklyn bus networks are both expected in 2020, with implementation to begin as soon as 2021, though this timing has not yet been finalized.

Separate from these network redesigns, NYCDOT, NYC Department of City Planning (DCP), and MTA continually coordinate on updates to the City's bus system, creating ongoing improvements to specific bus stop locations and intersections; making strategic technological investments, such as transit signal priority on buses; and exploring and testing technologies such as electric buses to continually improve bus operations for customers.

2.3.2.6 Metro North Railroad Penn Station Access Project

Although no current Metro-North Railroad (MNR) service travels through the study area, the ongoing Penn Station Access project will bring MNR trains into Penn Station via the Hell Gate Bridge. The opening of East Side Access will allow LIRR trains to travel into Grand Central Terminal, which will in turn create space to route New Haven Line trains into Penn Station, with four new stations in the Bronx along the Hell Gate Branch. Initial MNR service is currently projected for 2024, with approximately 106 MNR trains traveling across the Hell Gate Bridge per day. At full implementation (timeline to be determined), operations are expected to increase up to approximately 152 trains operating across the Hell Gate Bridge per day.

2.3.2.7 New York City (NYC) Ferry Service

NYC Ferry will launch two additional routes between 2020 and 2021, as shown on **Figure 11**.[9] The first route, from Staten Island, will connect St. George with Battery Park and Midtown West. The second route, from Brooklyn, will operate between Coney Island and Lower Manhattan.

[8] https://fastforward.mta.info/
[9] https://www.ferry.nyc/

Figure 11: NYC Ferry Planned Expansion, 2020-2021

*Source: NYC Ferry (*https://www.ferry.nyc/)

2.3.2.8 Utica Avenue Corridor Study

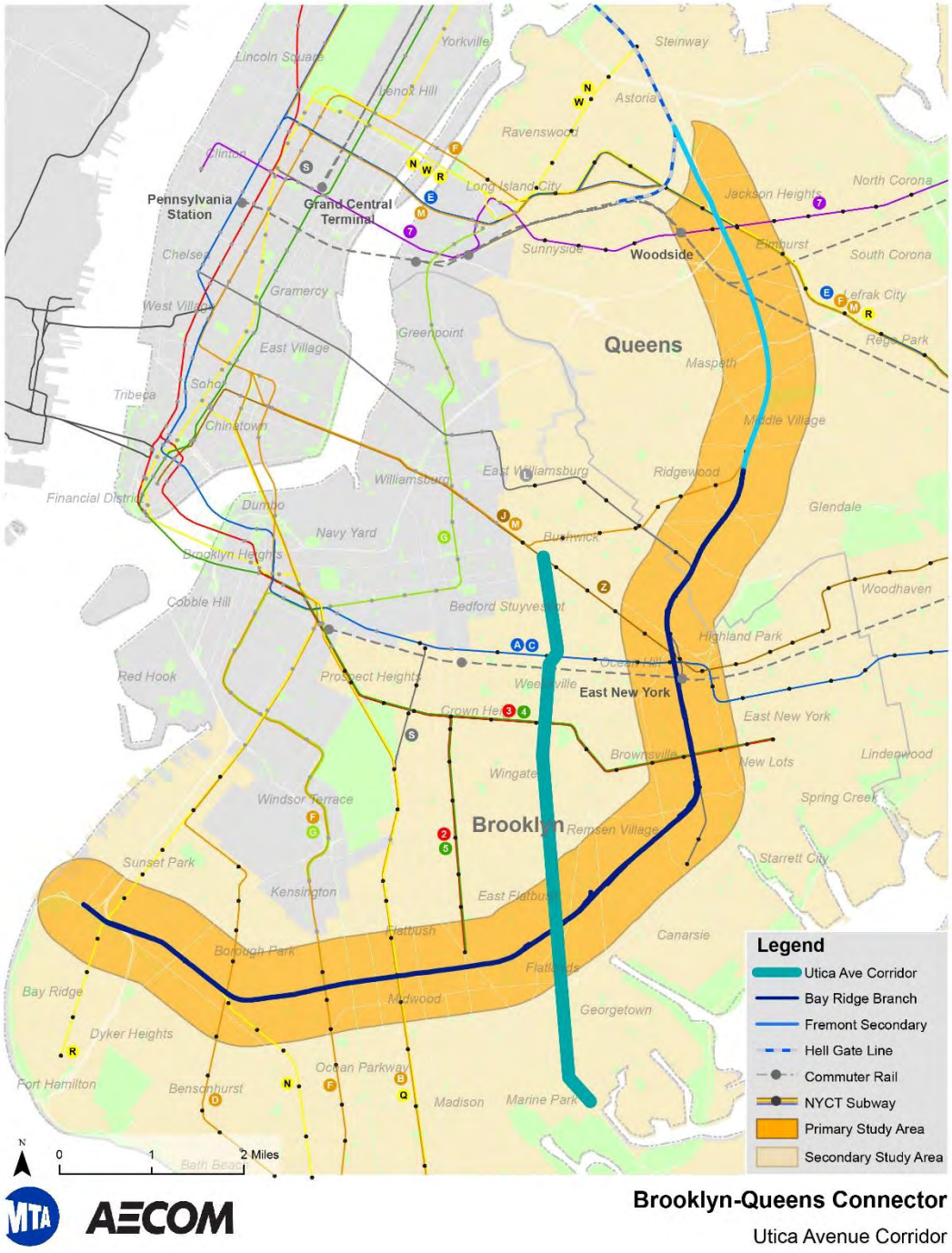
The ongoing Utica Avenue Transit Improvements Study[10] includes exploring whether a subway extension, bus rapid transit line, or light rail line might be feasibly implemented along the Utica Avenue corridor south of Eastern Parkway or Fulton Street. This study also analyzes existing subway line improvements. See **Figure 12** for the location of Utica Avenue within the study area.

Specifically, the study will analyze potential improvements to the Eastern Parkway (IRT) subway line at Nostrand Junction, Utica Avenue Terminal, and New Lots Avenue Terminal, allowing for improved services along the whole line. It will also look at opportunities for expanded railcar storage. These improvements could be implemented separately from a full new Utica Avenue transit implementation.

[10] https://new.mta.info/system_modernization/utica_avenue

The study currently includes no definitive timeline for any of the expected implementation recommendations.

Figure 12: Utica Avenue Transit Improvements Study: Corridor Location

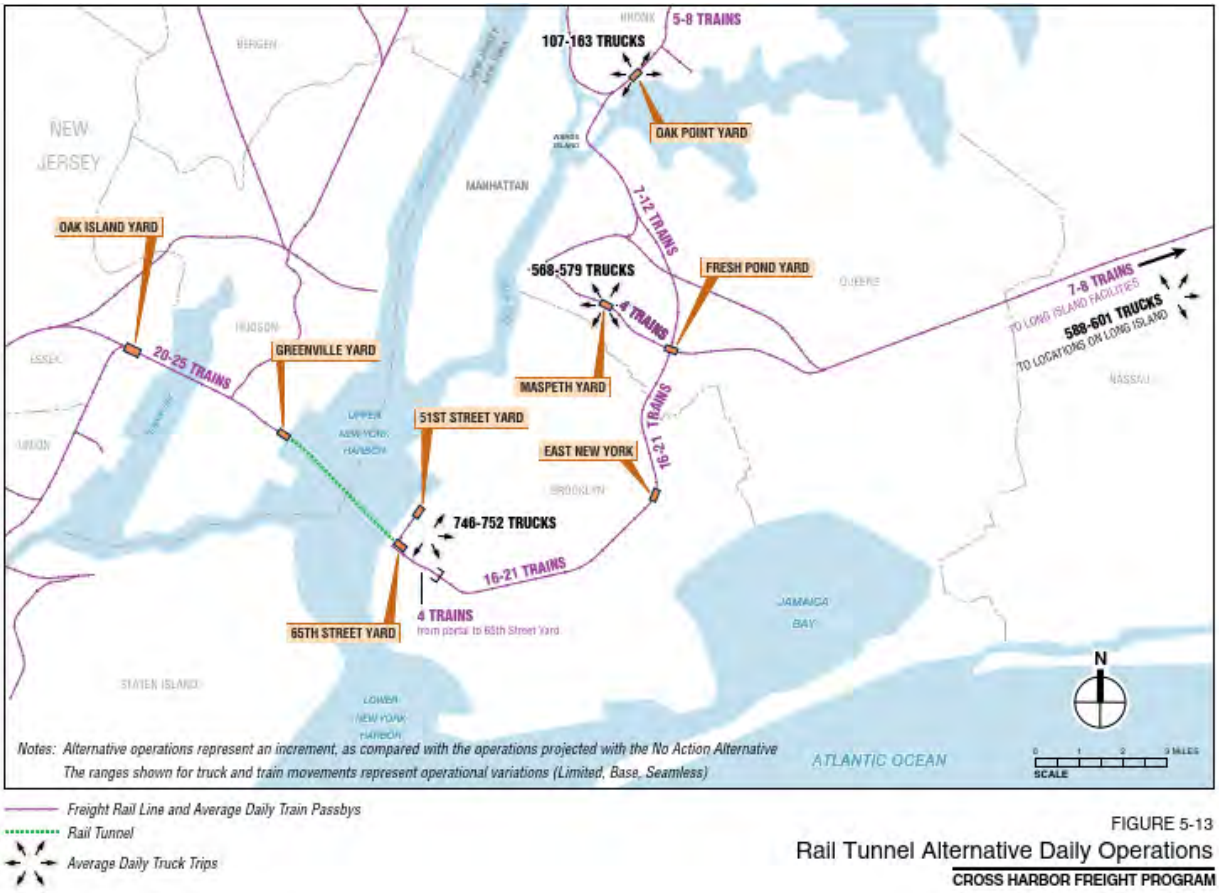


Source: WSP

2.3.2.9 Planned Freight Rail Operations – Cross-Harbor Freight Program

The Cross-Harbor Freight Program is one of the proposed changes to freight infrastructure within the region and would have the largest direct effect on the Bay Ridge Branch. The Tier I Environmental Impact Statement (EIS), released in September 2015 selected two preferred alternatives for further study as part of the Tier II EIS. One of the alternatives would construct a Cross-Harbor Rail Tunnel from New Jersey to Brooklyn. The tunnel would have its eastern portal on the Bay Ridge Branch and utilize the Branch to reach the rest of Long Island, with the line upgraded to double-stack clearances. The Rail Tunnel Alternative is recommended to utilize a Seamless Operating Scenario, which reflects reductions in interchange delays and costs in the east-of-Hudson region. With the proposed tunnel, upwards of 21 trains per day are projected to operate along the Bay Ridge Branch, as shown on **Figure 13**.

Figure 13: Proposed Cross Harbor Freight Program Map: Rail Tunnel Alternative Daily Operations



Source: Cross-Harbor Freight Program DEIS

While the Tier I EIS projections in 2015 were considered reasonable for constructing a year 2035 'maximum freight operations' scenario, several additional factors should be noted:

- The Tier I EIS projections are currently being re-evaluated as part of the ongoing Tier II EIS, and may be revised or refined, although substantial differences from the Tier I figures are not anticipated.

- Additionally, NY&A may construct additional freight rail infrastructure, such as new sidings and switches, that could grow freight operations independent of the Cross-Harbor Freight Program; CSX will likely make similar capacity-enhancing improvements to its Fremont Secondary section of the corridor, having recently completed an approximately one-mile long extension of double tracking.
- Similarly, NYCEDC has announced its Freight NYC initiative, and has already identified potential locations along the Bay Ridge Branch for new or upgraded freight rail trainload facilities.

NY&A shared the following future projections for the corridor, which are from the Cross-Harbor program:

- NYCEDC has identified the New Lots Avenue area as a site for a potential rail-served transload facility
- NY&A is investigating the possibility of expanding the Heritage Paper siding as a public team track because of an existing concrete dock
- NY&A is exploring expanding yard capacity at East NY between the exit portal of the tunnel and Livonia Avenue as an additional support / storage yard
- NY&A believes that there is the possibility of creating a transload / unloading facility between 8th Avenue and 14th Avenue just north of the interchange yard as either an aggregate unloading area or public team track with unloading docks.

2.3.2.10 MTA Late Shift Pilot Program

MTA is currently developing a pilot program to create last mile connections with for-hire vehicles. An RFP has been issued to solicit proposals from shared mobility partners to provide creative and cost-effective on-demand shared dynamically-routed mobility service during nighttime hours in New York City's outer borough areas where bus service is less frequent than subway service or is unavailable.

2.3.3 Future Potential Development Zones

There are various portions of the Primary and Secondary Study Areas where no current or planned land use changes are contemplated but which contain sufficient soft sites and infrastructure to support a greater density of residential and commercial uses. These are areas where it can be reasonably assumed that land use changes will occur in the near future, particularly if the addition of BQC transit service increases access to these locations. Among the portions of the Primary and Secondary Study Areas where these conditions obtain are:

- The 61st Street corridor in Sunset Park and Borough Park, Brooklyn: located east of 8th Avenue and west of 14th Avenue between 61st and 62nd Streets in Brooklyn, this portion of the corridor intersects with two existing NYCT subway stations (the 8th Ave station, Fort Hamilton Parkway station, and New Utrecht Avenue station on the BMT Sea Beach Line, and the 62nd Street station on the BMT West End line) and is appurtenant to several growing, housing-constrained communities. Predominantly low-density, several properties in this area have received zoning variances for greater density from both the Department of City Planning and the Board of Standards and Appeals, indicating a demand and willingness for increased density.
- The Ditmas Ave Corridor: located south of Ditmas Avenue between East 56th Street and Rockaway Avenue in Brooklyn, this portion of the Primary and Secondary Study Areas consists of

several large light industrial parcels adjacent to the Bay Ridge Branch corridor with low-density residential districts bordering to both the north and south. The addition of transit service has the potential to draw a greater concentration of commercial activity in this area, possibly justifying higher density commercial or mixed-used districts.

- The Van Sinderen Ave Corridor: located along Van Sinderen Avenue between New Lots Avenue to the south and East New York Avenue to the north, this area is likewise flanked by industrial zoned parcels with lower density residential and commercial properties extending to both the east and west.

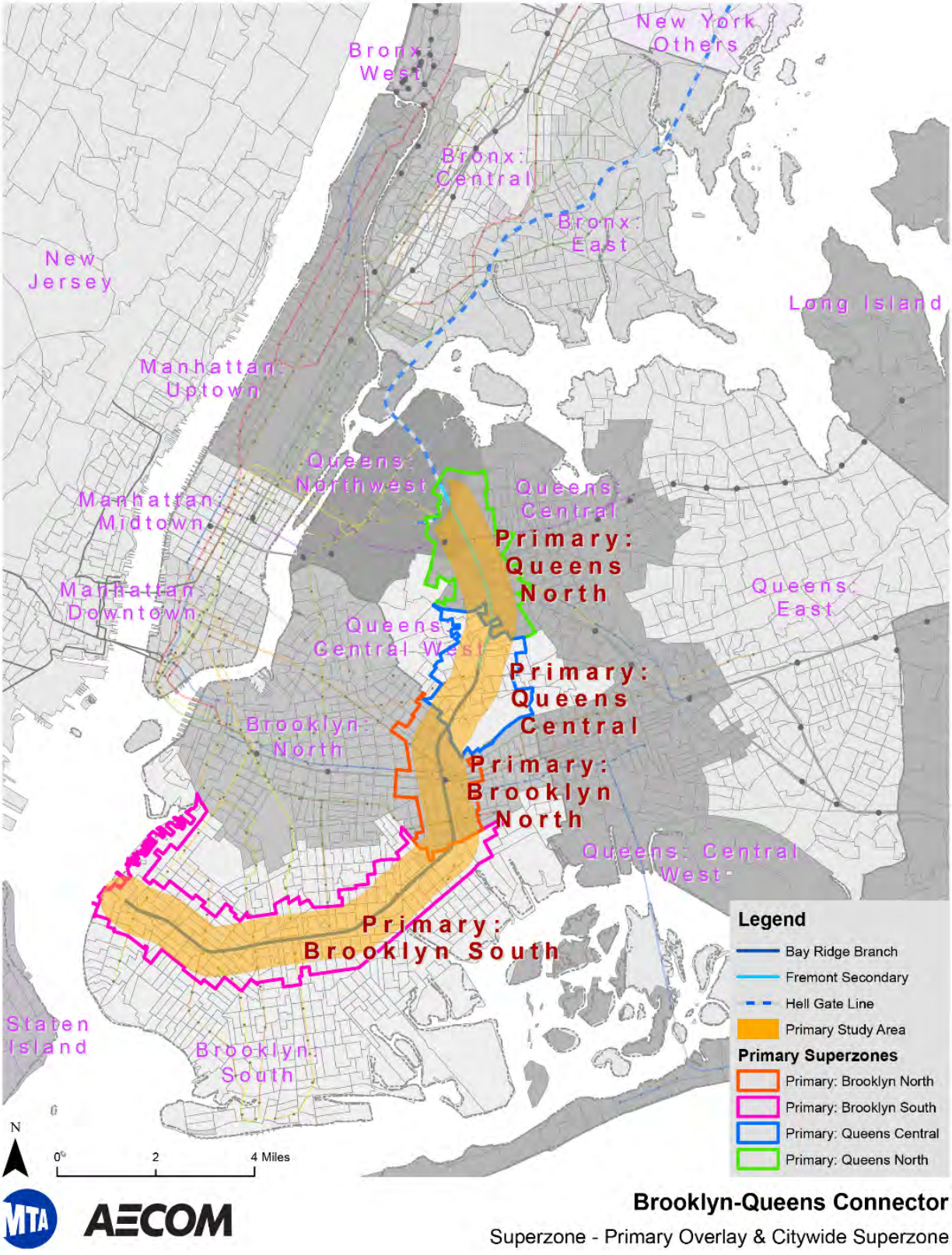
2.4 Socioeconomic and Demographic Conditions in the Study Area

2.4.1 Introduction

The Primary Study Area for the Bay Ridge Connector is comprised of 262 Census Tracts within the Primary Study Area (within approximately ½-mile of the BRC alignment) and 1,281 Census Tracts total within the Secondary Study Area, as defined in Section 1. The Primary Study Area is comprised of four subdistrict zones (see **Figure 14**), defined as Primary Superzones: Brooklyn South, Brooklyn North, Queens Central, and Queens North. The Secondary Study Area is comprised of six superzones: Brooklyn North, Brooklyn South, Queens Northwest, Queens Central, Queens Central West, and Queens East. The superzones forming the Secondary Study Area include the 262 Census Tracts within the Primary study area.

These Superzones are aggregated TAZs from the New York Metropolitan Transportation Council (NYMTC). The Superzones will be used for transit modeling in future analysis. The Superzones reflect an initial intermediate grouping to support demographic and travel pattern analysis. This initial grouping is based on transit patterns and orientation, neighborhood features, and commuting characteristics. Exact Superzone boundaries can be modified as needed as the study progresses to better align with evolving analysis.

Figure 14: Bay Ridge Connector Primary Study Area



2.4.2 Population

2.4.2.1 Estimated 2020 Population

The current NYMTC projection for 2020 population within the Primary Study Area is 899,811 persons, while the estimated 2020 population of the Secondary Study Area is 4,421,795 persons (see Table 16).[11] Within the Primary Study area, Brooklyn South has by far the largest population, with an estimated 474,329 persons. Brooklyn North has an estimated 152,403 persons, Queens North has an estimated population of 188,986, and Queens Central has an estimated 84,093, the smallest population of the four zones in the Primary study area

2.4.2.2 Estimated 2045 Population

The current NYMTC population projections for 2045 estimate that the Primary Study Area will have 940,679 persons, representing 4.5 percent growth over 2020. The 2045 population in the Secondary Study area will have 4,652,363 persons, representing 5.2 percent growth over 2020. Population growth varies within the Primary Study Areas (see **Table 16**). Brooklyn North is projected to experience the largest growth between 2020 and 2045, with a projected population increase of 18,192 persons, or 11.9 percent. Brooklyn South, Queens Central, and Queens South will all see growth of less than 4 percent between 2020 and 2045.

Table 16: 2020-2045 Population Projections for Bay Ridge Connector Primary and Secondary Study Areas

Location	**2020 Population**	**2045 Population**	**Total Growth in Population between 2020-2045**	**% Growth in Population between 2020-2045**
Brooklyn South	474,329	491,146	+ 16,817	3.55%
Brooklyn North	152,403	170,595	+ 18,192	11.94%
Queens Central	84,093	84,470	+ 377	0.45%
Queens North	188,986	194,468	+ 5,482	2.90%
Primary Study Area Total	**899,811**	**940,679**	**+ 40,868**	**4.54%**
Secondary Study Area Total	**4,421,795**	**4,652,363**	**+ 230,568**	**5.21%**

Source: NYMTC Projections

2.4.3 Employment

2.4.3.1 Estimated 2020 Employment

The current NYMTC estimates of 2020 employment for the Primary Study Area is 261,110, while the estimated employment for the Secondary Study Area is 1,282,224. Within the Primary Study Area, Brooklyn South has the highest 2020 employment at 168,510 jobs (see **Table 17**).

2.4.3.2 Estimated 2045 Employment

The NYMTC employment projection for 2045 estimate that the Primary Study Area will have approximately 272,150 jobs, representing 4.23 percent growth from 2020 (**Table 17**). The Secondary Study Area 2045 employment is estimated at 1,346,577, representing 5 percent growth from 2020. The

[11] The primary study area is a subset of the secondary study area.

highest employment growth within the Primary Study Area is projected to occur within its Brooklyn segments. Brooklyn South is projected to see an increase of 8,427 persons, or 5 percent growth from 2020, and Brooklyn North is estimated to see an increase of 2,113 persons, or 8 percent growth from 2020. Both Queens Central and Queens North are expected to grow by less than 1 percent from 2020 to 2045.

Table 17: 2020-2045 Employment Projections for the Primary and Secondary Study Areas

Location	**2020 Employment**	**2045 Employment**	**Total Growth in Employment between 2020-2045**	**Growth in Employment between 2020-2045**
Brooklyn South	168,510	176,937	+8,427	5.00%
Brooklyn North	26,118	28,231	+ 2,113	8.09%
Queens Central	15,533	15,632	+ 99	0.64%
Queens North	50,949	51,350	+ 401	0.79%
Primary Study Area Total	**261,110**	**272,150**	**+ 11,040**	**4.23%**
Secondary Study Area Total	**1,282,224**	**1,346,577**	**+ 64,353**	**5.02%**

Source: NYMTC Best Practice Model for TAZ-level forecasts

2.4.3.3 Employment Trends

2.4.3.3.1 Workers Residing Within the Study Areas

The 2012-2016 American Community Survey (ACS) Census Transportation Planning Product (CTPP) estimate of workers whose residence is within the Primary study area is 372,120. Of these workers, nearly 250,000 reside in Brooklyn, and nearly 125,000 live in Queens. The 2020 estimate for workers whose residence is within the Secondary study area is 1,627,221 (see **Table 18** for 2020 estimate of workers at residence by Primary study area zone).

Table 18: 2020 Workers at Residences within the Bay Ridge Connector Primary and Secondary Study Areas

Location	**Workers Residing Within the Study Areas**
Brooklyn South	191,760
Brooklyn North	56,193
Queens Central	39,218
Queens North	84,949
Primary Study Area Total	**372,120**
Secondary Study Area Total	**1,627,221**

Source: 2012 – 2016 5-year ACS CTPP Estimates

2.4.3.3.2 Means of Travel for Workers Residing Within the Study Areas

Based on estimates from the 2012-2016 ACS CTPP, close to 60 percent of workers who reside within either the Primary or Secondary Study Areas use public transit, which includes subway, bus, or commuter rail (see **Table 19**). Approximately 29 percent of workers in the Primary and 35 percent in Secondary Study Area use a car to travel to work. Around 9 percent of workers in the Secondary Study Area travel to their places of employment by other modes of transportation, such as walking or biking.

Within the Primary Study Area, approximately 41 percent of residents who reside in Central Queens use a car to get to work, which is a much higher rate of auto usage than residents in the other three zones in the Primary study area. In both Brooklyn North and Queens North, nearly 60 percent of commuters use either subway or ferry to commute to work, higher than those in Brooklyn South or Queens Central.

Table 19: Means of Travel for Workers Residing within the Bay Ridge Connector Primary and Secondary Study Areas

Location	**Auto**	**Bus**	**Subway/Ferry**	**Rail**	**Other**
Brooklyn South	29.9%	12.7%	40.6%	1.0%	15.8%
Brooklyn North	22.6%	9.9%	57.8%	1.6%	8.1%
Queens Central	40.6%	9.8%	40.7%	0.9%	8.0%
Queens North	25.4%	7.2%	57.9%	1.9%	7.6%
Primary Study Area Total	**28.7%**	**10.8%**	**47.2%**	**1.3%**	**12.1%**
Secondary Study Area Total	**34.8%**	**10.8%**	**43.1%**	**2.0%**	**9.2%**

Source: 2012 – 2016 5-year ACS CTPP Estimates

2.4.3.3.3 Jobs Within the Study Area

The 2012-2016 ACS CTPP estimates that there are approximately 151,373 jobs in the Primary study area and 663,342 jobs in the Secondary study area (see **Table 20**).

Table 20: 2020 Workers at Jobs within the Bay Ridge Connector Primary and Secondary Study Area

Location	**Jobs Within the Study Area**
Brooklyn South	97,164
Brooklyn North	16,772
Queens Central	7,419
Queens North	30,018
Primary Study Area Total	**151,373**
Secondary Study Area Total	**663,342**

Source: 2012 – 2016 5-year ACS CTPP Estimates

2.4.3.3.4 Means of Travel for Workers Employed Within the Study Areas

The 2012-2016 ACS CTPP estimates show that workers whose jobs are located within the Primary and Secondary study areas lean heavily towards auto use (see **Table 21**). 48 percent of workers employed in the Primary study area and 53 percent of workers employed in the Secondary study area use a car to get to work. Additionally, those who work in the Primary study area in Brooklyn South or Queens Central are more likely to use an "other" mode of transit than they are to use the subway or ferry, which may indicate a greater number of employees that walk or bike to their jobs.

Table 21: Means of Travel for Workers with Jobs located within the Bay Ridge Connector Primary and Secondary Study Areas

Location	**Auto**	**Bus**	**Subway/Ferry**	**Rail**	**Other**
Brooklyn South	46.8%	11.1%	20.0%	0.8%	21.3%
Brooklyn North	48.3%	11.1%	24.4%	1.3%	14.8%
Queens Central	56.0%	7.9%	16.0%	1.1%	19.0%
Queens North	49.9%	11.1%	21.9%	2.6%	14.5%
Primary Study Area Total	**48.0%**	**11.0%**	**20.7%**	**1.2%**	**19.1%**
Secondary Study Area Total	**52.5%**	**11.6%**	**20.3%**	**1.9%**	**13.6%**

Source: 2012 – 2016 5-year ACS CTPP Estimates

Section 2.5 provides a detailed assessment of the origin and destination patterns of Study Area residents and workers and the modes they use to make this trip, which together form the core of the transportation needs for the corridor and the basis for proposing transportation investments to meet those needs.

2.4.4 Land Use and Zoning Changes in the Primary and Secondary Study Areas

This subsection describes major projects that have recently been implemented, are underway, or are being studied within the Primary and Secondary Study Areas of the BRC Corridor that could have or already had an impact on land use and zoning.

2.4.4.1 Lower Montauk Branch Passenger Rail Study

The Lower Montauk Branch rail corridor runs through the Primary and Secondary study areas between Long Island City, Queens and Jamaica Station, Queens. The Lower Montauk Branch Passenger Rail Study, recommended exploration of high-density and mixed-use developments around proposed stations along the Lower Montauk rail corridor to take advantage of the projected increase in transit mobility and as an opportunity to use tax increment financing (TIF) methods to help fund the required capital investments for these transit improvements.[12] Zoning and land use changes around proposed stations would need to be developed to support transit within these areas. No specific timeframe for implementation of recommendations was given. Similar issues are being considered under the MTA Utica Avenue Transit Improvement Study.

2.4.4.2 Sunnyside Yard Master Plan

The new Sunnyside Yard Master Plan, released by NYCEDC in March 2020, will create an influx of new jobs and homes in the north-western portion of the Secondary study area.[13] The Master Plan includes 12,000 affordable homes, a new regional rail hub to connect Western Queens and the Greater New York City region, 60 new acres of public open space, new schools, libraries, educational institutions, health care facilities, and other publicly accessible neighborhood services.

[12] https://www1.nyc.gov/html/dot/downloads/pdf/lower-montauk-final-report-jan2018.pdf
[13] https://api.sunnysideyard.nyc/files/2020-03/200302_SSY_MPH_Executive%20Summary_0.pdf

2.4.4.3 North Brooklyn Industry and Innovation Plan

The North Brooklyn Industry and Innovation Plan, prepared by the NYC Department of City Planning (NYCDCP), identified goals and recommendations directly related to land use and zoning around the Newtown Creek Industrial Zone, which is located in the Secondary Study Area in Brooklyn.[14] Recommendations relating to land use and zoning in this plan include:

- Implement appropriate limitations on targeted non-industrial uses in the heaviest industrial areas further from residential neighborhoods;
- Increase permitted industrial FAR to at least 2.0 across the subarea to allow for multi-story industrial buildings;
- Eliminate existing FAR preference for community facility uses to avoid encouraging such uses over commercial or industrial uses.

2.4.4.4 Bushwick Neighborhood Plan

The Bushwick Neighborhood Plan[15], also prepared by NYCDCP, seeks to promote a long-term vision for the Bushwick neighborhood, located in the Secondary study area in Brooklyn, that fosters preservation and creation of affordable housing, promotes job growth, identifies neighborhood investments, protects neighborhood character, and channels growth to appropriate locations. The plan seeks to facilitate these goals through strategies directly related to land use and zoning and include:

- Preserving and creating thousands of homes for lower-income New Yorkers;
- Improving and expanding Bushwick's park and open space network;
- Adding pedestrian safety interventions on key corridors, improving the public realm, and enhancing transit access;
- Offering greater protection of historic resources.

2.4.4.5 Broadway Junction

NYCEDC is currently exploring opportunities to redevelop Broadway Junction, located within the Primary Study Area in Brooklyn, occupying approximately 25 acres in East New York, and sitting at the intersection of five subway lines, six bus routes, and the Long Island Rail Road (LIRR). It is also the meeting point of six largely residential neighborhoods: Bedford-Stuyvesant, Brownsville, Bushwick, Cypress Hills, East New York, and Ocean Hill, as well as the East New York Industrial Business Zone to the south, home to over 100 local industrial businesses into a major transit hub and economic center.[16] Goals directly related to land use and zoning changes in the area include:

- Leverage new development to create new and improved transit connections, including alternatives to the existing LIRR underpass and an additional entrance to Broadway Junction Station;
- Pilot creative approaches to community-based ownership models (e.g., community land trusts), where feasible;

[14] https://www1.nyc.gov/site/planning/plans/north-brooklyn-vision-plan/north-brooklyn-vision-plan.page
[15] https://www1.nyc.gov/site/planning/plans/bushwick-neighborhood-plan/bushwick-neighborhood-plan.page
[16] https://edc.nyc/sites/default/files/2019-09/broadwayjunction.pdf

- Create opportunities for co-location and expansion of existing organizations and businesses by providing a range of office and retail spaces in new development, including smaller, more-affordable spaces for local businesses;
- Attract anchor institutions, such as a major educational campus or smaller satellite campuses, to bring new opportunities to generate activity at different times of day.

2.4.4.6 Utica Avenue Transit Improvements Study

As part of the on-going Utica Avenue Transit Improvements Study, the study will look at future land use scenarios that will be used to determine utility and need of the transit options. Utica Avenue corridor traverses both the Primary and Secondary study areas in Brooklyn. There are no current recommendations made from this study, so it is unknown what increases in zoning or land use are envisioned.

2.5 Study Area Travel Pattern and Mode Choice

Section 2.4 explained the division of the relevant areas of the City and surrounding areas into a set of geographic areas referred to as Superzones, with four such zones in Queens, two in Brooklyn and three zones within Manhattan. Of particular interest is Manhattan south of 59th Street, due to its role as the major employment center for the City and the entire region. Other areas are not expected to play a major role in generating trips to and from the Primary Study Area. These peripheral areas are treated in a more generalized and aggregated manner (e.g., "Long Island").

Data on employment location data and journey to work mode choice can be understood in greater detail by analyzing the characteristics of residents who make certain mode choices , and by seeking to understand the extent to which these choices are discretionary by zone. To provide this greater granularity, all the data in this section are presented either at the Superzone Level or at the level of the four sections of the Primary Study Area – Primary Brooklyn North and South, and Primary Queens Central and North -- based on neighborhood characteristics and current transit service in those areas.

2.5.1 Where and How Primary Study Area Residents Commute

Table 22 presents the number of residents within the four areas within the Primary Study Area who commute to work, their primary destination and the modes they use to commute to these destinations. A detailed breakdown is provided for each of the four Primary Study Area sections. The bottom row of the table aggregates totals for the overall Primary Study Area. These same distributions are presented in percentage terms in **Table 23**.

Table 22: Primary Study Area Work Trip Destinations and Travel Mode

JTW: Residents at Primary Area		Brooklyn	Queens	Manhattan CBD	Others	Total
Primary: Brooklyn South	**All Modes**	**69,623**	**6,357**	**32,840**	**14,618**	**123,438**
	Auto	23,533	3,148	3,190	5,241	35,112
	Bus	9,665	649	2,837	1,761	14,912
	Subway	13,173	2,147	25,800	6,550	47,670
	Railroad	209	54	445	493	1,201
	Others	23,043	359	568	573	24,543
Primary: Brooklyn North	**All Modes**	**16,586**	**3,661**	**10,337**	**4,090**	**34,674**
	Auto	4,214	1,418	688	1,172	7,492
	Bus	2,249	437	339	243	3,268
	Subway	6,192	1,637	8,783	2,482	19,094
	Railroad	135	53	266	83	537
	Others	3,796	116	261	110	4,283
Primary: Queens Central	**All Modes**	**2,967**	**8,278**	**5,946**	**3,181**	**20,372**
	Auto	1,491	4,145	676	1,533	7,845
	Bus	241	995	526	139	1,901
	Subway	1,062	859	4,555	1,382	7,858
	Railroad	30	14	81	54	179
	Others	143	2,265	108	73	2,589
Primary: Queens North	**All Modes**	**2,935**	**18,352**	**21,634**	**9,854**	**52,775**
	Auto	1,252	6,557	1,818	3,388	13,015
	Bus	198	1,834	1,252	416	3,700
	Subway	1,331	5,108	17,934	5,282	29,655
	Railroad	24	139	397	396	956
	Others	130	4,714	233	372	5,449
All Primary Area	**All Modes**	**92,111**	**36,648**	**70,757**	**31,743**	**231,259**
	Auto	**30,490**	**15,268**	**6,372**	**11,334**	**63,464**
	Bus	**12,353**	**3,915**	**4,954**	**2,559**	**23,781**
	Subway	**21,758**	**9,751**	**57,072**	**15,696**	**104,277**
	Railroad	**398**	**260**	**1,189**	**1,026**	**2,873**
	Others	**27,112**	**7,454**	**1,170**	**1,128**	**36,864**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes: Bicycle, walk, Motorcycle, and Work at Home

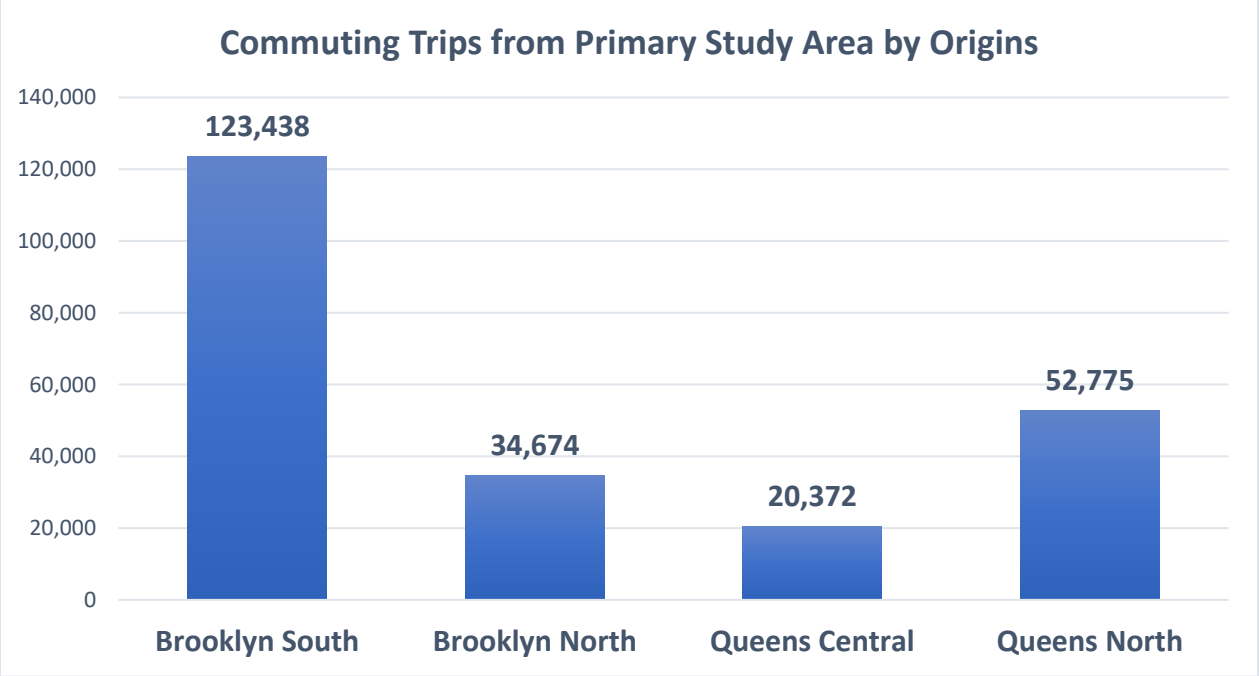
Table 23: Percentage Distribution of Primary Area Work Trips by Destination and Mode

JTW: Residents at Primary Area		Brooklyn	Queens	Manhattan CBD	Others	Total
Primary: Brooklyn South	**All Modes**	**56%**	**5%**	**27%**	**12%**	**100%**
	Auto	34%	50%	10%	36%	28%
	Bus	14%	10%	9%	12%	12%
	Subway	19%	34%	79%	45%	39%
	Railroad	0%	1%	1%	3%	1%
	Others	33%	6%	2%	4%	20%
Primary: Brooklyn North	**All Modes**	**48%**	**11%**	**30%**	**12%**	**100%**
	Auto	25%	39%	7%	29%	22%
	Bus	14%	12%	3%	6%	9%
	Subway	37%	45%	85%	61%	55%
	Railroad	1%	1%	3%	2%	2%
	Others	23%	3%	3%	3%	12%
Primary: Queens Central	**All Modes**	**15%**	**41%**	**29%**	**16%**	**100%**
	Auto	50%	50%	11%	48%	39%
	Bus	8%	12%	9%	4%	9%
	Subway	36%	10%	77%	43%	39%
	Railroad	1%	0%	1%	2%	1%
	Others	5%	27%	2%	2%	13%
Primary: Queens North	**All Modes**	**6%**	**35%**	**41%**	**19%**	**100%**
	Auto	43%	36%	8%	34%	25%
	Bus	7%	10%	6%	4%	7%
	Subway	45%	28%	83%	54%	56%
	Railroad	1%	1%	2%	4%	2%
	Others	4%	26%	1%	4%	10%
All Primary Area	**All Modes**	**40%**	**16%**	**31%**	**14%**	**100%**
	Auto	**33%**	**42%**	**9%**	**36%**	**27%**
	Bus	**13%**	**11%**	**7%**	**8%**	**10%**
	Subway	**24%**	**27%**	**81%**	**49%**	**45%**
	Railroad	**0%**	**1%**	**2%**	**3%**	**1%**
	Others	**29%**	**20%**	**2%**	**4%**	**16%**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes: Bicycle, walk, Motorcycle, and Work at Home

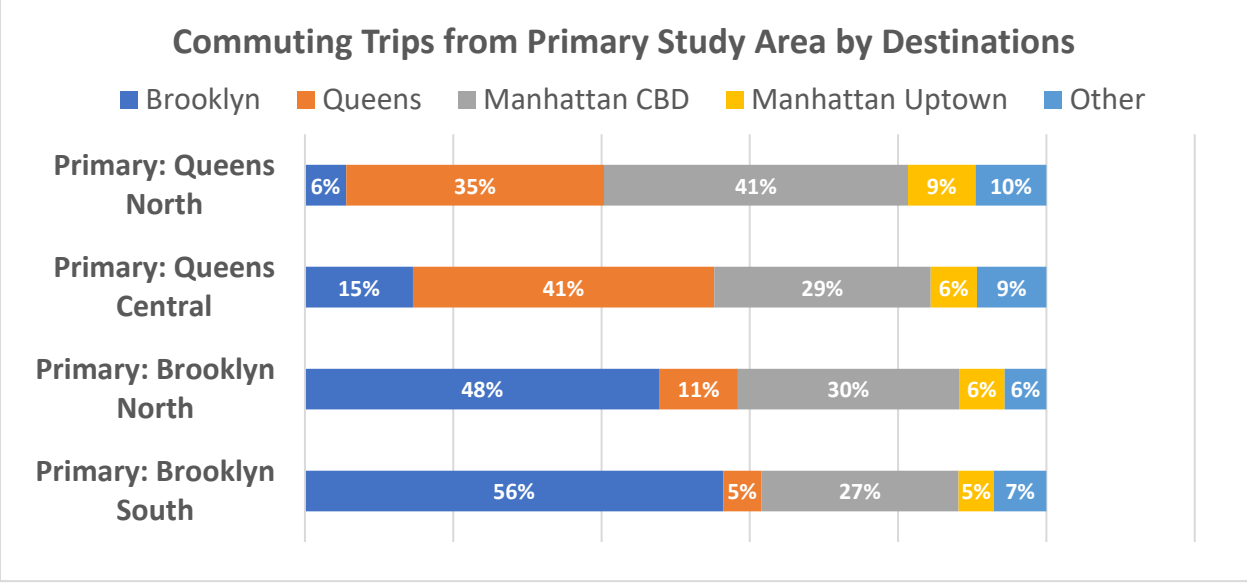
Figure 15 shows the main origins of commuters from the Primary Study Area by segments.

Figure 15: Primary Study Area Residents Traveling to Work



As shown in **Figure 16**, the plurality of trips originating in each zone terminate in the same borough. The lone exception to this rule is Queens North, where 50% of outbound trips are destined for Manhattan, and more than two-fifths for the Manhattan CBD alone. This exception is understandable, given Queens North's proximity to the CBD.

Figure 16: Work Place Destination of Primary Study Area Residents



Overall Primary Study Area – Eighty-six percent of Primary Study Area residents work in Brooklyn, Queens, or the Manhattan CBD, with the remaining work locations divided primarily among Manhattan Uptown (north of 59th Street) and Long Island, with very small portions in Staten Island, the Bronx, or elsewhere.

The exact composition of trips differs significantly by zone, however, reflecting such factors as proximity to major transit service and major highways and nearby employment concentrations:

Brooklyn Portion:

- 55 percent of residents from the Brooklyn portion of the Primary Study Area work in Brooklyn, while only 27 percent work in the Manhattan CBD and only 5 percent in Queens
- While overall transit share is close to 60 percent, fully nine in ten trips bound for Manhattan use transit (mostly subway). Brooklyn-to-Queens trips range from 45-56 percent, with a higher transit share for trips from Brooklyn North.
- Auto use is highest for trips destined for Brooklyn (25-35 percent), higher for destinations in Queens (40-50%) and lowest for trips to Manhattan (7-10 percent)

Queens Portion

- The workplaces of residents from the Queens portion of the Primary Study Area are more evenly split between Queens (35-41 percent for Queens North and Central) and the Manhattan CBD (41-29 percent, with a heavier share in Queens North), while Queens North and Central have only 15 and 6 percent destined for Brooklyn, respectively.
- Queens North has the largest share of work trips headed for Manhattan Uptown (9 percent)
- Both Queens zones send roughly five percent of work trips to Long Island, reflecting the Queens zones' proximity and better connections to those areas.
- While overall transit share from Queens to all destinations combined is close to 60 percent, transit accounts for roughly nine-tenths of Manhattan-bound trips. This rate is significantly higher than the roughly 50% of Brooklyn-bound trips that use transit.
- Overall auto use for Queens trips is 29%, including 40% for intra-borough trips and 46% for trips to or from Brooklyn.

In general, density and redundancy of the transit network between individual Superzones are the best predictors of mode split. **Table 24** summarizes mode split and overall trip percentage by Superzone.

Table 24: JTW Transit and Auto Share by Primary Area Zone

	% Total Trips	% Transit	% Auto
Brooklyn South	53%	52%	28%
Queens North	23%	65%	25%
Brooklyn North	15%	66%	22%
Queens Central	9%	49%	39%
Grand Total	**100%**	**57%**	**27%**

2.5.2 Where and How Primary Study Area Employees Commute From

Table 25 depicts the origin of commuters working within the Primary Area and the mode used to access the Primary Area; **Table 26** describes the distribution of these work trip origins and modal shares

Table 25 Primary Study Area Work Trip Origins and Travel Mode

RJTW: Employees at Primary Area		Brooklyn	Queens	Staten Island	Long Island	Others	Total
Primary: Brooklyn South	**All Modes**	**73,774**	**8,337**	**5,248**	**4,153**	**5,370**	**96,882**
	Auto	27,436	5,659	4,654	3,642	1,290	42,681
	Bus	8,898	405	381	22	455	10,161
	Subway	12,920	1,938	120	94	3,146	18,218
	Railroad	208	37	0	311	183	739
	Others	24,309	298	93	84	299	25,083
Primary: Brooklyn North	**All Modes**	**11,118**	**3,398**	**206**	**1,581**	**1,233**	**17,536**
	Auto	3,412	2,315	187	1,508	319	7,741
	Bus	1,513	238	19	0	4	1,774
	Subway	2,454	636	0	8	815	3,913
	Railroad	63	34	0	60	55	212
	Others	3,676	175	0	5	40	3,896
Primary: Queens Central	**All Modes**	**890**	**5,566**	**85**	**1,023**	**473**	**8,037**
	Auto	420	2,449	70	954	57	3,950
	Bus	8	521	0	0	30	559
	Subway	319	398	15	19	378	1,129
	Railroad	0	58	0	19	4	81
	Others	143	2,140	0	31	4	2,318
Primary: Queens North	**All Modes**	**2,242**	**21,266**	**398**	**3,652**	**2,491**	**30,049**
	Auto	965	8,919	294	3,075	1,003	14,256
	Bus	133	2,727	70	25	214	3,169
	Subway	951	4,077	24	103	1,061	6,216
	Railroad	49	129	0	428	144	750
	Others	144	5,414	10	21	69	5,658
All Primary Area	**All Modes**	**88,024**	**38,567**	**5,937**	**10,409**	**9,567**	**152,504**
	Auto	**32,233**	**19,342**	**5,205**	**9,179**	**2,669**	**68,628**
	Bus	**10,552**	**3,891**	**470**	**47**	**703**	**15,663**
	Subway	**16,644**	**7,049**	**159**	**224**	**5,400**	**29,476**
	Railroad	**320**	**258**	**0**	**818**	**386**	**1,782**
	Others	**28,272**	**8,027**	**103**	**141**	**412**	**36,955**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes: Bicycle, walk, Motorcycle, and Work at Home

Table 26 Percentage Distribution of Primary Area Work Trips by Origins and Mode

RJTW: Employees at Primary Area		Brooklyn	Queens	Staten Island	Long Island	Others	Total
Primary: Brooklyn South	**All Modes**	**76%**	**9%**	**5%**	**4%**	**6%**	**100%**
	Auto	37%	68%	89%	88%	24%	44%
	Bus	12%	5%	7%	1%	8%	10%
	Subway	18%	23%	2%	2%	59%	19%
	Railroad	0%	0%	0%	7%	3%	1%
	Others	33%	4%	2%	2%	6%	26%
Primary: Brooklyn North	**All Modes**	**63%**	**19%**	**1%**	**9%**	**7%**	**100%**
	Auto	31%	68%	91%	95%	26%	44%
	Bus	14%	7%	9%	0%	0%	10%
	Subway	22%	19%	0%	1%	66%	22%
	Railroad	1%	1%	0%	4%	4%	1%
	Others	33%	5%	0%	0%	3%	22%
Primary: Queens Central	**All Modes**	**11%**	**69%**	**1%**	**13%**	**6%**	**100%**
	Auto	47%	44%	82%	93%	12%	49%
	Bus	1%	9%	0%	0%	6%	7%
	Subway	36%	7%	18%	2%	80%	14%
	Railroad	0%	1%	0%	2%	1%	1%
	Others	16%	38%	0%	3%	1%	29%
Primary: Queens North	**All Modes**	**7%**	**71%**	**1%**	**12%**	**8%**	**100%**
	Auto	43%	42%	74%	84%	40%	47%
	Bus	6%	13%	18%	1%	9%	11%
	Subway	42%	19%	6%	3%	43%	21%
	Railroad	2%	1%	0%	12%	6%	2%
	Others	6%	25%	3%	1%	3%	19%
All Primary Area	**All Modes**	**58%**	**25%**	**4%**	**7%**	**6%**	**100%**
	Auto	**37%**	**50%**	**88%**	**88%**	**28%**	**45%**
	Bus	**12%**	**10%**	**8%**	**0%**	**7%**	**10%**
	Subway	**19%**	**18%**	**3%**	**2%**	**56%**	**19%**
	Railroad	**0%**	**1%**	**0%**	**8%**	**4%**	**1%**
	Others	**32%**	**21%**	**2%**	**1%**	**4%**	**24%**

Source: CTPP data 2012 - 2016; ACS 2016 dataset. Mode "Other" includes: Bicycle, walk, Motorcycle, and Work at Home

Figure 17 shows that Brooklyn South is by far the largest employment destination of the four super zones in the Primary Study Area, attracting close to two-thirds (64 percent) of those destined for work along the Corridor. Queens North attracts the second-highest volume of work trips, at just 20 percent.

Figure 17: Destination for Workers Traveling to Work in the Primary Study Area

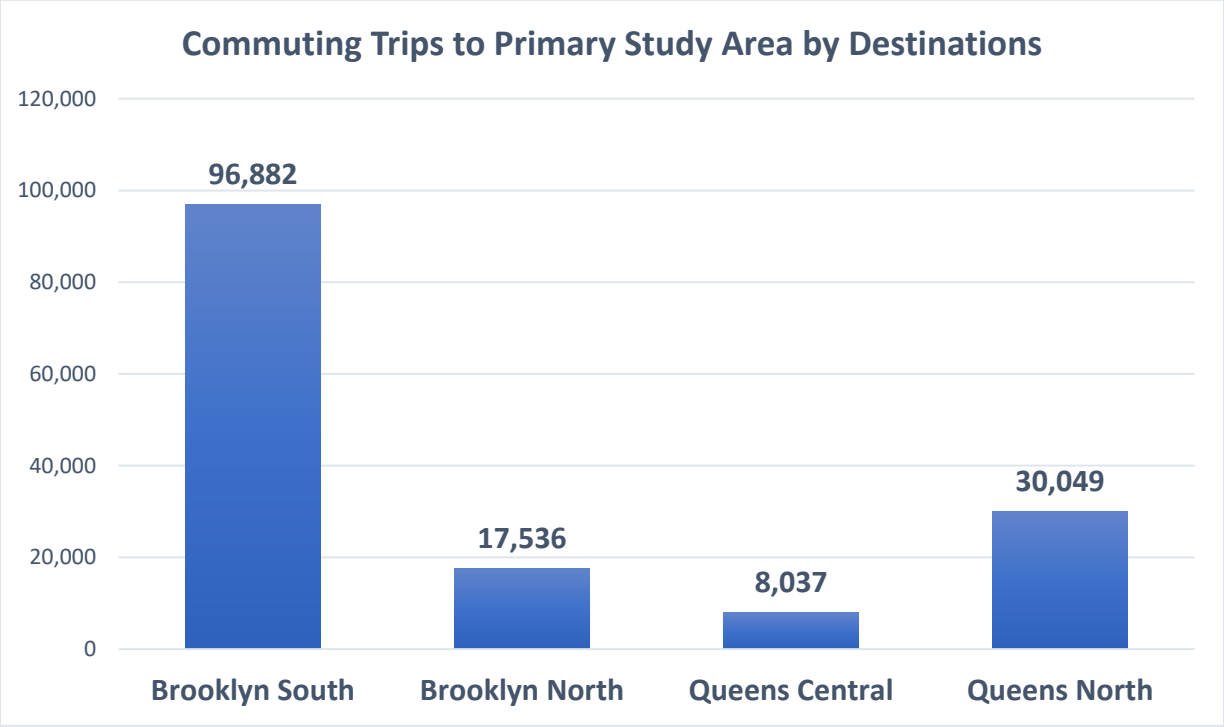
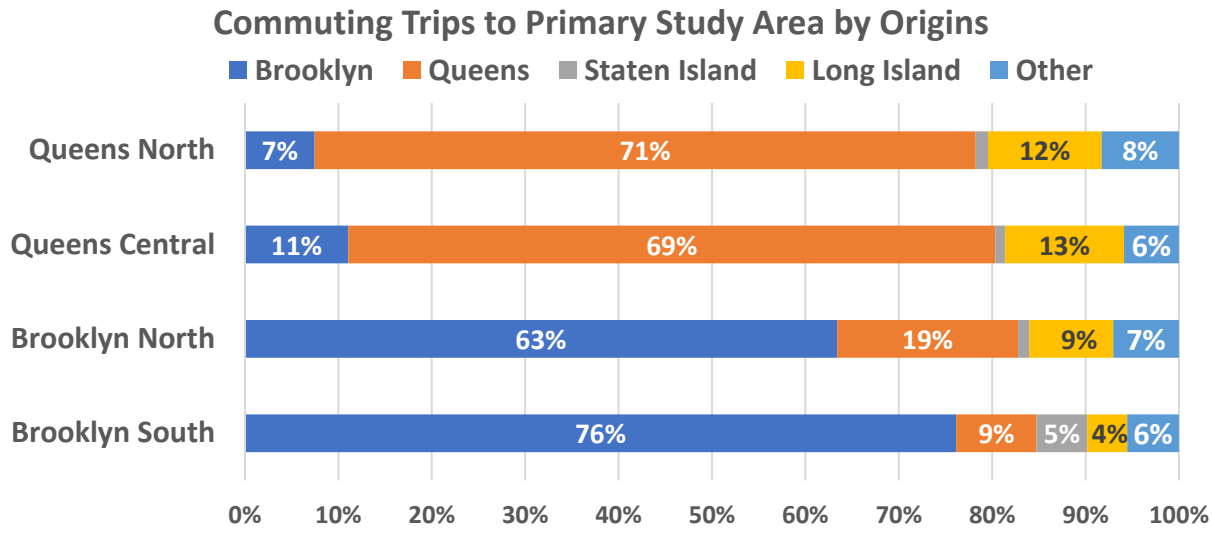


Figure 18: Origin of Workers in the Primary Study Area



Overall Primary Study Area:

- 83 percent of Primary Study Area employees come from Brooklyn (58%) and Queens (23%))
- 11 percent of workers come from Staten Island (four percent) and Long Island (11%)

However, as shown in **Figure 18**, the patterns of each portion of the Primary Study Area vary considerably, based primarily on proximity to large population and workforce areas, the convenience of nearby major transit service or highway links, and the combination of both large population and employment concentrations within the same section of the borough.

Brooklyn Portion:

- 74% of workers in the two Brooklyn zones in the Primary Study Area also live in Brooklyn. Only 10% live in Queens; five percent come from both Staten Island and Long Island.
- Auto share (44%) exceeds transit share (31%) for trips bound to Brooklyn.
- Auto use is highest for trips from Queens (68%) and comprises 90% of trips bound for the Primary Study Area from Staten Island and Long Island.

Queens Portion

- 70% of workers in the two Queens zones also live in Queens; only eight percent reside in Brooklyn, while a slightly larger share (12%) commutes from Long Island. The Queens North and Central zones have very similar patterns.
- The overall transit share for trips to the two Queens zones is also a relatively low 31 percent, with Queens Central's 22 percent transit share the lowest of any of the four Primary Study Area zones. This low rate is a function of limited transit access.
- Overall auto use for Queens trips is 29%, and understandably highest for trips from Staten Island (76 percent) and Long Island (86 percent)

Again, transit network availability and redundancy are the main drivers of mode split. As shown in **Table 27**, the transit share across all zones, including the largest destination zone – Brooklyn South – is between 30-34% (Queens Central, representing only 5 percent of total trips, has only a 22 percent transit share). Auto share in each zone is between 45% and 49%.

Table 27: Transit and Auto Share – Work Trips to Primary Study Area Zones

	% Total Trips	% Transit	% Auto
Brooklyn South	64%	30%	44%
Queens North	11%	34%	44%
Brooklyn North	5%	22%	49%
Queens Central	20%	34%	47%
	100%	31%	45%

2.5.3 Future No Build Conditions: Potential Growth in Trips within the Study Area

Section 2.4 reviewed the likely growth in population and employment within the Study Area, and especially within the Primary Study area. Growth in population and the associated growth in labor force will lead to an increase in journey to work trips, while growth in job opportunities within the area will increase work trips into the Study Area. **Table 28** shows the projected growth in population in the Primary Study Area over the 2020-2045 period while **Table 29** presents the projected growth in employment.

Population and employment projections for the entire boroughs of Brooklyn and Queens are provided for comparison purposes. In terms of maintaining and enhancing sustainable communities, improvements may be needed to promote growth in areas that currently experience high auto use and roadway congestion and relatively low transit use and services. Projections in all four Primary Study Area zones, both in population and employment, generally will have their largest growth in the 2020-2025 period, with gradually more modest growth in the subsequent 5-year periods. This section focuses on the entire 25-year planning horizon.

The two Brooklyn zones are projected to have the largest population and employment growth both in absolute and percentage terms. The Queens zones will experience relatively modest population growth and flat job growth over the next 25 years. The main takeaways from these projections is that efforts are needed to increase transit use in the Brooklyn South zone while reducing auto use to Queens and Long Island. Brooklyn North has a modest share of total work trips and a substantial amount of existing transit service that could potentially be more heavily utilized if improved connections to underserved areas along the Bay Ridge Branch were provided.

Overall, the Primary Study Area will have roughly 46,000 new residents and 14,000 additional jobs by 2045 and will need improved transit services and service connections to ensure that a growing share of these work trips will be transit trips.

Table 28: Projected Growth in Population in the Primary Study Area: 2020-2045

	2020	2025	2030	2035	2040	2045	2045 – 2020 Change
Primary: Brooklyn *South*	474,300	478,700	482,400	485,800	488,900	491,100	
5-Yr. Change		4,400	3,600	3,400	3,100	2,200	**16,700**
% Change		0.9%	0.8%	0.7%	0.6%	0.5%	**3.5%**
Primary: Brooklyn *North*	152,400	157,100	161,100	164,800	168,100	170,600	
5-Yr. Change		4,700	3,900	3,700	3,400	2,400	**18,100**
% Change		3.1%	2.5%	2.3%	2.0%	1.5%	**11.9%**
Primary: Queens *Central*	84,100	84,200	84,300	84,300	84,400	84,500	
5-Yr. Change		100	100	100	100	100	**500**
% Change		0.1%	0.1%	0.1%	0.1%	0.1%	**0.6%**
Primary: Queens North	189,000	190,400	191,600	192,700	193,800	194,500	
5-Yr. Change		1,400	1,200	1,200	1,000	700	**5,500**
% Change		0.7%	0.6%	0.6%	0.5%	0.4%	**2.9%**
ALL Primary Study Area	899,800	919,600	927,000	934,800	941,800	945,400	
5-Yr. Change		19,800	7,400	7,800	7,000	3,600	**45,600**
% Change		2.2%	0.8%	0.9%	0.8%	0.4%	**5.1%**
Brooklyn	2,648,500	2,706,300	2,754,000	2,799,400	2,840,500	2,870,300	
5-Yr. Change		57,800	47,700	45,400	41,100	29,800	**221,800**
% Change		2.2%	1.8%	1.7%	1.6%	1.1%	**8.4%**
Queens	2,330,300	2,353,400	2,373,500	2,394,400	2,412,300	2,425,600	
5-Yr. Change		23,100	20,100	20,900	17,900	13,300	**95,300**
% Change		1.0%	0.9%	0.9%	0.8%	0.6%	**4.1%**

Table 29 Projected Growth in Employment in the Primary Study Area: 2020 – 2045

	2020	2025	2030	2035	2040	2045	2045 – 2020 Change
Primary: Brooklyn South	168,500	170,000	171,300	172,900	174,900	176,900	
5-Yr. Change		1,500	1,300	1,600	2,000	2,000	**8,400**
% Change		0.9%	0.8%	0.9%	1.2%	1.1%	**5.0%**
Primary: Brooklyn North	26,100	26,500	26,800	27,200	27,700	28,200	
5-Yr. Change		400	300	400	500	500	**2,100**
% Change		1.5%	1.1%	1.5%	1.8%	1.8%	**8.0%**
Primary: Queens Central	15,500	15,500	15,600	15,600	15,600	15,600	
5-Yr. Change		0	100	0	0	0	**100**
% Change		0.0%	0.6%	0.0%	0.0%	0.0%	**0.6%**
Primary: Queens North	50,900	51,000	51,100	51,100	51,300	51,400	
5-Yr. Change		100	100	0	200	100	**500**
% Change		0.2%	0.2%	0.0%	0.4%	0.2%	**1.0%**
ALL Primary Study Area	261,000	264,900	266,500	268,800	272,000	274,600	
5-Yr. Change		3,900	1,600	2,300	3,200	2,600	**13,600**
% Change		0.4%	0.2%	0.3%	0.4%	0.3%	**5.2%**
Brooklyn	882,900	895,600	906,800	921,300	939,000	956,400	
5-Yr. Change		12,700	11,200	14,500	17,700	17,400	**73,500**
% Change		0.5%	0.4%	0.5%	0.7%	0.7%	**8.3%**
Queens	737,800	741,700	745,800	751,500	760,700	766,000	
5-Yr. Change		3,900	4,100	5,700	9,200	5,300	**28,200**
% Change		0.2%	0.2%	0.2%	0.4%	0.2%	**3.8%**

2.6 Transportation Needs

2.6.1 Socioeconomic Growth

As described in Sections 2.2 through 2.4, Brooklyn and Queens are projected to have 5.2 million residents by 2045 and be home to 1.6 million jobs. The Primary Study Area will have 900,000 residents and will host 260,000 jobs. This anticipated growth will require substantial improvements if the transit network is to handle this increased demand**.**

Need 1: Support socioeconomic growth patterns in the primary and secondary study areas *. Substantial past growth and projected future employment and residential growth within the Primary and Secondary Study Areas will require transit improvements to effectively handle an increased share of the trips generated by this growth.*

2.6.2 Transit Improvements

Several locations in the Study Area are located outside of the walkshed of subway stops that provide the most efficient connections to employment and other opportunities. Ridership has been relatively flat or slightly declining over the last 3-4 years on many of the bus and subway lines serving the area. Many radial lines oriented toward service to Manhattan cross through the Primary Study Area, with local and SPB/Limited bus services providing connections to those lines as well as links to employment and commercial hubs.

Transit usage by Primary Study Area residents is very high for trips to the Manhattan CBD but lower for trips to outer-borough job sites. Job and residential growth in Queens and Brooklyn will yield to a higher raw number of work trips not destined for Manhattan by 2045. Transit utilization for jobs located in the Primary Study Area is already considerably lower than the transit mode split for all work trips by Study Area residents.

Transit handles less than one-third of these work trips while autos handle close to one-half. In contrast, transit handles 56 percent of work trips by Primary Study Area residents, while automobiles are responsible for 23 percent. Better transit connections are needed to existing and projected employment concentrations within and near the Primary Study Area – one of the goals of the Broadway Junction initiative to create opportunities for sustainable, transit-oriented employment and residential growth. While many Primary Study Area residents and workers and within walking distance of a single subway station, transfer opportunities to other lines are limited. Service along the Bay Ridge – Fremont Secondary corridor could provide these connections for many travelers.

Need 2: Better connections to and between subway services **to optimize travel paths.** *Portions of the Primary Study Area are outside of the walkshed of subway stations and require transit improvements that can make effective connections to subway and other transit lines along the corridor.*

Need 3: Better transit connection to study area worksites. *Trips to Primary Study Area worksites have a much lower transit share and much higher auto share than the comparable rates for all work trips from the area, indicating a need for better connections to current and projected job locations.*

2.6.3 Utilization of Existing Transportation Corridor

The Bay Ridge Branch and Freemont Secondary provides a unique opportunity for potential development of new transit in conjunction with freight operations in an existing dedicated ROW located

in a densely built urban environment. Developing new transit operations in a dedicated right of way within these conditions typically is a very high-cost, long-range proposition; the possibility to make such investments in a comparatively cost-effective and efficient way would be a positive for mobility and sustainable growth in this area.

Need 4: Take advantage of opportunities to develop lower-cost transit/freight operations that have the benefit of dedicated operating space but at a lower cost and with a shorter time frame.

Need 5: Coordinate operations of freight and passenger services within the corridor.

2.6.4 Highways and Arterials

The Primary Study Area is crossed by numerous high-volume highways (BQE, LIE), arterials (Atlantic Avenue, Queens Boulevard) and heavily utilized local streets and arterials that are often highly congested in peak travel periods. Their limited capacity has been challenged by the increased demands placed on them by the substantial growth in Brooklyn and Queens since the 1990s. While this study will not focus on highway and roadway improvements, their crowded condition and the understanding that they should not be expanded further to meet future demands put pressure on the transit network to handle a growing share of future trips**.** Improved usage of roadway capacity to provide greater transit opportunities, from the Gowanus Expressway HOV Lane to SBS bus route improvements and well-enforced bus lanes, are examples of ways to increase the person-moving capacity of these roadways.

Need 6: Reducing congestion on major Study Area roadways by increasing the transit share in travel markets to and from the Study Area : *Need better transit access and mobility to increase transit modes' share of trip-making on congested roadways to support sustainable growth.*

2.7 Purpose and Need Statement

2.7.1 Overview: Transportation Needs and Study Alternatives.

Section 2.5 identified a set of transportation and related socioeconomic growth needs of the Primary Study area and surrounding areas of the Secondary Study Area. The purpose of this study is to identify and assess potential transit improvements along the BRC Bay Ridge Corridor to meet those needs. The following five needs were identified:

- Need 1: Support socioeconomic growth patterns in the primary and secondary study areas
- Need 2: Better connections to and between subway services to optimize travel paths
- Need 3: Better transit connection to study area worksites
- Need 4: Cost-effective transit/freight systems within dedicated right of way
- Need 5: Coordinate of passenger and freight services
- Need 6: Reduce roadway congestion by increasing transit share in travel markets

These needs were based on the review of overall socioeconomic conditions with the Primary Study Area and adjacent portions of Brooklyn and Queens and the transportation networks that intersect them. The following goals and objectives have been developed to specify the overall goals of the transit improvement alternative to meet those needs, and the objectives that define how well the study's alternatives would meet those objectives and the underlying transportation needs they represent.

2.7.2 Goals and Objectives

The following goals and objectives have been developed to evaluate the effectiveness of alternative service improvements in addressing the transportation needs of the Study Area.

- **Goal 1:** Improve transit service for Primary Study Area residents and workers for trips throughout Brooklyn and Queens

  Objectives:

  - Improve transit access (frequency, reliability, trip times) for Primary Study Area residents to employment and commercial centers
  - Improve transit connections to subway and other major transit networks for Primary and Secondary Study Area residents, providing better connections to areas of anticipated job and population growth in Brooklyn and Queens and support for reverse commute travel to Long Island
  - Provide service for non-work trips, especially in the off-peak periods and reverse-peak directions, to serve shopping and other personal trips and trips to and from large employers (especially medical and educational institutions) with high visitor volumes and work shifts outside of traditional peak commuting periods.
  - Relieve congestion on Manhattan-bound subway lines

- **Goal 2:** Improve transit access to employment centers within and adjacent to the Primary Study Area to increase the relatively low transit share of work trips to the area.

  Objectives:

  - Improve transit access (frequency, reliability, trip times) to Primary Study Area employment centers from major workforce areas
  - Provide services or service connections to enhance work trips access by transit from workforce areas presently dominated by auto use.
  - Improve transit network connections that can allow better service to currently underserved areas.

- **Goal 3:** Maximize the use of the rail corridor itself to avoid the use of adjacent same-grade or above-grade roadways or other public or private spaces to the maximum extent possible.

  Objectives:

  - Maximize the percentage of proposed transit alignment within the existing rail corridor ROW (minimize property impacts)
  - Propose street-level stations that maximize connections to other transit modes and provide convenient bike/pedestrian access
  - Provide system and service patterns that enable necessary freight operations and supporting infrastructure investment to occur in the corridor

- **Goal 4:** Provide cost-effective transit service improvements

  Objective:

  - Capital investment and operating costs of alternatives that yield measurable traveler benefits and are within a cost-effective range

- **Goal 5:** Support programmed economic development opportunities along the corridor by promoting transit-oriented development and opportunities for public-private investment, while reflecting existing community character and land use pattern.

  Objectives:

  - Locate stations in areas that support existing or planned development plans and underlying land use plans
  - Support public sector initiatives that would allow for potential joint development that would attract economic growth to the station area and create the potential for shared public-private investments.

Appendix 1.3 Prototypical Station Layouts

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

Contents

1 Overview

Prototypical station designs were developed for the three modal alternatives selected to be carried forward by the Interborough Express (IBX) Feasibility Study and Alternatives Analysis: Conventional Rail (CR), Light Rail Transit (LRT), and Bus Rapid Transit (BRT). These station layouts, including pedestrian vertical and horizontal access, were developed to aid in evaluating property impacts based on the following configurations for each of the alternatives:

CR:

- Center Platform
  - Below Street (Cut)
  - Embankment

LRT:

- Side Platform
  - Below Street (Cut)
  - At-Grade
  - Embankment
  - Underground Tunnel

BRT:

- Below Street (Cut)
- At-Grade
- Embankment
- Underground Tunnel

Conceptual plans and sections at approximately 1:30 scale were developed for each configuration showing station siting, pedestrian access points, typical platform lengths and sizes, and street/highway access points for passenger vehicles and/or buses as applicable for each alternative.

2 Codes, Standards, and Guidelines

2.1 Authority Having Jurisdiction for Code Enforcement

The Metropolitan Transportation Authority (MTA) proposed IBX, a rapid transit corridor along a 14-mile portion of the currently freight-only Bay Ridge Branch/Fremont Secondary rail corridor. MTA Construction & Development (MTA C&D) is designated as a construction permitting agency by the New York Secretary of State per 19 New York Codes, Rules and Regulations (NYCRR) 1204.16. This authority provides for code compliance oversight as required by 19 NYCRR 1204. MTA C&D's Fire, ADA, and Code Compliance Office ("FACC Office") will review during the design and construction phases for conformance to the NYS Uniform Fire Prevention and Building Code and State Energy Conservation Construction. The FACC Office issues instruments of conformance, including legal construction-related permits and certificates of

compliance, per 19 NYCRR Part 1204. The MTA C&D FACC Office will serve as the Authority Having Jurisdiction for this project.

2.2 Applicable Standards

To the extent applicable, work on this project will comply with all latest adopted codes, industry standards and regulations including, but not limited to, the following:

- The New York State Uniform Fire Prevention and Building Code ("Uniform Code"), comprised of the 2018 International Building Code (IBC), the 2020 Uniform Code Supplement and the following publications (collectively, the 2020 New York State Code Books):
    - 2020 Building Code of New York State
    - 2020 Plumbing Code of New York State
    - 2020 Mechanical Code of New York State
    - 2020 Fuel Gas Code of New York State
    - 2020 Fire Code of New York State
    - 2020 Property Maintenance Code of New York State
    - 2020 Existing Building Code of New York State
    - 2021 Uniform Code Provisions for Rail Stations (UCPRS)
    - The State Energy Conservation Construction Code ("Energy Code"), which incorporates by reference the following publications:
        - 2020 Energy Conservation Construction Code of New York State (ECCCNYS)
- The Americans with Disabilities Act Accessibility Guidelines (ADAAG)
- American National Standards Institute (ANSI):
    - ANSI 117.1: Standard for Accessible and Usable Buildings and Facilities
- National Fire Protection Association (NFPA):
    - NFPA 70: National Electrical Code (NEC)
    - NFPA 72: National Fire Alarm and Signaling Code
    - NFPA 101: Life Safety Code
    - NFPA 130: Standard for Fixed Guideway Transit and Passenger Rail Systems, 2020 Edition, and its Referenced Standards
- American Society of Testing and Materials (ASTM)
- City of New York:

  - Administrative Code Chapter 2: New York City Fire Code (NYC FC)
  - Zoning Resolution
- Occupational Safety and Health Administration (OSHA):
  - OSHA Standards
- American Society of Civil Engineers (ASCE):
  - ASCE 7: Minimum Design Loads for Buildings and Other Structures
- New York City Department of Transportation (NYC DOT):
  - NYC DOT Standard Highway Specifications
- American Society of Mechanical Engineers (ASME):
  - ASME A17.1: Safety Code for Elevators and Escalators
- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE):
  - ASHRAE Handbook: Fundamentals
  - ASHRAE Handbook: HVAC Systems and Equipment
  - ASHRAE Handbook: HVAC Applications
  - ASHRAE Handbook: Refrigeration
  - ASHRAE Standard 55: Thermal Environmental Conditions for Human Occupancy
  - ASHRAE Standard 62.1: Ventilation for Acceptable Indoor Air Quality
  - ASHRAE Standard 90.1: Energy Standard for Buildings Except Low-Rise Residential Buildings
  - ASHRAE Standard 90.1-2016, as amended by 19 NYCRR Part 1240
- Consolidated Edison Company of New York, Inc. (Con Edison):
  - Con Edison service requirements
- Institute of Electrical and Electronics Engineers (IEEE):
  - National Electrical Safety Code (NESC)
- National Electrical Contractors Association (NECA):
  - NECA 1, Standard for Good Workmanship in Electrical Construction
- New York State Department of Environmental Conservation (DEC):
  - Title 6 of the NYCRR
- United States Code of Federal Regulations (CFR):
  - Title 40: Protection of Environment

- Federal Emergency Management Agency (FEMA):
    - Installing Seismic Restraints for Electrical Equipment (FEMA 413)
    - Installing Seismic Restraints for Duct and Pipe (FEMA 414)
- American Railway Engineering and Maintenance-of-Way Association (AREMA):
    - Manual for Railway Engineering

3 Station Prototypes

This section describes initial station prototypes that were developed for each alternative. Concept drawings of the station prototypes are presented in **Appendix A**.

3.1 Conventional Rail

3.1.1 Embankment

The CR Embankment station prototype consists of a 24-feet wide center island platform up to 510 feet in length. The CR alignment is located adjacent to existing freight tracks and the end of the platform is aligned with the far side of a street underpass below. Vertical circulation from street to platform level is located on either side of the street adjacent to the sidewalk. The platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An area of safe dispersal is provided at the platform end opposite the station entrance to provide a secondary means of egress from the platform. An alternate secondary egress point to an underpass has been included in the station prototype for use if an area of safe dispersal is not feasible or additional connectivity is desired. The alternate secondary egress point would include an additional stair and elevator to an underpass.

3.1.2 Below Street (Cut)

The CR Below Street (Cut) station prototype consists of a 24-feet wide center island platform up to 510 feet in length. The CR alignment is located adjacent to existing freight tracks and the end of the platform is aligned with the street overpass above. The platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An area of safe dispersal is provided at the platform end opposite the station entrance to provide a secondary means of egress from the platform. An alternate secondary egress point to an overpass has been included in the station prototype for use if an area of safe dispersal is not feasible or additional connectivity is desired. The alternate secondary egress point would include an additional stair and elevator to an overpass.

3.2 Light Rail Transit (LRT)

3.2.1 Embankment

The LRT Embankment station prototype consists of 12 feet wide low-level side platforms 270 feet in length. The LRT alignment is located directly adjacent to the existing freight tracks on the embankment with a crash wall separating the different modes. The station arrangement aligns the ends of the platforms with a street underpass. Vertical circulation from street to platform level is located at the end of the platforms directly off the adjacent sidewalk at street level. Each platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance to provide a means of egress from the platform.

3.2.2 At-Grade

The LRT At-Grade station prototype consists of 12 feet wide low-level side platforms 270 feet in length. The LRT alignment at this station protype is located on an elevated guideway directly above the existing freight tracks located within the cut which separates the different modes. The station arrangement aligns the ends of the platforms with a street intersection. Access to the platforms from the sidewalk are provided by accessible ramps. Each platform has a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance at the street intersection to provide a means of egress from the platform. A farside at-grade LRT station concept was also developed with the same station components noted above.

3.2.3 Below Street (Cut)

The LRT Below Street (Cut) station prototype consists of 12 feet wide low-level side platforms 270-feet in length. The LRT alignment is located adjacent to the existing freight tracks in the cut with a crash wall separating the different modes. The station arrangement aligns the ends of the platforms with a street overpass. Vertical circulation from street to platform level is located at the end of the platforms directly off the adjacent sidewalk at street level. Each platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance to provide a means of egress from the platform.

3.2.4 Tunnel

The LRT Tunnel station prototype consists of 12-feet wide low level side platforms 270-feet in length. The LRT alignment is located in a dedicated tunnel below grade with the platforms accessed via an intermediate concourse level which connects the station to street level. Vertical circulation from concourse to platform level is located at the back side of the platforms. Each platform includes one elevator and two stairs that are positioned towards the end of each platform to eliminate dead-end corridor conditions.

No LRT Tunnel stations are currently being proposed based on the results of the PEL Study.

3.3 Bus Rapid Transit (BRT)

3.3.1 Embankment

The BRT Embankment station prototype consists of 12 feet wide low-level side platforms up to 260 feet in length. The BRT alignment is located directly adjacent to the existing freight tracks on the embankment with a crash wall separating the different modes. The station arrangement aligns the ends of the platforms with a street underpass. Vertical circulation from street to platform level is located at the end of the platforms directly off the adjacent sidewalk at street level. Each platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance to provide a means of egress from the platform.

3.3.2 At-Grade

The BRT At-Grade station prototype consists of 12-feet wide low level side platforms up to 260-feet in length. The BRT alignment at this station protype is located on an elevated guideway directly above the existing freight tracks located within the cut which separates the different modes. The station arrangement aligns the ends of the platforms with a street intersection. Access to the platforms from the sidewalk are provided by accessible ramps. Each platform

includes a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance at the street intersection to provide a means of egress from the platform.

Additionally, an alternate farside station arrangement for the BRT At-Grade station prototype was developed. The same components developed for the typical At-Grade station prototype apply to the farside prototype.

3.3.3 Below Street (Cut)

The BRT Below Street (Cut) station prototype consists of 12 feet wide low level side platforms up to 260 feet in length. The BRT alignment is located adjacent to the existing freight tracks in the cut with a crash wall separating the different modes. The station arrangement aligns the ends of the platforms with a street overpass. Vertical circulation from street to platform level is located at the end of the platforms directly off the adjacent sidewalk at street level. Each platform includes one elevator, one stair, and a canopy approximately two-thirds the length of the platform. An accessible ramp is provided at the platform end opposite the station entrance to provide a means of egress from the platform.

3.3.4 Tunnel

The BRT Tunnel station prototype consists of 12-feet wide low level side platforms 260-feet in length. The BRT alignment is located in a dedicated tunnel below grade with the platforms accessed via an intermediate concourse level which connects the station to street level. Vertical circulation from concourse to platform level is located at the back side of the platforms. Each platform includes one elevator and two stairs that are positioned towards the end of each platform to eliminate dead-end corridor conditions.

No BRT Tunnel stations are currently being proposed based on the results of the PEL studies.

4 Level-of-Service Assessment

4.1 Basis of Assessment

A level-of-service (LOS) assessment was conducted to confirm that the prototypical platform layouts, and especially the stairways bringing passengers to and from the platform would have sufficient capacity to reasonably accommodate the anticipated levels of passenger traffic for potential station locations. In this context, LOS is based on ranges of volume-to-capacity (V/C) ratios with LOS “A” being the best rating (“free flow”) and LOS “F” being the worst (“severely congested, queuing”). A full table of LOS definitions is included in **Table 1** of **Appendix B**, and capacity inputs are presented in **Table 2**.

Ridership data were taken from IBX model runs in 2022, reflecting a total of 19 stations. The V/C analysis is based on a worst-case look at the adequacy of the platform stairways at each station. Key factors of this analysis are identified as follows:

- The analyses were performed consistent with New York’s City Environmental Quality Review (CEQR) guidelines for analyzing station elements and is consistent with MTA procedures.
- The number and size of platform stairways are based on initial station concepts, with conservative assumptions regarding the number and width of stairways.

- Some stations may have mezzanines with other stairways leading up to the street. The analyses focused solely on platform stairways, as the stairways between upper levels will have less concentrated and surged volumes than on platform stairs.

4.2 Results of Assessment

The V/C ratios of virtually all stairways are all in the LOS “A” range, with a few at LOS “B”. The full results of the analysis are included in **Table 3** of **Appendix B**.

4.3 Reduced Stairway Assessment

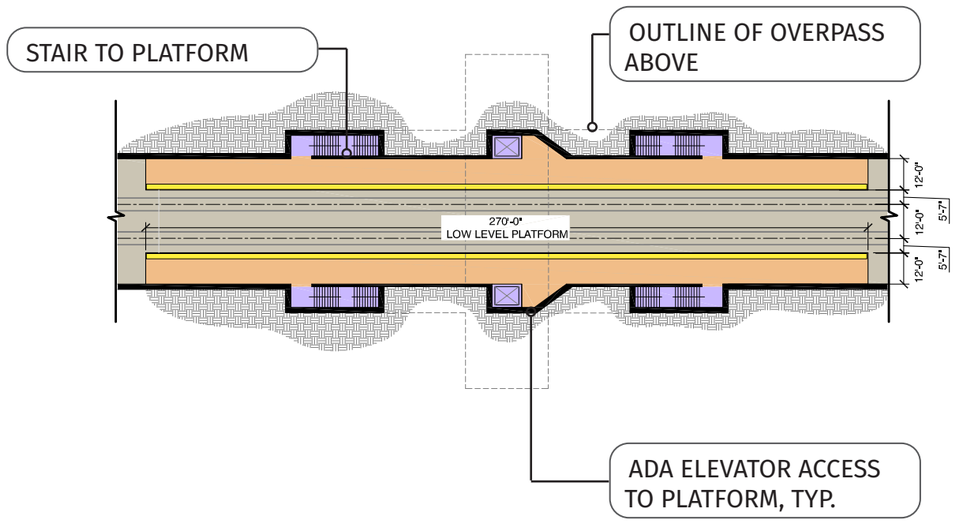
As an exercise to test the LOS assessment under constrained conditions, a “Reduced Stairway Assessment” was conducted. This scenario assumed that the number of active stairs would be half the currently proposed number at each concept station with platform stairways. The stairway counts in this reduced scenario are presented in **Table 4** of **Appendix B**.

The results demonstrated that under this very conservative scenario the stairway V/C ratios at the proposed stations would still fall within the LOS “A” to “C” range for peak 15-minute conditions, except at one location—the terminal station at Roosevelt Avenue for LRT and CR—where it would fall into the “D” range. However, this would be a below-grade station with an 18-foot-wide center platform and nothing to interfere with stairways connecting up to the street. Two stairways – one up to each side of Roosevelt Avenue, would be possible and operate at LOS “B.” Therefore, the full results of the analysis included in **Table 5** of **Appendix B** show that the planned stairway concepts would have adequate capacity to handle projected peak-period passenger loads.

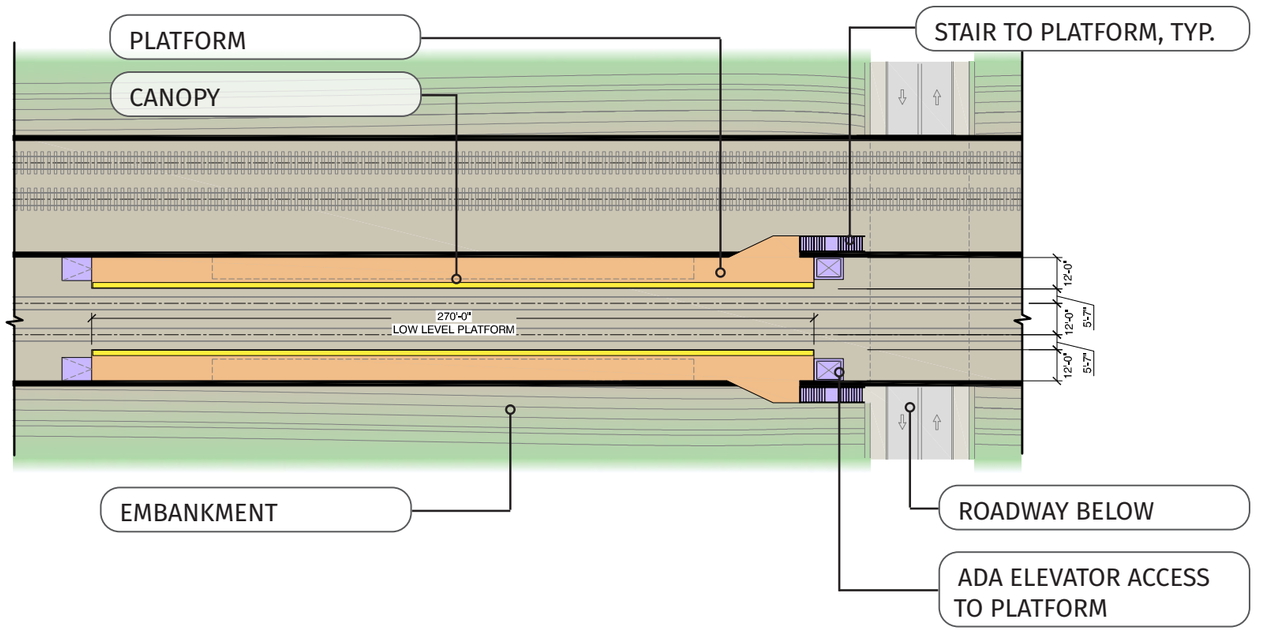
5 Conclusions

The prototypical station designs outlined in this technical memorandum were developed to a level of detail sufficient to identify potential property impacts and illustrate general station arrangements. During the next design phase these prototypical station configurations will be test-fit to the unique conditions of each proposed station location to assess site specific modifications.

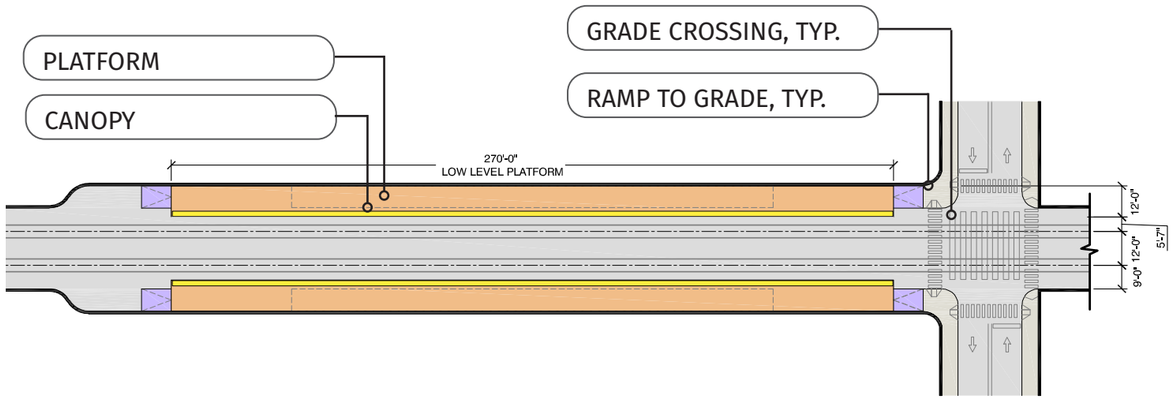
Appendix A: Station Prototypes



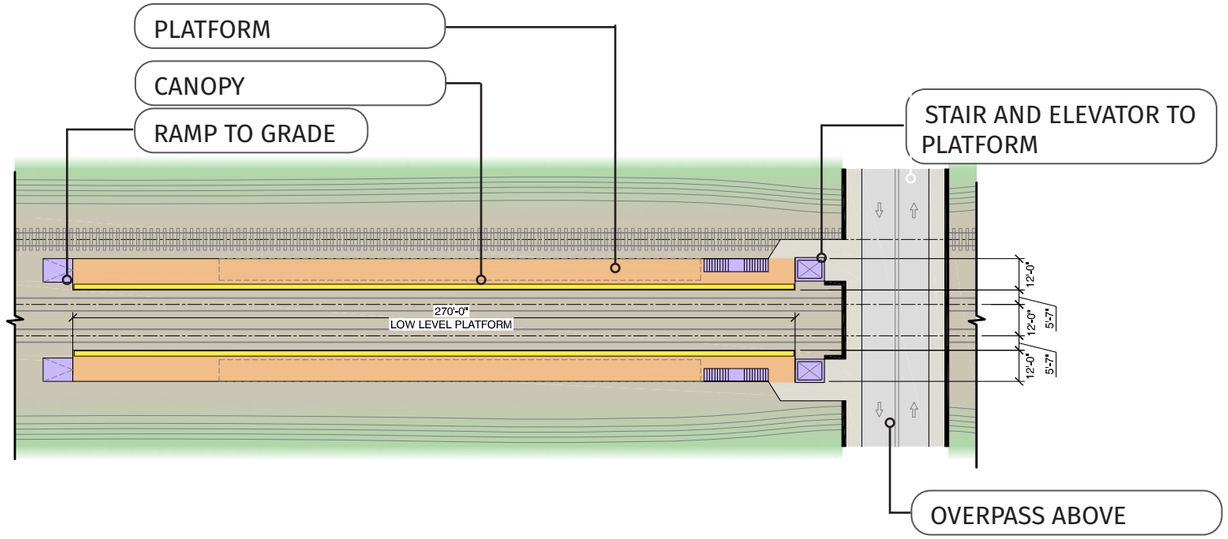
SCHEMATIC PLATFORM - TUNNEL



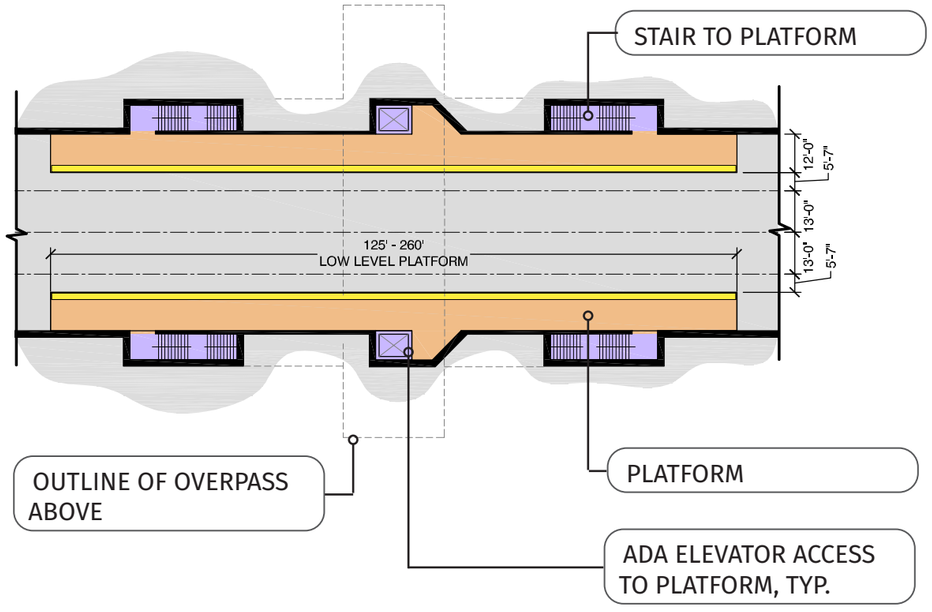
SCHEMATIC PLATFORM - EMBANKMENT



SCHEMATIC PLATFORM - AT GRADE



SCHEMATIC PLATFORM - CUT



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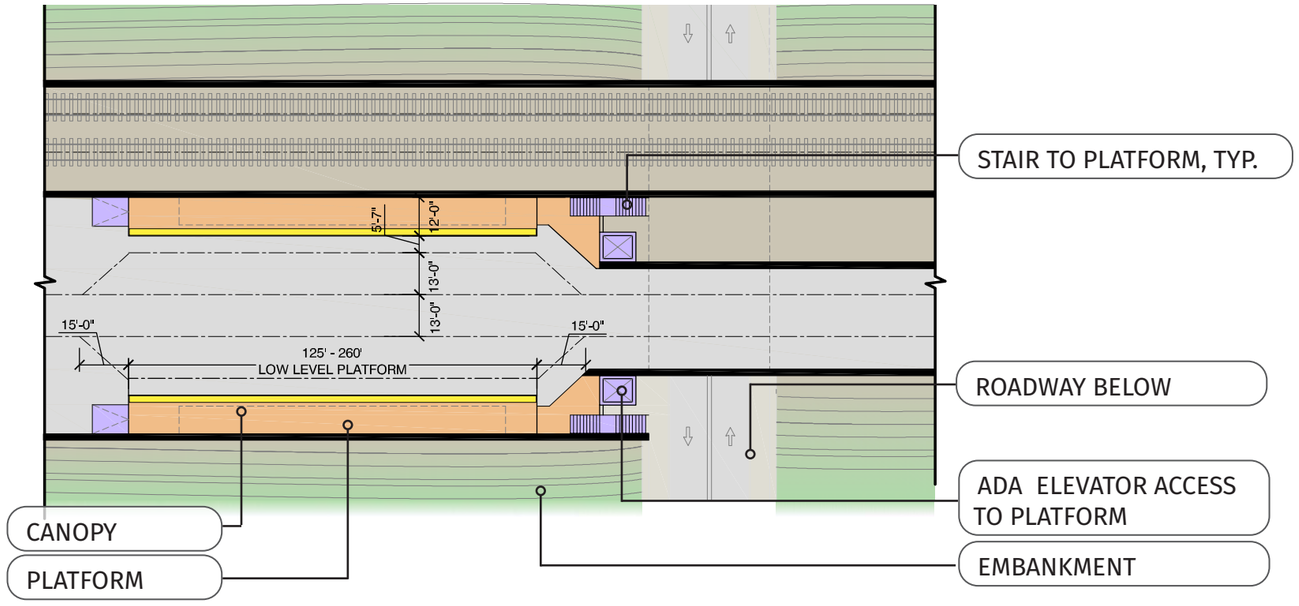

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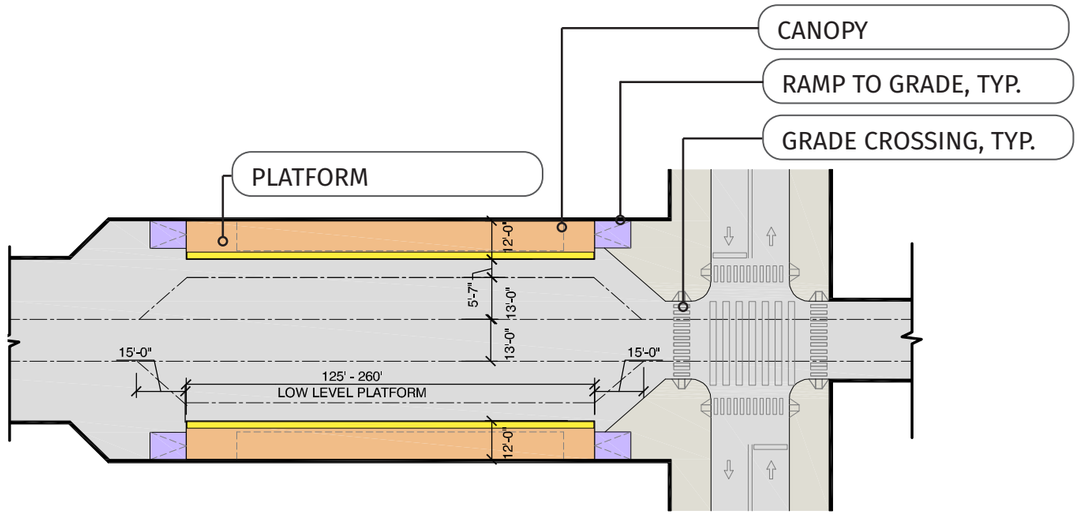

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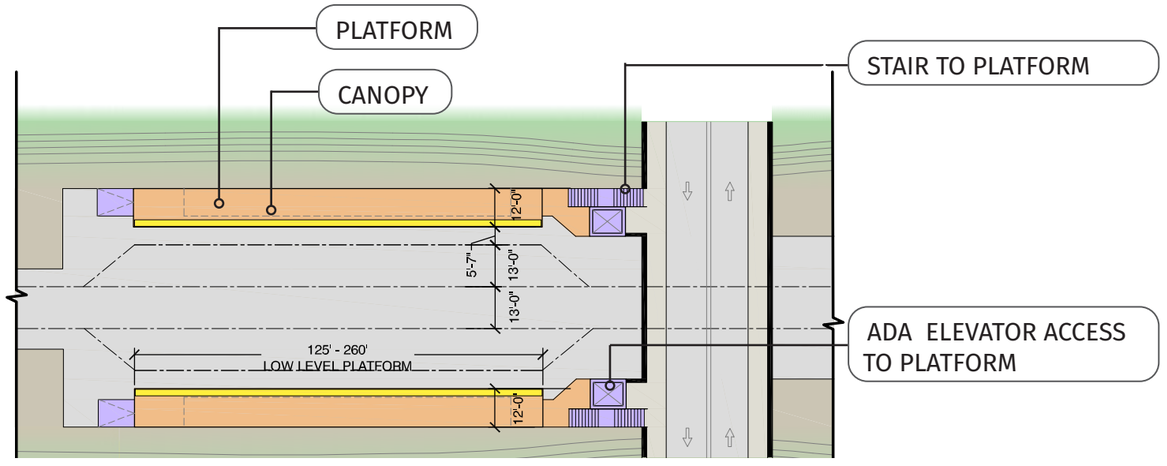
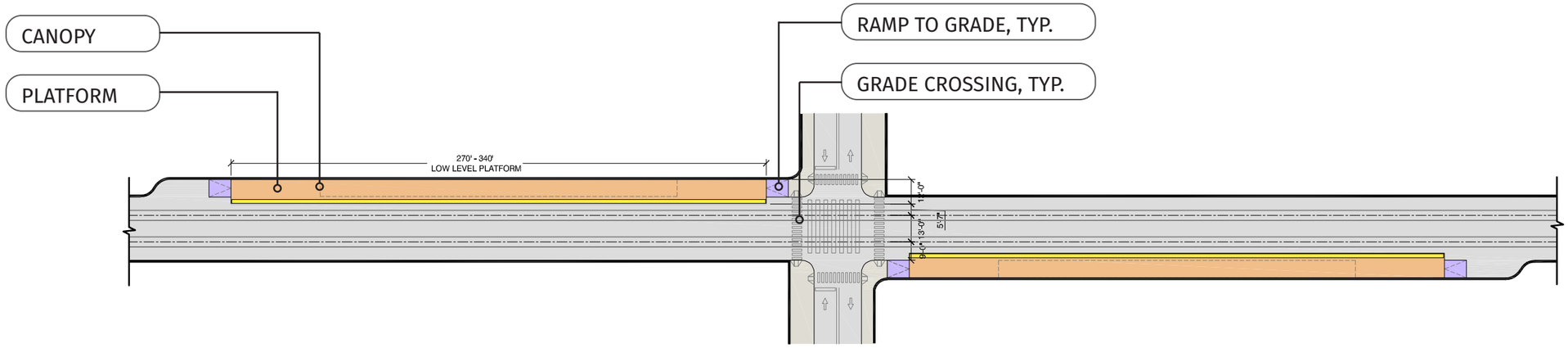
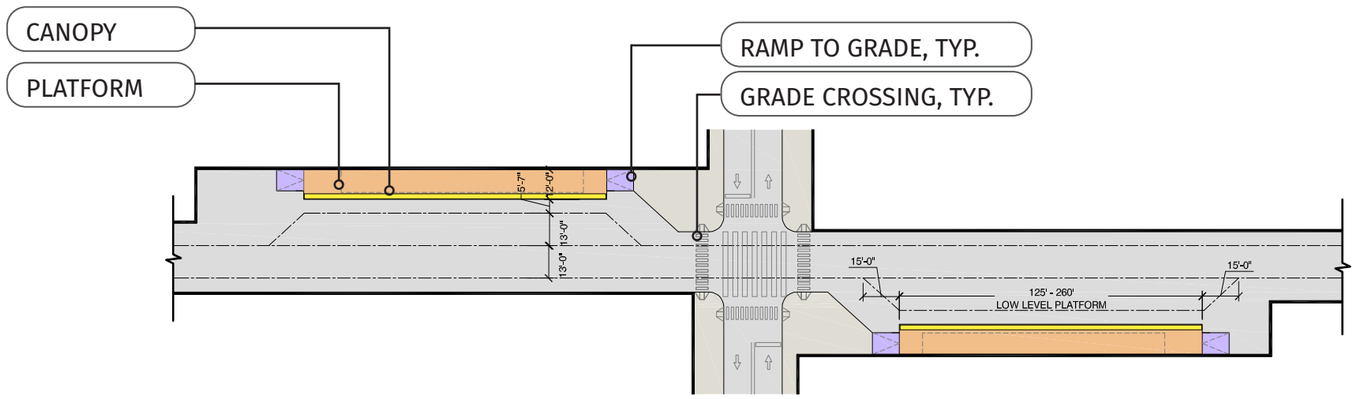


SCHEMATIC PLATFORM - CUT

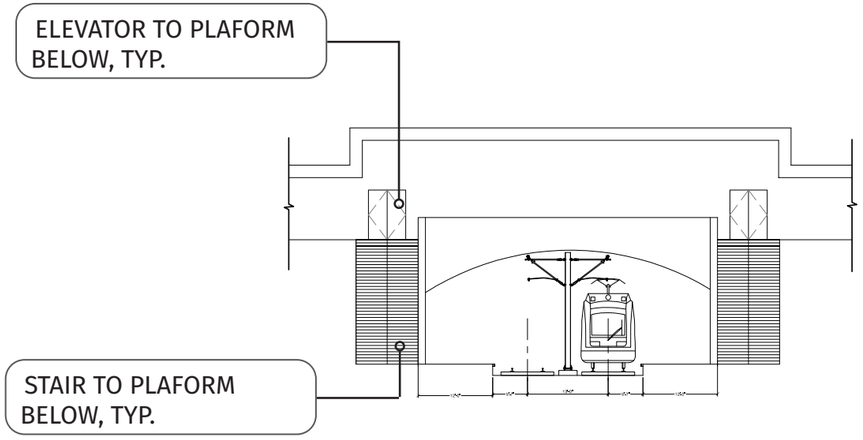


SCHEMATIC PLATFORM FARSIDE - LIGHT RAIL TRANSIT

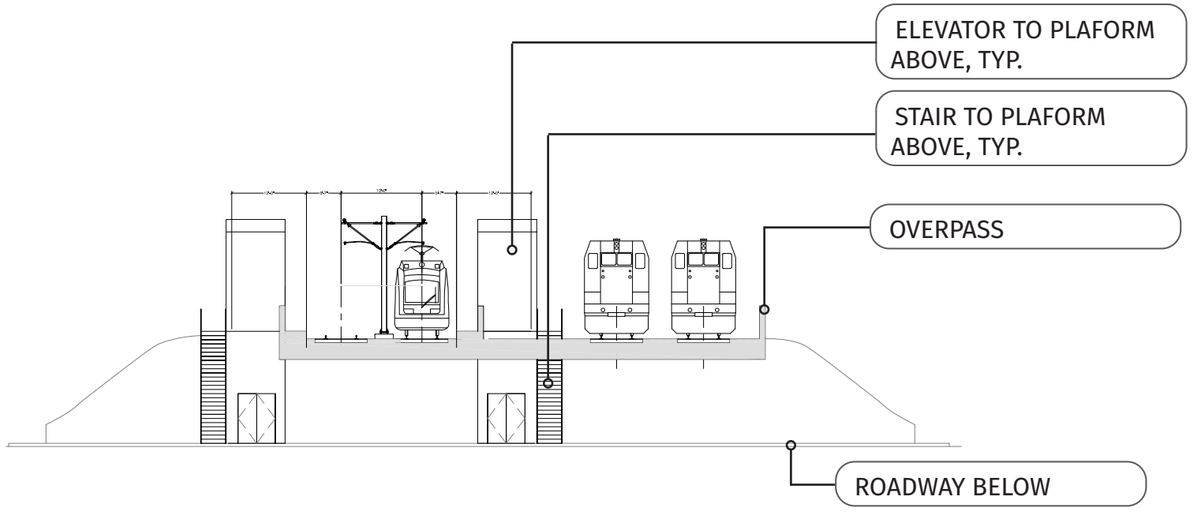


SCHEMATIC PLATFORM FARSIDE - BUS RAPID TRANSIT

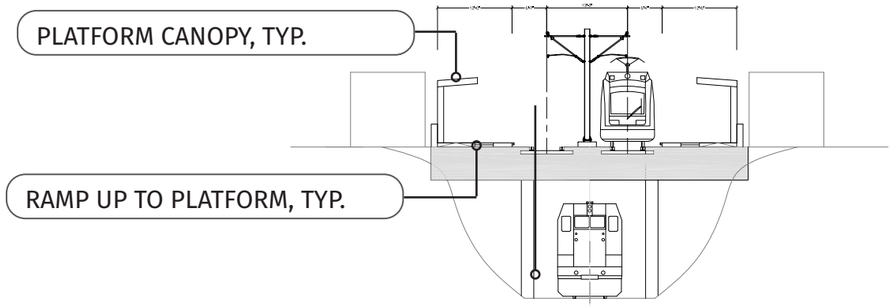
FARSIDE PLATFORM TYPOLOGIES



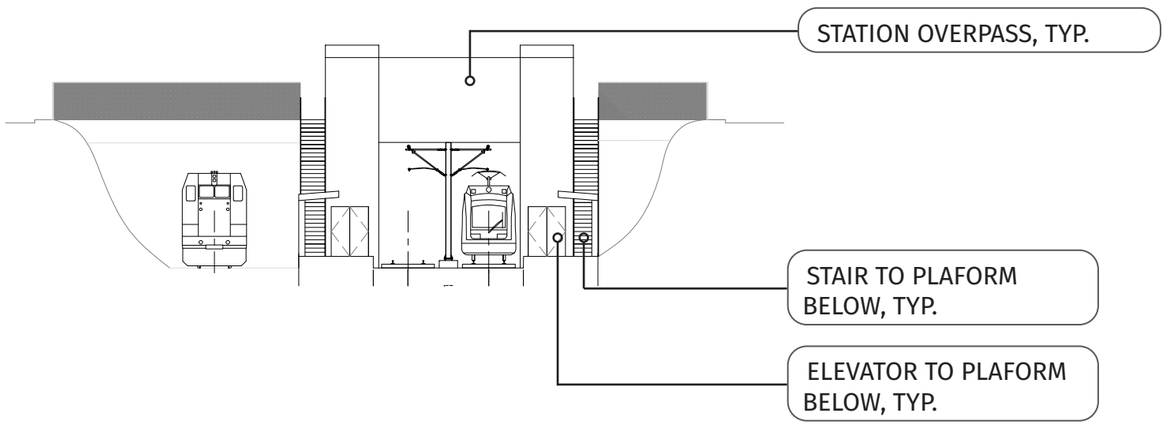
SCHEMATIC PLATFORM - TUNNEL



SCHEMATIC PLATFORM - ENBANKMENT



SCHEMATIC PLATFORM - AT GRADE

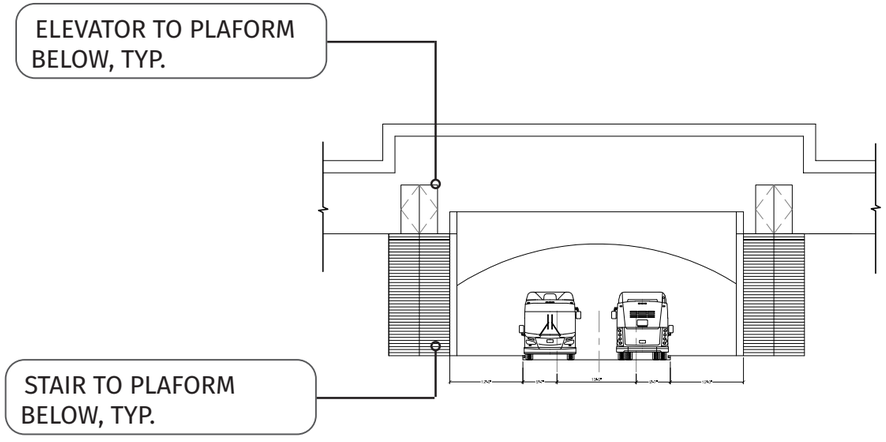


SCHEMATIC PLATFORM - CUT

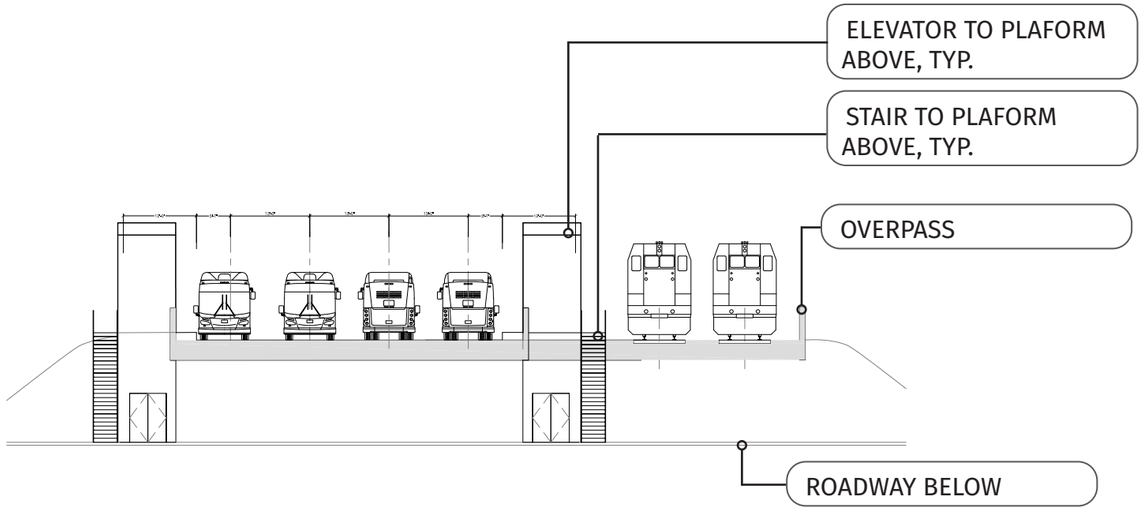
LIGHT RAIL TYPOLOGIES - SECTION

MTA INTERBOROUGH EXPRESS

MAY 27, 2022



SCHEMATIC PLATFORM - TUNNEL



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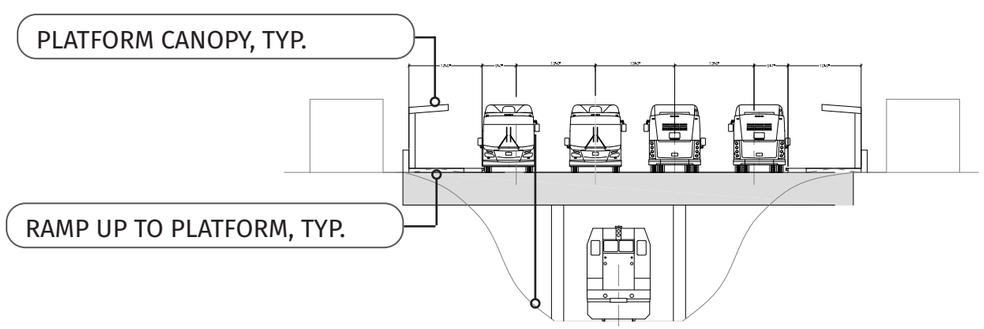

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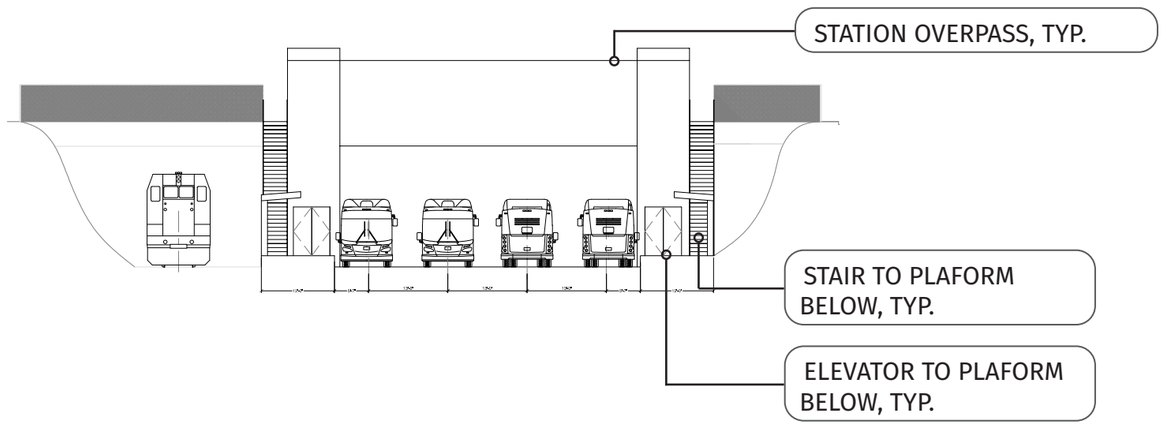
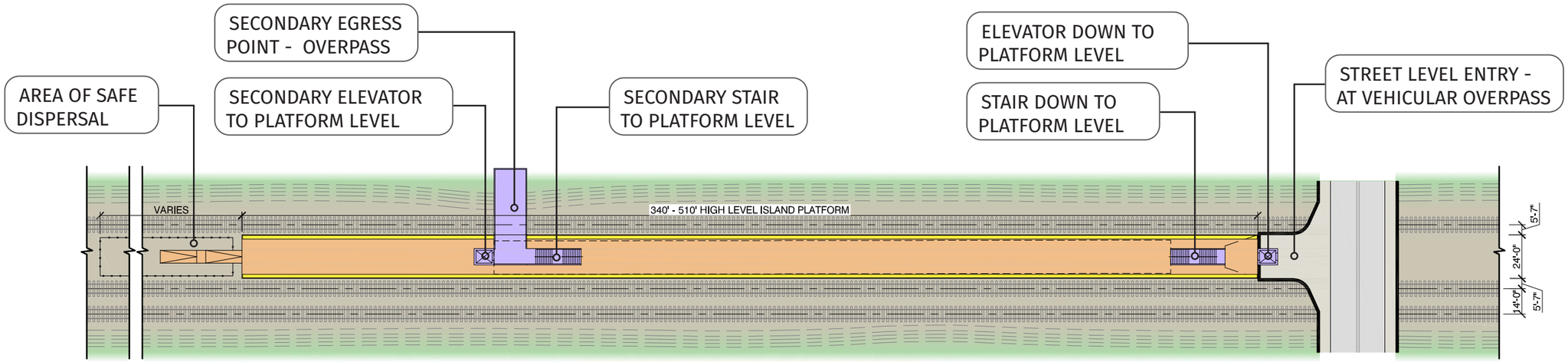


SCHEMATIC PLATFORM - CUT

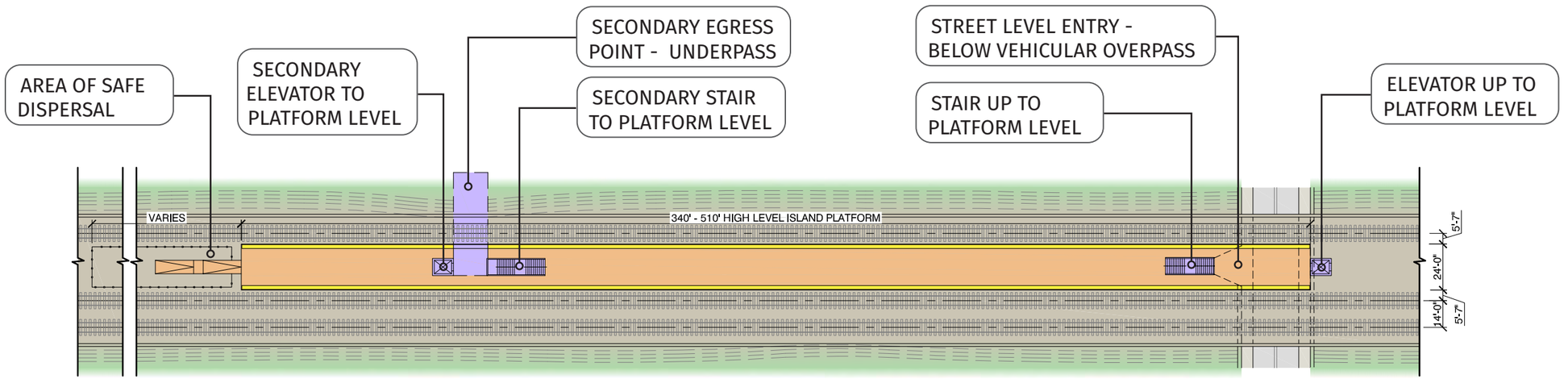
BUS RAPID TRANSIT TYPOLOGIES - SECTION

MTA INTERBOROUGH EXPRESS

MAY 27, 2022



SCHEMATIC PLATFORM - BELOW STREET (CUT)



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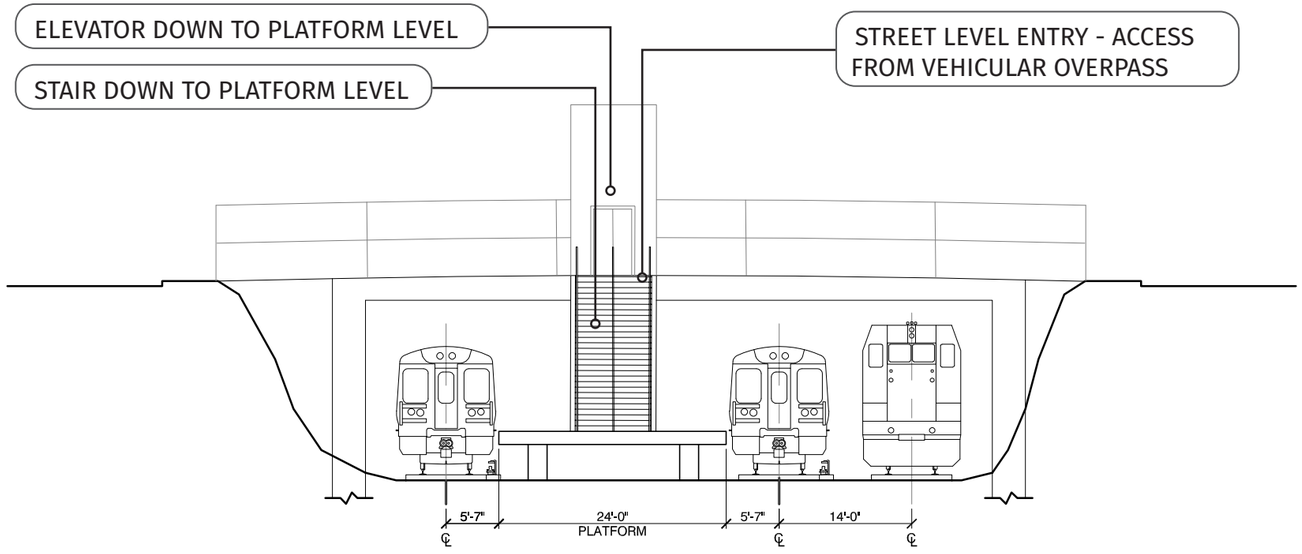
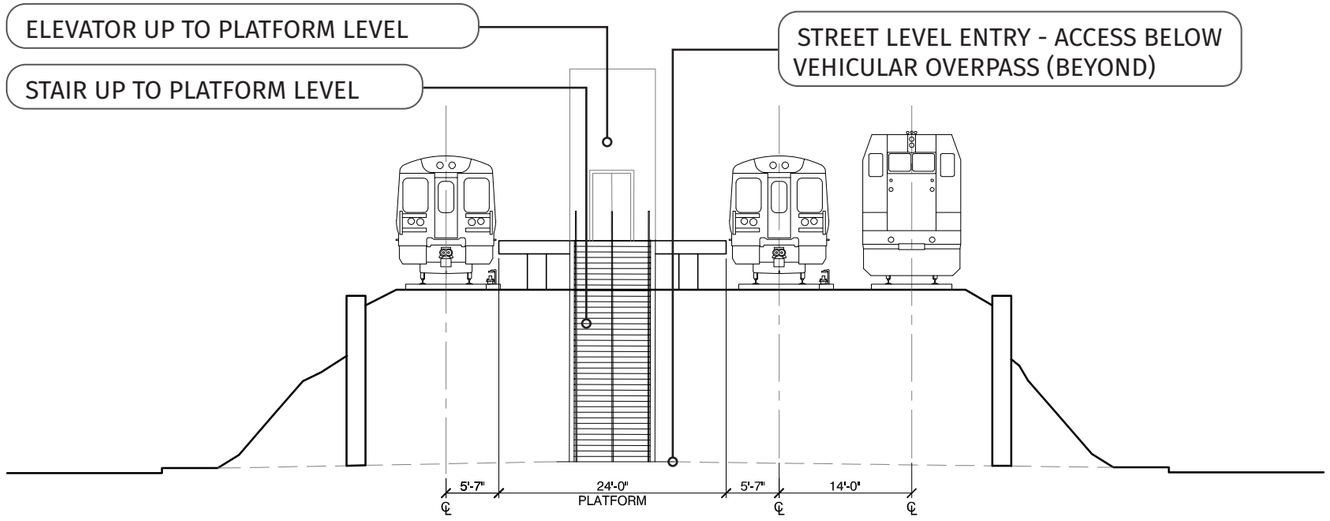
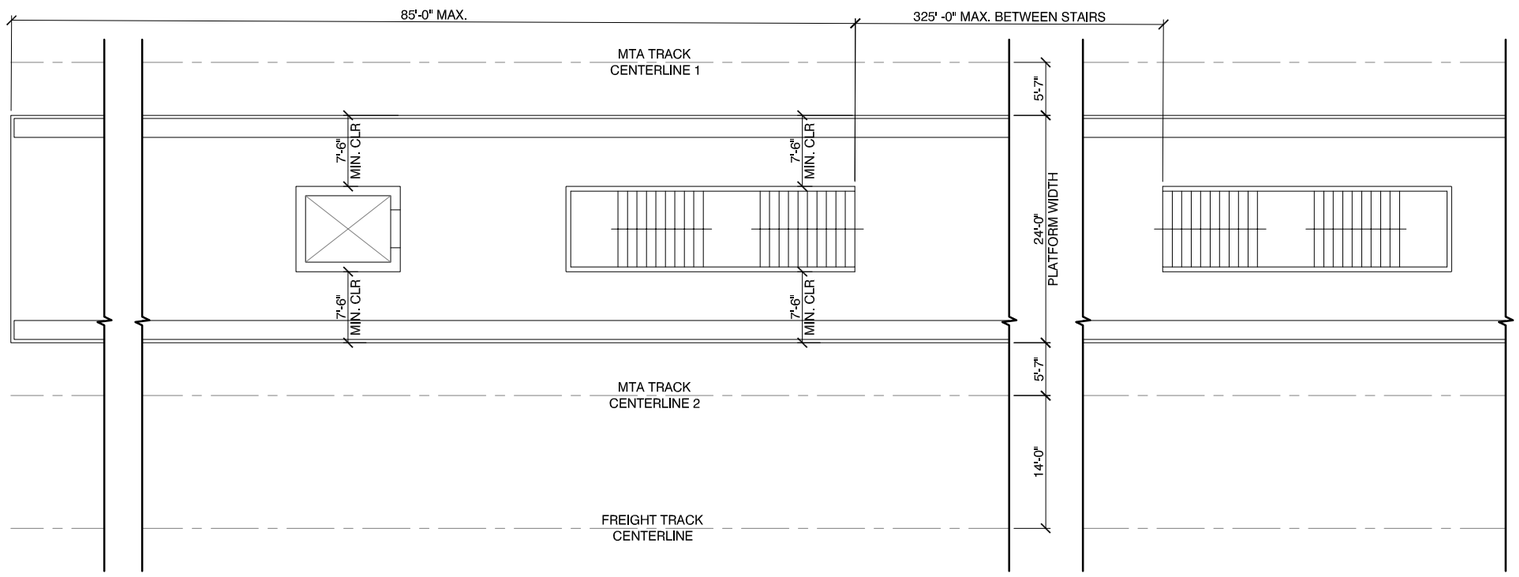


SCHEMATIC PLATFORM - BELOW STREET (CUT)



SCHEMATIC PLATFORM - EMBANKMENT

CONVENTIONAL RAIL - ISLAND PLATFORM TYPOLOGIES - SECTION



TYPICAL PLATFORM PLAN & CLEARANCES

MTA INTERBOROUGH EXPRESS

MAY 27, 2022

Appendix B: Level-of-Service Assessment

Assumptions of LOS Assessment:

- To get from the 4-hour AM Peak Period to the AM Peak Hour volumes, a Peak Hour Factor of 0.38 was used based on NYCT subway screenlines in corridor.
- To get to the peak 15-minute volumes in the AM Peak Hour, at Peak Factor of 0.3125 was used based on Section 352.1.3 of the CEQR 2021 Technical Manual (CEQR Manual), Analysis of Station Elements Level of Service.
- The stairway volume cells highlighted in gray in the "Aboard" column of Table 3 represent the peak passenger load points during the AM peak-hour in the northbound and southbound directions under each of the IBX alternatives.
- The assumed width of all stairs was 8 feet, with center handrails. The stairway Effective Width was established per CEQR Manual guidelines.
- A surging factor was used to reflect the high volume of passengers within the 15-minute peak that use stairs to/from the platform after a trains arrives at the platform. The highest surging factor (0.75) was used for platform stairs, while lower factors are used for stairs above the platform level (e.g., from a mezzanine to the street) - as per CEQR Manual guidelines.
- The Friction Factor of 0.1 was used as a worst-case value, reflecting the loss of capacity due to conflicting movements among stairway users, as per CEQR Manual guidelines.
- Calculation methods to arrive at V/C ratios and the range of V/C ratios used to define each LOS flow conditions are shown below.
- Except where noted, all capacity and LOS methods and factors used are in these analyses are from Section 352.1.3 of the CEQR Manual, Analysis of Station Elements Level of Service.
- The Reduced Platform Stairway scenario was a check on the LOS conditions if, due to physical constraints, each platform could only have half as many stairs (1-2 stairs vs. the projected 2-4 stairs). This scenario conservatively assumes that all stairways would only have half the stairs currently assumed.

Table 1: LOS Reference Table

LOS Reference Table			
Minimum Volume/Capacity (V/C)	Maximum V/C	LOS	Pedestrian Flow Conditions
0	0.45	A	Free Flow
0.45	0.7	B	Fluid Flow
0.7	1	C	Fluid, somewhat restricted
1	1.33	D	Crowded, walking speed restricted
1.33	1.67	E	Congested, some shuffling, queuing
1.67		F	Severely congested, queuing

Figure 1: Volume/Capacity Ratio Calculation for Stairs

Equation 16-1

The formula to calculate the v/c ratio for stairs is:

$$\frac{Vin}{150 \times We \times Sf \times Ff} + \frac{Vx}{150 \times We \times Sf \times Ff}$$

Where

Vin = Peak 15-minute entering passenger volume

Vx = Peak 15-minute exiting passenger volume

We = Effective width of stairs

Sf = Surging factor (if applicable)

Ff = Friction factor (if applicable)

Table 2: Peak 15-Minute AM LOS Capacity Inputs (see Note 1)

Peak Period Factor to Peak Hour: 0.38

Peak Hour Factor to Peak 15-Min: 0.3125

Station	Capacity Inputs								
	We_Effective width of stairs	Sf_Surging factor	Pf_Friction factor	Platform Type_CR	Count of Stairs_CR	Platform Type_BRT	Count of Stairs_BRT	Platform Type_LRT	Count of Stairs_LRT
Brooklyn Army Terminal	6.75	0.75	0.9	Side, At Street	0	Side, At Street	0	Side, Above Street	4
4th Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
8th Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
New Utrecht Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
McDonald Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
East 16th Street	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Flatbush Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Utica Avenue	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Remsen Avenue	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Linden Blvd	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Livonia Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Sutter Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Atlantic Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Wilson Avenue	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Myrtle Avenue	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Metropolitan Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, At Street	0	Side, At Street	0
Eliot Avenue	6.75	0.75	0.9	Side, Below Street	4	Side, Below Street	4	Side, Below Street	4
Grand Avenue	6.75	0.75	0.9	Side, Above Street	4	Side, Above Street	4	Side, Above Street	4
Roosevelt Avenue	6.75	0.75	0.9	Center, Below Street	2	Side, At Street	0	Center, Below Street	2

NOTE 1: Earlier versions of the BRT and LRT alternatives included some street-level side platform stations (see “Side/At Street” locations). However, as noted in this memo, based on subsequent planning and engineering studies performed as part of the PEL studies, street-level stations have been eliminated except for a few locations. Further LOS studies of those former at-street stations were not performed, as the stairway LOS studies at other stations with similar passenger volumes indicated that no LOS lower than “B” would occur at any station location.

Table 3: Peak 15-Minute AM LOS Calculation

Station	BRT AM Peak 15-min Ridership								LRT AM Peak 15-min Ridership								CR AM Peak 15-min Ridership							
	Northbound			Southbound			V/C Ratio	LOS	Northbound			Southbound			V/C Ratio	LOS	Northbound			Southbound			V/C Ratio	LOS
	on	off	aboard	on	off	aboard			on	off	aboard	on	off	aboard			on	off	aboard	on	off	aboard		
Brooklyn Army Terminal	20	0	20	0	9	0	0.00	-	25	0	25	0	11	0	0.01	A	25	0	25	0	11	0	0.00	A
4th Avenue	133	0	153	0	140	9	0.10	A	207	0	232	0	211	11	0.15	A	217	0	242	0	222	11	0.16	A
8th Avenue	183	0	336	0	158	150	0.12	A	259	0	491	0	222	222	0.18	A	271	0	513	0	231	232	0.18	A
New Utrecht Avenue	224	5	555	3	193	307	0.16	A	379	6	864	4	314	443	0.26	A	409	5	917	4	332	463	0.27	A
McDonald Avenue	132	31	656	23	184	497	0.14	A	232	40	1,056	29	320	753	0.23	A	243	41	1,119	29	346	791	0.24	A
East 16th Street	188	88	**755**	80	185	657	0.20	A	340	128	**1,268**	108	350	1,044	0.34	A	365	131	**1,353**	110	385	1,108	0.36	A
Flatbush Avenue	110	169	696	173	141	**763**	0.22	A	175	269	1,174	249	220	**1,287**	0.33	A	184	284	1,253	265	227	**1,382**	0.35	A
Utica Avenue	177	271	602	273	195	730	0.34	A	266	381	1,059	410	250	1,257	0.48	B	263	398	1,118	436	253	1,344	0.49	B
Remsen Avenue	45	56	591	64	26	652	0.07	A	76	104	1,031	117	32	1,098	0.12	A	76	113	1,081	130	31	1,162	0.13	A
Linden Blvd	10	93	509	91	6	614	0.07	A	12	147	897	139	8	1,012	0.11	A	12	154	939	147	8	1,063	0.12	A
Livonia Avenue	13	19	502	57	4	530	0.03	A	18	24	891	60	4	881	0.04	A	18	24	933	61	4	924	0.04	A
Sutter Avenue	22	60	465	90	13	477	0.07	A	27	98	820	173	14	825	0.11	A	27	110	850	183	14	866	0.12	A
Atlantic Avenue	33	81	417	81	22	400	0.08	A	36	163	693	165	24	666	0.14	A	36	172	714	181	24	697	0.15	A
Wilson Avenue	34	138	312	174	21	342	0.13	A	43	248	488	287	34	525	0.22	A	42	259	498	299	34	540	0.23	A
Myrtle Avenue	112	30	394	50	58	189	0.09	A	133	42	579	72	61	272	0.11	A	132	43	587	73	60	275	0.11	A
Metropolitan Avenue	85	49	430	22	65	197	0.00	-	97	67	609	31	74	260	0.00	-	96	70	613	33	72	262	0.10	A
Eliot Avenue	44	27	447	27	6	240	0.04	A	55	32	632	42	6	303	0.05	A	56	29	640	42	6	301	0.05	A
Grand Avenue	12	43	417	29	3	219	0.03	A	23	55	601	38	4	267	0.04	A	24	57	607	38	4	266	0.04	A
Roosevelt Avenue	0	417	0	193	0	193	0.00	-	0	601	0	233	0	233	0.61	B	0	607	0	232	0	232	0.61	B
Total	**1,577**	**1,577**		**1,431**	**1,431**				**2,403**	**2403**		**2158**	**2158**				**2,498**	**2,498**		**2,263**	**2,263**			

NOTE 2: The stairway volume cells highlighted in **gray** represent the peak passenger load points during the AM peak-hour in the northbound and southbound directions under each of the IBX alternatives.

Table 4: Stairway Counts in Reduced Case Scenario

Alternatives	Location	Base Case Stairways	Reduce Case Stairways
Conventional Rail			
Center Platform	Below/Above Street	2	1
Side Platforms	Below/Above Street	4	2
BRT/LRT			
Side Platforms	Below/Above Street	4	2
Side Platforms	At Street	0	0

Table 5: Reduced Platform Stairs Scenario Peak 15-Minute AM LOS Calculations

Station	Reduced Stairs: V/C Ratio			Reduced Stairs: LOS		
	CR	LRT	BRT	CR	LRT	BRT
	1-2 Stairs	1-2 Stairs	1-2 Stairs	1-2 Stairs	1-2 Stairs	1-2 Stairs
Brooklyn Army Terminal	0.00	0.03	0.00	-	A	-
4th Avenue	0.32	0.31	0.20	A	A	A
8th Avenue	0.37	0.35	0.25	A	A	A
New Utrecht Avenue	0.55	0.51	0.31	B	B	A
McDonald Avenue	0.48	0.45	0.27	B	B	A
East 16th Street	0.73	0.68	0.40	C	B	A
Flatbush Avenue	0.70	0.67	0.43	C	B	A
Utica Avenue	0.99	0.96	0.67	C	C	B
Remsen Avenue	0.26	0.24	0.14	A	A	A
Linden Blvd	0.23	0.22	0.15	A	A	A
Livonia Avenue	0.08	0.08	0.07	A	A	A
Sutter Avenue	0.24	0.23	0.13	A	A	A
Atlantic Avenue	0.30	0.28	0.16	A	A	A
Wilson Avenue	0.46	0.45	0.27	B	A	A
Myrtle Avenue	0.23	0.23	0.18	A	A	A
Metropolitan Avenue	0.20	0.00	0.00	A	-	-
Eliot Avenue	0.10	0.10	0.08	A	A	A
Grand Avenue	0.09	0.09	0.06	A	A	A
Roosevelt Avenue	1.23	1.22	0.00	D	D	-

Appendix 1.4 Tunnels & Overbuild Segments: East New York Tunnel

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

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IBX

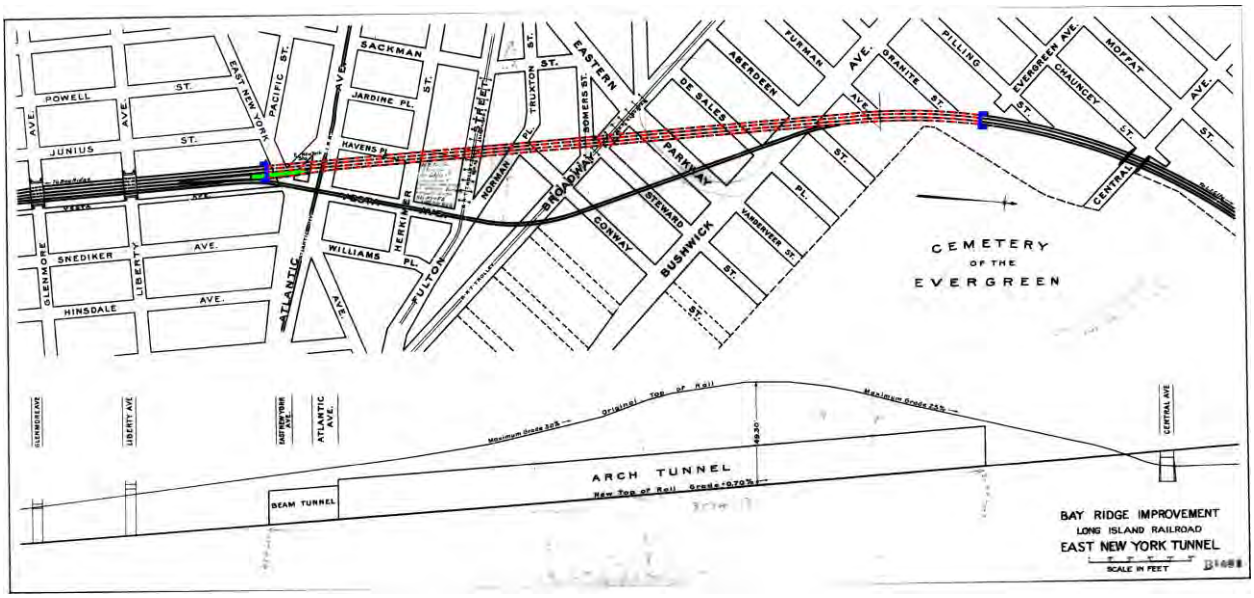
Contents

1 East New York Tunnel

1.1 History

Construction of the East New York Tunnel was completed in 1915. Long before this tunnel was built, the New York, Brooklyn and Manhattan Beach Railway existed running above ground. The railroad dated back to 1877 and hauled passengers from Long Island City to Manhattan Beach, which was at the time a quiet resort far from the urban life of New York City. By 1910 there was already very limited service on this route. Nevertheless, when the 0.7-mile long East New York Tunnel was built, a set of tracks was laid for it, along with a station. Passenger service on the Manhattan Beach Branch ended in 1924, and the station went unused only a few years after it was constructed. The stairway to the street was closed, but the platform was left as-is. The former northbound passenger track was removed in 1939, and its tunnel was sealed at the inner end of the station platform. The East New York Tunnel alignment is shown in red in **Figure 1**. The original alignment of the Manhattan Beach Branch up to 1915 is also shown to the right. As a point of interest, the 14th Street and Eastern Districts subway built for the Brooklyn–Manhattan Transit Corporation (BMT) follows the original alignment.

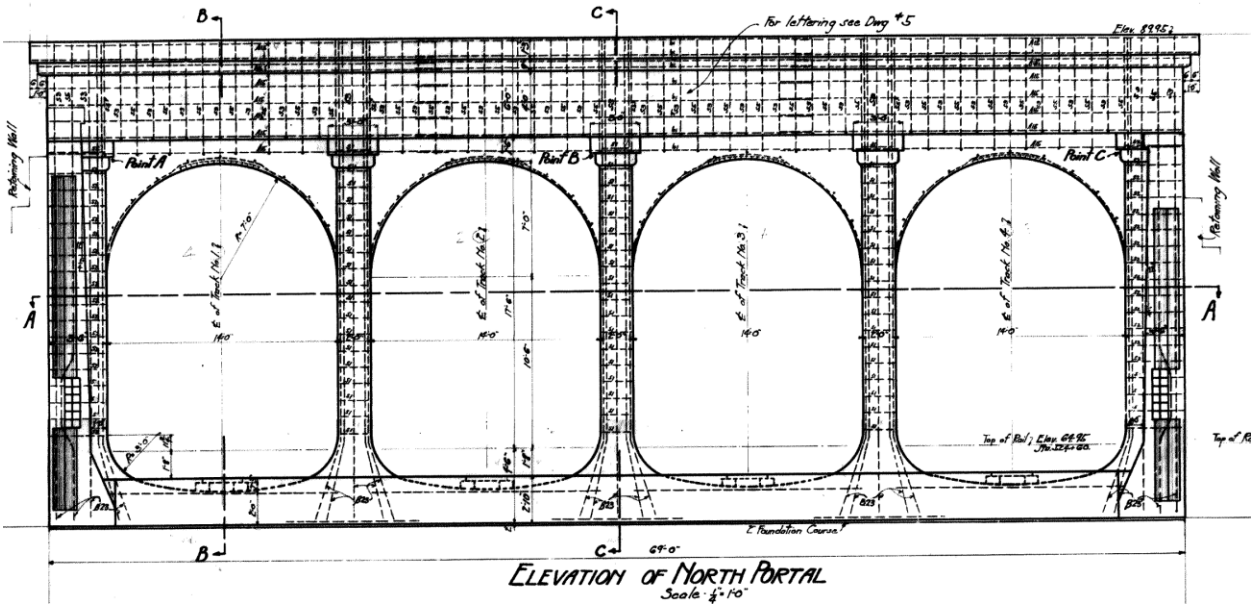
Figure 1: East New York Tunnel shown in red; station platform shown in green at the south portal; north and south portals shown in blue.

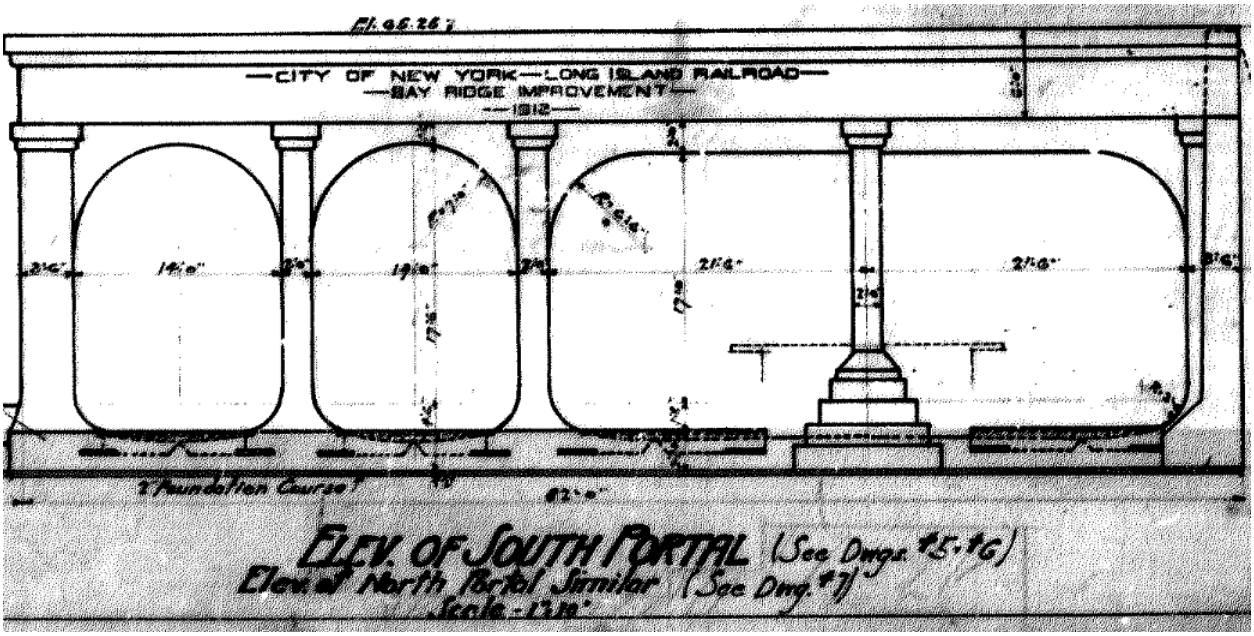


Per the as-built drawings, the track grade is 0.7% toward the north portal and the maximum track depth is about 50 feet below grade in the vicinity of Eastern Parkway. Findings of eight borings drilled at the time of construction show that the tunnel is embedded predominantly in loam, coarse sand, gravel, and boulders. The recorded borings at the time of construction show that the groundwater table was about 10 to 25 feet below ground level.

The elevation views of the north and south portals are shown in **Figure 2**. The width of each tube is 14’-0” and the overall width of the tunnel is 69’-0”. The height clearance from top of rail to the tunnel crown at the centerline of the track is about 19’-0”.

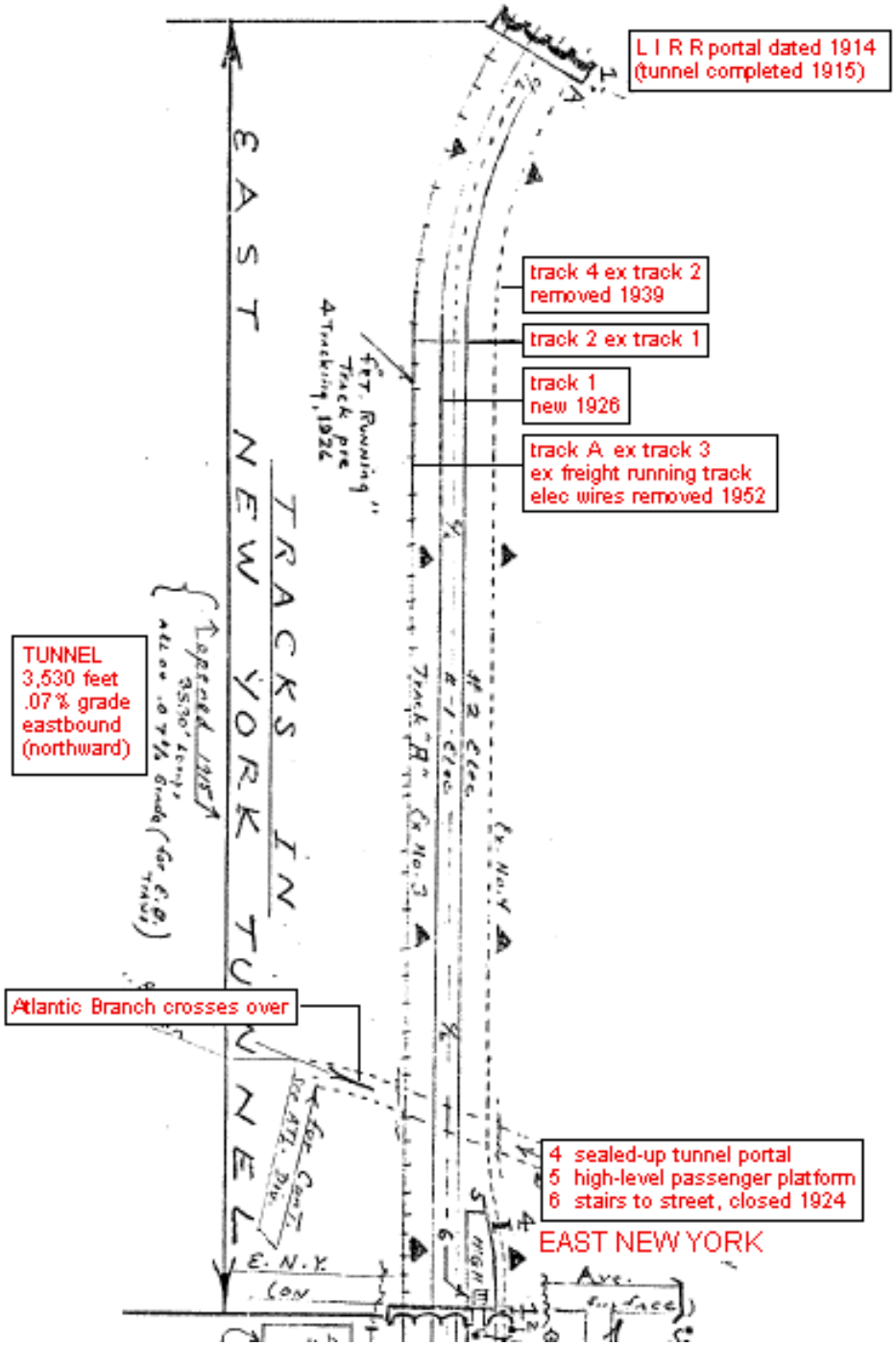
Figure 2: Elevation views of north and south portals of East New York Tunnel





A detailed drawing based on the MTA's Long Island Rail Road (LIRR) company files and conditions in 1958 is shown in **Figure 3**.

Figure 3: East New York Tunnel based on LIRR drawings of 1958



1.1.1 The Lowered Center Track

In the late 1980s, LIRR attempted to revive freight service by introducing inter-modal service on the line, with trailers or containers placed on freight cars. However, today's trucks and containers are too tall for many overpasses on Long Island. To get around this constraint, LIRR bought an experimental 'bogie' freight car with clearances low enough for Long Island's overpasses. The East New York Tunnel, however, was still too low for these short railcars. To accommodate this freight, LIRR lowered the height of the center track by removing the track and ballast and relaying the track along a new concrete base. Currently, only the second tube from the north is used by a freight operator—New York and Atlantic Railway (NY&A)—in both directions.

1.1.2 The Sealed 4th Tube

One of the trackways through the tunnel—the former northbound track of the Manhattan Beach railway—is sealed. Trackage was removed in 1939, and today it hosts a facility for the Buckeye pipeline, which runs below track level in the cut of the Bay Ridge Branch and is contained in the fourth tube of the East New York Tunnel. These pipes provide jet fuel for both John F. Kennedy International Airport and LaGuardia Airport.

1.1.3 1971 Accident

On August 23, 1971, a freight train was switching freight cars along these tracks and backed into the tunnel, caboose first. The track was supposed to be empty, but it was not. In the darkness of the tunnel the train crashed into a line of parked freight cars, crushing the caboose.

Today, it is hard to pinpoint where exactly in the tunnel the accident occurred. The NY Times article states it occurred 500 feet into the tunnel, though it does not say which end of the tunnel, or which trackway. This, combined with the history of runaway/derailed freight cars, and the various signs of age within the tunnel, make finding this spot a challenge (**Figure 4**).

Figure 4: Scraped wall potentially due to accident of 1971

1.2 Space-proofing

"Space-proofing" refers to the task of ensuring that all required functions can be accommodated within the planned tunnel as designed. The following elements are considered in the East New York Tunnel space-proofing:

- The overall dimensions of the vehicle in tangent and superelevation track, Vehicle Static Envelope (VSE);
- The Vehicle Dynamic Envelope (VDE);
- The Vehicle Clearance Envelope (VCE);
- Required clearance and safety margins (construction tolerance);
- Arrangement of walkway(s), furnishing, systems, utilities, Fire/Life Safety (FLS) features, ventilation, tunnel lighting, fire standpipes, etc.
- Clearance requirement for overhead contact system/rail (OCS/OCR);
- Possible future modifications of track base;
- Possible future modifications of final liner.

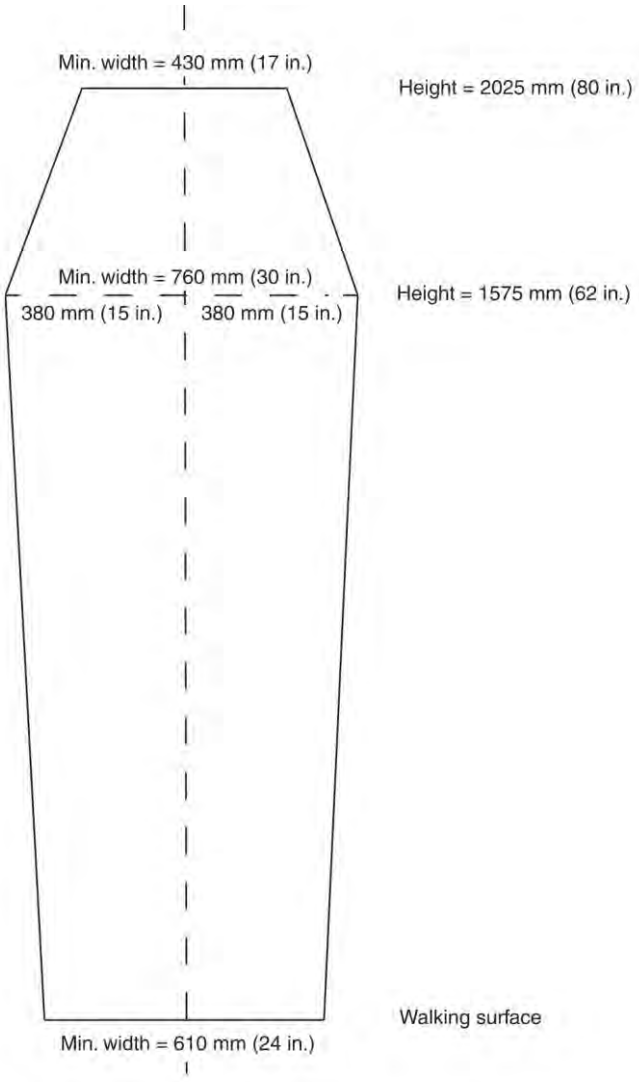
1.2.1 NFPA 130 Requirements

NFPA 130, Standard for Fixed Guideway Transit and Passenger Rail Systems, outlines the standards and minimum requirements to be established for any enclosed trainway. These standards and requirements provide a reasonable degree of safety from fire and its related hazard in fixed guideway transit and passenger rail system environments. This standard shall apply to new fixed guideway transit and passenger rail systems and to the extension of existing systems. Also, the portion of the standard dealing with emergency procedures shall apply to new and existing systems.

1.2.1.1 Walkway

Per NFPA 130, the system shall incorporate a continuous walk surface or other approved means for passengers to evacuate a train at any point along the trainway so that they can proceed to the nearest station or other point of safety. Walkways shall be at minimum 24 inches at the walking surface and at minimum 30 inches at the height of 62 inches. The overall height of the walkway envelope shall be at minimum 80 inches. The unobstructed clear width for the trainway walkway is shown in **Figure 5**. The walkway envelope – which would be in use when the train is fully stopped – shall always clear the VSE considering both tangent and superelevated conditions. Furthermore, the walkway surface shall be at the same level of the car floor and should clear the VCE.

Figure 5: Unobstructed clear width for trainway walkway



1.2.1.2 Cross Passage

Within enclosed trainways, the maximum distance between exits shall not exceed 2,500 ft. Cross-passageways shall be permitted where separate tracks in enclosed trainways are divided by a minimum of 2-hour-rated fire separations or where trainways are in two separate tubes. Where cross-passageways are utilized, the following requirements shall apply:

- Cross-passageways shall not be farther than 244 m (800 ft) apart
- Cross-passageways shall not be farther than 244 m (800 ft) from the station or portal of the enclosed trainway
- Cross-passageways shall be separated from the trainway with self-closing fire door assemblies having a fire protection rating of 1.5 hours
- A tenable environment shall be maintained in the portion of the trainway that is not involved in an emergency and that is being used for evacuation

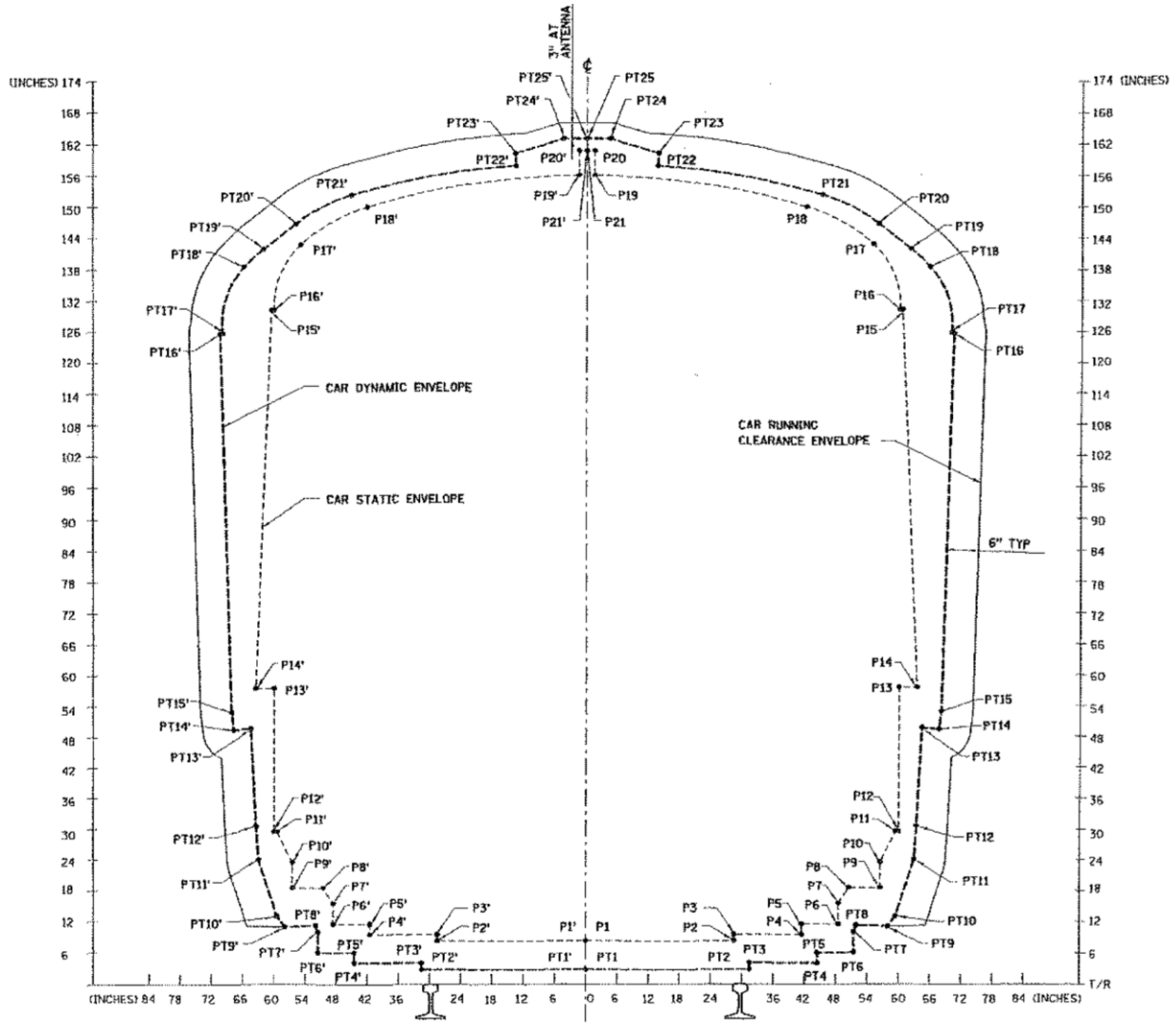
1.2.2 Commuter Railroad Car

In this section different cars are investigated to perform tunnel space-proofing considering the size of the existing tubes and bringing the tunnel to codes in terms of FLS requirements.

1.2.2.1 Long Island Rail Road M9 Car

The M9 is a class of electric multiple unit railroad cars being built by Kawasaki Heavy Industries for use on LIRR and Metro-North Railroad (MNR). They entered service on September 11, 2019. These cars will ultimately replace the M3/M3A railcars built during the early 1980s, as well as expand the LIRR fleet to provide additional service after the completion of the LIRR's East Side Access project. The static, dynamic, and clearance envelopes for M9 railroad car are shown in **Figure 6**.

Figure 6: LIRR M9 railroad car-static, dynamic and clearance envelopes



Static Cross-Sectional Car Coordinate Point Locations

	X (INCHES)	Y (INCHES)
P1	0.00	8.25
P2	28.50	8.25
P3	28.50	9.50
P4	41.50	9.50
P5	41.50	11.50
P6	48.50	11.50
P7	48.50	15.50
P8	50.50	18.50
P9	56.50	18.50
P10	56.50	23.50
P11	59.50	29.50
P12	60.00	29.50
P13	60.00	57.50
P14	63.50	57.50
P15	60.48	130.20
P16	59.98	130.20
P17	54.87	142.74
P18	42.11	149.96
P19	1.50	155.99
P20	1.50	160.68
P21	0.00	160.68

	X (INCHES)	Y (INCHES)
P1	0.00	8.25
P2	-28.50	8.25
P3	-28.50	9.50
P4	-41.50	9.50
P5	-41.50	11.50
P6	-48.50	11.50
P7	-48.50	15.50
P8	-50.50	18.50
P9	-56.50	18.50
P10	-56.50	23.50
P11	-59.50	29.50
P12	-60.00	29.50
P13	-60.00	57.50
P14	-63.50	57.50
P15	-60.48	130.20
P16	-59.98	130.20
P17	-54.87	142.74
P18	-42.11	149.96
P19	-1.50	155.99
P20	-1.50	160.68
P21	0.00	160.68

Dynamic Cross-Sectional Car Coordinate Point Locations

	X (INCHES)	Y (INCHES)
PT1	0.00	2.75
PT2	31.50	2.75
PT3	31.50	4.00
PT4	44.50	4.00
PT5	44.50	6.00
PT6	51.50	6.00
PT7	51.50	10.00
PT8	51.98	11.20
PT9	57.97	11.02
PT10	59.50	13.00
PT11	63.00	24.00
PT12	63.44	30.52
PT13	64.42	49.66
PT14	67.74	49.42
PT15	68.16	52.91
PT16	70.36	125.64
PT17	69.86	125.67
PT18	65.66	138.54
PT19	62.01	141.87
PT20	55.85	146.69
PT21	45.11	152.21
PT22	13.55	157.88
PT23	13.72	160.26
PT24	4.50	162.93
PT25	0.00	162.93

	X (INCHES)	Y (INCHES)
PT1	0.00	2.75
PT2	-31.50	2.75
PT3	-31.50	4.00
PT4	-44.50	4.00
PT5	-44.50	6.00
PT6	-51.50	6.00
PT7	-51.50	10.00
PT8	-51.98	11.20
PT9	-57.97	11.02
PT10	-59.50	13.00
PT11	-63.00	24.00
PT12	-63.44	30.52
PT13	-64.42	49.66
PT14	-67.74	49.42
PT15	-68.16	52.91
PT16	-70.36	125.64
PT17	-69.86	125.67
PT18	-65.66	138.54
PT19	-62.01	141.87
PT20	-55.85	146.69
PT21	-45.11	152.21
PT22	-13.55	157.88
PT23	-13.72	160.26
PT24	-4.50	162.93
PT25	0.00	162.93

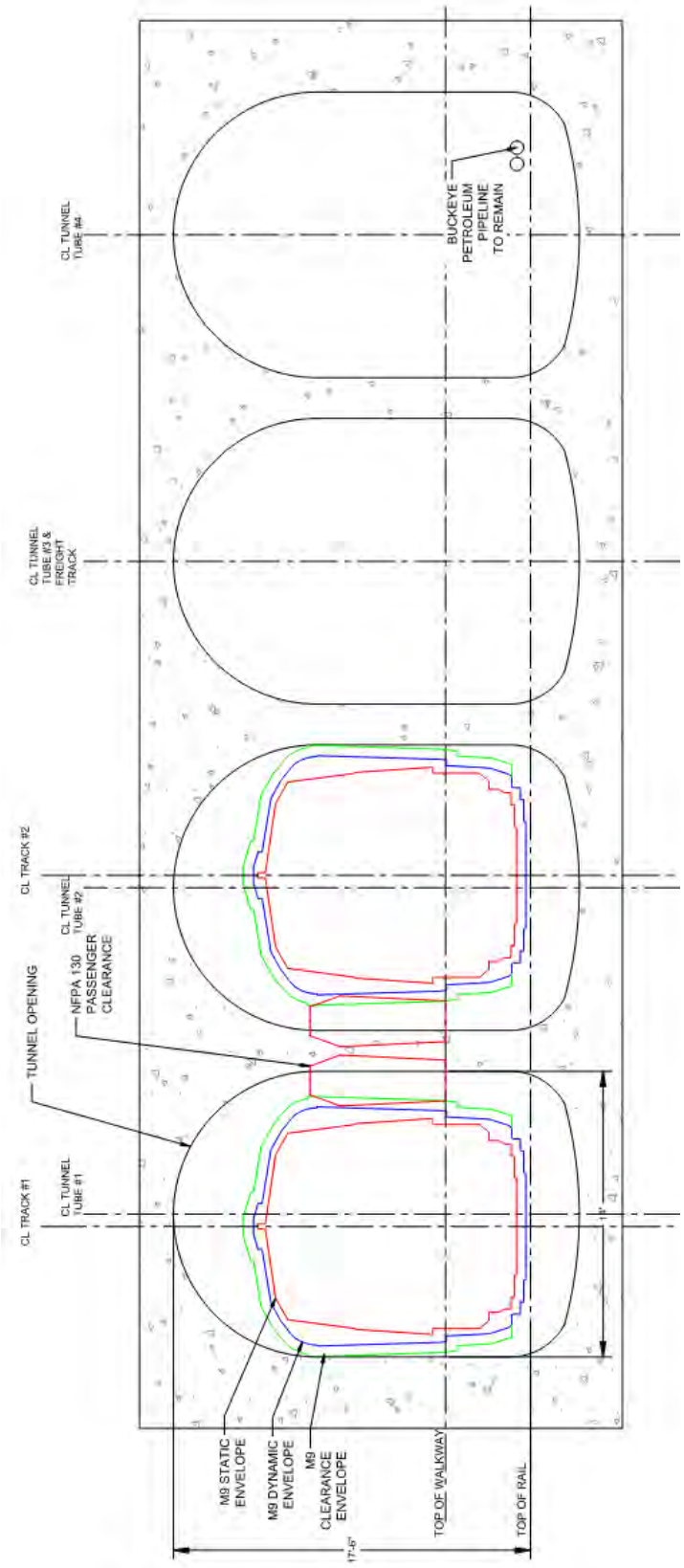
Notes:

1. *For curved track, including turnouts, center and end excesses as defined on drawing CS078-GP-8042 shall be applied to the envelopes indicated on this drawing.*
2. *All LIRR structures are design to accommodate M-Series vehicles.*

The tunnel space-proofing analysis (**Figure 7**) shows that LIRR M9 railroad car is too wide to fit in the existing tunnel without impacting the tunnel structure or jeopardizing FLS requirements.

An alternative to the LIRR M9 vehicle is to operate a narrower vehicle that is compliant with Federal Railroad Administration (FRA) requirements. As an example, the current Port Authority Trans Hudson (PATH) car, with a width of 9 feet, a length of 50 feet and is FRA compliant, would be able to fit through the tunnel.

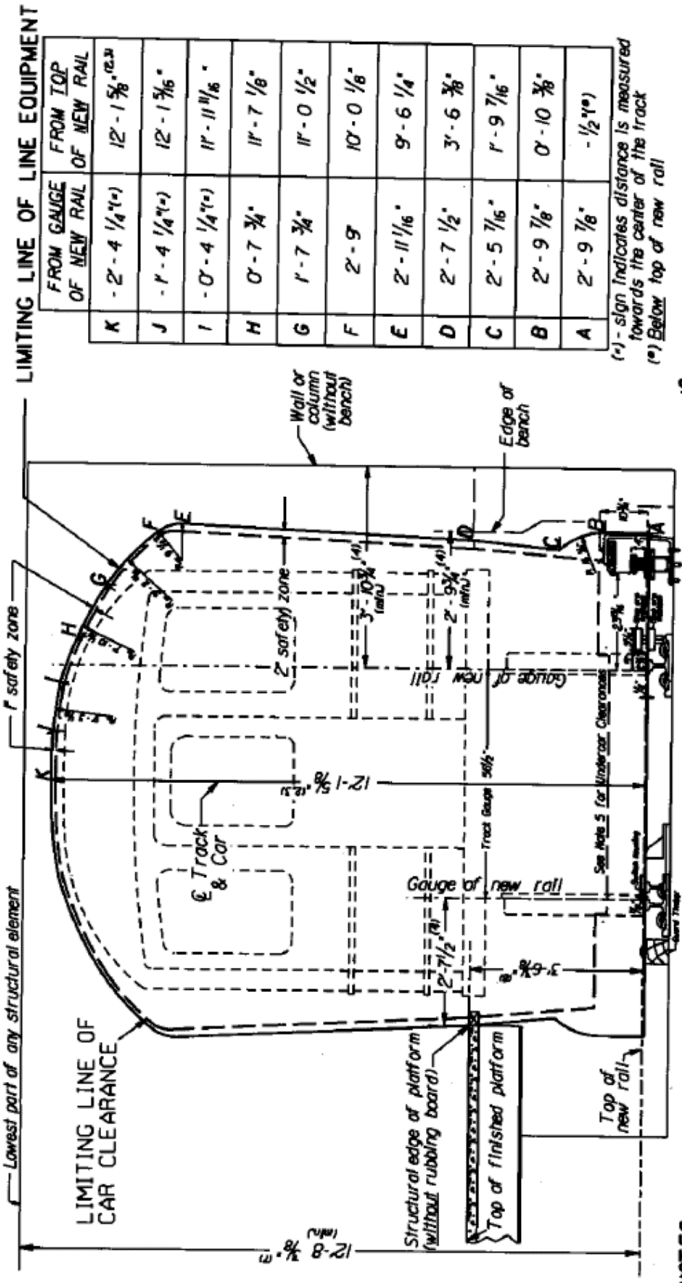
Figure 7: East New York Tunnel space-proofing study for LIRR M9 railroad car



1.2.2.2 NYCT A Division (IRT)

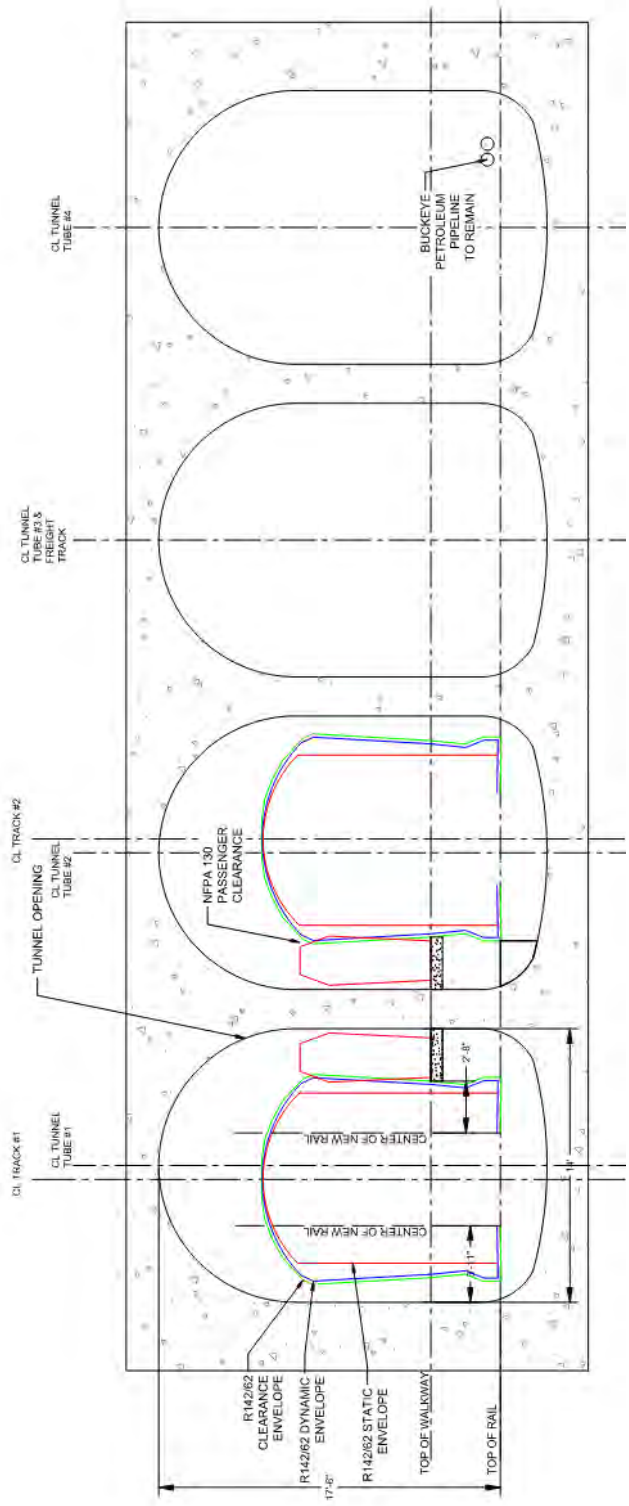
The A Division, also known as the IRT Division, is a part of the New York City Subway consisting of the lines operated with services designated by numbers (1, 2, 3, 4, 5, 6, 7) and the 42nd Street Shuttle. These lines and services were operated by the Interborough Rapid Transit (IRT) Company before the 1940 City takeover. Narrower and shorter than those of the B Division, A Division cars measure at 8.6 feet by 51 feet. A Division vehicle clearance on tangent track is shown in **Figure 8** per NYCT drawing MT-CL-AT.

Figure 8: NYCT A Division clearances in tangent track



The tunnel space-proofing analysis, shown in **Figure 9** demonstrates that NYCT A Division (IRT) transit car can fit in the existing tunnel. A continuous safety walkway, cross passageways, and FLS requirements can be implemented without impacting freight operations.

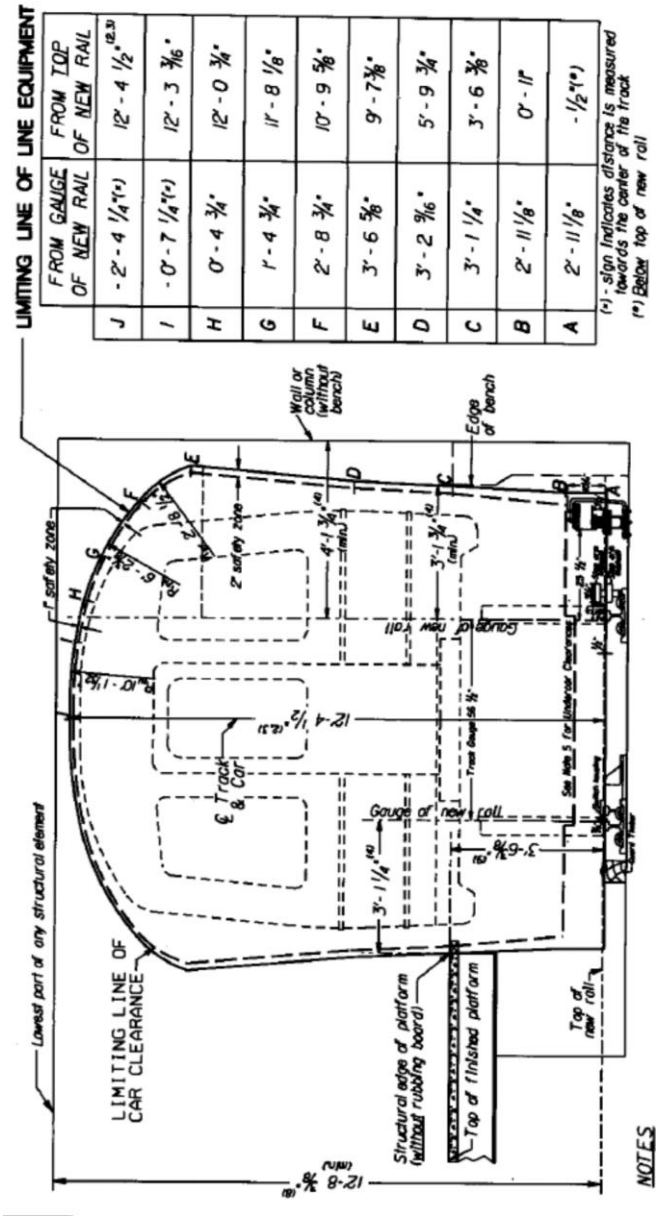
Figure 9: East New York Tunnel space-proofing study for NYCT A Division railroad car



1.2.2.3 NYCT B Division (BMT/IND)

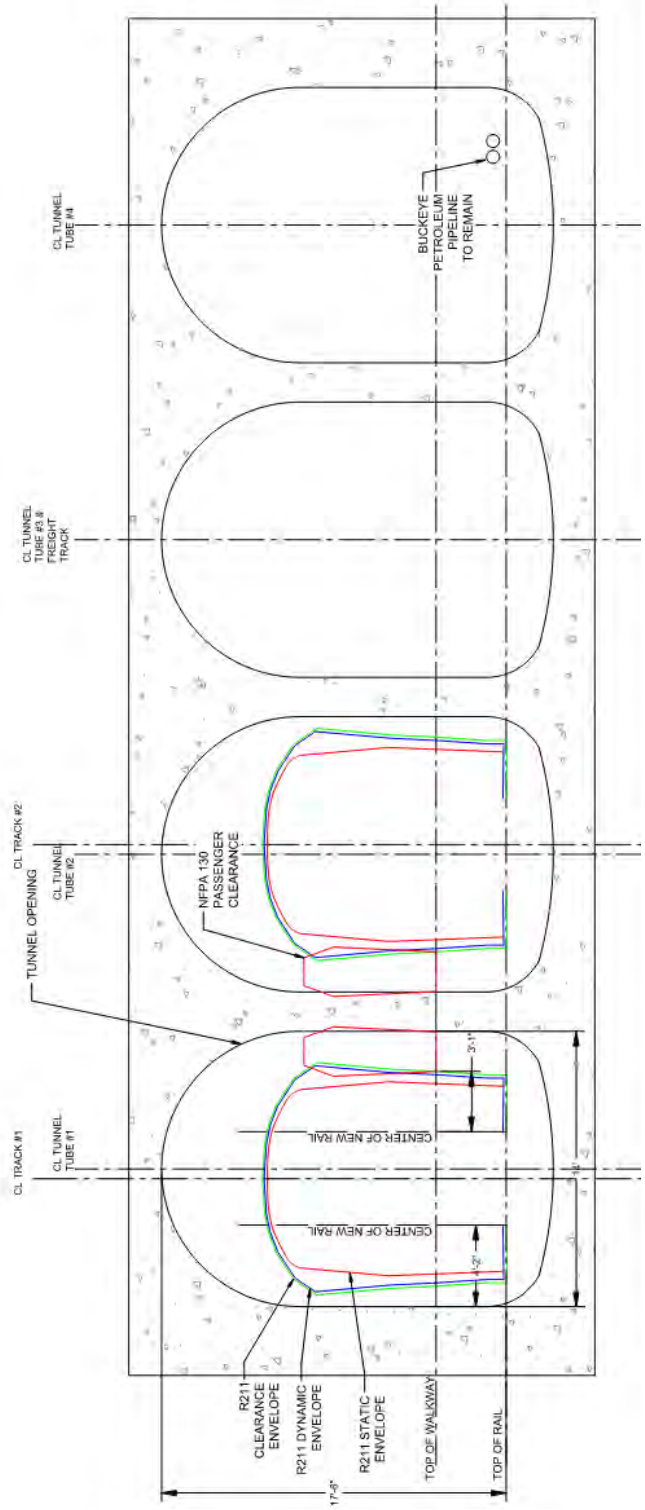
The New York City Subway's B Division consists of the lines that operate with lettered services (A, B, C, D, E, F, G, J, L, M, N, Q, R, W, and Z), as well as the Franklin Avenue and Rockaway Park Shuttles. These lines and services were operated by the BMT and City-owned Independent Subway System (IND) before the 1940 City takeover of the BMT. B Division rolling stock is wider, longer, and heavier than those of the A Division, measuring 10 or 9.75 feet by 60 or 75 feet. B Division clearance in tangent track is shown in **Figure 10** per NYCT drawing MT-CL-BT.

Figure 10: NYCT B Division clearances in tangent track



The tunnel space-proofing analysis (**Figure 11**) shows that NYCT B Division (IRT) railroad car cannot fit in the existing tunnel without impacting the freight operations or FLS requirements. The walkway envelope encroaches into the tunnel wall between the tubes.

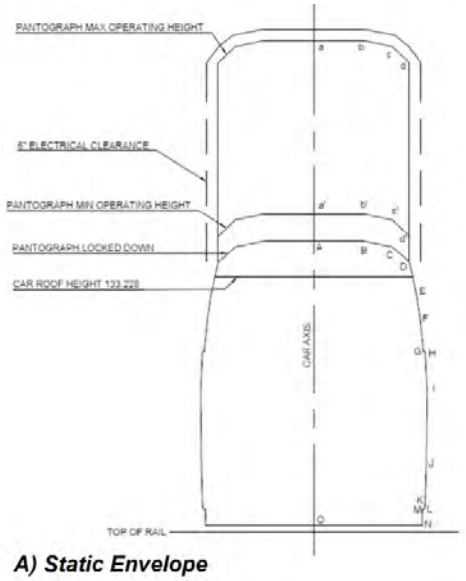
Figure 11: East New York Tunnel space-proofing study for NYCT B Division railroad car



1.2.3 Light Rail Transit (LRT)

The use of Light Rail Vehicles (LRVs) is also considered for the space-proofing study of the East New York Tunnel. The vehicle is considered fully compliant with ADA requirements. The vehicle is New Jersey Transit's (NJT's) Hudson-Bergen Line vehicle, which is approximately 90 ft in length and approximately 8 feet 6 inches in width. It is also considered that the vehicle is articulated and has, at a minimum, two main passenger compartments joined to form one single operating unit with a minimum 70% low-floor passenger area to allow level boarding from station platforms. Floor height at doorways is nominally 14 inches above Top of Rail (TOR). As shown in **Figure 12**, the clearance envelope is considered 4 inches away from the VDE. This can be considered close to typical for the type of LRT system used in North America.

Figure 12: Static, dynamic and clearance envelopes for a Low-floor LRV

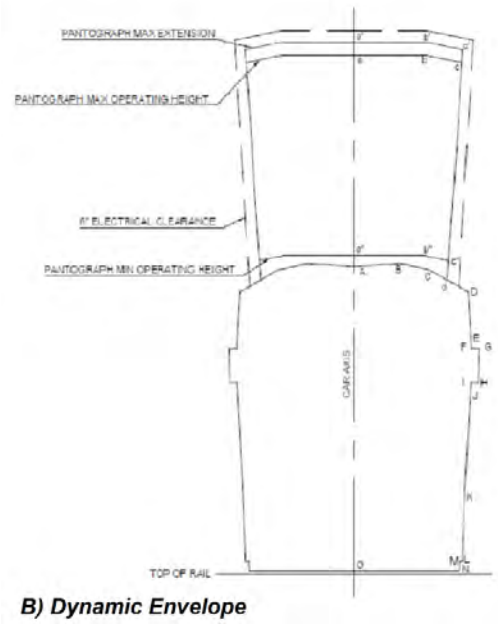


A) Static Envelope

PANTOGRAPH MAX OPERATING HEIGHT		
REF.	Y	Z
a	0	256.220
b	25.827	256.220
c	40.984	253.188
d	49.844	244.611

PANTOGRAPH MIN OPERATING HEIGHT		
REF.	Y	Z
a'	0	165.827
b'	25.827	165.827
c'	40.984	162.795
d'	49.844	154.218

CAR		
REF.	Y	Z
A	0	151.693
B	25.827	151.693
C	40.984	148.661
D	49.844	140.850
E	53.488	124.641
F	55.510	111.270
G	57.116	94.345
H	58.085	94.139
I	59.006	74.377
J	58.658	34.561
K	58.049	14.910
L	57.809	12.300
M	56.569	12.159
N	56.390	4
O	0	4



B) Dynamic Envelope

PANTOGRAPH MAX EXTENSION		
REF.	Y	Z
a'	0	277.440
b'	39.370	277.440
c'	58.916	273.356

PANTOGRAPH MAX OPERATING HEIGHT		
REF.	Y	Z
a	0	270.440
b	39.370	270.440
c	58.451	266.534
d	50.766	153.663

PANTOGRAPH MIN OPERATING HEIGHT		
REF.	Y	Z
a'	0	165.827
b'	39.370	165.827
c'	51.447	163.275

CAR		
REF.	Y	Z
A	0	160.354
B	25.827	161.693
C	40.984	158.661
D	62.000	147.000
E	63.534	119.882
F	63.450	118.003
G	68.000	117.800
H	67.500	99.800
I	65.350	99.305
J	63.268	97.205
K	60.160	40.750
L	58.900	6.770
M	57.240	6.810
N	57.028	1.840
O	0	1.840

NOTE:
DYNAMIC REFERENCE ENVELOPE WITH ROLL ACCOUNTING FOR BOTH PRIMARY AND SECONDARY SUSPENSION FAILURE.

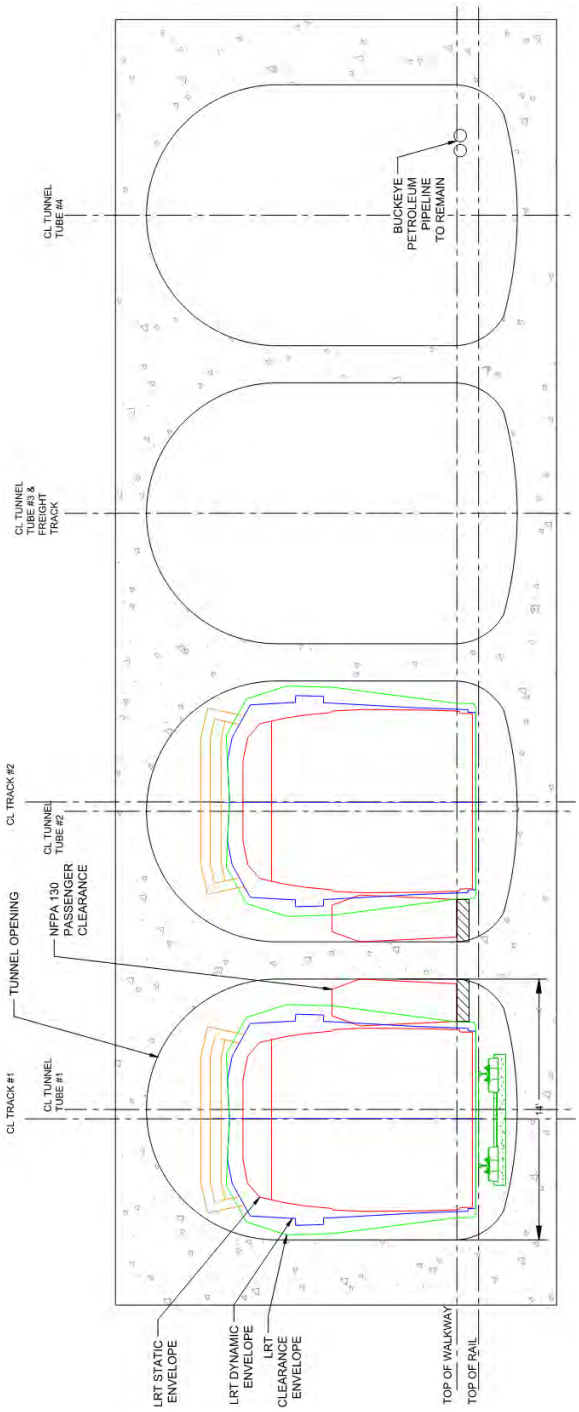
CLEARANCE ENVELOPE SHALL BE 4" OF THE DYNAMIC ENVELOPE

C) Clearance Envelope

CLEARANCE ENVELOPE SHALL BE 4" OF THE DYNAMIC ENVELOPE

The tunnel space-proofing analysis (**Figure 13**) shows that the low-floor LRVs, such as those used by the Hudson-Bergen Light Rail line, can fit in the existing East New York Tunnel considering that there is no tight horizontal curve in the tunnel alignment. A small superelevation, in which one rail is raised above the other, can be addressed in this case. A continuous safety walkway, cross passageways, and FLS requirements can be implemented without impacting the tunnel walls.

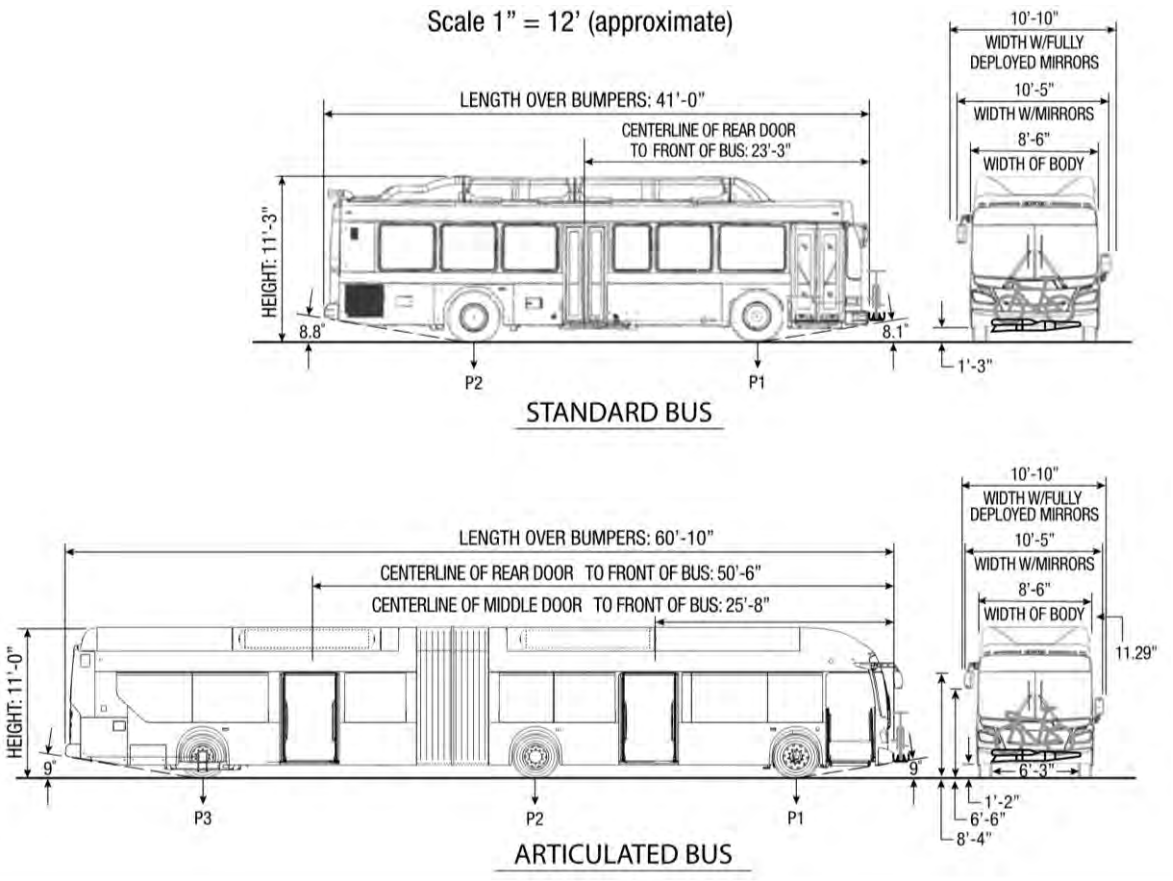
Figure 13: East New York Tunnel space-proofing study for LRVs



1.2.4 Bus Rapid Transit (BRT)

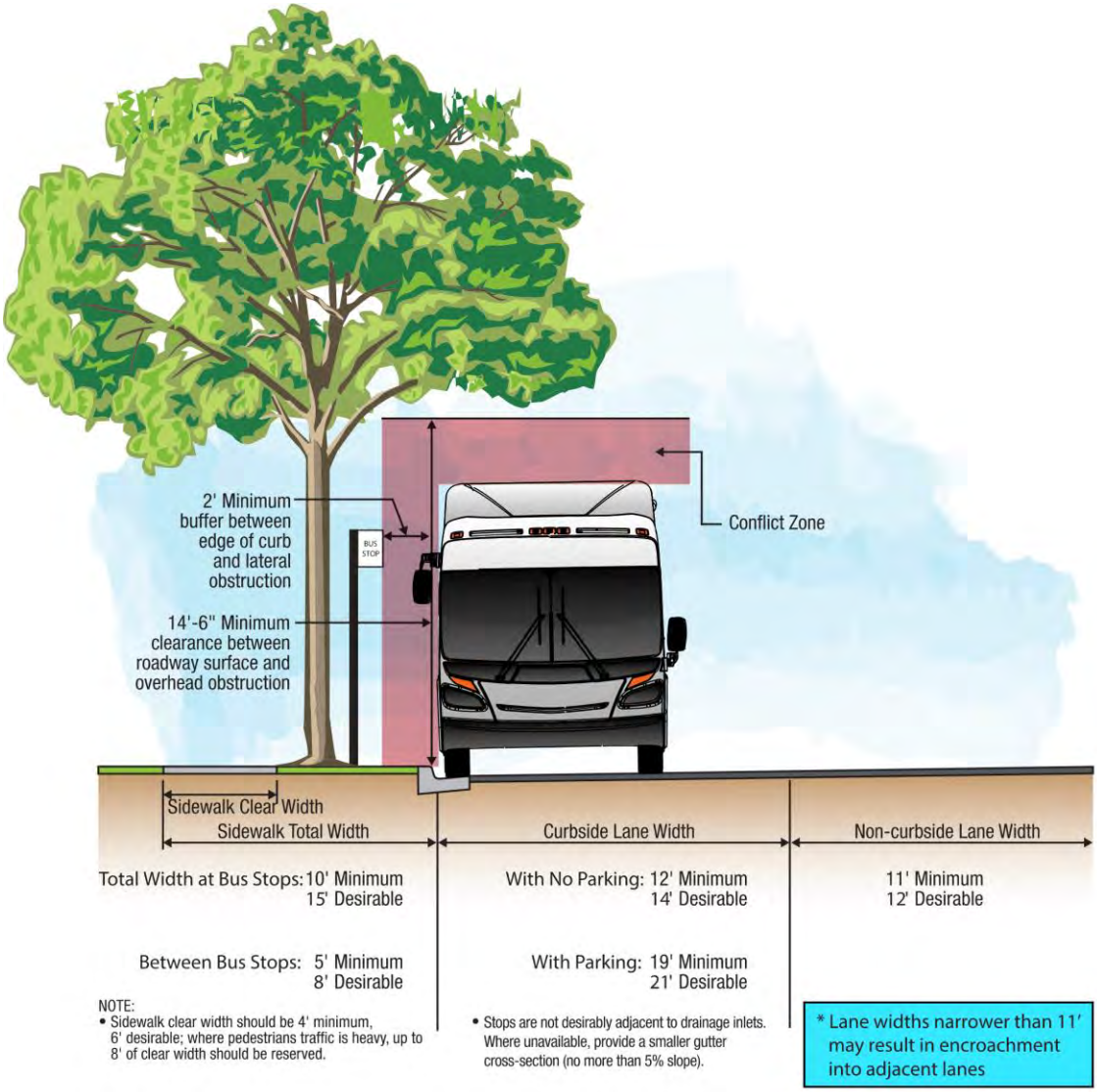
A BRT option was also considered in the space-proofing study of the East New York Tunnel. The static envelope of a standard and articulated MTA bus is shown in **Figure 14**. The width of both types of bus bodies with mirrors fully deployed is 10 feet, 10 inches.

Figure 14: Static envelopes for a standard and an articulated bus



In this study, the clearance envelope is considered 2 feet out from the bus body, excluding the mirrors. Therefore, the width of the vehicle clearance envelope is 12 ft 6 in (8 ft 6 in body width plus 2 ft on each side for the dynamic clearance of the bus). The vertical clearance shall be a minimum of 14 ft 6 in from road level to avoid overhead obstructions such as trees, although these obstructions will not be present to a bus running through a tunnel. The vertical and horizontal clearances for buses are shown in **Figure 15**.

Figure 15: Clearance envelopes for a standard and an articulated bus

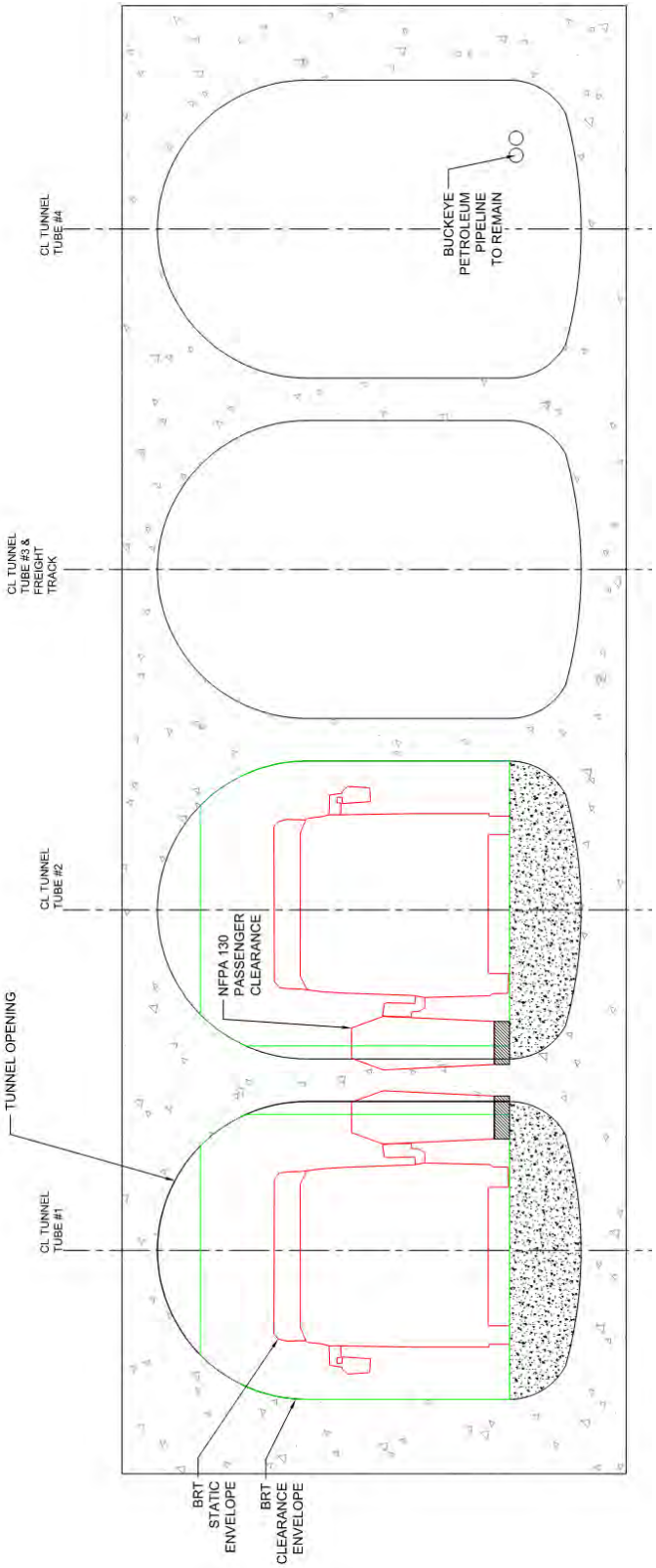


As previously depicted in **Figure 14**, the overall required width for the bus is 10 ft 5 in without the mirrors fully deployed. An emergency walkway with a minimum width of 2 ft 6 in is a requirement of NFPA 130. To run a standard BRT system in the East New York Tunnel, emergency walkways would need to be installed on both sides of the bus for the following reasons:

1. To access the cross-passageways between tunnels, an emergency walkway must be available on the left side of the bus, i.e., the side facing the other transit tunnel.
2. A standard bus only has passenger doors on the right side. To access the cross-passageways, passengers must exit the bus onto an emergency walkway on the right side and then cross the travel lane.

The width of the bus with a 2 ft 6 in emergency walkway surface on both sides adds up to 15 ft 5 in. The width of the tunnel is only 14 ft. The tunnel space-proofing analysis is shown in **Figure 16**.

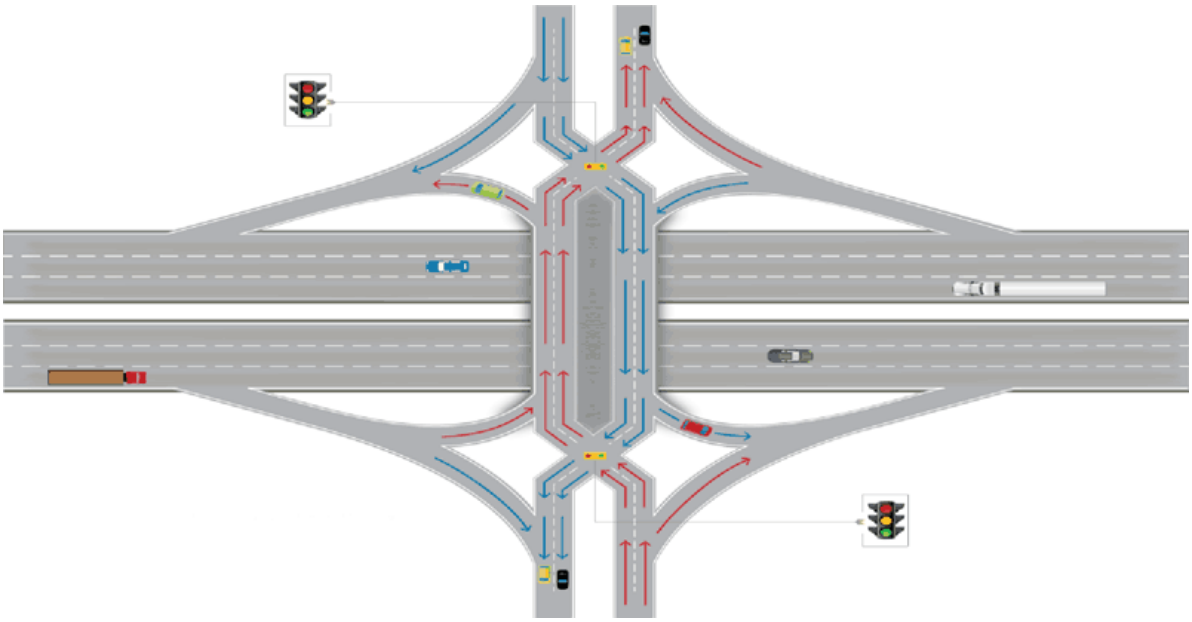
Figure 16: East New York Tunnel space-proofing study for Bus Rapid Transit (BRT)



There are two options to avoid the need for emergency walkways on both sides of the tunnel:

1. Use non-standard low floor transit vehicles with doors on both sides.
2. Implement the concept of a Diverging Diamond Interchange (DDI) to run the buses through the tunnel on the opposite driving side.[1] In this scenario, conceptually illustrated in **Figure 17**, a bus would travel through a signal and maneuver to the left-running tunnel so that its doors open onto the emergency walkway. After exiting the tunnel, it will cross through a signalized intersection to return to normal operations.

Figure 17: Illustration of a Diverging Diamond Interchange



Source: Wisconsin Department of Transportation

Figure 15 shows that the minimum width of a non-curbside lane operating at street level is 11 ft. With a single 2 ft 6 in emergency walkway surface in the 14 ft tunnel, a width of 11 ft 6 in remains for a travel lane that would run off-center from the tunnel (not illustrated in this report), free from the hazards and obstacles of running at street level.

In addition to the DDI configuration, equipping the proposed bus operation with a guidance system (mechanical or optical) would permit a more precise alignment through the tunnel similar to a fixed rail vehicle. Based on the benefit of a guidance system, the width of the clearance envelope could be reduced by at least 1 foot from 12 ft 6 in to less than 11 ft 6 in. This type of guidance system is currently in use on the Cleveland Health Line BRT to provide precision docking at stations. Another mechanical system used in Europe and in Adelaide, Australia, is a locking arm on the bus attached to a guidance rail. The system was developed by Mercedes Benz. Finally, various optical systems have been developed—an after-manufacture piece of equipment—that follows a guiding reflective line on the roadway. With these enhancements, a bus could operate in the East New York Tunnel.

[1] DDIs are in operation by the Federal Highway Administration and State Departments of Transportation, including the New York State Department of Transportation, e.g. I-590/Winton Road Interchange.

1.3 Tunnel Inspection and Repair

This preliminary assessment of the East New York Tunnel covers the evaluation of the current condition of the tunnel through visual inspection, and identification of appropriate repair methodologies, if required. Findings may be backed up by a more detailed testing program during subsequent phases of engineering design and development, which would include deep testing of the entire tunnel to confirm the extent of the remediation required.

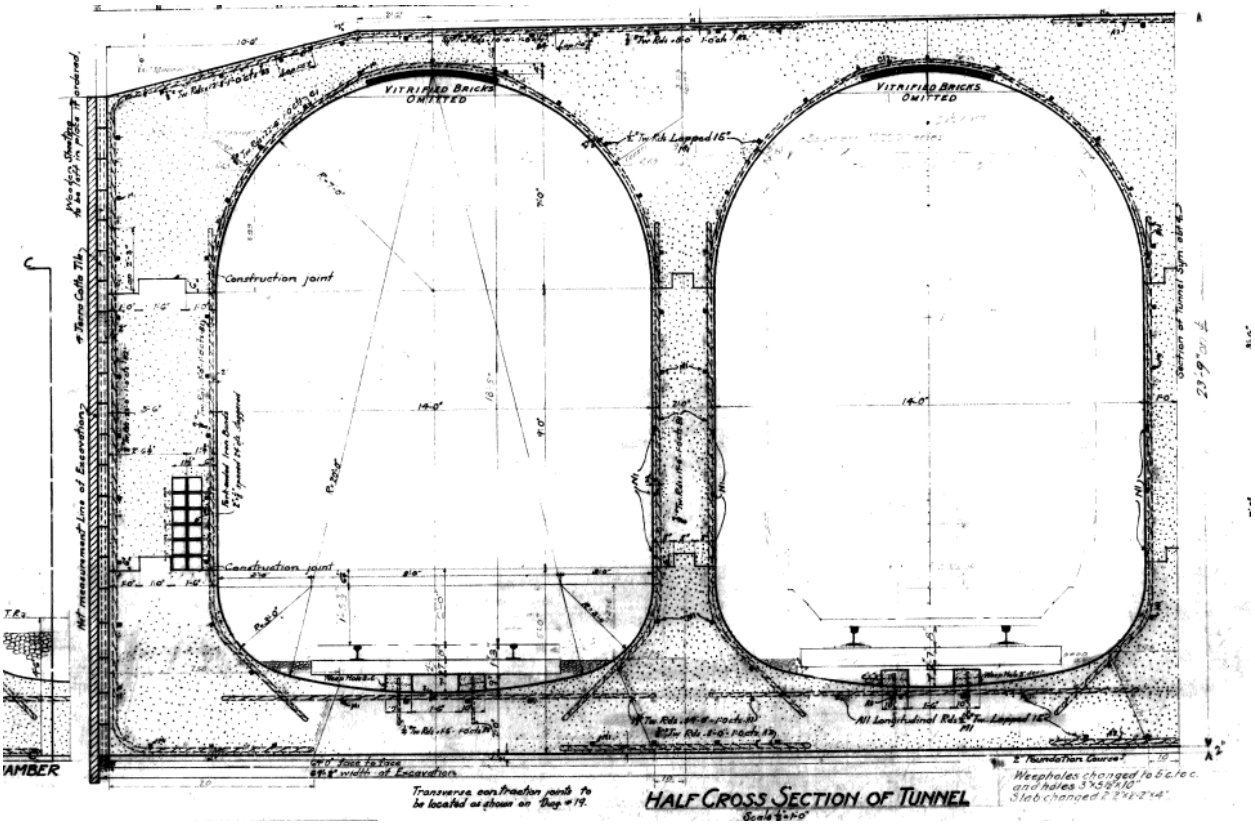
1.3.1 Concrete Repair Work

1.3.1.1 Existing Construction

The existing East New York Tunnel liner is a reinforced concrete structure. The internal walls of the tubes are 2 ft thick and the side walls adjacent to the ground are 3 ft thick. The concrete strength is not found on the available as-built drawings. In the next phase of the project, it is recommended that cores be taken from the tunnel structures to assess the quality of the concrete structure.

As shown in **Figure 18**, the walls are typically reinforced with 7/8" deformed round bars. Reinforcement at the time of the tunnel's design and construction would have been governed by ASTM15-1911: Standard Specification for Steel Reinforcement Bars. At the time, bars were available in three grades: Structural (Grade 33), Intermediate (Grade 40), and Hard (Grade 50). These grades respectively had a minimum yield stress of 33 ksi, 40 ksi, and 50 ksi. For this assessment, it will be assumed that all the reinforcement is grade 33.

Figure 18: Reinforcement details for the East New York Tunnel



1.3.1.2 Inspection and Evaluation

A field visit was undertaken in April 2022 to observe and document the current condition of the tunnel using standard photography.[2] The visual inspection will need to be supplemented with sketches, photographs, and videotapes, as appropriate during the next phase of the project's engineering design development. During the next phase of engineering design development cracks, spalls, corrosion of reinforcing steel, etc., would be identified as follows:

a) Cracks will be noted, and the type will be identified (i.e., structural or nonstructural). Structural cracks will be further identified, as flexure, shear, or direct tension, if known. Crack patterns might be plotted or photographed for documentation purposes.
b) Spalling, scaling, honeycombing, efflorescence, and other surface defects will be recorded.
c) Corrosion of reinforcing bars, including the extent and amount of lost cross section, will be recorded.
d) Loose, corroded, or otherwise defective connectors for precast concrete elements, or ties to architectural elements or cladding will be noted.
e) Water leakage, ponding areas, areas of poor drainage, or other indications of water problems will be noted.
f) Evidence of aggressive chemical deterioration such as sulfate attack and acid attack will be noted.

Figure 19 shows effects of chemical deterioration and concrete spalling at some spots in the East New York Tunnel.

[2] The evaluation of the tunnel is done based on the following standards:

a) Tunnel Operations, Maintenance, Inspection, and Evaluation (TOMIE) Manual, FHWA. Publication No. FHWA-HIF-15-005
b) Guide for Conducting a Visual Inspection of Concrete in Service. ACI 201.1R-08
c) Guide for Evaluation of Concrete Structures Prior to Rehabilitation. ACI 364.1 R-94

Figure 19: Severe deterioration and spalling of concrete

Visible damage is based on subjective criteria, and hence is generally difficult to quantify. Moreover, damage which is acceptable in one region or one type of structure may not be acceptable in another circumstance. ACI 364.1 recommends the following six-point assessment classification: 1) Unsafe; 2) Potentially hazardous; 3) Severe; 4) Moderate; 5) Minor; 6) Good condition.

Visible damage will be assessed based on the information shown in **Table 1**.

Table 1: Visible Damage Assessment

Damage	Description
Small Spall	A roughly circular depression not larger than 0.8” in depth, and less than 6” in diameter.
Large Spall	A roughly circular depression larger than 0.8” and 6” in depth and diameter, respectively.
Light Scale	Loss of surface mortar without exposure of coarse aggregates
Medium Scale	Loss of surface mortar to a depth of 0.2 to 0.4 inches. Coarse aggregate is visible.
Severe Scale	Loss of surface mortar to a depth of 0.2 to 0.4 inches, with loss of mortar around coarse aggregate to a depth of 0.4 to 0.8 inches
Very Severe Scale	Loss of surface mortar and coarse aggregate to a depth larger than 0.8 inches.
Fine/hairline crack	Cracks less than 0.04” wide
Medium cracks	Cracks between 0.04 and 0.08 inches wide
Wide cracks	Cracks wider than 0.08 inches.

Based on the preliminary assessment from the visual inspection (Appendix A) made during the site visit and subsequent information gathered through a video made of one of the tubes, it is estimated that 10% of the tunnel exhibited severe damage condition, showing scaling, spalling, and concrete deterioration. These areas would require surface repair and/or rebar replacement.

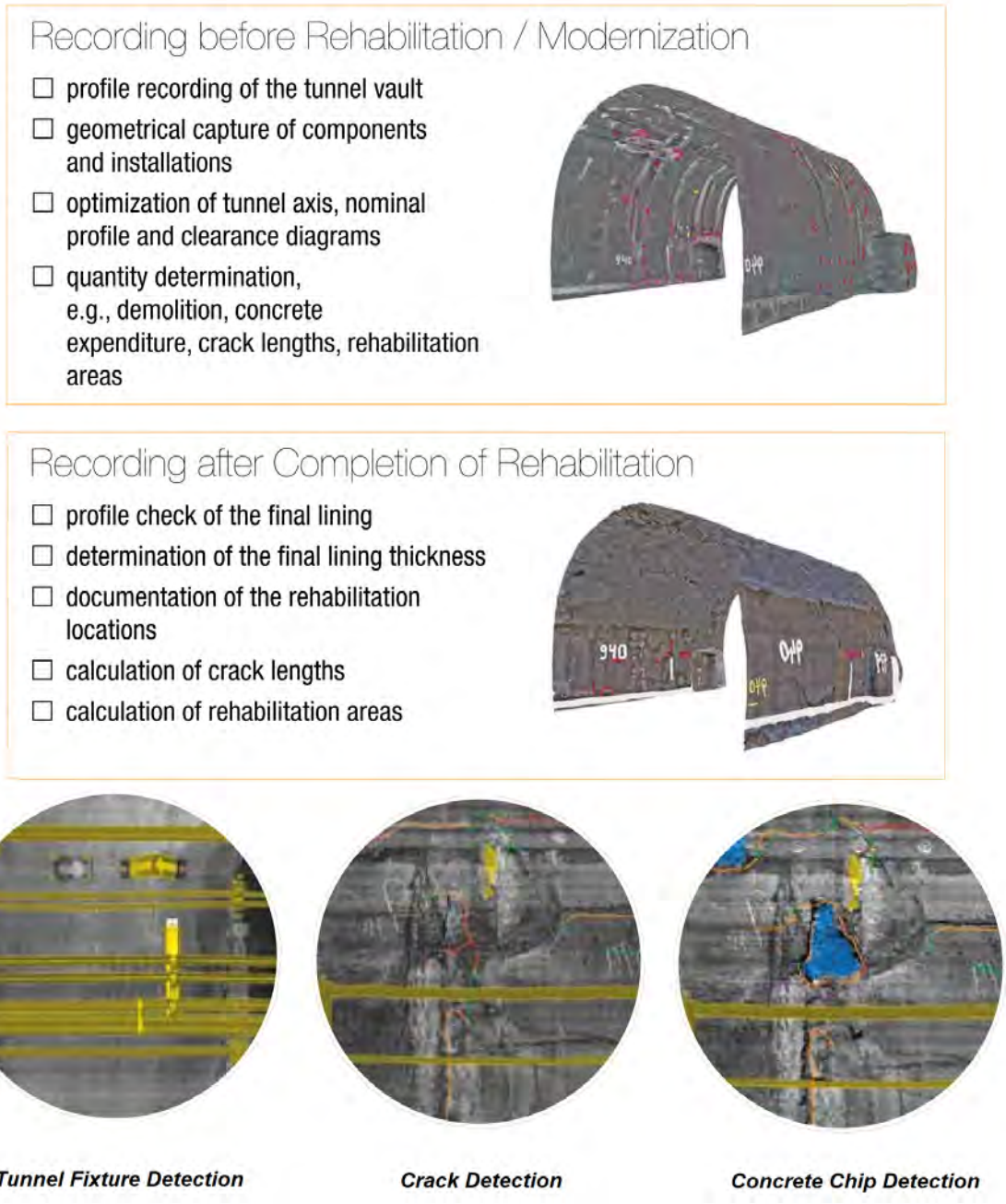
1.3.2 2D and 3D Laser Scanning

Laser scanning is recommended to be used in order to precisely estimate and quantify the level of effort needed to repair the existing concrete liner of the East New York Tunnel. This method is significantly faster and more accurate than lidar scanning. In this method, multiple high-speed laser scanners are used to acquire both 2D images and high-resolution 3D profiles of the tunnel lining. This system can scan a full tunnel for a 1 mm resolution image and 3D data at acquisition speeds up to 30 mph.

Once the tunnel lining is digitized, the tunnel lining data can be viewed and analyzed offline by operators using high-resolution 3D viewing and analysis software that allow high precision measurements of virtually any tunnel feature. Automatic analysis software is available to detect cables, cracks, chips, etc. Tunnels are scanned in two passes with laser scanning. One half of the tunnel is imaged while scanning in one direction of travel, and the other half is imaged while driving in the opposite direction. The two passes are automatically stitched together at the end.

Laser scanning can be used to record the data before rehabilitation of the East New York Tunnel to precisely determine the quantity of concrete expenditure, crack length and areas of rehabilitations. As shown in **Figure 20**, laser scanning can be used again after completion of rehabilitation work to profile check the final lining and documentation of rehabilitation areas. In the next phase, these observations can be supplemented with 3D and 2D laser scanning to provide a more detailed assessment of the structural condition and provide an optimized repair plan.

Figure 20: Example of 2D and 3D Laser Scanning



1.4 Summary

This report investigated various aspects of the East New York Tunnel to evaluate its suitability for incorporation into IBX operations. The AECOM Team performed a space-proofing analysis to assess whether clearances were sufficient for the vehicles in each alternative under consideration to remain compliant with prevailing regulations. Additionally, this memo reports the results of a tunnel inspection undertaken to determine the extent of repair and rehabilitation required and recommend more detailed inspections for future project phases to undertake.

The tunnel space-proofing analysis was performed considering NFPA 130 requirements, which provide for a reasonable degree of safety from fire and related hazards in fixed guideway transit and passenger rail system environments. A continuous emergency walkway, cross passageways, and FLS requirements must be implemented without impacting freight operations. The results of the analysis show that LIRR M9 railroad cars and NYCT B Division are too wide to fit in the existing East New York Tunnel. It was determined, however, that NYCT A Division transit cars and low-floor LRVs can fit in the existing tunnel. The analysis also showed that a bus can fit in the tunnel by implementing a series of measures, including left-hand running utilizing a DDI and mechanical and/or optical guidance mechanisms.

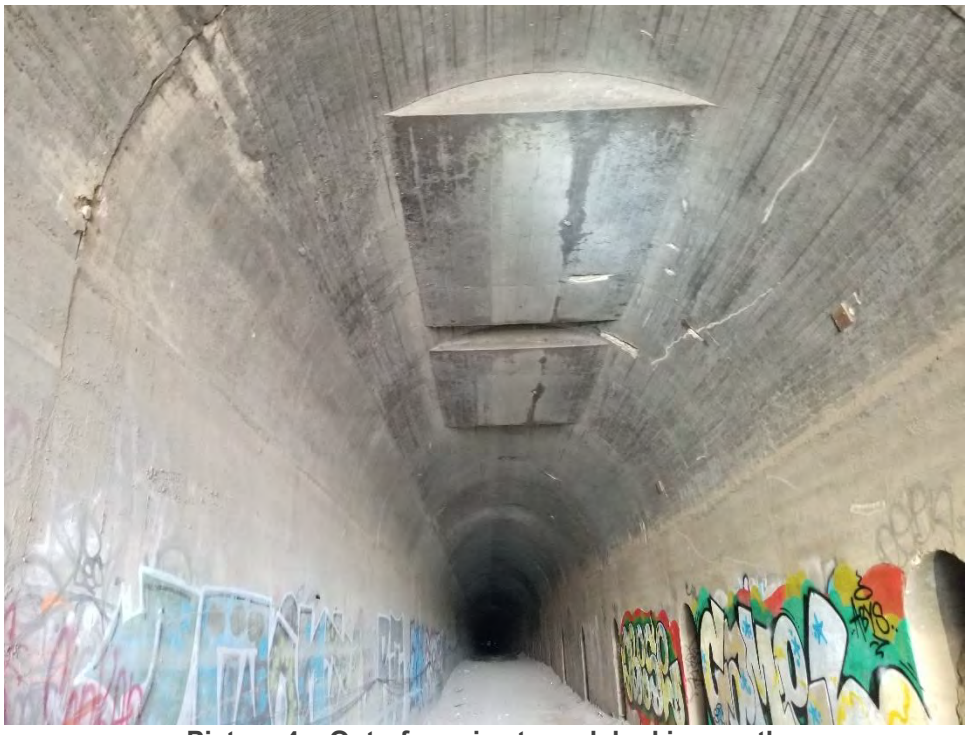
A field visit was undertaken in April 2022 to observe and document the current condition of the Tunnel. Visual inspections were conducted using ACI and FHWA guidelines. Based on the preliminary assessment from the visual inspection made during the site visit and subsequent information gathered through a video made of one of the tubes, it has been estimated that 10% of the tunnel exhibited severe damage condition, showing scaling, spalling, and concrete deterioration. These areas would require surface repair and/or rebar replacement. 3D laser scanning and high-resolution photography is recommended to be used to precisely estimate and quantify the level of effort needed to repair the existing concrete liner of the East New York Tunnel. After inspection, it was determined that the operation of IBX service through the Tunnel is feasible based on the repair and rehabilitation of the current visual damage, and a subsequent more detailed engineering investigation in future phases of the project.

Appendix A: Visual Inspection Record (Site Visit)

Picture 1 – View of East New York Tunnel entry, looking south

Picture 2 – View from inside active freight tunnel, looking south

Picture 3 – View from inside active freight tunnel, looking south



Picture 4 – Out-of-service tunnel, looking north

Picture 5 – Out-of-service tunnel depicting openings to adjoining tunnel

Picture 6 – Inactive tunnel, looking south

Picture 7 – Western tunnel looking at concrete spalling and deteriorated rebar

Picture 8 – Spalling and rebar deterioration at a concrete joint

Picture 9 – Inside out-of-service tunnel on west side

Picture 10 – Inside out-of-service tunnel on west side

Picture 11 – Inside existing freight tunnel direct track fixation

Picture 12 – Abandoned transit platform at south end of tunnel

Volume 1

Appendix 1.5 Tunnels & Overbuild Segments: Metropolitan Avenue and All Faiths Cemetery Tunnel

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

AUGUST 2022

IBX

Contents

2 Metropolitan Avenue & All Faiths Cemetery Tunnel

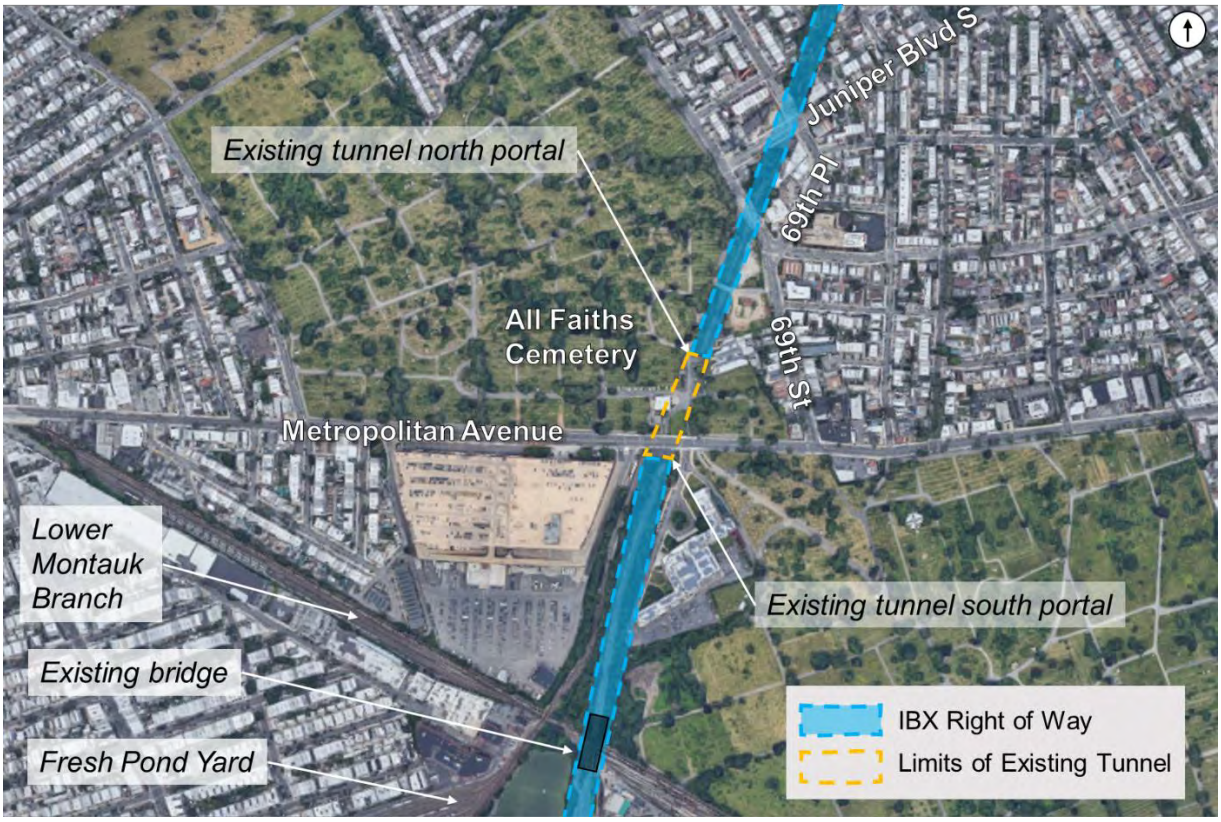
2.1 Introduction

Each of the three alternatives under consideration (conventional rail [CR], light rail transit [LRT] and bus rapid transit [BRT]) must traverse Metropolitan Avenue and All Faiths Cemetery in Queens. While LRT and BRT would exit the existing right of way and travel along streets to circumnavigate the cemetery, CR would travel underground in a new tunnel and rejoin the ROW upon resurfacing. Although a cut-and-cover structure currently exists along the ROW (discussed in more detail in subsequent sections), this tunnel currently contains two active freight tracks and is not wide enough to add trackage to accommodate IBX service. This technical memorandum investigates the feasibility of, and performs an alternatives analysis for, underground solutions for the CR alternative at Metropolitan Avenue and All Faiths Cemetery.

2.2 Existing Structures

This section describes the existing structures and features in the vicinity of Metropolitan Avenue and All Faiths Cemetery, which are illustrated in **Figure 1**.

Figure 1: Metropolitan Avenue and All Faiths Cemetery Existing Conditions



2.2.1 Fresh Pond Yard

Fresh Pond Yard is located about 1,500 feet south of Metropolitan Avenue. There is an existing bridge over Fresh Pond Yard with two tracks, which are used daily by the New York & Atlantic Railway (NY&A) to traverse Fresh Pond Yard. There are embankments on both ends of the bridge abutment. There is also a spur track which connects freight line services from the Bay Ridge Branch to Fresh Pond Yard and the Lower Montauk Branch.

2.2.2 Existing Freight Tunnel

Freight service extends from the bridge over Fresh Pond Yard toward Metropolitan Avenue. This segment of the existing freight line is on embankment. There is a cut-and-cover box under Metropolitan Avenue and the All Faiths Cemetery entrance, buildings and structures. Two side-by-side tracks are present within this tunnel, which is approximately 30 feet wide, and approximately 520 feet long. The existing northern portal connects to the open cut of the CSX Fremont Secondary.

2.2.3 Existing Bridge Crossings

After the ROW emerges from the tunnel and proceeds north into the open cut, it passes underneath bridge crossings at Cemetery Road, 69th Street, and the intersection of 69th Place and Juniper Boulevard South.

2.3 Tunnel Alternatives

Two options are considered for the CR tunnel under Metropolitan Avenue and All Faiths Cemetery, including a short, shallow concept tunnel, and a long, deep concept tunnel.

2.3.1 Short, Shallow Concept

The short, shallow concept tunnel would have an underground length of approximately 515 feet, at a depth of at least 18 feet under Metropolitan Avenue and All Faiths Cemetery, with 0.5% grade toward the north portal. The proposed tracks would go down with 2.5% grade about 50 feet north of Fresh Pond Yard bridge crossing. A new bridge running parallel to the existing bridge above Fresh Pond Yard and the LIRR Lower Montauk Branch is needed in this alternative to accommodate two new tracks. The southern approach structure would be approximately 700 feet in length. The proposed tunnel runs parallel with the existing cut-and-cover box under Metropolitan Avenue and All Faiths Cemetery, and would minimize construction impacts on All Faiths Cemetery. The tracks would rise with 2.5% grade after the north portal and would return to the existing grade after approximately 470 feet.

The tunnel plan and profile for the short, shallow concept tunnel is shown in **Appendix A**.

Under this option, the proposed Metropolitan Avenue Station would be an open cut station where the Top of Rail (TOR) is about 10 feet below the existing grade. The station's side platforms would be 540 feet long and on 0.5% grade toward the tunnel south portal. Connection to the M Line would be achieved by exiting IBX service onto Metropolitan Avenue and re-entering the system at the Metropolitan Avenue M Line station via a free transfer.

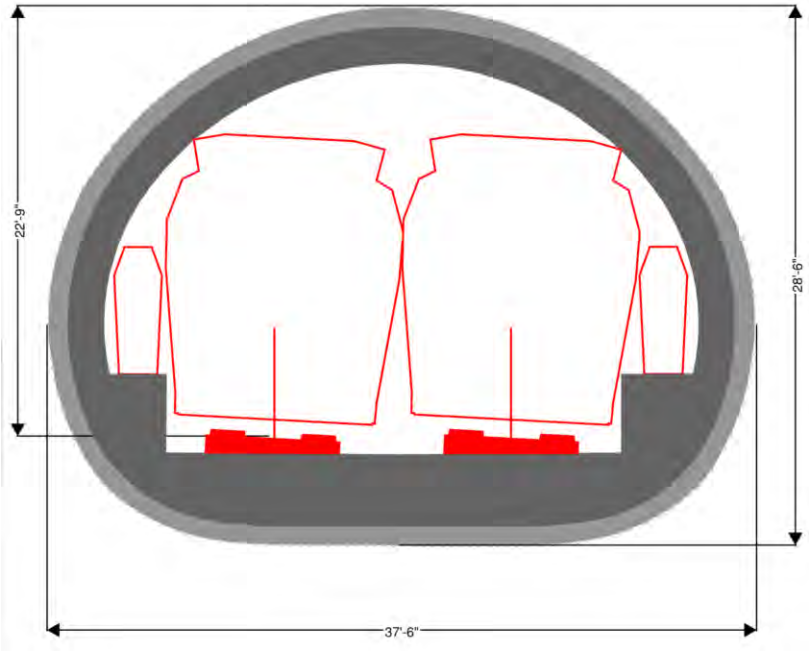
The lengths of all components for this concept are shown in **Table 1**.

Table 1: Length of underground elements for Short, Shallow Concept Tunnel

Underground Element	Approximate Length (in feet)
South approach structure	700
Metropolitan Avenue Station	540
SEM tunnel	515
North approach structure	470
Total	**2,225**

The tunnel would be about 37.5 feet wide and 28.5 feet tall, accommodating side-by-side tracks with safety walkways on each side of the tunnel. The tunnel section is shown in **Figure 2**.

Figure 2: Short, shallow concept under Metropolitan Avenue and All Faiths Cemetery - SEM tunnel



The tunnel would be constructed using the Sequential Excavation Method (SEM). Also known as the New Austrian Tunneling Method (NATM), SEM is used for the construction of shallow, mined tunnels. The principle behind the SEM is the integration of ground behavior under loading and the continuous monitoring of the underground construction. Therefore, optimized support depends on the observed site conditions and the prevailing rock/soil strength. The proposed tunnel is divided into multiple segments. Each segment is mined using an excavator in a sequential manner. As soil from each segment is removed, sprayed concrete known as shotcrete is applied around the excavation. Additional excavation support is provided by installing lattice girders. Considering the minimal amount of cover above the SEM tunnel under Metropolitan Avenue and All Faiths Cemetery, pre-excavation support measurements such as pipe roofing or forepoling is also needed. The SEM tunnel in this case would be temporarily supported by layers of shotcrete and lattice girders. A permanent concrete liner would be installed thereafter.

2.3.2 Long, Deep Concept

The long, deep concept tunnel has a total bored length of 4,400 feet, more than 8 times the underground length of the short, shallow concept tunnel. The south open-cut section would start after Cypress Hills Street, with trackage going down at a 2.0% grade until there is sufficient cover for a cut-and-cover structure. The existing spur track connecting the Bay Ridge Branch to Fresh Pond Yard should be relocated in this alternative to accommodate space for the south open-cut and south cut-and-cover structures. The combined length of the south cut-and-cover and south open-cut sections would be approximately 1,300 feet. The track grade after Fresh Pond Yard crossing would be reduced to 0.25% and would continue with this grade under the Metropolitan Avenue and All Faiths Cemetery. The maximum grade considered for the bored tunnel is 2.0%. The tunnel would run more than 60 feet below Metropolitan Avenue and All Faiths Cemetery, and almost parallel with the existing cut-and-cover box. Therefore, construction impacts on the existing tunnel and All Faiths Cemetery buildings and structures would be significantly minimized.

The proposed IBX Metropolitan Avenue Station would be fully underground in mezzanine and platform levels. Its side platforms would be 540 feet in length and have a grade of 0.25%. The TOR at this station would be about 60 feet below the existing grade. As per NFPA 130 standards, no additional emergency egress is needed in this tunnel concept, as the distances of the station entrances to the north and south open cut sections are less than 2,500 feet away from the station. An “in-system” (free) transfer for passengers between this station and the existing M Line station would be provided by an underground connection between the IBX station mezzanine and M Line service. Access to the M Line platform will be via elevator, and escalators.

The track would rise again with 2.0% grade after 69th Street bridge crossing. The overall length of the north cut-and-cover and north open-cut sections would be about 1,500 feet. The track would return to existing grade before the bridge crossing at Eliot Avenue. The existing CSX freight track would require relocation between 69th Place/Juniper Boulevard South and the Eliot Avenue crossings to accommodate the north approach structures.

The tunnel plan and profile for the long and deep bored tunnel concept is shown in **Appendix B**.

The lengths of all components for this concept are shown in **Table 2**.

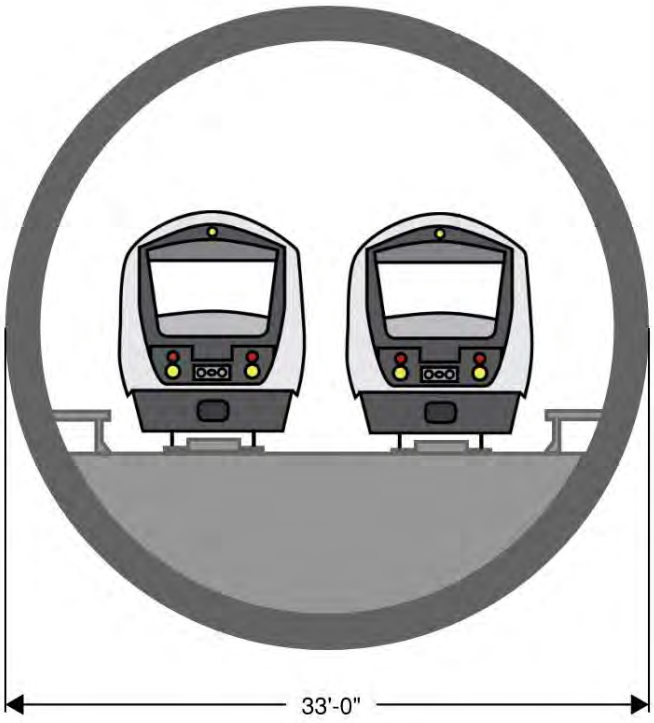
Table 2: Length of components for Long, Deep Concept Tunnel

Underground Element	Approximate Length (in feet)
South open cut	890
South cut and cover	400
Bored tunnel	4,400
Metropolitan Avenue Station	540
North cut and cover	330
North open cut	1,170
Total	**7,730**

A single-tube bored tunnel with side-by-side tracks would be constructed using a Tunnel Boring Machine (TBM). The tunnel diameter would be 33 feet and accommodate safety walkways on each side of the tunnel. The TBM launch shaft would be located at the north end of the south cut-

and-cover structure, between Otto Road and the existing tracks, with a retrieval location north of the 69th Place and Juniper Boulevard South intersection. A minimum curve radius of 1,000 feet is considered all along the bored tunnel section. The bored tunnel would go under the existing Fresh Pond Yard by maintaining at least half of a TBM diameter. The bored tunnel section is shown in **Figure 3**.

Figure 3: Long, deep concept under Metropolitan Avenue and All Faiths Cemetery - bored tunnel



A pressurized shielded TBM would be needed considering the soft ground conditions expected in this part of Queens. There are generally two types of pressurized machines: Earth Pressure Balance (EPB) Shield Machine and Slurry Shield Machines.

The face of an EPB Shield Machines is pressurized by making use of the excavated ground. Soil is excavated by the cutting wheel and enters the excavation chamber. The volume flow of entering soil can be regulated through the excavation speed of the shield machine. Support pressure is regulated by the extraction flow of the screw conveyor and by the injection of foam for soil conditioning when the excavation is performed through coarser ground. The primary application range of EPB Shields is in fine-grained soil, where soil may be conditioned only by water.

In Slurry Shield Machines, the excavation chamber (front chamber) and working chamber (back chamber) are filled with a slurry, i.e., a suspension of water and bentonite particles, which consists mostly of montmorillonite clay minerals. The excavation chamber is separated from the working chamber by a submerged wall. The flow between the two chambers is ensured by an opening at the bottom of the submerged wall. The support pressure in the excavation chamber is controlled by regulating the pressure of the compressed-air reservoir in the pressure chamber. The excavated soil is mixed with the suspension and pumped through the suction inlet and slurry discharge pipe to a separation plant at ground level. Fresh or regenerated slurry is continuously

supplied into the excavation chamber by a slurry feed pipe. Additionally, the machine is equipped with a sieve grill and stone crusher before the suction inlet to reduce the size of cobbles for hydraulic transport by the slurry discharge pipe. The primary application range of slurry shields is in coarse-grained soils. However, anti-clogging measures can be taken if finer grain soils are encountered.

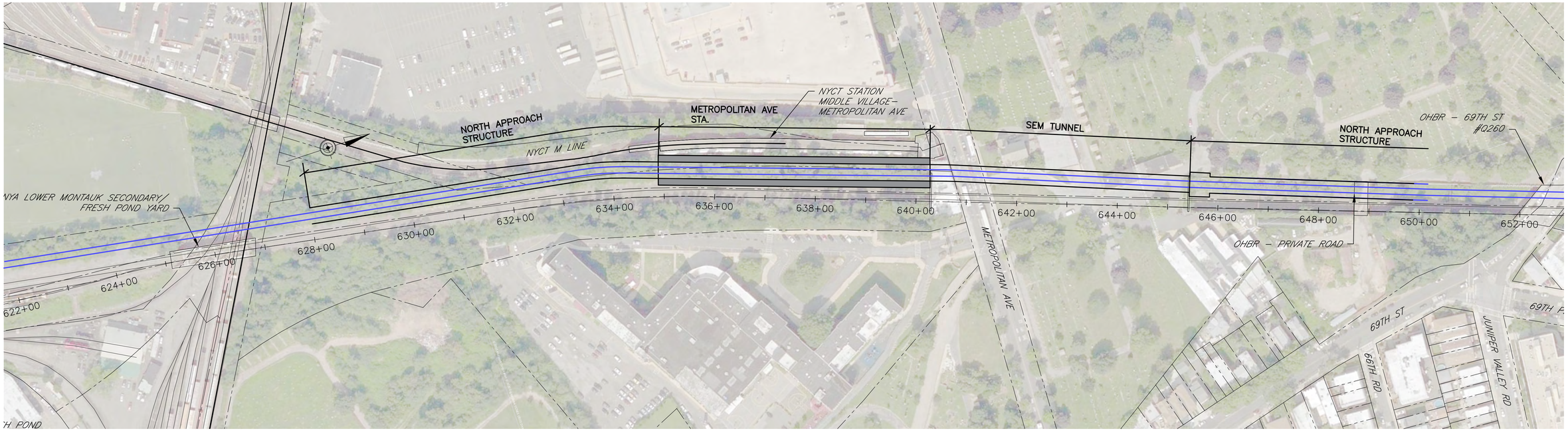
2.3.3 Comparative Analysis

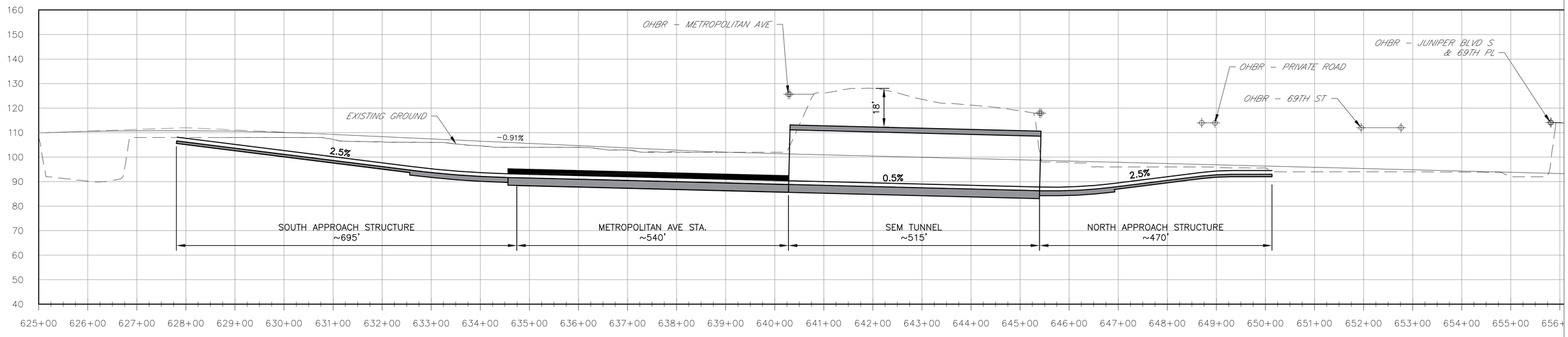
The pros and cons of each tunnel concept under Metropolitan Avenue and All Faiths Cemetery are listed in **Table 3**.

Table 3: Pros and cons of tunnel concepts under Metropolitan Avenue and All Faiths Cemetery

Short, Shallow Tunnel (SEM)		Long, Deep Tunnel (TBM)	
Pros	**Cons**	**Pros**	**Cons**
Construction		**Construction**	
• Lower capital cost • Shorter overall construction schedule	• Only 18 ft below All Faiths Cemetery • High risk of surface impacts to cemetery • Construction of Fresh Pond Junction / Lower Montauk Branch overpass required	• Sufficient distance (60 ft) below All Faiths Cemetery • Minimum risk of surface impacts to cemetery	• Higher capital cost • Longer overall construction schedule
Freight operations		**Freight operations**	
	• Subject to increased rail freight activity at Fresh Pond Junction	• Bypass Fresh Pond Junction / Lower Montauk Branch and freight activity	
Metropolitan Station		**Metropolitan Station**	
• Less complicated Fire Life Safety requirements • Faster access to street level	• Passengers subject to weather conditions	• Improved direct passenger transfer to M Line • Climate controlled station	• More complicated Fire Life Safety requirements • Increased number of elevators and escalators

Appendix A: Short, Shallow Tunnel Concept (SEM)





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PHILADELPHIA, PA 19103

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SHORT, SHALLOW CONCEPT

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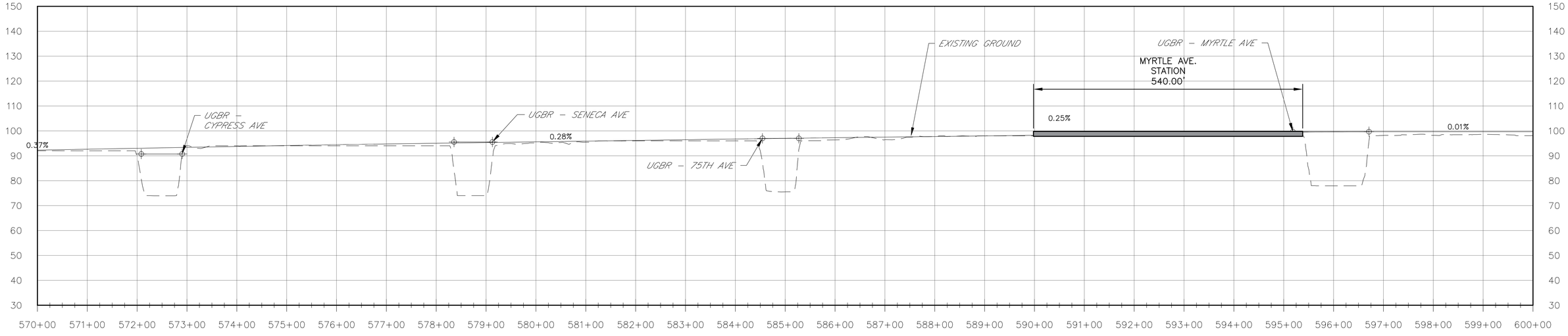
Appendix B: Long, Deep Tunnel Concept (TBM)



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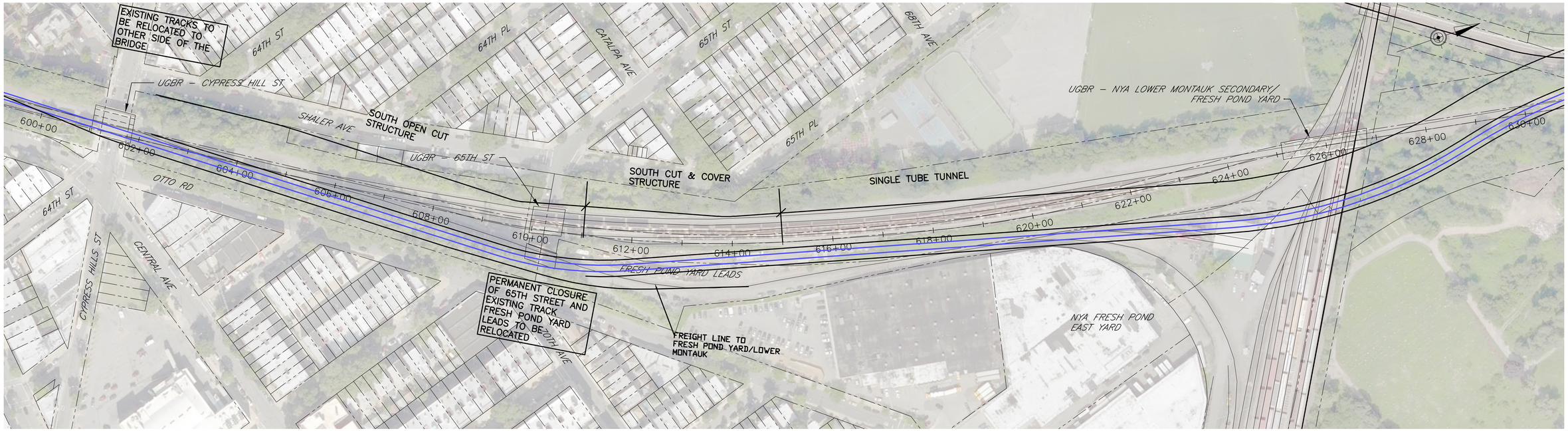

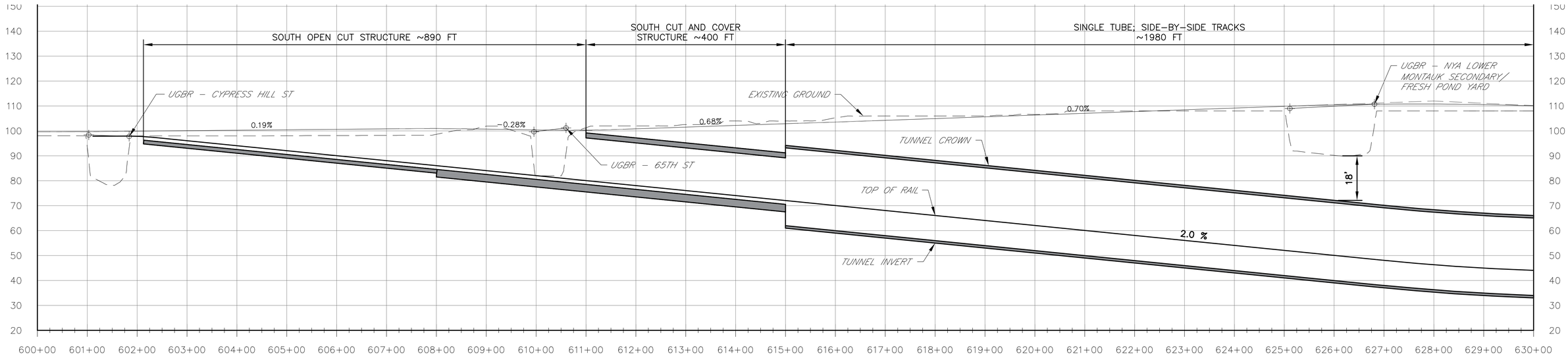

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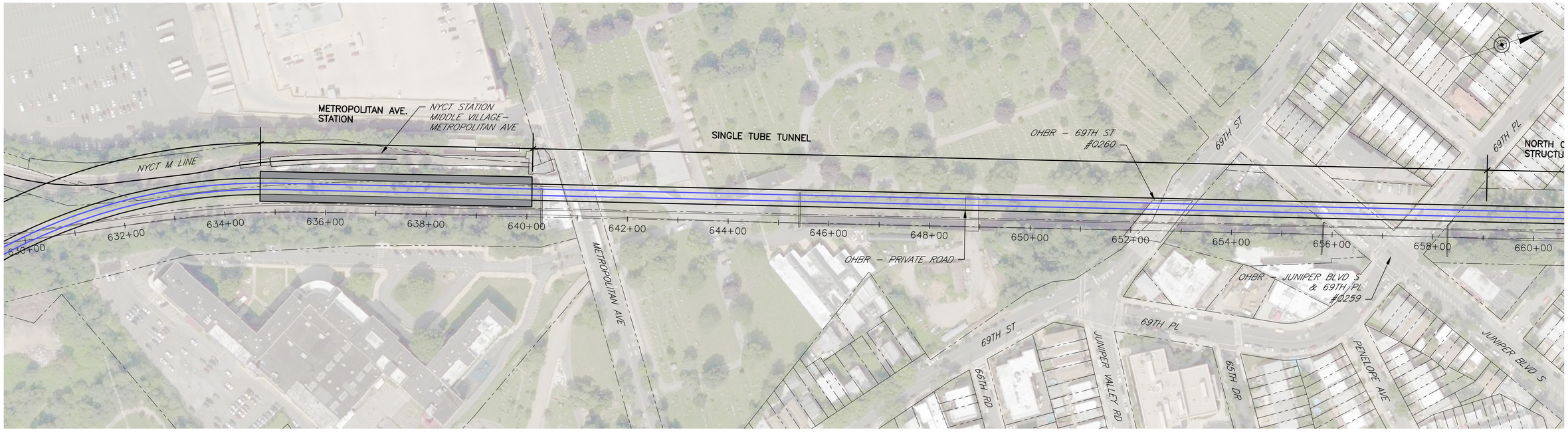

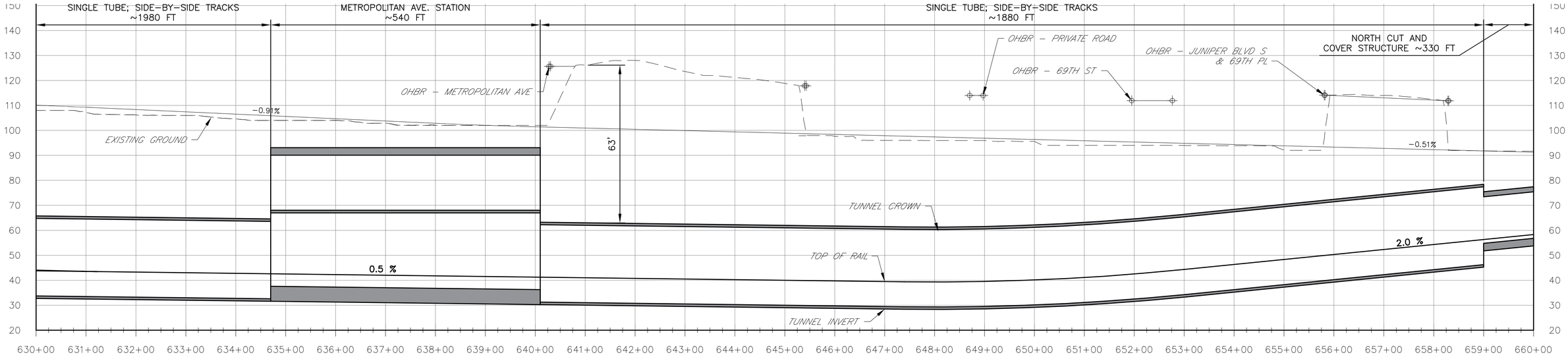

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MTA BAY RIDGE CONNECTOR

TRACK PLAN AND PROFILE LONG, DEEP CONCEPT

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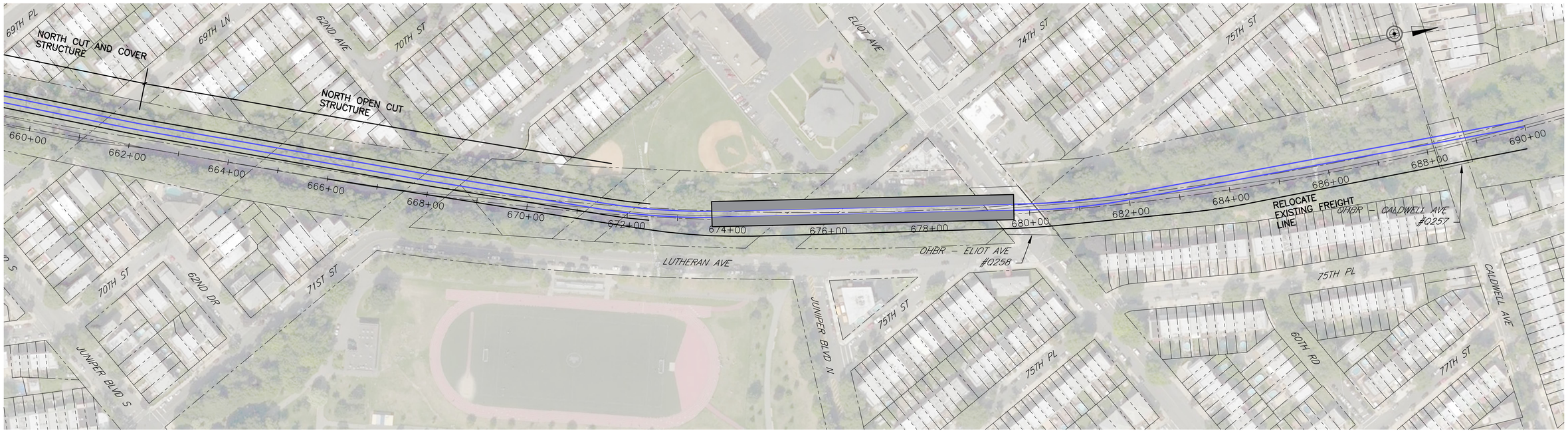

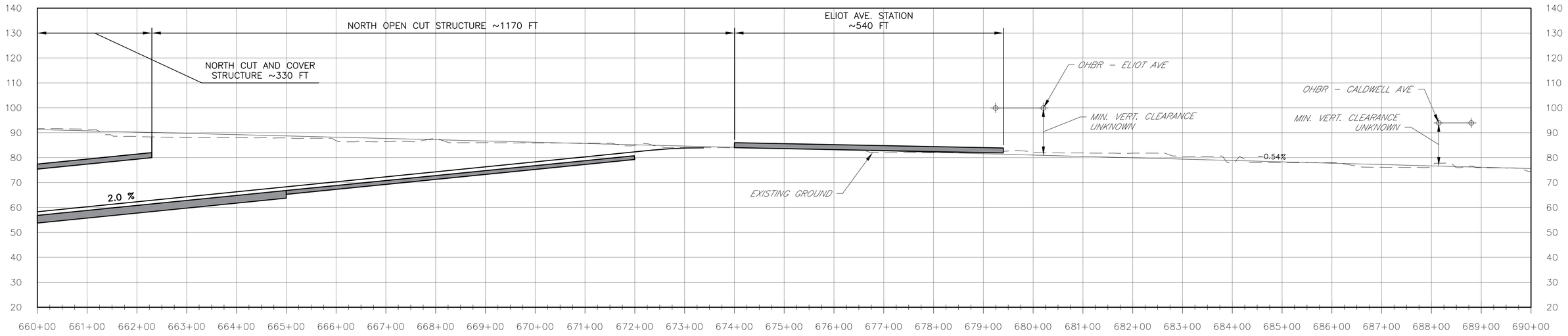

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SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 4 OF 4

Volume 1

Appendix 1.6 IBX Alignment Updates

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

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IBX

Contents

Overview of Updates and Revisions to Alternatives

As part of preparing the Planning-Environmental Linkage (PEL) Report for the Interborough Express (IBX) project, each alternative under consideration— Bus Rapid Transit (BRT), Light Rail Transit (LRT), and Conventional Rail (CR)—has undergone further planning and engineering review. This review identified several critical elements of design and operation that have required updating since their original treatment in the IBX Feasibility Study and Alternatives Analysis (hereafter referred to as the "IBX Feasibility Study"), including the following:

- Major Alignment Revisions
- Effects of Tunnels – Existing and New
- Revised Vehicle Specifications
- Impact on Street Operations
- Queens Terminal Operations

This technical memorandum documents the updates and revisions to proposed alignments and operations of each alternative as a result of the reviews and analyses performed during the PEL Study.

Major Alignment Revisions

BRT and LRT

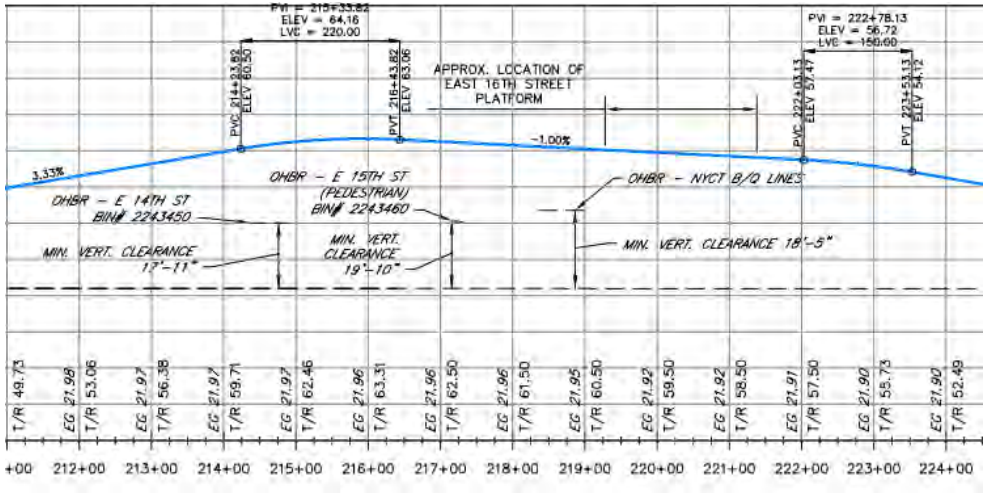
During the IBX Feasibility phase, the BRT and LRT alignments in Brooklyn were proposed to be on aerial structures that would carry passenger vehicles over the freight tracks in the below-street-level segments of the Bay Ridge Branch (segments "in the cut"). Doing so avoided the need for these modes to travel alongside freight trains and to interact with freight rail crossovers at several points along the corridor where freight trains may need to cross passenger tracks to access sidings. Since the alignments operated at the same level of the surrounding streets, the project required 24 existing bridge locations to be modified to become new transit intersections, complete with traffic and pedestrian signals.

At the start of the PEL Study, a Technical Advisory Committee (TAC) was formed to review and provide comments on the project as it affected their agencies and organizations. After being briefed on the BRT and LRT alignments, TAC members expressed concerns for pedestrian safety at these new transit intersections, as well as the potential for adverse impacts to on-street vehicle operations. As a result of these discussions, 24 street-level BRT/LRT intersections in Brooklyn were eliminated in favor of the alternatives operating below street level.

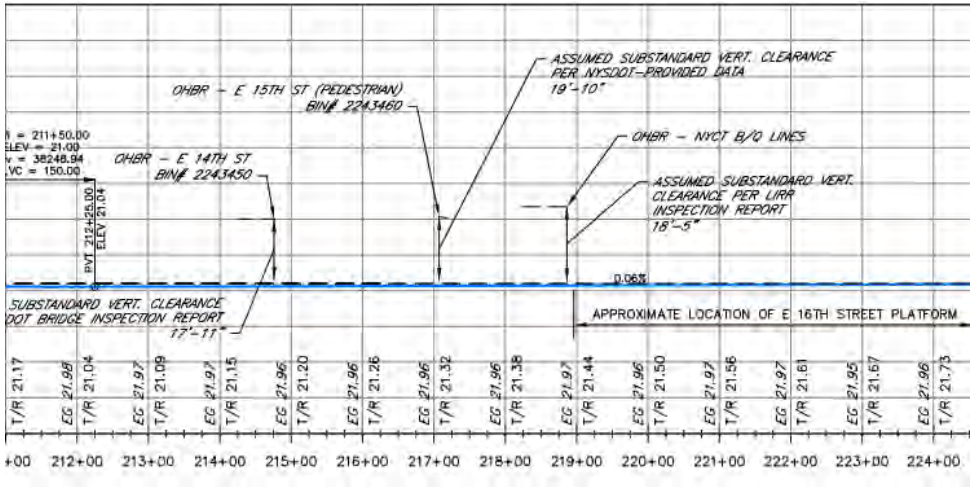
These alignments were subsequently relocated to the cut of the Bay Ridge Branch, similar to CR, which operates entirely within the freight rail right of way (ROW). The revision to the alignment for each alternative also resulted in several street-level stations to be relocated into the rail cut. **Figure 1** illustrates the same section of alignment in Brooklyn for BRT and LRT before and after this revision.

Figure 1: Typical profile views of BRT/LRT alignments in Brooklyn before and after revision

Original Profile and Conceptual Cross Section



Revised Profile and Conceptual Cross Section



Tunnels

East New York Tunnel

All the alternatives will require the use of the existing East New York Tunnel in Brooklyn. The existing tunnel, which was built over a hundred years ago, is proposed to be rehabilitated and upgraded to meet current National Fire Protection Association (NFPA) 130 guidelines and Fire Life Safety (FLS) requirements. Two of the three available tunnel trackways will be used for IBX service. A better understanding of the dimensions and configuration of the tunnels was gained during the PEL Study, which resulted in revisions to certain operating characteristics and revenue equipment that may be used.

Bus Rapid Transit

Operation

Review of the proposed tunnel rehabilitation indicated that a standard bus would not fit in the East New York Tunnel due to FLS emergency safety walkway requirements on both sides of the passageways. The width of a bus without its mirrors fully deployed (its static envelope) is 10 feet 5 inches, and each safety walkway is 2 feet 6 inches wide. A minimum width of 15 feet 5 inches would be required, which exceeds the 14-foot passageway widths of the East New York Tunnel.

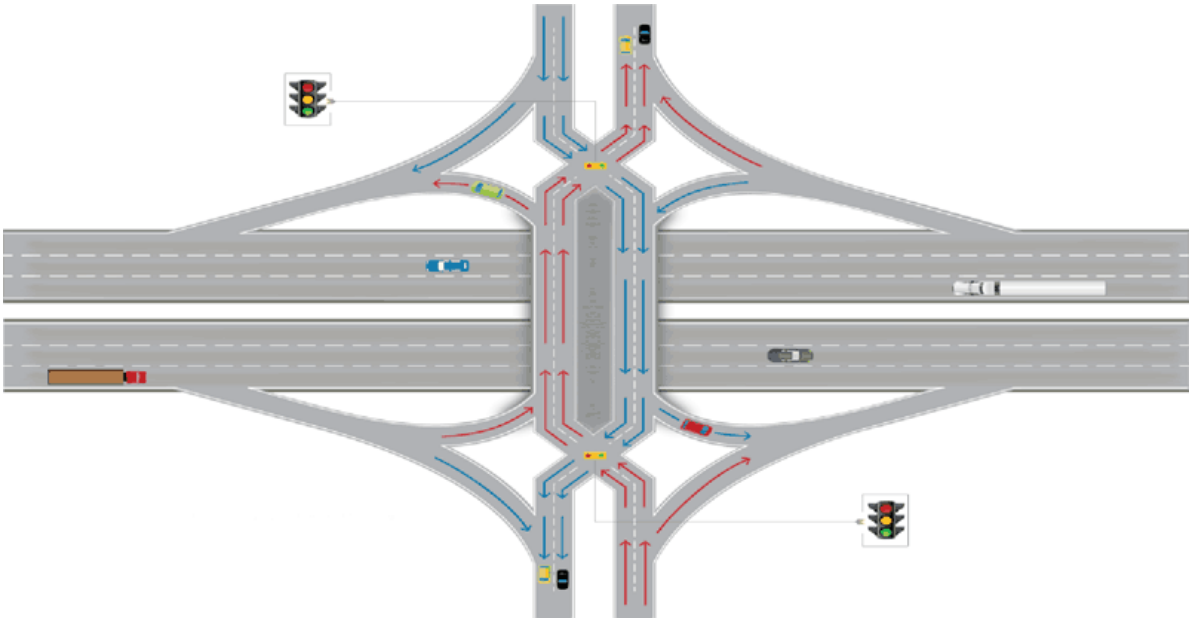
Additionally, when factoring in the operational outline of a standard bus (its dynamic envelope), a minimum roadway width of 11 feet is required. Combining this roadway width with the widths of safety walks on each side of the tunnel exceeds the 14-foot width of the tunnel passageways.

Alignment and Operational Revision

For the bus to operate safely through the tunnel, the width of the proposed bus envelope (roadway and safety walks) needed to be reduced by a minimum of 2 feet. The elimination of one of the 2 walkways would provide the needed reduction. To maintain the walkway on the side between the two tunnels to access the cross-passageways between the tunnels is proposed as a FLS measure in an emergency condition. The current project alignment features transit tracks on the north side of the rail corridor (assuming the IBX alignment is east-west), with freight operations on the south side. For bus passenger doors, emergency walkway, and emergency cross-passageways to be on the same side, the buses would need to engage in a maneuver to facilitate left-hand tunnel running through a “Diverging Diamond Interchange” (DDI). Buses would cross over prior to entering the tunnel and again upon exiting the tunnel. A tunnel signal system would be required for the operation of the lane change at each end of the tunnel. A diagram indicating the concept of a DDI[1] is shown in **Figure 2**.

[1] DDIs are in operation by State Departments of Transportation, including the New York State Department of Transportation, e.g. I-590/Winton Road Interchange.

Figure 2: Illustration of a Diverging Diamond Interchange



Source: Wisconsin Department of Transportation

In addition to the tunnel lane change, given the remaining clearance width of 6 inches within the tunnel, a method to minimize lateral movement of the bus will be required. A guidance system would offer such movement abatement. While there are several systems that have been deployed across the world, they all require a mechanical attachment on the bus and/or an adjacent guiderail structure or guidance markings along the roadway. The suggested system would have a guidewheel mounted on the bus chassis which would engage the edge of the emergency walkway to maintain a constant safe distance between the tunnel walls. This system has successfully been utilized in Cleveland, Ohio, for the Health Line BRT system on Euclid Avenue for use at bus stops for precision "docking" with the passenger platform.

Light Rail Transit

The LRT alignment would require no changes to operate through the rehabilitated tunnel. Both the static outline of the approximately 9-foot-wide vehicle and the dynamic envelope fit within the existing 14-foot width of each tunnel.

Conventional Rail

Operation

Like the BRT alternative, CR will encounter operational issues due to its vehicle's static and dynamic envelopes. The Long Island Rail Road's (LIRR's) standard electrical vehicle (the M-9 car) is 10 feet 8 inches wide. With the need for a raised 2 feet 6-inch-wide emergency safety walkway, the M-9's vehicle dynamic envelope is too wide for the existing tunnel width.

Alternative and Operational Revision

CR is limited to vehicles with a width of no more than 9 feet. Both Federal Railroad Administration (FRA)-compliant and non-FRA-compliant cars exist that would enable the operation of this alternative. Such vehicles include the Port Authority of New York and New Jersey's (PANYNJ) PATH

equipment or other vehicles compatible within the dimensions of the East New York tunnel. Any vehicles contemplated under this alternative would be fully FRA-compliant.

New Tunnel under Metropolitan Avenue and All Faiths Cemetery

BRT and LRT

A new tunnel under Metropolitan Avenue and All Faiths Cemetery is not required for BRT and LRT because these two modes can operate on-street to bypass the cemetery and re-enter the CSX Freemont Secondary cut after crossing Juniper Boulevard South, a distance of under a mile. These alternatives operate using either on-board battery electric (BRT) or overhead catenary (LRT) power.

CR

A new tunnel is required as part of the CR alternative. Two options for construction of the double track tunnel were considered during the PEL study.

- A “short, shallow tunnel” constructed using the Sequential Excavation Method (SEM). The depth of the tunnel would be between approximately 18 feet below the surface and be approximately 2,100 feet long. A station at Metropolitan Avenue would be in a below-grade cut.
- A “long, deep tunnel” constructed utilizing a Tunnel Boring Machine (TBM). The depth of the tunnel would be approximately 60-80 feet beneath the surface and have an overall length of approximately 7,700 feet. The proposed Metropolitan Avenue Station would be in tunnel approximately 60 feet below the surface.

The long, deep tunnel option was incorporated into the alignment for the CR alternative based upon the potential risk of ground settlement and damage to All Faiths Cemetery, and to minimize potential impacts with future freight operations at Fresh Pond Junction.

Vehicle Requirements

BRT

The proposed bus for this alternative would be a battery electric powered low-floor articulated vehicle approximately 60 feet long. The vehicle would have a standard width for a transit vehicle but would be specially outfitted with a mechanical guidance system for operation through the East New York Tunnel. This mechanical guidewheel would be attached on the side towards the front of the bus and provide a constant distance from the tunnel wall.

This mechanical guidance wheel is not typically provided by the bus manufacturer and would have to be developed as part of the bus specification. The same would apply to electrically-operated folding side mirrors, which would be necessary due to the restrictive tunnel width.

LRT

LRT vehicles are typically 8 feet 6 inches to 9 feet in width, the de facto standard for recent LRT vehicle procurements in the United States. Operators may equip add-ons such as Passenger Information Displays (PIDs), or real-time onboard security cameras, features that are typically available from most manufacturers as factor modifications. Additional equipment may include Traffic Signal Priority (TSP) systems for extending or pre-empting traffic signals for on-street operation on Metropolitan Avenue around All Faiths Cemetery. If feasible, the vehicles may potentially have

auxiliary onboard energy storage capabilities to facilitate street-running operations along certain portions of the alignment.

CR

A passenger vehicle with a narrower profile than the standard LIRR M-9 car will need to be procured for this alternative. The vehicle would be similar in width to the PATH PA5 car. Under the conventional rail alternative, it is assumed that the vehicle would be fully FRA-compliant.

Street Operations

BRT and LRT

The LRT and BRT alternatives would feature a street-running segment of under one mile in Queens. These areas include:

From the M Line Station along Metropolitan Avenue-to-69th Street-to-69th Place-to-Juniper Boulevard South ~ 2/3 mile in length (BRT and LRT)

It is assumed that a lane of traffic could be affected by the introduction of mixed traffic for either mode along the operation on street. While specific plans will be developed in future project stages, this could include a reduction in on-street parking on 69th Street and 69th Place. The BRT alternative would use battery electric power for the operation of the buses. The capital cost estimate of the LRT alternative in the IBX Feasibility Study assumed the construction of catenary wire and support poles for providing power to the vehicles for on-street operation, though LRT vehicles could be equipped with auxiliary battery electric power for use on street instead of the overhead catenary system if feasible.

From the Freemont Secondary ROW along Roosevelt Avenue-to-Broadway-to-75th Street ~ 900 feet in length (BRT Only)

Assuming a direct service to the Roosevelt Avenue/74th Street subway station and bus terminal, the vehicular traffic impact of LRT operations along Roosevelt Avenue and Broadway near the Queens terminal was simulated utilizing Vissim modeling software. The impact was developed for the horizon year of 2045 with the result that vehicular delay along Roosevelt Avenue would increase in the peak direction. In addition, specific traffic movements were identified to deteriorate further from No-Build conditions. If this alternative is selected, more detailed traffic studies would be required to determine the full-impact and potential mitigations.

The travel time comparative results of the Vissim Analysis are presented in **Table 1** and **Table 2**.

Travel Time Comparison: No Build vs. Build

Table 1 - AM Peak Hour 7:30 – 8:30 AM

Direction	From	To	2045 No Build (mm:ss)	2045 Build (mm:ss)	Difference (mm:ss)	Difference (%)
EB Roosevelt Ave	69th Street	76th Street	02:36	02:28	00:08	-4.9%
WB Roosevelt Ave	76th Street	69th Street	02:53	04:22	01:29	51.2%

Table 2 - PM Peak Hour 4:30 – 5:30 PM

Direction	From	To	2045 No Build (mm:ss)	2045 Build (mm:ss)	Difference (mm:ss)	Difference (%)
EB Roosevelt Ave	69th Street	76th Street	02:57	03:34	00:37	21.2%
WB Roosevelt Ave	76th Street	69th Street	03:13	03:12	00:01	-0.5%

LRT operation would require elimination of parking along the south side of Roosevelt Avenue between the rail right of way and Broadway, as well as along the west side of Broadway between Roosevelt Avenue and 75th Street. Due to these findings, the LRT alignment would terminate in the rail cut, and would not operate in mixed traffic along Roosevelt Avenue, thereby eliminating delays and impacts on turning movements.

BRT service, which would operate along the parking lanes on Roosevelt Avenue in both directions would result in a delay no worse than the LRT operation, subject to further traffic analysis during the NEPA project phase if the BRT alternative is selected. Along Broadway the BRT would operate southbound to 75th Street and return to the rail corridor via 75th Street and Broadway. If this alternative is selected, detailed traffic studies will be performed during the NEPA project phase.

Queens Terminal Operation

Each alternative will terminate service at Roosevelt Avenue with a free transfer to the existing transit service at the Jackson Heights – Roosevelt Avenue transit hub.

BRT

The street running capabilities of the BRT alternative permits the bus to leave the freight rail alignment via a ramp onto Roosevelt Avenue. A new traffic signal would be installed at this location to permit the bus to enter or leave the alignment using Transit Signal Priority (TSP). The bus would operate along curbside priority lanes on Roosevelt Avenue to 75th Street, turning right on 75th Street and again onto Broadway where it would stop on-street in front of the Jackson Heights – Roosevelt Avenue transit hub. While this alternative will provide direct access to the transit hub, BRT service will be subject to potential delays along Roosevelt Avenue, since it will need to operate on-street in mixed traffic with other buses. TSP at each of the intersections will be assumed along the proposed route.

LRT

The LRT alternative can operate either on Roosevelt Avenue to the transit hub or terminate in the freight rail line at Roosevelt Avenue. Location and operation options were assessed based on maintaining a convenient passenger transfer to other transit services at Broadway and Roosevelt Avenue.

Underground terminal

An underground station in a new tunnel underneath Roosevelt Avenue was considered for the Queens terminal. After investigation, however, it was determined that the construction requirements and capital cost of this option (see **Appendix A**) were significant relative to others, discussed below. This option was rejected from further consideration.

On-Street terminal

An on-street terminal was considered, sited along the south curb of Broadway between 74th and 75th Streets. Existing parking for approximately eight cars would be removed to allow for the sidewalk station. The LRT vehicle would operate in both directions along a single track on the east curb of Roosevelt Avenue between this proposed terminal and the freight rail alignment. The LRT Vissim analysis cited above in **Table 1** and **Table 2**, however, indicated increased delays over a No Build scenario in 2045. In addition, some vehicle movements decreased existing Level of Service (LOS) from D or E to F at certain intersections (details may be found in the Technical Memo entitled “Roosevelt Avenue Segment LRT Vissim Model Development”).

Terminal in the rail freight alignment

The alternative to an on-street operation created a center platform terminal in the cut at Roosevelt Avenue. Access/egress for the IBX service would be available from Roosevelt Avenue. In addition, an “out-of-system” passenger transfer between the elevated and subway rail stations and bus terminal would be facilitated.

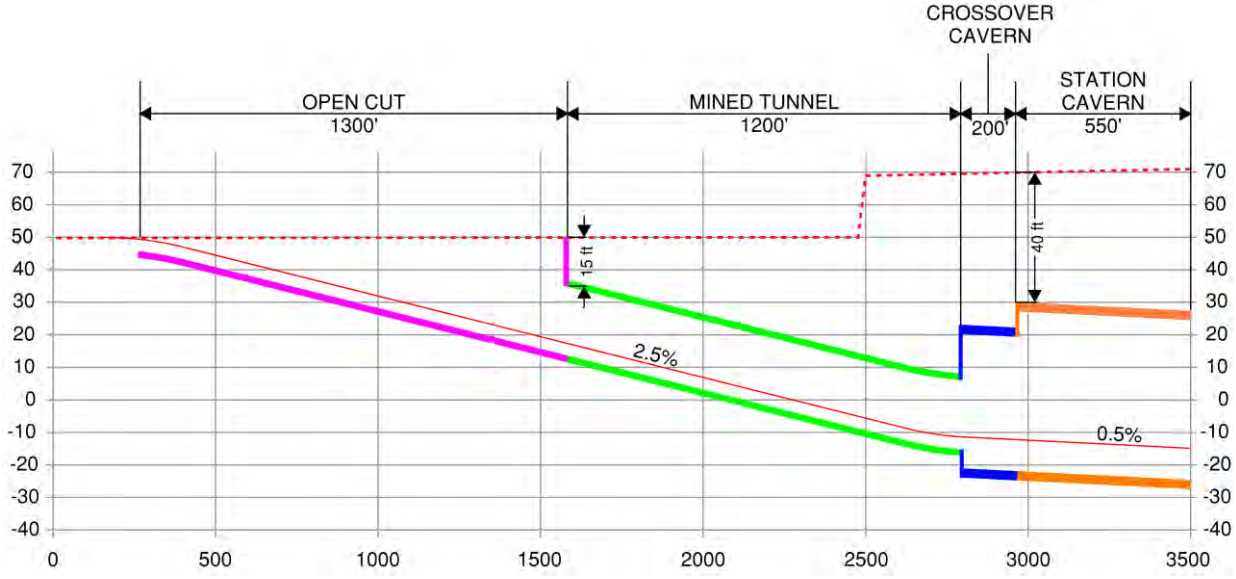
Based upon the result of the vehicle impact on-street with the street running option as well as the inherent potential for delay with single track bidirectional light rail operation, the LRT terminal station and access to the Jackson Heights rail and bus hub would be best served by the terminal station in the freight rail cut with a free passenger transfer to nearby transit services.

CR

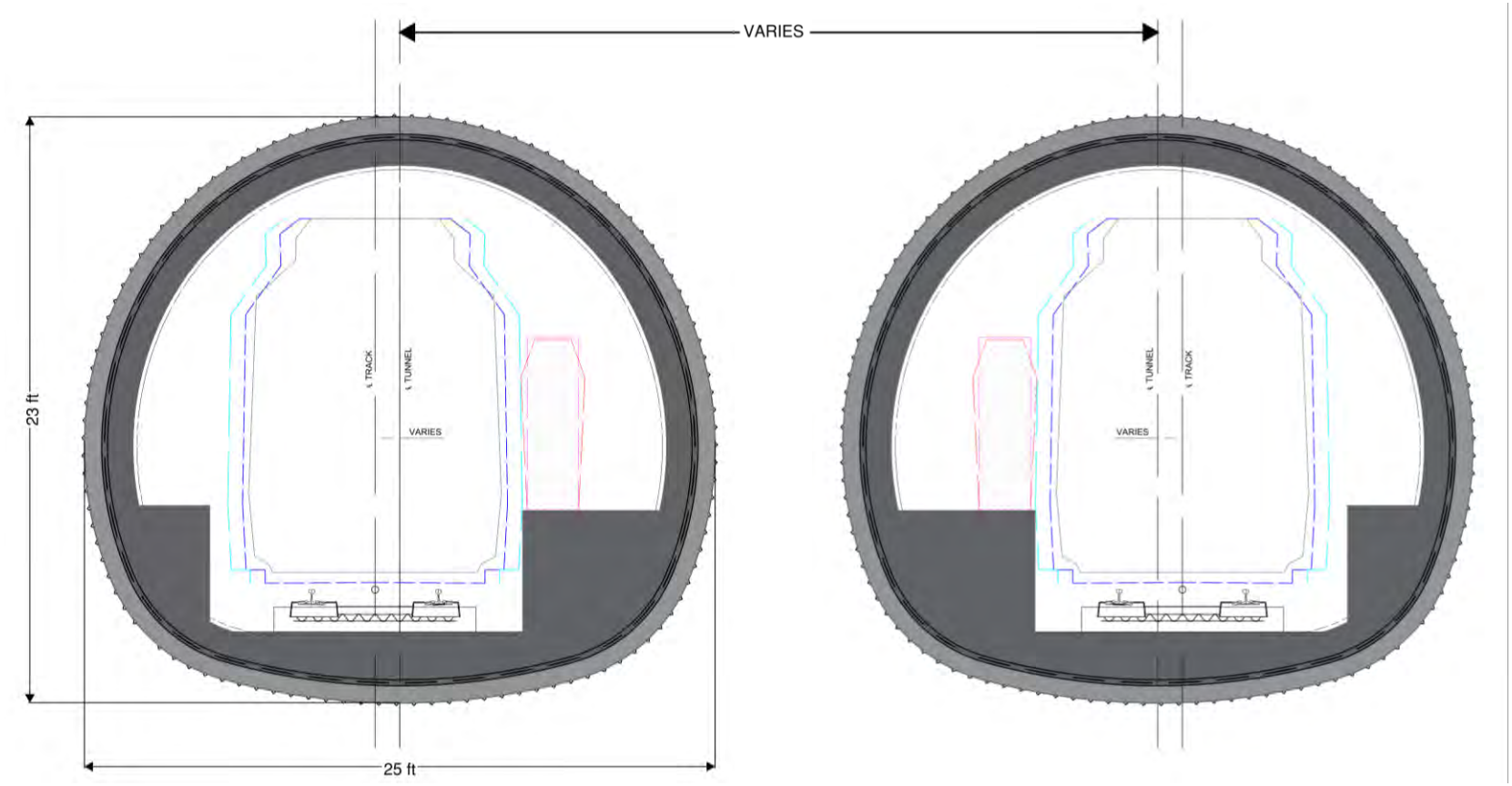
Due to the use of third rail power and extended train lengths, CR is prohibited from operation along typical street such as Roosevelt Avenue and Broadway. This alternative would terminate at a center-platform station in the freight rail cut at Roosevelt Avenue like the LRT alternative. The proposed free transfer and access to the Jackson Heights - Roosevelt Avenue transit hub would be the same as the proposed LRT alternative.

Appendix A: Option for Tunnel at Roosevelt Avenue

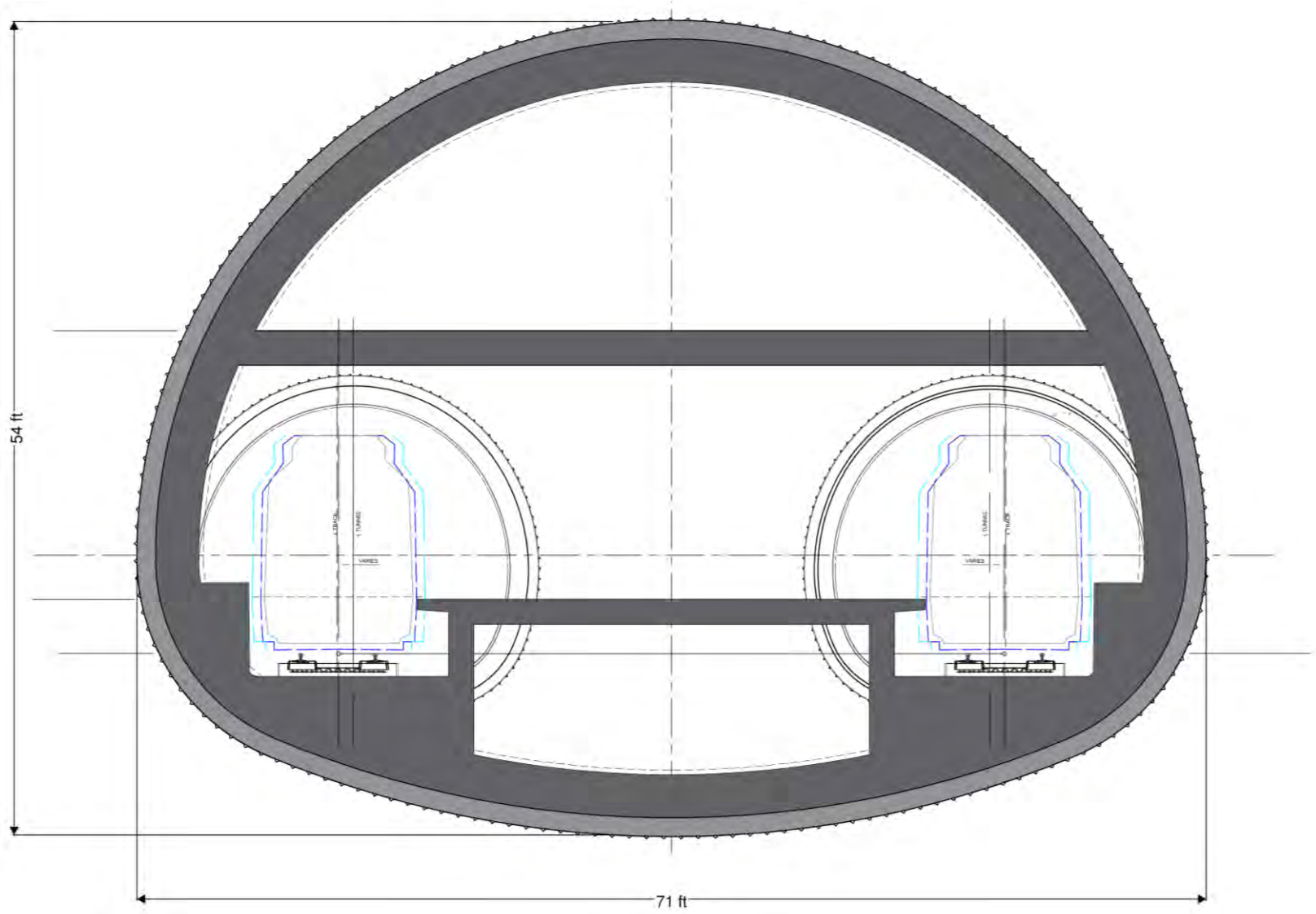
Tunnel Alignment and Profile



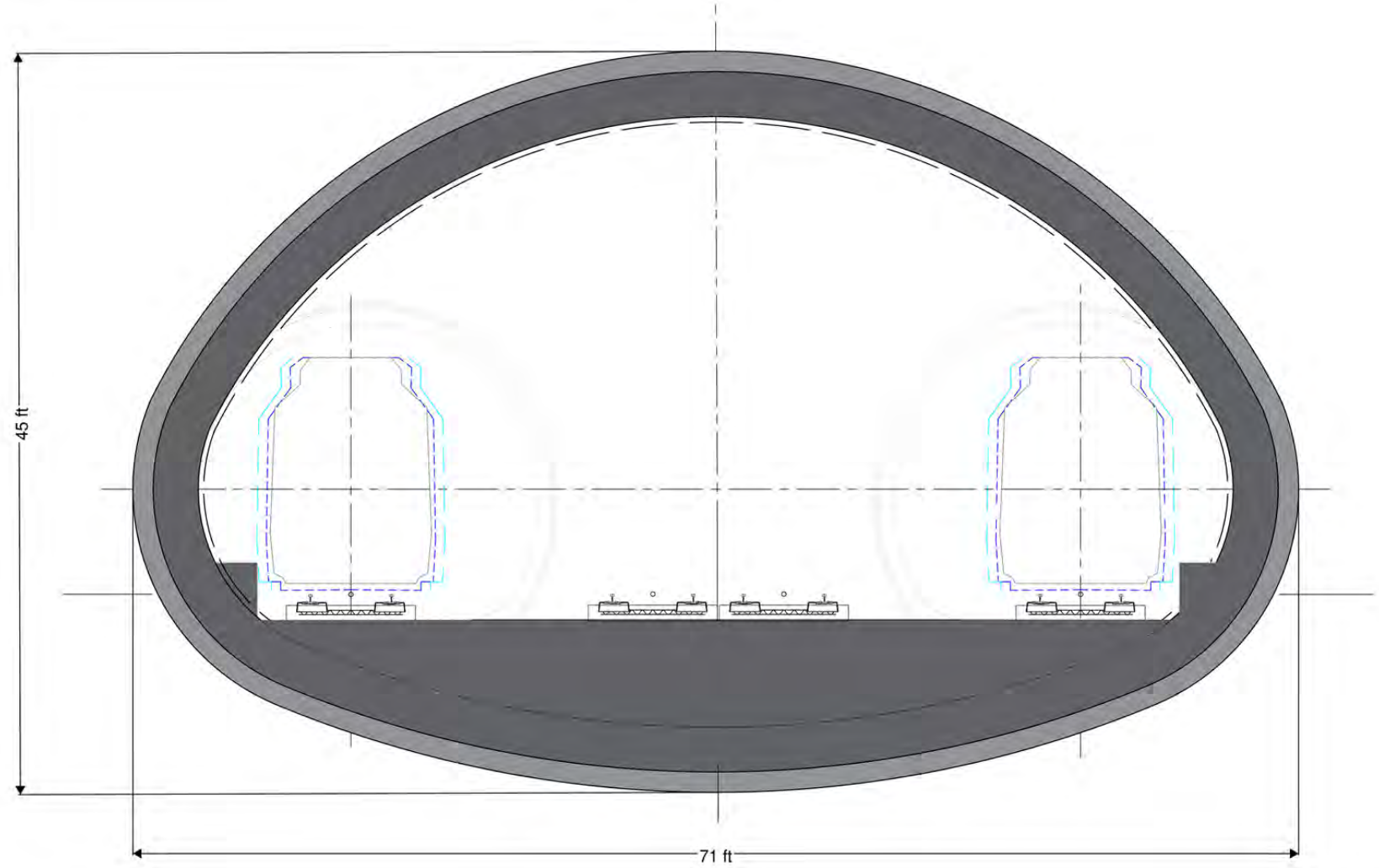
Typical Mined Tunnel Section Under the Freight Tracks



Typical Mined Station Cavern Under Roosevelt Ave.



Typical Mined Crossover Cavern



Appendix 1.7 Land Use and Economic Development Impacts Analysis

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

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Volume 1

IBX

Introduction

This Technical Memorandum (TM) documents the impacts and opportunities of each alternative on land use and economic development along the Interborough Express (IBX) Corridor. This includes a qualitative assessment of the potential effects of the alternatives on future development in the Primary Study Area. As a component of the Planning and Environmental Linkages (PEL) Study for the Interborough Express Project (the Project), this TM is organized into the following topic areas:

- **Current Land Use and Zoning:** This section describes the existing land use and zoning within a half-mile buffer (both sides) of the corridor.
- **Adjacent Property Analysis:** This section describes property and ownership adjacent to the corridor.
- **Economic Development:** This section highlights the noteworthy land use and development trends in the neighborhoods of the PrimaryStudy Area.

Current Land Use and Zoning

This section describes the existing land use and zoning within the Primary Study Area, which is represented by a half-mile buffer on either side of the IBX alignment. These characteristics provide insight into the suitability for transit development for each of the alternatives, as factors like residential and employment density are drivers of potential ridership.

Primary Study Area Zoning and Land Use

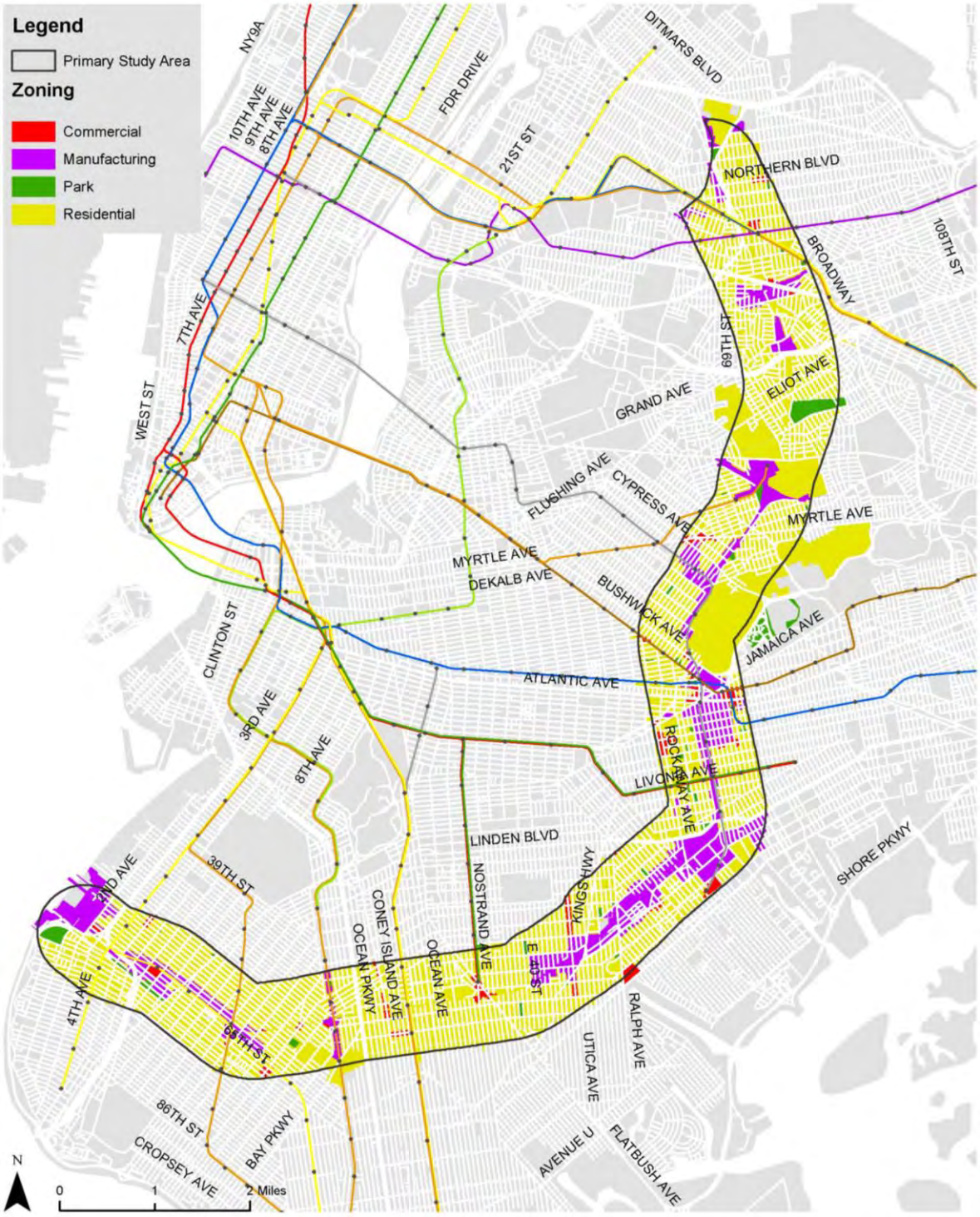
Figure 1 and **Figure 2** show existing zoning and land use patterns, respectively, within the Primary Study Area, based on public data produced by the New York City Department of City Planning (NYCDCP). The maps show properties that are both fully and partially contained within the Primary Study Area. Parcel data available include land uses, zoning, as well as zoning overlays in residentially zoned areas to allow for commercial uses.

The Primary Study Area is divided into six “community segments” for the purposes of the zoning and land use analysis. These segments are shown on **Figure 3** and are summarized in **Table 1** and **Figure 4** from south to north as follows:

- Sunset Park/ Borough Park (Segment 1): including Bay Ridge, Dyker Heights, and Bensonhurst
- Midwood/Flatbush (Segment 2): including Flatlands and Mapleton
- East Flatbush/Canarsie (Segment 3): including Brownsville and East New York
- Brownsville/Bushwick (Segment 4): including Broadway Junction and East New York
- Ridgewood/Middle Village (Segment 5)
- Woodside/Elmhurst (Segment 6): including Maspeth and Jackson Heights

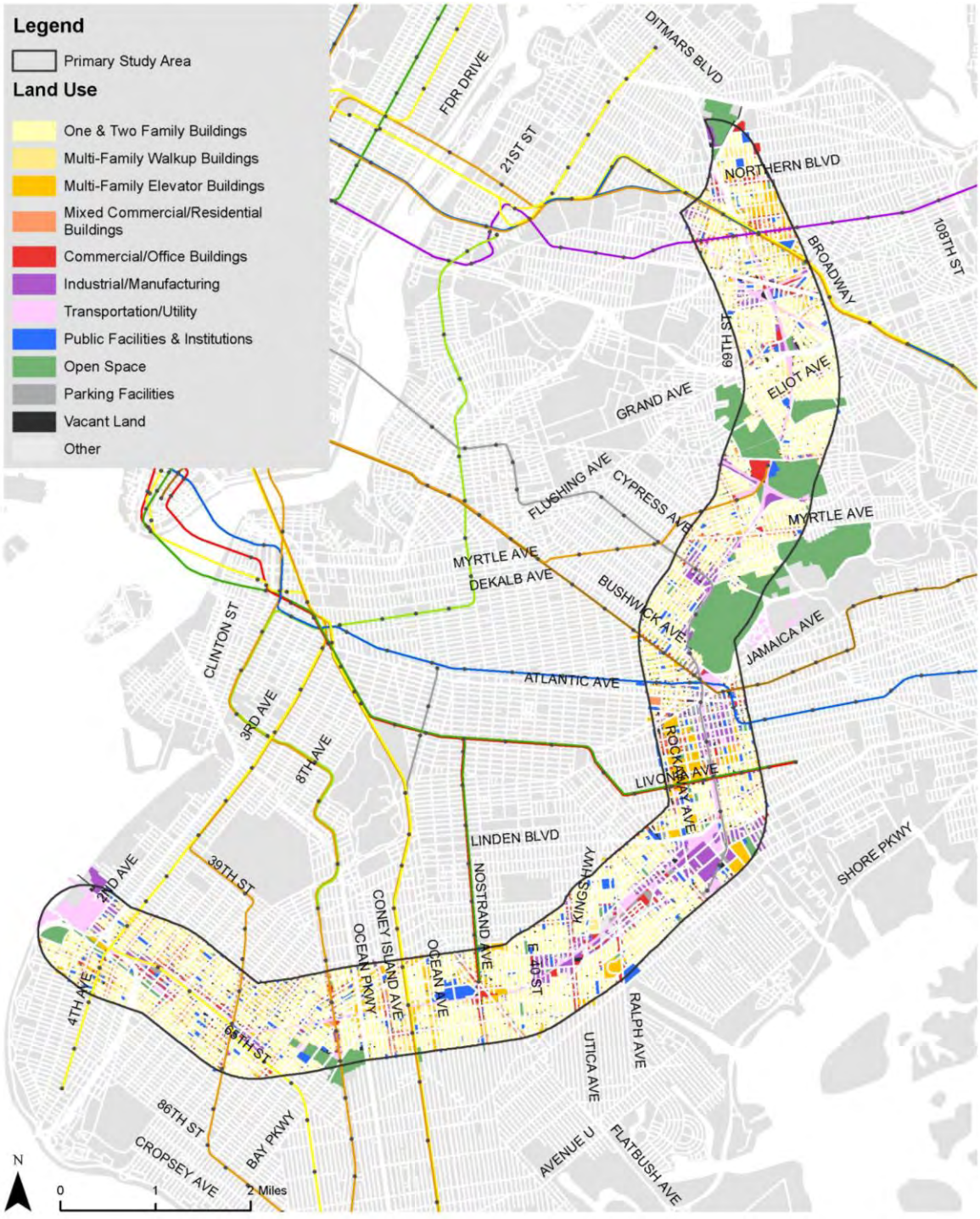
The Primary Study Area primarily consists of residential land uses. Over 80 percent of parcels in each segment are residential. However, the percent of residential uses by land area varies by segment (between 38 and 76 percent). The number of non-residential parcels in the Primary Study Area, excluding mixed commercial/residential buildings, is low compared to residential (between 6 and 18 percent). While the non-residential parcel count is low, the land area that non-residential parcels occupy is larger due to their larger footprint compared to residential housing. These parcels occupy between 24 and 62 percent of the land area.

Figure 1: Zoning in the Primary Study Area



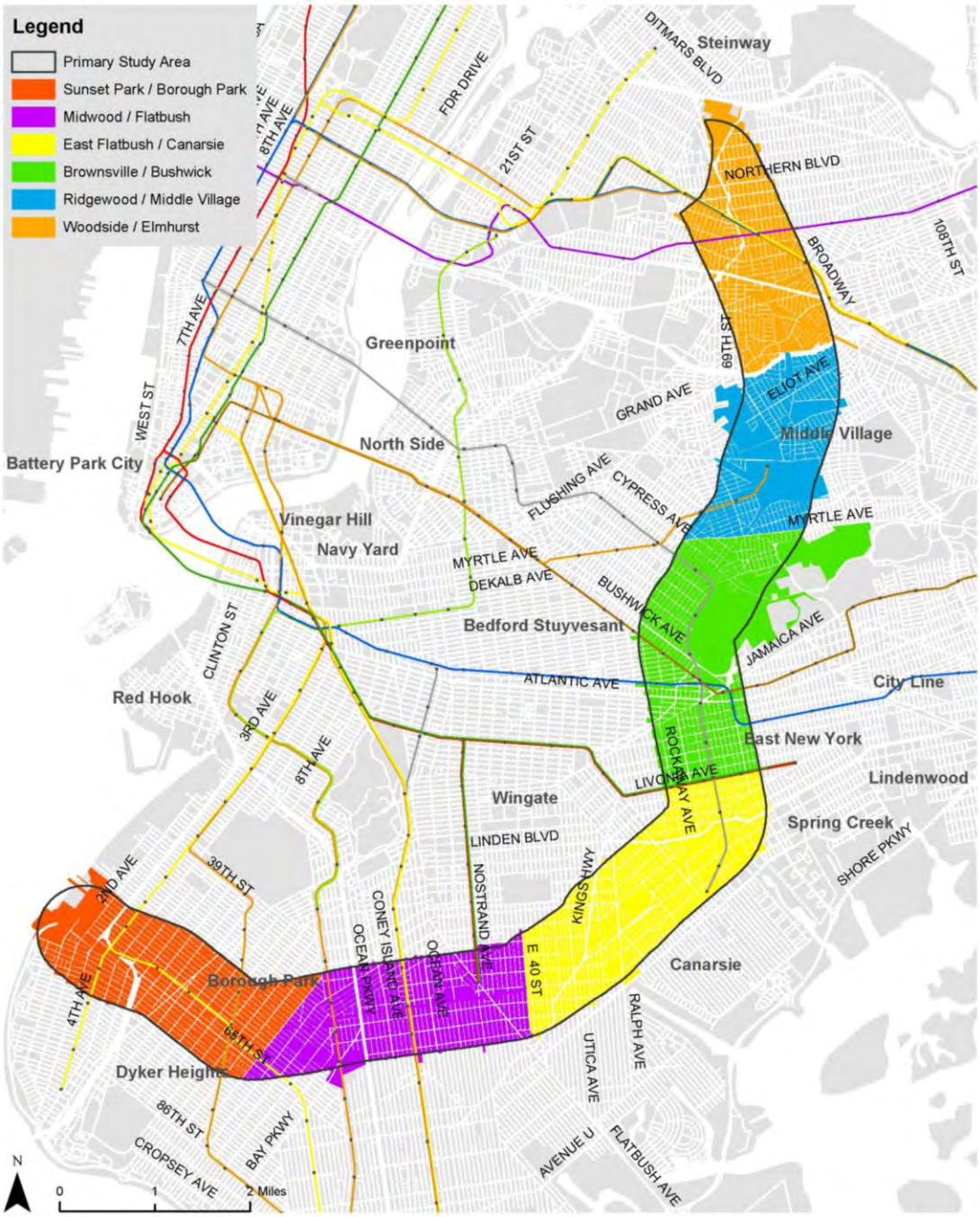
Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 2: Land Uses in the Primary Study Area



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 3: Primary Study Area Community Segments



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Table 1: Land Use by Segment

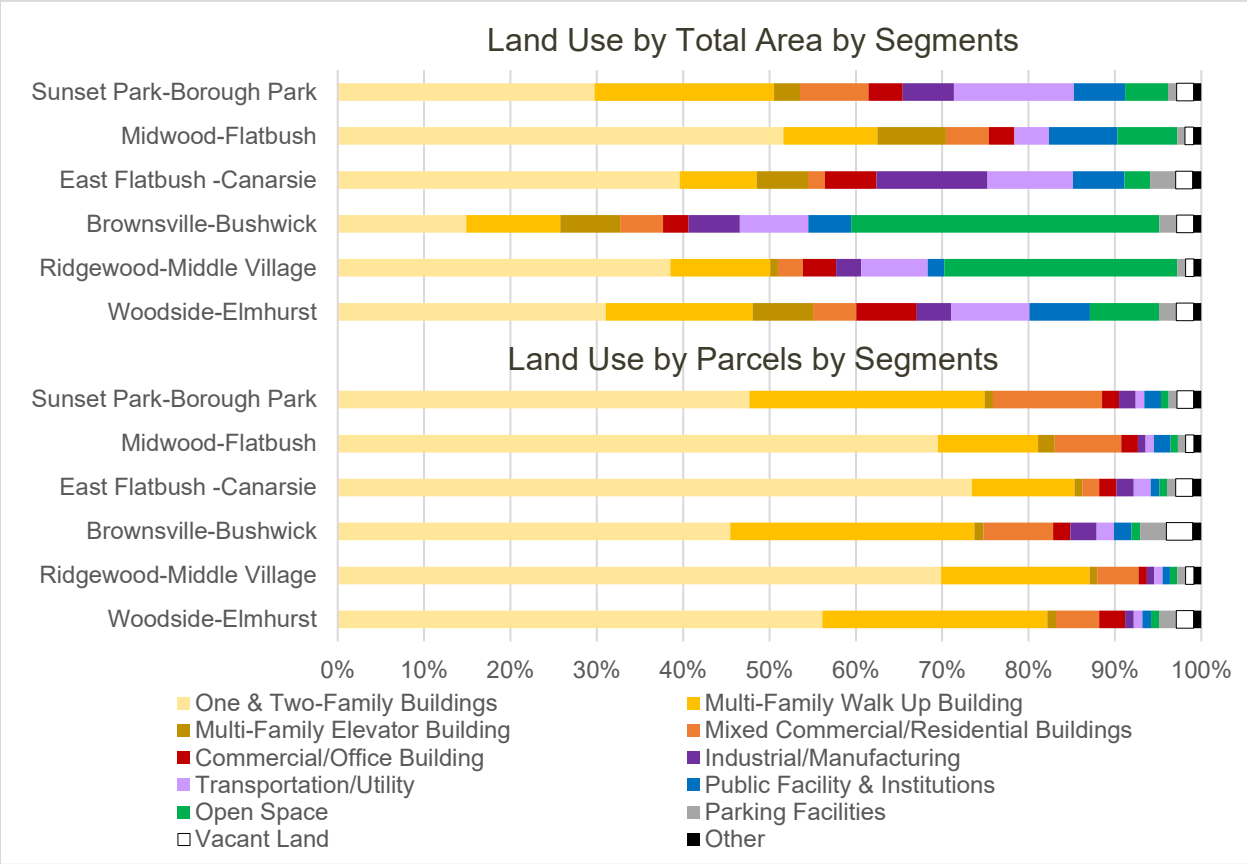
	Land Use Class	Sunset Park/ Borough Park		Midwood/ Flatbush		East Flatbush /Canarsie		Brownsville/ Bushwick		Ridgewood/ Middle Village		Woodside/ Elmhurst	
		Parcels	Area	Parcels	Area	Parcels	Area	Parcels	Area	Parcels	Area	Parcels	Area
Residential	One- & Two-Family Buildings	49%	30%	72%	52%	74%	40%	45%	15%	73%	40%	56%	31%
	Multi-Family Walk Up Building	28%	21%	12%	11%	12%	9%	28%	11%	18%	12%	26%	17%
	Multi-Family Elevator Building	1%	3%	2%	8%	<1%	6%	1%	7%	<1%	<1%	1%	7%
	Mixed Commercial/ Residential	13%	8%	8%	5%	2%	2%	8%	5%	5%	3%	5%	5%
	Subtotal*	**91%**	**63%**	**94%**	76%	**89%**	**57%**	**82%**	**38%**	**96%**	**55%**	**89%**	**60%**
Non-Residential	Commercial/Office Building	2%	4%	2%	3%	2%	6%	2%	3%	1%	4%	3%	7%
	Industrial/ Manufacturing	2%	6%	<1%	1%	2%	13%	3%	6%	<1%	3%	1%	4%
	Transportation/ Utility	1%	14%	1%	4%	2%	10%	2%	8%	1%	8%	1%	9%
	Public Facility & Institutions	2%	6%	2%	8%	1%	6%	2%	5%	<1%	2%	1%	7%
	Subtotal*	**6%**	**30%**	**5%**	16%	**7%**	**35%**	**9%**	**22%**	**2%**	**16%**	**7%**	**27%**
	Open Space	<1%	5%	<1%	7%	<1%	3%	1%	36%	<1%	28%	<1%	8%
	Parking Facilities	1%	1%	<1%	<1%	1%	3%	3%	2%	1%	1%	2%	2%
	Vacant Land	2%	2%	1%	1%	2%	2%	3%	2%	1%	1%	2%	2%
	Other	<1%	<1%	<1%	<1%	1%	1%	1%	<1%	<1%	<1%	<1%	<1%
	Subtotal*	**3%**	**8%**	**1%**	8%	**4%**	**8%**	**9%**	**40%**	**2%**	**29%**	**4%**	**13%**

*Due to rounding, some totals are not the equivalent to the sum of the individual units.

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Note: The maps and tables of land use and zoning in Woodside/Elmhurst (Segment 6) in this TM reflect a larger Primary Study Area north of Roosevelt Ave used during the Brooklyn-Queens Connector Feasibility stage. This does not impact the evaluation of the alternatives in this PEL Study because the land use and zoning are consistent for each of the alternatives considered. As such, land use and zoning are not a differentiator of the alternatives.

Figure 4: Land Use by Segment



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

The following subsections describe the zoning and land use characteristics of each of the six community segments within the Primary Study Area.

Sunset Park/Borough Park (Segment 1)

The Sunset Park/Borough Park segment is located in southwest Brooklyn, extending from Brooklyn Army Terminal on the west to 17th Avenue on the east. The neighborhoods within this segment include Sunset Park, Bay Ridge, Borough Park, Dyker Heights, and Bensonhurst. This segment is characterized as residential, with an industrial waterfront, and a central commercial core.

Zoning

Existing zoning for the Sunset Park/Borough Park segment is broken out by type in **Table 2** and shown on **Figure 5**. As shown, 94 percent of the parcels in this segment are zoned residential. The residential areas are located on the periphery of the segment in the neighborhoods of Bay Ridge, Borough Park, Dyker Heights, and Bensonhurst, with low-density detached homes on larger lots (zoned R-3) in the west, becoming denser with multi-story apartment buildings and attached homes (zoned R-4-6) toward the east. Five percent of parcels in this segment are zoned manufacturing, which is primarily located at the western end of the Primary Study Area at the Brooklyn Army Terminal and east-west along the Interborough Express Corridor in the middle of the segment. Only one percent of parcels in this segment are zoned commercial, located adjacent to the rail right of way near 8th Avenue, although approximately 15 percent of the residential parcels also have a

commercial overlay, which allows for local neighborhood-scale retail. These overlays are generally found along northeast–southeast avenues.

An area of note in this segment is the Bay Ridge Special District, which implements development restrictions to maintain the low-density context of the area. These restrictions limit maximum floor area ratios and building heights of community facilities to 32 feet. For residential properties, this district dictates low-rise multifamily homes on cross-streets and five- to eight-story apartment houses with ground floor stores along the avenues. These limits on development in these areas must be considered in the context of transit's impacts on development, especially near stations.

The Brooklyn Army Terminal at the southern terminus of the IBX corridor as well as other portions of the Sunset Park waterfront fall within the Southwest Brooklyn Industrial Business Zone, which encourages manufacturing and industrial uses through tax credits from the city, and also provides relocation expenses. The principal goal is to protect this area for manufacturing uses, although residential and major institutional uses (NYU Langone Hospital) are nearby.

The Sunset Park Waterfront Vision Plan was initially released in 2009 by the New York City Economic Development Corporation (NYCEDC) in cooperation with public agencies and major stakeholders in this area. The plan is aimed at capitalizing on the neighborhood's resources to create an economic hub. The plan targets efficient movement of goods, sustainable industrial growth, green practices, and sensitivity to neighborhood needs. Much of this plan depends on passenger and freight transportation connectivity, which the Project would enhance.

Table 2: Zoning – Sunset Park/Borough Park, Distribution by Parcel Type

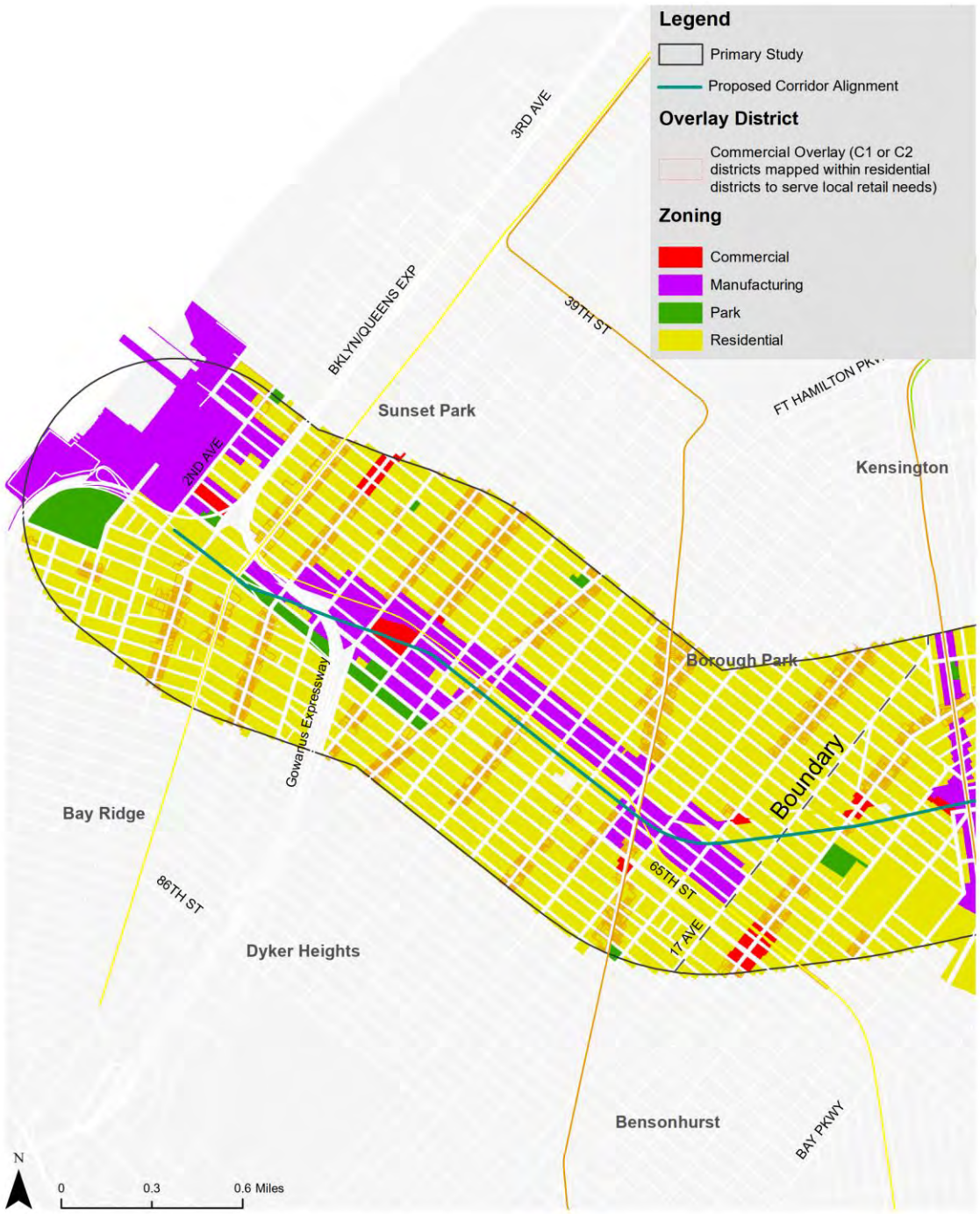
Zoning	Percentage
Residential	94%
Manufacturing	5%
Commercial	1%
Park	<1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The Sunset Park/Borough Park segment has a strong and varied residential character, with multiple types of residential uses ranging from single- and two-family homes to apartments (see Figure 6). Additionally, the Sunset Park/Borough Park segment also contains major industrial and transportation/utilities land uses, specifically the Brooklyn Army Terminal (BAT) located in the western end of this segment. Built in 1919, it served as the nation's largest military supply base during World War II but closed in the 1970s and was sold to the City in 1981. With its historic buildings and campus area upgraded, it is a thriving industrial campus, providing manufacturers tools and space, with over 100 employers and 4,000 employees. Just south of the BAT are the 65th Street Yard and the Port Authority of New York and New Jersey's (PANYNJ's) New York New Jersey Rail carfloat operation, connecting rail freight services on the Bay Ridge Line in Brooklyn to the major rail yards in New Jersey. This is a critical shipping link to the west and to the national rail freight network. The PANYNJ is currently studying a major Cross-Harbor expansion project which includes, among other options, the creation of a rail freight tunnel between Sunset Park and rail facilities in Elizabeth, NJ. Additionally, Industry City, which is rapidly becoming an important commercial hub with approximately 6 million square feet of light manufacturing and warehousing space, is located just north of the Sunset Park/Borough Park segment.

Figure 5: Existing Zoning Map for Sunset Park/Borough Park (Segment 1)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Approximately 91 percent of the parcels within this segment are residential (one- and two-family buildings, multi-family walk-up building, multi-family elevator building, and mixed commercial/residential) (see **Table 3**). These parcels represent 63 percent of land area within this segment. Of these, 49 percent of parcels are one- and two-family buildings which occupy 30 percent of the land area, while 29 percent of parcels (24 percent of the land area) are multi-family buildings.

13 percent of parcels (8 percent of land area) are mixed commercial/residential, primarily located along major north-south avenues throughout the segment.

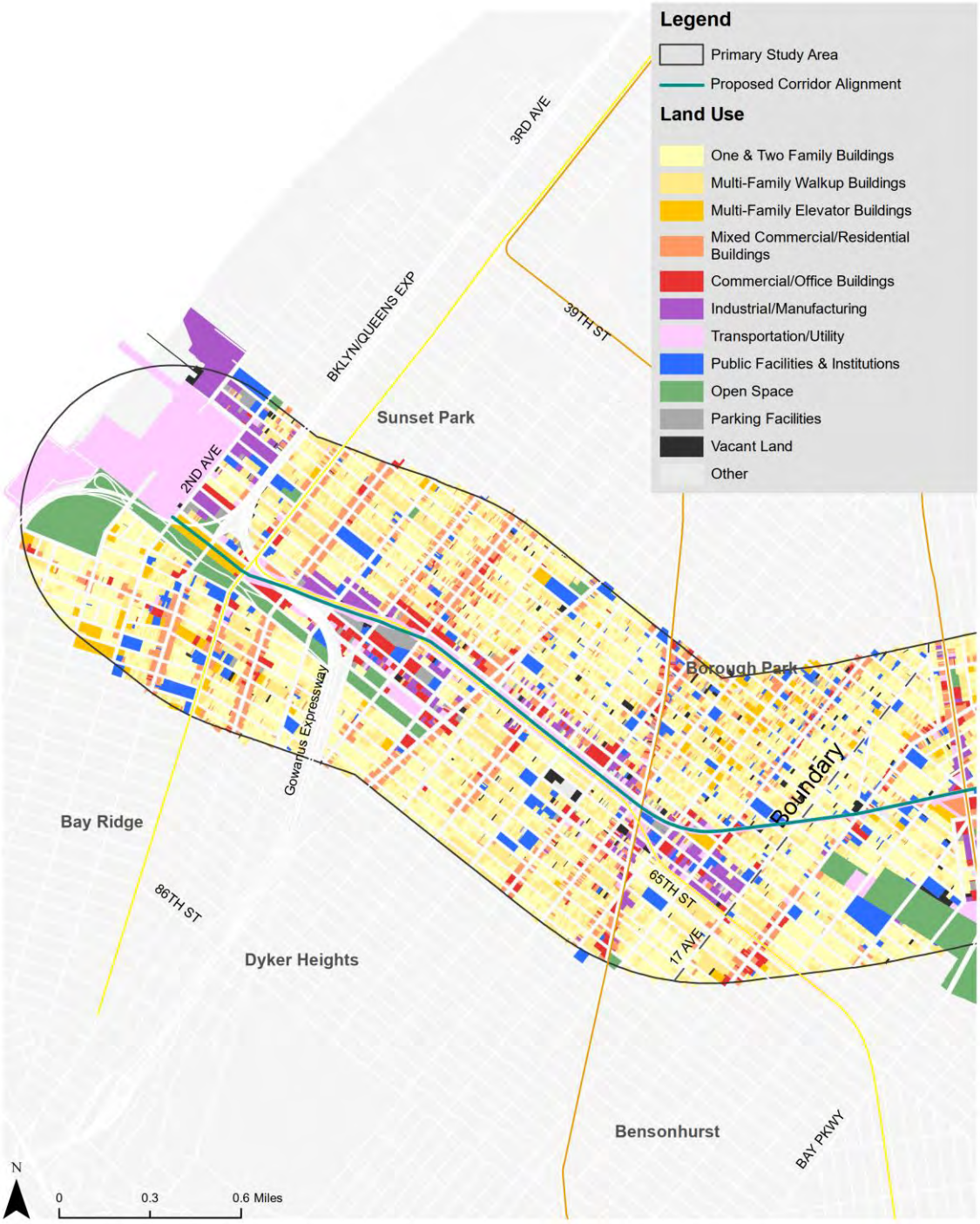
Only about 9 percent of the parcels within this segment are non-residential in nature. These non-residential uses include commercial/office buildings, industrial/manufacturing, public facilities and institutions, transportation/utilities, and parking facilities, with less than one percent of parcels currently in use as public open space. However, these non-residential parcels are relatively large in land area. For example, transportation/utilities occupy about 1 percent of total parcels but 14 percent of land area.

Table 3: Land Use – Sunset Park/Borough Park, Distribution by Parcel and Area

Land Use Class	Parcels	Area
One & Two-Family Buildings	49%	30%
Multi-Family Walk Up Building	28%	21%
Multi-Family Elevator Building	1%	3%
Mixed Commercial/Residential Buildings	13%	8%
Commercial/Office Building	2%	4%
Industrial/Manufacturing	2%	6%
Transportation/Utility	1%	14%
Public Facility & Institutions	2%	6%
Open Space	<1%	5%
Parking Facilities	1%	1%
Vacant Land	2%	2%
Other	<1%	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 6: Existing Land Use for Sunset Park/Borough Park (Segment 1)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Midwood/Flatbush (Segment 2)

The Midwood/Flatbush segment is in southern Brooklyn and extends from 17th Avenue to the west through E 40th Street to the east. The neighborhoods within this segment include Mapleton, Midwood, Flatbush, and Flatlands.

Zoning

Existing zoning for the Midwood/Flatbush segment is broken out by type in **Table 4** and shown on **Figure 7**. Typical for the overall Primary Study Area, 96 percent of parcels in this segment are zoned residential, with much of it in R-5 districts that support three- or four-story attached houses. Both commercial and manufacturing represent two percent of parcels each. Manufacturing zones are primarily located parallel to the F subway branch, along McDonald Ave, with special zones discussed below. Commercial parcels are located along major avenues such as Coney Island, Ditmars, Flatbush and Nostrand Avenues. Additionally, nine percent of parcels have a commercial overlay which allows for commercial uses within residential districts, typically along major avenues or cross streets.

The Ocean Parkway Special District is also located within this segment. This district was established to preserve the scenic landscaping of the historic Ocean Parkway through controls on frontage properties. The properties along Ocean Parkway are required to have front yards that are unobstructed from the street. Community facility development is subject to height and bulk restrictions and require approval. Large detached and semi-detached homes that define the area are preserved, meaning density increases are not permitted by right.

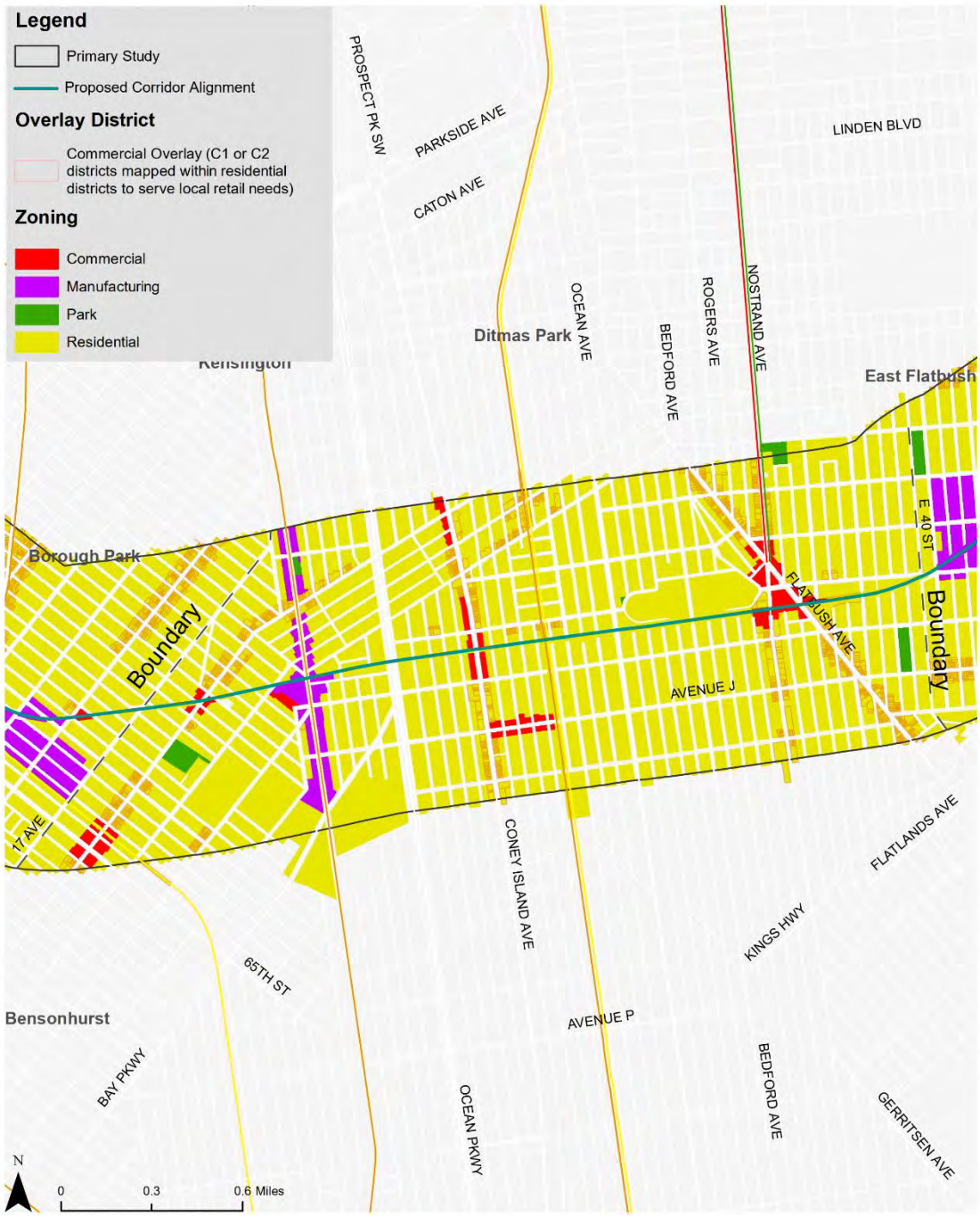
A special industrial zone is in the Flatbush and Flatlands sections of this segment. The Flatlands/Fairfield Industrial Business Zone encourages manufacturing and industrial uses through tax credits from the city, which also provides relocation expenses for qualifying uses. As it is a manufacturing and industrial district, residential uses are generally not permitted.

Table 4: Zoning – Midwood/Flatbush, by Parcel

Zoning	Percentage
Residential	96%
Manufacturing	2%
Commercial	2%
Park	<1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 7: Existing Zoning for Midwood/Flatbush (Segment 2)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The Midwood/Flatbush segment has a strong residential presence with multiple types of residential housing (see **Figure 8**). Multi-family and mixed-use buildings are generally found along the major streets and avenues, and single- and two-family homes are grouped along the smaller streets. Additionally, the eastern part of this segment contains Brooklyn College, a City University of New York (CUNY) institution, which is adjacent to the existing corridor in the center of the segment.

Approximately 93 percent of parcels in this segment are residential (one- and two -family buildings, multi-family walk-up building, multi-family elevator building, and mixed commercial/residential buildings) (see **Table 5**). Of these, 72 percent of parcels (52 percent of land area) are one- and two-family buildings, and 14 percent of parcels (19 percent of land area) are multi-family buildings primarily in the northern and central part of the segment. Eight percent of parcels (5 percent of land area) are mixed commercial/residential buildings, mainly along major avenues.

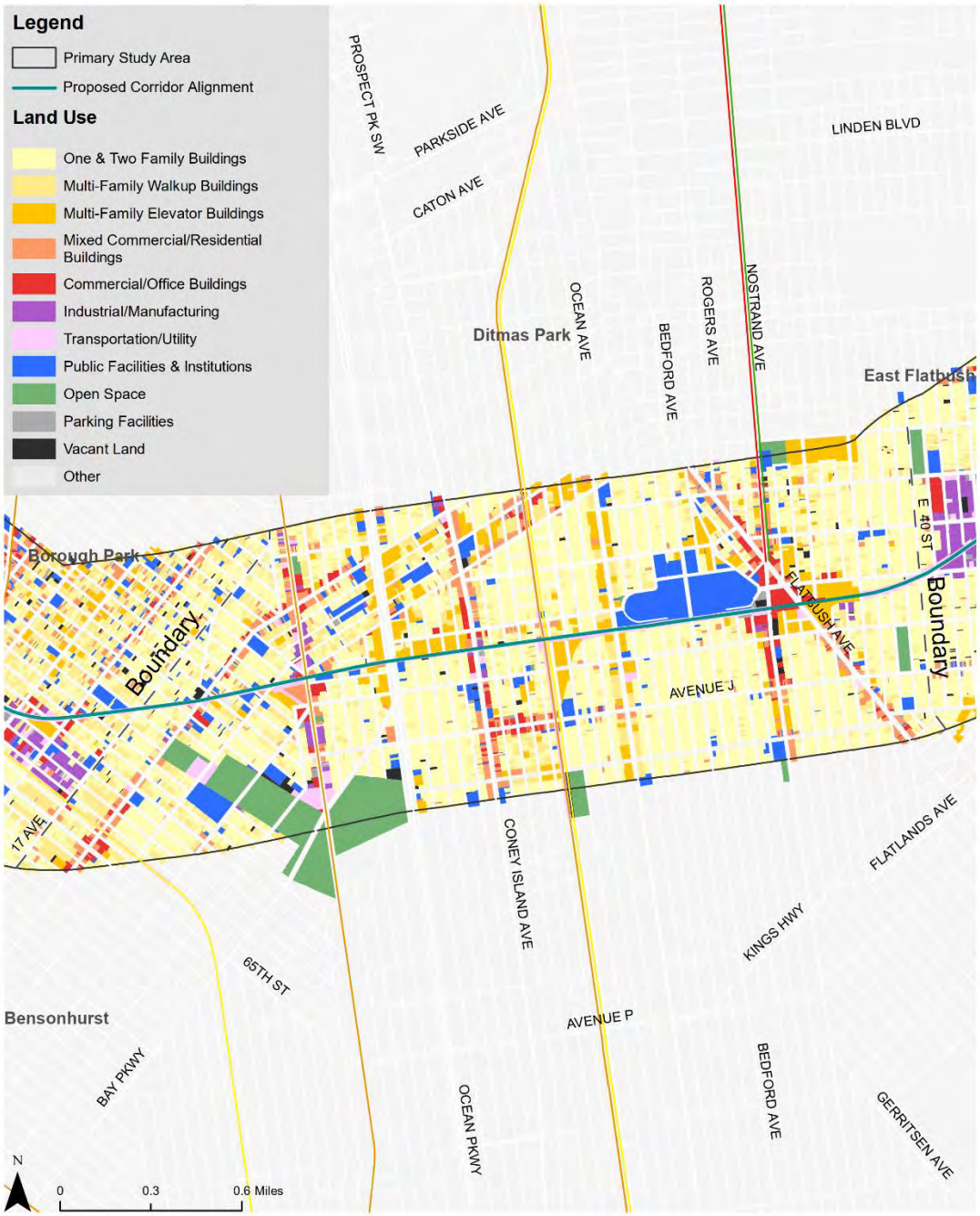
As in the Sunset Park/Borough Park segment, the Midwood/Flatbush segment has low percentages of non-residential parcels that occupy 24 percent of the land area throughout the segment. Commercial/office buildings (3 percent of the land area) and public facilities and institutions (8 percent of land area) each represent only two percent of parcels. Transportation/utility represents one percent of total parcels (4 percent of land) while industrial/manufacturing and open space each represent less than one percent of parcels and land area in this segment.

Table 5: Land Use – Midwood/Flatbush, by Parcel and Area

Land Use Class	Parcel	Area
One & Two-Family Buildings	72%	52%
Multi-Family Walk Up Building	12%	11%
Multi-Family Elevator Building	2%	8%
Mixed Commercial/Residential Buildings	8%	5%
Commercial/Office Building	2%	3%
Industrial/Manufacturing	<1%	1%
Transportation/Utility	1%	4%
Public Facility & Institutions	2%	8%
Open Space	<1%	7%
Parking Facilities	<1%	<1%
Vacant Land	1%	1%
Other	<1%	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 8: Existing Land Use for Midwood/Flatbush (Segment 2)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

East Flatbush/Canarsie (Segment 3)

The East Flatbush/Canarsie segment is located in southeast Brooklyn, extending from E 40th Street on the west to Livonia Avenue in the northeast. The neighborhoods within this segment include East Flatbush, Canarsie, Brownsville, and New Lots. This segment is characterized as residential with a commercial and manufacturing core.

Zoning

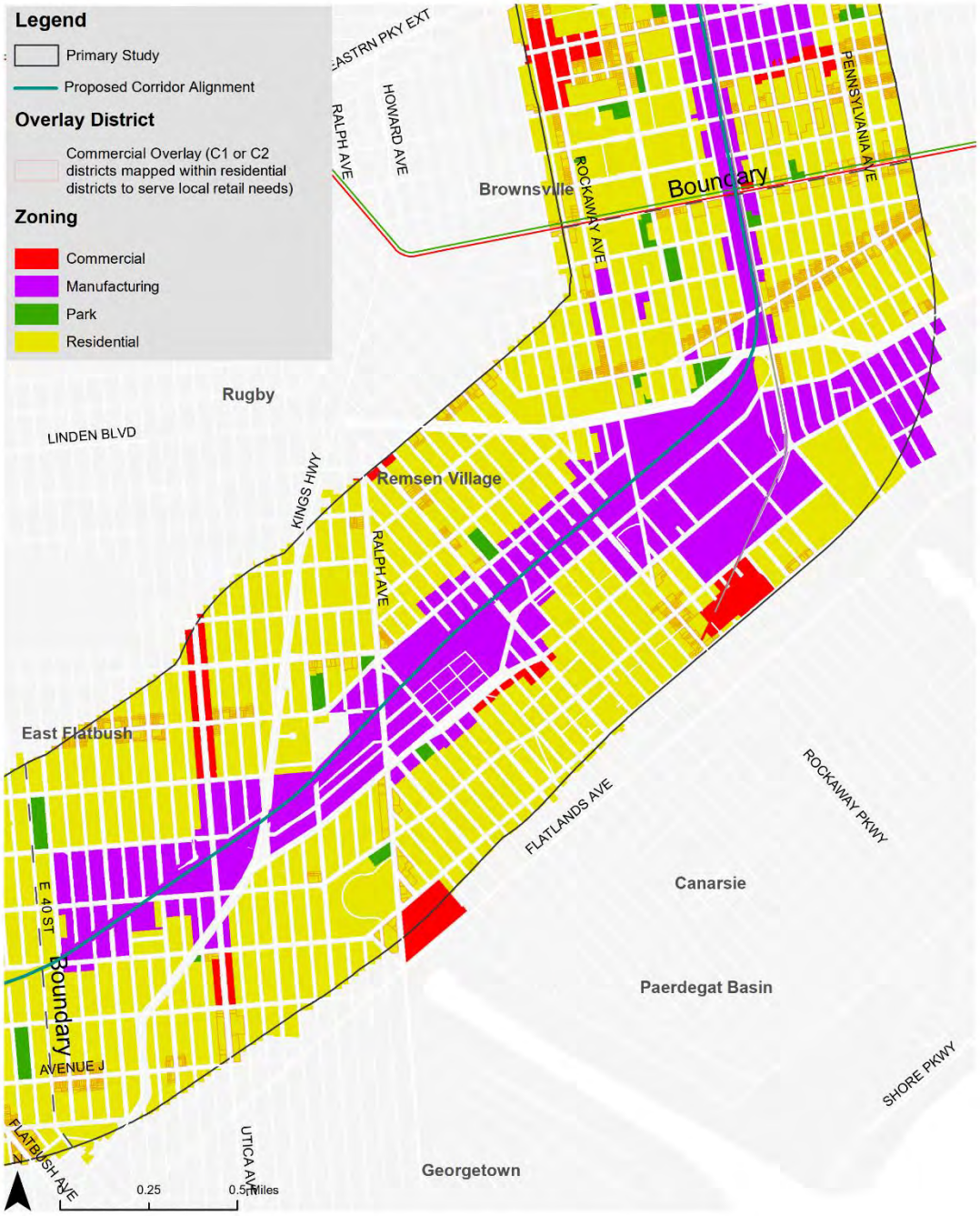
Existing zoning for the East Flatbush/Canarsie segment is broken out by type in **Table 6** and shown on **Figure 9**. Approximately 92 percent of the parcels in this segment are zoned residential, primarily within the residential areas located on the periphery of the segment, with built-up medium density R-5 and R-6 zones mostly containing buildings under eight stories. Six percent of parcels in this segment are zoned manufacturing, primarily located in the center of this segment, adjacent to the corridor. Only one percent of parcels in this segment are zoned commercial. The commercial hubs are located along Utica Ave and on the periphery of the East Flatbush/Canarsie segment. Additionally, seven percent of the residential parcels have a commercial overlay district located along a few major streets such as New Lots Avenue.

Table 6: Zoning – East Flatbush/Canarsie, by Parcel

Zoning	Percentage
Residential	92%
Manufacturing	6%
Commercial	1%
Park	<1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 9: Existing Zoning for East Flatbush/Canarsie Segment 3)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The East Flatbush/Canarsie segment is comprised of one- and two-family buildings with a dense core of commercial, manufacturing, and transportation/utility surrounding the corridor (see **Figure 10**). This segment contains the MTA-NYCT Linden Yard, located in the northern portion. Additionally, this segment includes two New York City Housing Authority (NYCHA) housing developments: the Glenwood Houses on Ralph Avenue and Breukelen Houses around Flatlands Avenue.

Approximately 89 percent of the parcels (56 percent of the land areas) within this segment are residential (one- and two-family buildings, multi-family walk-up building, multi-family elevator building, and mixed commercial/ residential) (see **Table 7**). Of these, 74 percent of parcels (40 percent of the land area) are one- and two-family buildings located mainly on the northern and southern peripheries of this segment; 12 percent of parcels (15 percent of the land) are multi-family buildings, and two percent of both parcels and land area are mixed commercial/residential.

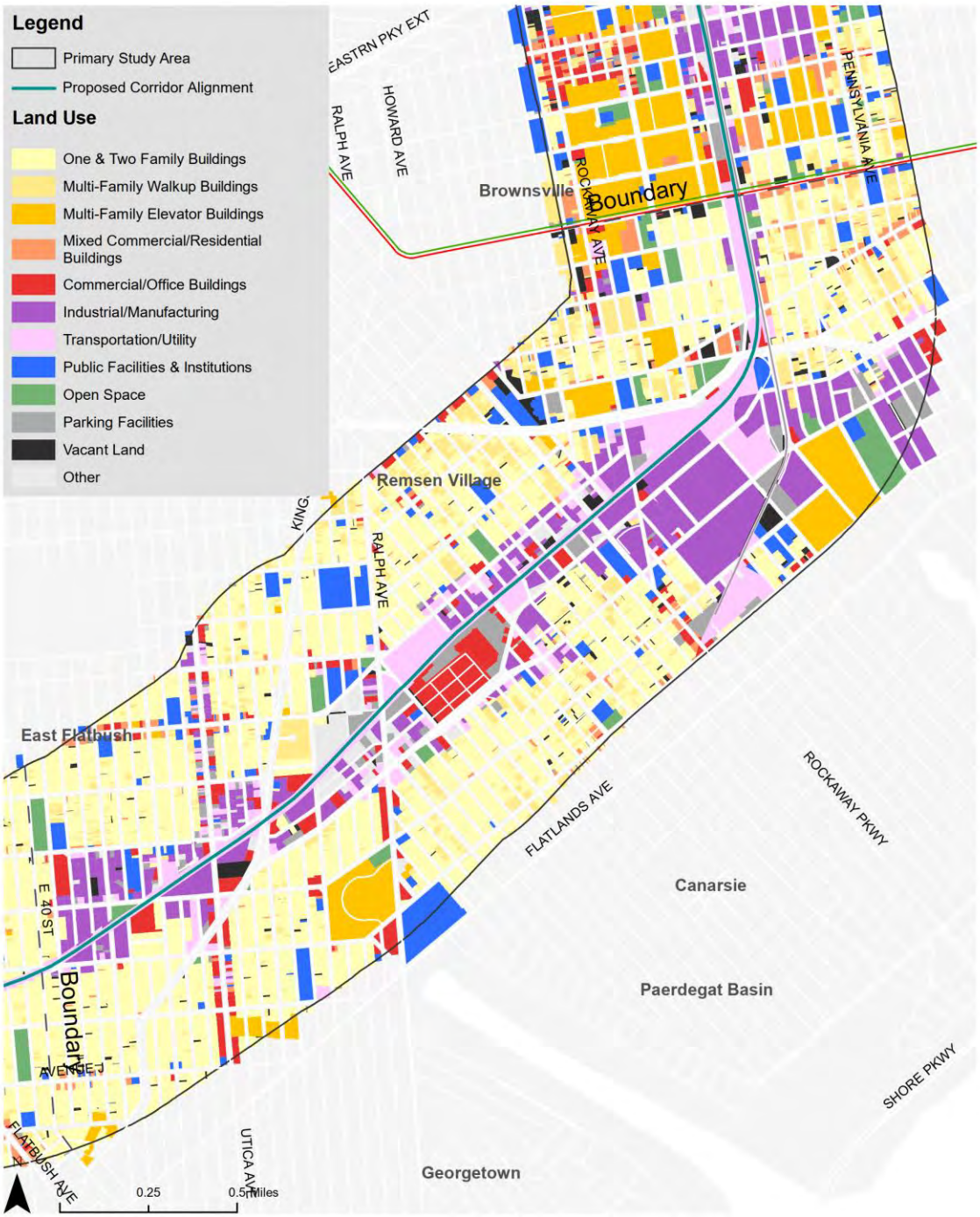
This segment is comprised of several non-residential parcels (10 percent) that occupy 43 percent of the land area. Many of these are in the center of this segment and along major avenues such as Utica Avenue and Avenue D. Commercial/office buildings, industrial/manufacturing, and transportation/utility land uses each represent two percent of parcels. Significant transportation infrastructure is located in this segment, including the MTA's Rockaway Parkway Terminal and Yard serving NYCT's B-Division(BMT) Canarsie Line and the Linden Train Shops. In total, these relatively large parcels account for 29 percent of land area, including 6, 13 and 10 percent of land area for commercial/office, industrial/manufacturing, and transportation/utility, respectively.

Table 7: Land Use – East Flatbush/Canarsie, by Parcel and Area

Land Use Class	Parcels	Area
One & Two Family Buildings	74%	40%
Multi-Family Walk Up Building	12%	9%
Multi-Family Elevator Building	<1%	6%
Mixed Commercial/Residential Building	2%	2%
Commercial/Office Building	2%	6%
Industrial/Manufacturing	2%	13%
Transportation/Utility	2%	10%
Public Facility & Institutions	1%	6%
Open Space	<1%	3%
Parking Facilities	1%	3%
Vacant Land	2%	2%
Other	1%	1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 10: Existing Land Use for East Flatbush/Canarsie (Segment 3)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Brownsville/Bushwick (Segment 4)

The Brownsville/Bushwick segment is located in northern Brooklyn and southern Queens. This segment extends from Livonia Ave in Brooklyn to Myrtle Ave in Queens. The neighborhoods within

this segment include Brownsville, Broadway Junction, New Lots and Bushwick in Brooklyn as well as Glendale in Queens. This segment is characterized as a dense multi-family residential and commercial area with commercial uses located primarily in the south, one- and two-family buildings in the north, and manufacturing areas and mixed commercial/residential uses along major avenues.

Zoning

Existing zoning for the Brownsville/Bushwick segment is broken out by type in **Table 8** and shown on **Figure 11**. Approximately 83 percent of the parcels in this segment are zoned residential, with many dense R-6 zones generally containing buildings of less than eight stories. The residential areas are located throughout the segment, along with supportive commercial overlay zones, while the 12 percent of parcels zoned manufacturing are primarily located in the south and center of this segment surrounding the corridor. The five percent of parcels zoned commercial are located around Broadway Junction and Myrtle Avenue. Additionally, 14 percent of residential parcels have a commercial overlay, especially in Brownsville and along major arterials such as Broadway.

Special Enhanced Commercial Districts are located along Atlantic Avenue and Fulton Street. These districts are designed to enhance the pedestrian landscape along commercial arteries. These improvements include community and commercial facilities on the ground floors of residential developments, which serve to promote a lively streetscape. Continuity of uses is a key aspect of these districts, and as such, off-street parking access and wide residential lobbies are limited. Cosmetic treatments on the ground floor are required as part of streetscape enhancements.

A Special Mixed-Use District in Ocean Hill/East New York, centered on Atlantic Avenue, encourages commercial and residential uses in proximity to each other to create a mixed-use district and promote economic and residential vitality. These commercial and residential properties may be developed as-of-right either co-located (e.g., ground floor commercial, residential above) or adjacent to each other.

This segment also contains two industrial business zones, the East New York Industrial Business Zone and the Ridgewood Industrial Business Zone. These Industrial Business Zones encourage manufacturing and industrial uses through tax credits from the city, which also provides relocation expenses for qualifying uses. As it is a manufacturing and industrial district, residential uses are generally not permitted.

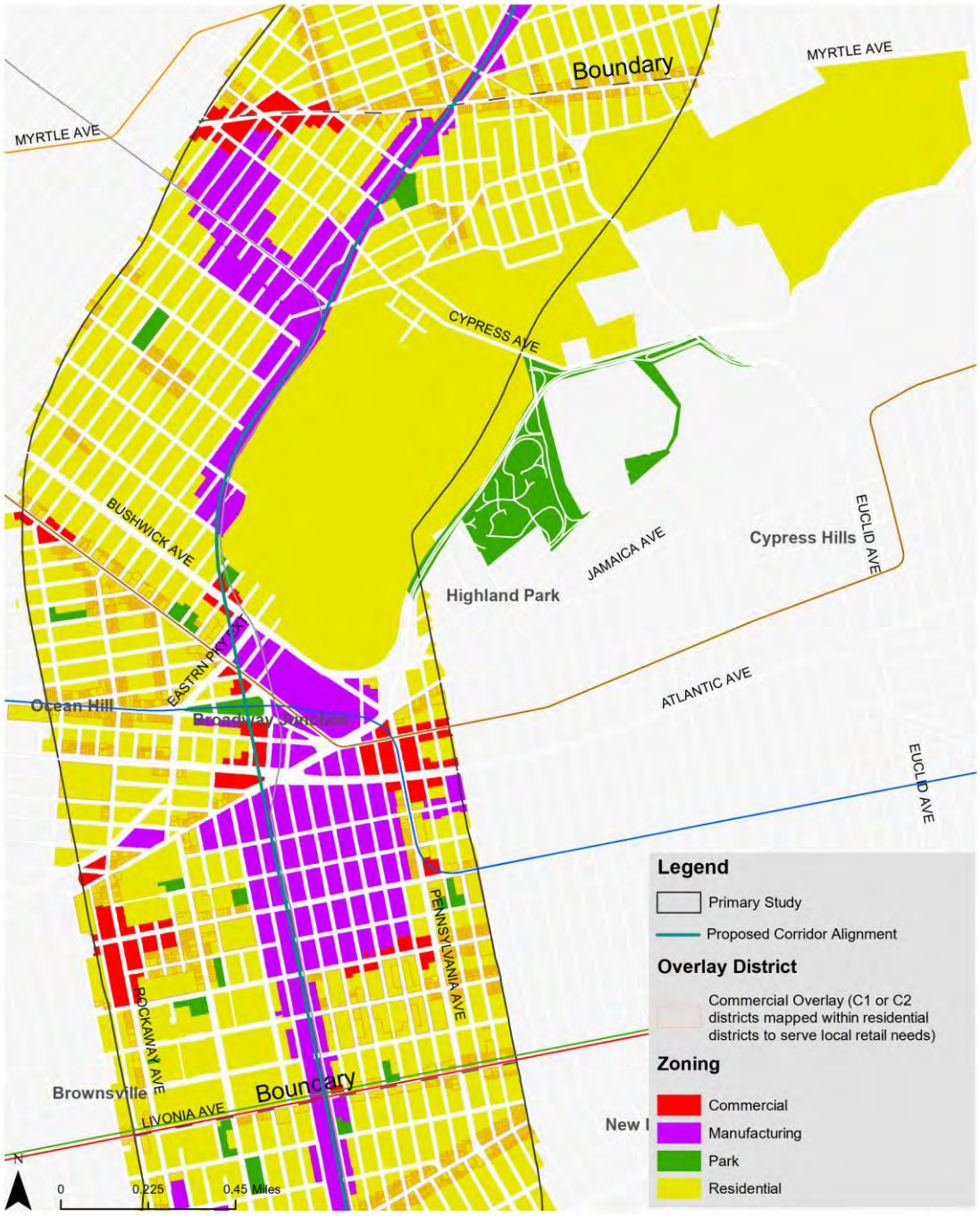
The area around the Broadway Junction Subway Station complex is being reimagined as an economic hub. The hub will be centered on transit access, inclusive commercial growth, active places and attractions, and public open space. The local economy would be buttressed by a workforce development program to satisfy a demonstrated need within the community.New York City agencies, community organizations and elected officials are working together to take advantage of the transit mobility provided at this location. Information about recent rezoning and development actions in this area is included in the Economic Development section of this memo.

Table 8: Zoning – Brownsville//Bushwick, by Parcel

Zoning	Percentage
Residential	83%
Manufacturing	12%
Commercial	5%
Park	1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 11: Existing Zoning for Brownsville//Bushwick (Segment 4)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The Brownsville/Bushwick segment contains a dense residential, commercial, and manufacturing hub in the south and a low-density residential area in the north (see **Figure 12**). In the south, Broadway Junction is a critical subway connection in east Brooklyn. NYCHA has many complexes within the southern portion of this segment, including Brownsville, Tilden, Van Dyke, Woodson, Hughes, and Howard Apartments, Glenmore and Unity Plazas, Low Houses, and Long Island Baptist Houses. In the center of this segment is Evergreen Cemetery, a large open space parcel. The north and northwest sections of this segment are primarily one- and two-family buildings with a small cluster of manufacturing and commercial uses along major roads such as Myrtle Avenue.

Approximately 82 percent of the parcels (38 percent of the land area) within this segment are residential (one- and two-family buildings, multi-family walk-up building, multi-family elevator building, and mixed commercial/residential) (see **Table 9**). Of these, 45 percent of parcels (15 percent of the land) are one-& two-family residential buildings and 29 percent of parcels (18 percent of the land) are multi-family buildings, generally located in the large NYCHA apartment complexes noted above. A total of eight percent of parcels (five percent of the land) are mixed commercial / residential.

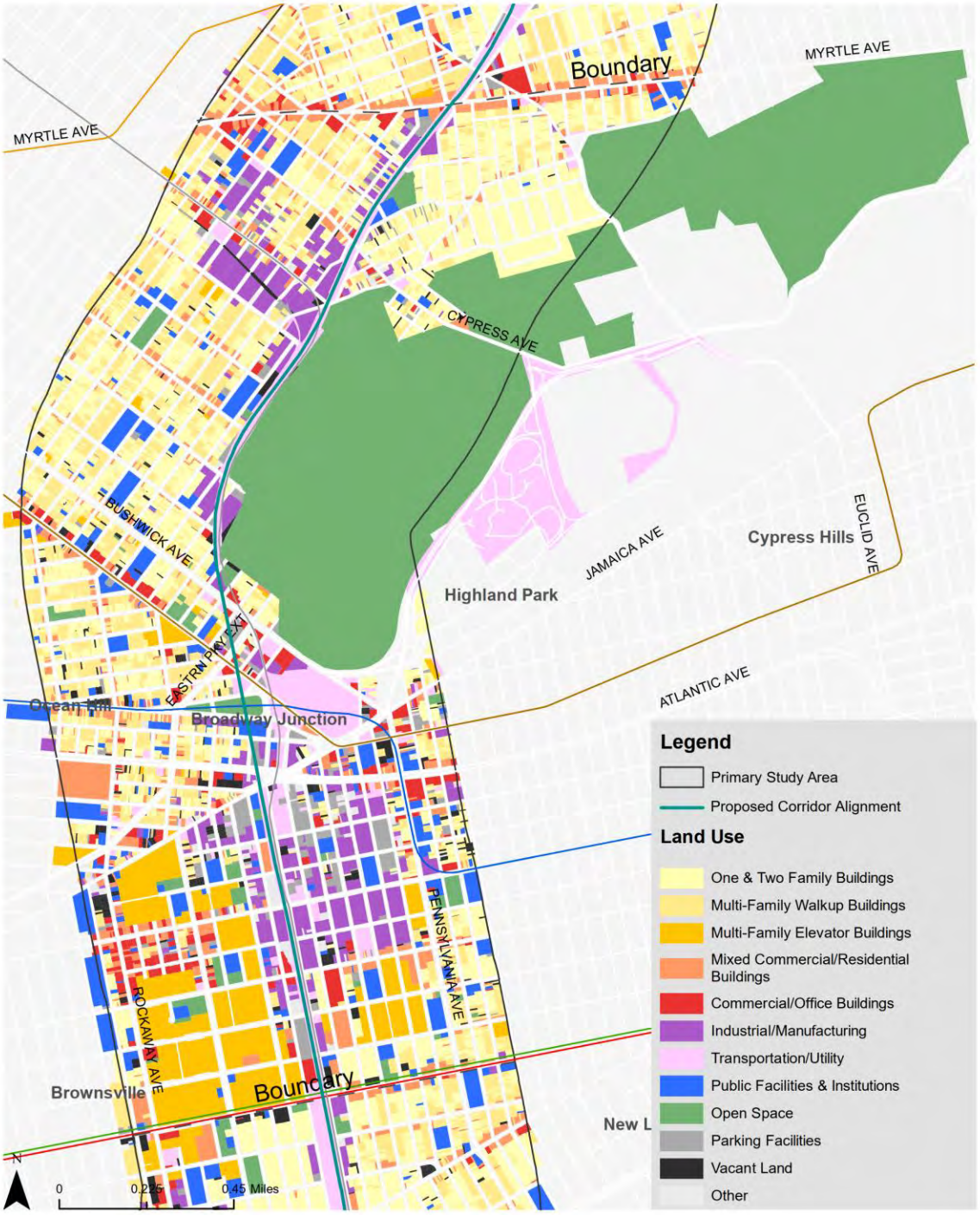
Non-residential uses occupy only 17 percent of parcels but 61 percent of land area, primarily due to the Evergreen Cemetery located in the northeast section of this segment. Open space alone, with one percent of parcels, occupies 36 percent of the land area. There are few commercial-only parcels in this segment which occupy only three percent of land area and generally are along major roads. Industrial/manufacturing, which is three percent of parcels, occupies six percent of land area. Transportation/utilities, which is two percent of parcels, occupy eight percent of land area. Public facilities & institutions, which is two percent of parcels, occupy five percent of land area in this segment.

Table 9: Land Use – Brownsville/Bushwick, by Parcel and Area

Land Use Class	Percentage	Area
One & Two Family Buildings	45%	15%
Multi-Family Walk Up Building	28%	11%
Multi-Family Elevator Building	1%	7%
Mixed Commercial/Residential Building	8%	5%
Commercial/Office Building	2%	3%
Industrial/Manufacturing	3%	6%
Transportation/Utility	2%	8%
Public Facility & Institutions	2%	5%
Open Space	1%	36%
Parking Facilities	3%	2%
Vacant Land	3%	2%
Other	1%	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 12: Existing Land Use for Brownsville/Bushwick (Segment 4)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Ridgewood/Middle Village (Segment 5)

The Ridgewood/Middle Village segment is located in central Queens and extends between Myrtle Ave in the south to the Long Island Expressway in the north. The neighborhoods within this segment include Ridgewood and Middle Village. This segment is characterized as primarily residential with large open spaces and limited commercial areas.

Zoning

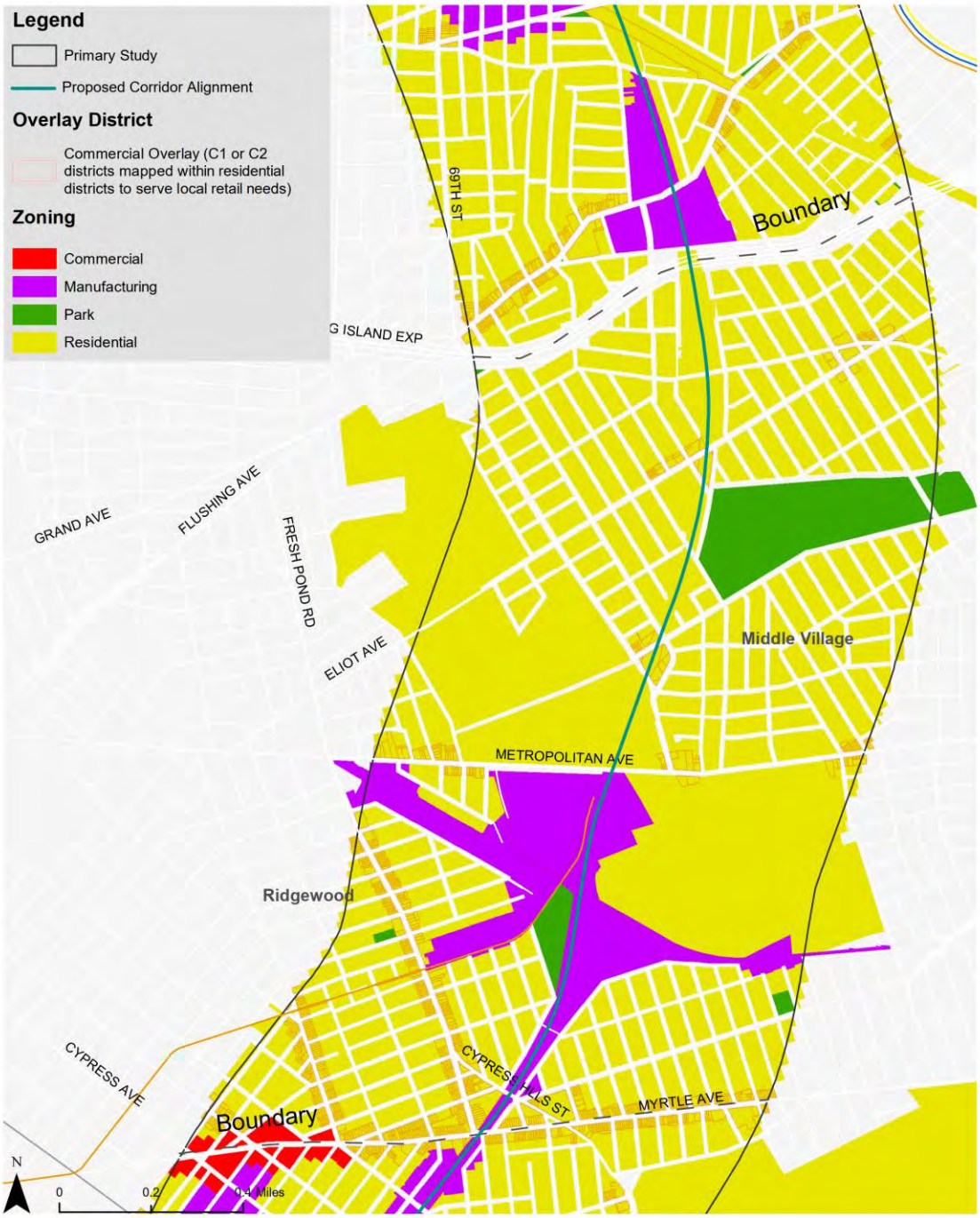
Existing zoning for the Ridgewood/Middle Village segment is broken out by type in **Table 10** and shown on **Figure 13**. Approximately 98 percent of the parcels in this segment are zoned residential, with R-4 and R-5 multi-family walk-up building, and multi-family elevator buildings, along with some mixed-use spaces. One percent of parcels in this segment are zoned manufacturing, with such uses primarily located in the south and center of this segment surrounding the Bay Ridge and the LIRR Lower Montauk Branch. One percent of parcels in this segment are zoned commercial and are located on the southern boundary of this segment along Myrtle Avenue. Roughly seven percent of residential parcels have a commercial overlay to allow for local shops, many of which are located along Myrtle Avenue and Fresh Pond Road.

Table 10: Zoning – Ridgewood/Middle Village, by Parcel

Zoning	Percentage
Residential	98%
Manufacturing	1%
Commercial	1%
Park	<1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 13: Existing Zoning for Ridgewood/Middle Village (Segment 5)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The Ridgewood/Middle Village segment is primarily one - and two-family residential with limited commercial areas along major roads (see **Figure 14**). Additionally, this segment has large open spaces that are primarily cemeteries located in the center of the segment.

Approximately 96 percent of the parcels (55 percent of land area) within this segment are residential, ranging from low density R-4 one- and two-family buildings to R-5 and R-6 districts with multi-family walk-up building, multi-family elevator building, and mixed commercial/residential) (see **Table 11)**. Of these residential parcels, 73 percent (40 percent of land area) are one- and two-family buildings, 18 percent of parcels (12 percent of land area) are multi-family buildings generally located in the northern portion of the segment, and five percent of parcels (three percent of land area) are mixed commercial/ residential primarily located in the southern end of the segment.

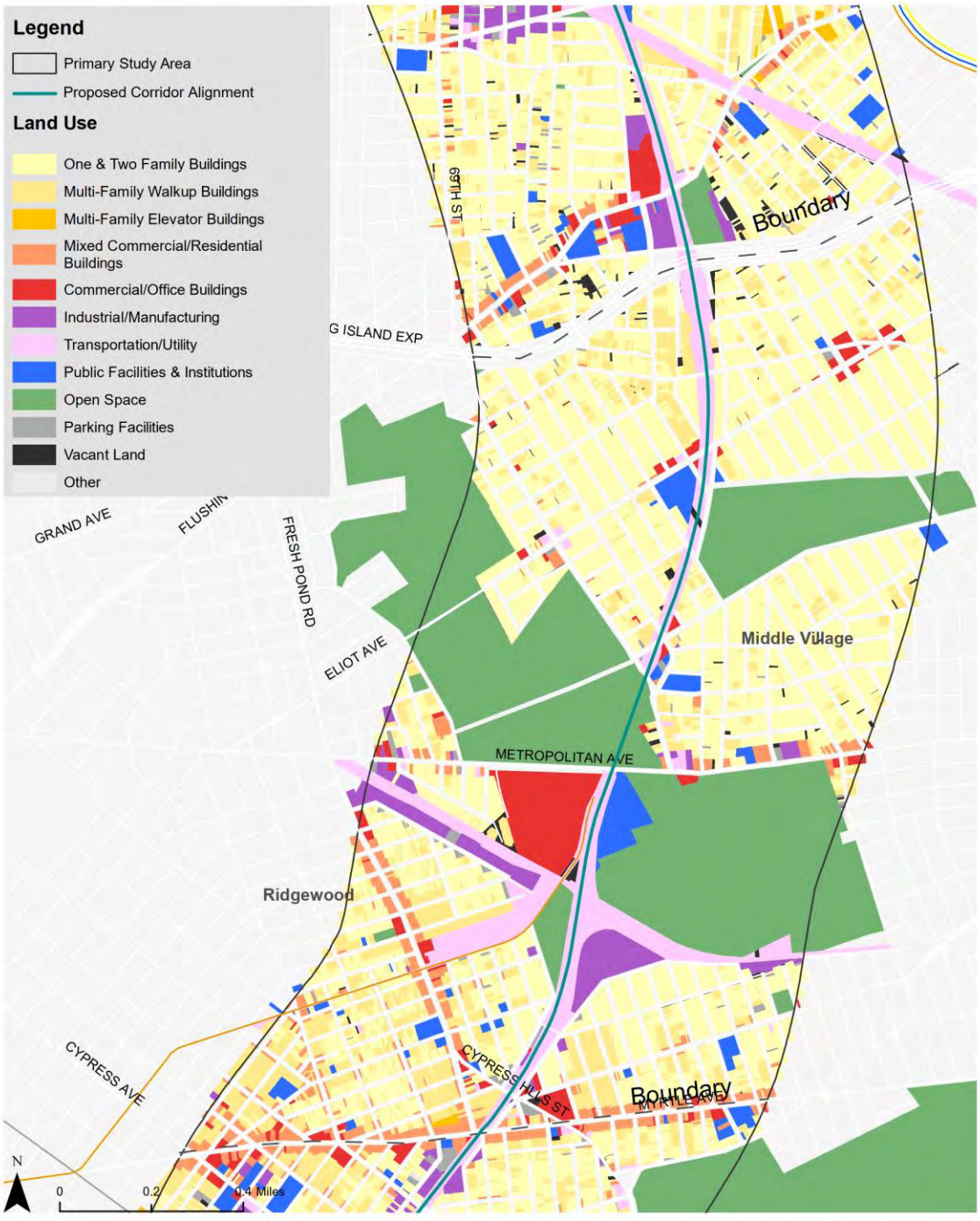
Only four percent of parcels in this segment are non-residential but they represent 45 percent of land area, most of which is open space. Middle Village Cemetery, All Faiths Cemetery, and Juniper Valley Park in the center of the segment alone occupy 28 percent of land area. Both commercial/ office buildings and transportation/utility parcels each represent one percent of parcels. Commercial land uses occupy four percent of land area. Transportation/utility land uses occupy eight percent of land area. Both industrial/manufacturing and public facilities and institutions are less than one percent of parcels and occupy 3 percent and 2 percent of land area, respectively.

Table 11: Land Use – Ridgewood/Middle Village, by Parcel and Area

Land Use Class	Percentage	Area
One & Two- Family Buildings	73%	40%
Multi-Family Walk Up Building	18%	12%
Multi-Family Elevator Building	<1%	<1%
Mixed Commercial/Residential Building	5%	3%
Commercial/Office Building	1%	4%
Industrial/Manufacturing	<1%	3%
Transportation/Utility	1%	8%
Public Facility & Institutions	<1%	2%
Open Space	<1%	28%
Parking Facilities	1%	1%
Vacant Land	1%	1%
Other	<1%	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 14: Existing Land Use for Ridgewood/Middle Village (Segment 5)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Woodside/Elmhurst (Segment 6)

The Woodside/Elmhurst segment is in northwest Queens, extending from the Long Island Expressway in the south to the end of the Primary Study Area in the north, terminating just short of the Astoria neighborhood. The neighborhoods within this segment include Maspeth, Elmhurst, Woodside, and Jackson Heights. This segment is characterized by low-density residential uses in the south and high density residential and commercial uses in north.

Zoning

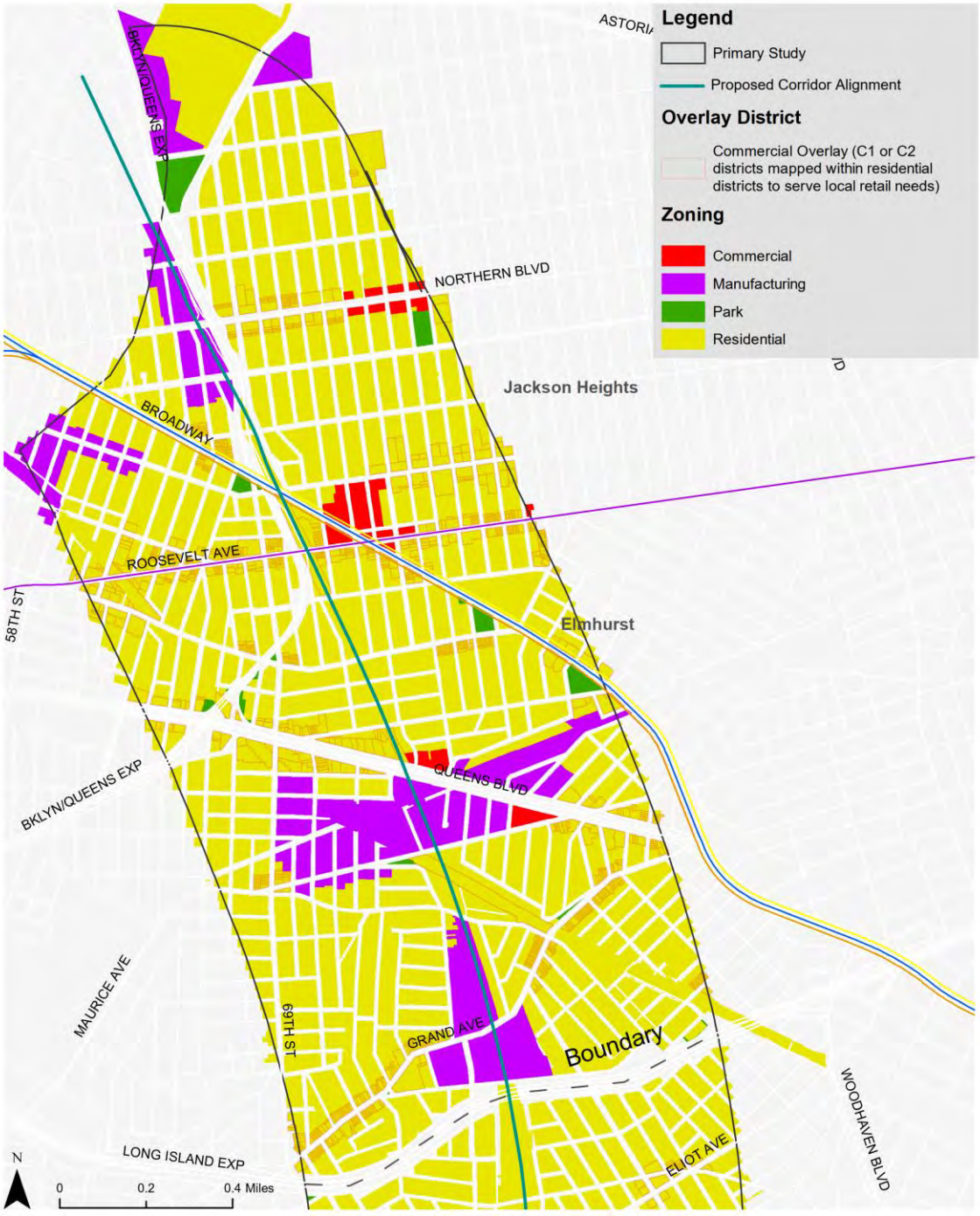
Existing zoning for the Woodside/Elmhurst segment is broken out by type in **Table 12** and shown on **Figure 15**. Approximately 95 percent of the parcels in this segment are zoned residential, with pockets of high-density R-7 zones throughout. Three percent of parcels in this segment are zoned manufacturing and are located in the southern and northern ends of the segment. One percent of parcels in this segment are zoned commercial and are located sporadically throughout the segment along major roadways. Nine percent of residential parcels have a commercial overlay to allow for local shops. These are generally located on Northern Boulevard and Roosevelt and Grand Avenues.

Table 12: Zoning – Ridgewood/Middle Village, by Parcel

Zoning	Percentage
Residential	95%
Manufacturing	3%
Commercial	1%
Park	<1%
No Zoning	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Figure 15: Existing Zoning for Woodside/Elmhurst (Segment 6)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Land Use

The Woodside/Elmhurst segment is primarily residential with multiple types of residential housing (see **Figure 16**). Denser multi-family and mixed-use buildings are generally along the major streets and avenues in the north and one- and two-family buildings are grouped in the south. Additionally, there are large commercial sections located on major roads and along subway lines such as the #7 line and the Queens Boulevard lines.

Approximately 89 percent of the parcels within this segment, occupying 60 percent of land area, are residential (one-& two-family buildings, multi-family walk up building, multi-family elevator building, and mixed commercial /residential) (see **Table 13**). Of these 89 percent, 56 percent (31 percent of the land area) are one- and two-family buildings, 27 percent (24 percent of the land) are multi-family buildings, generally located in the north-east portion of the segment around Jackson Heights, and five percent (five percent of the land) are mixed commercial/residential buildings.

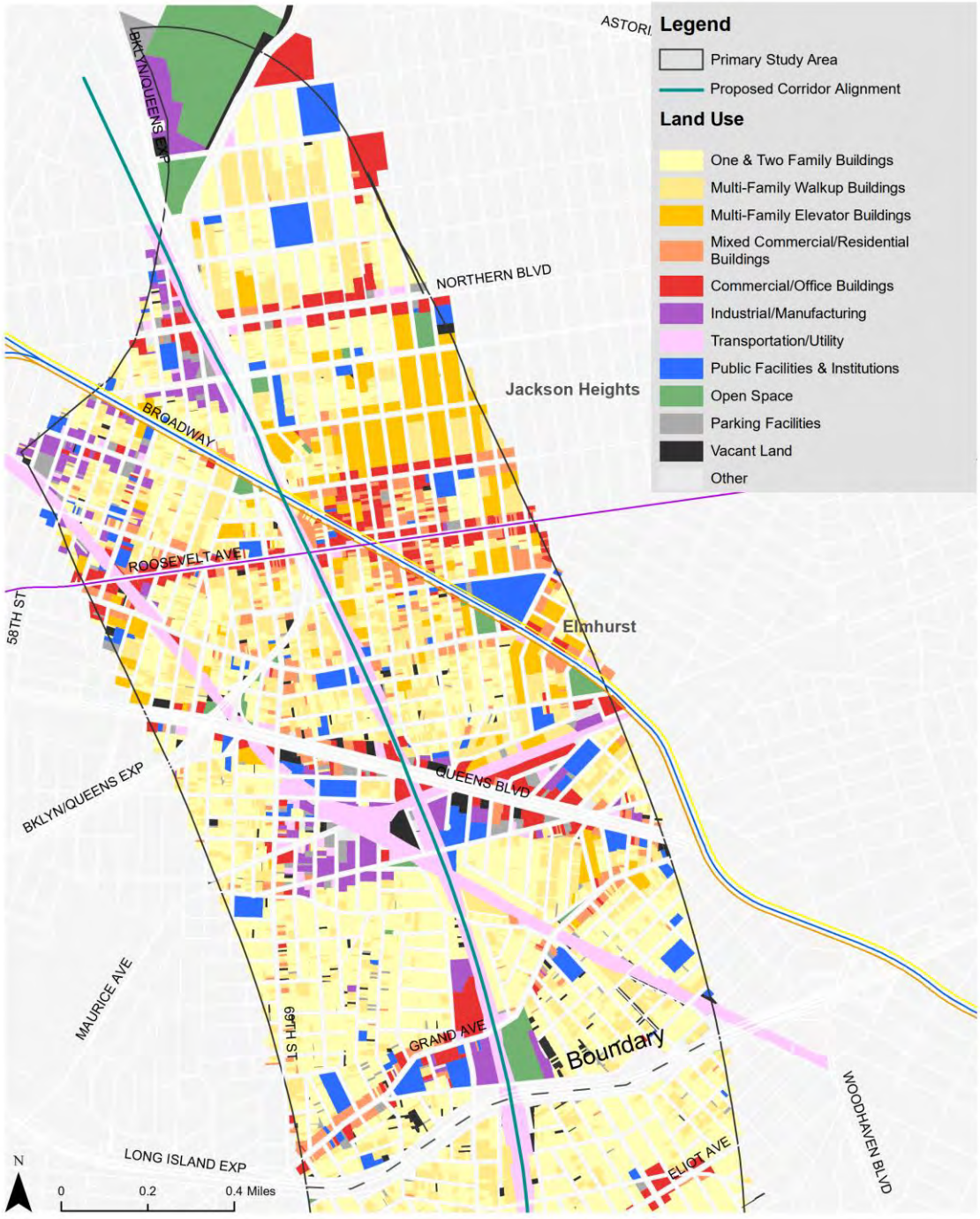
Non-residential parcels represent 11 percent of the parcels in this segment and occupy 39 percent of the land area. Commercial/office building land uses (three percent of parcels, seven percent of land area) are generally found along major roads such as Roosevelt and Grand Avenues. Industrial/manufacturing, transportation/utility, and public facilities and institutions each represent one percent of parcels and four, nine and seven percent of the land area, respectively. Industrial/manufacturing uses are in the center and northwest of the segment, Transportation/utility uses are primarily in the center of the segment along the Fremont Secondary, including the Brooklyn-Queens Expressway and the Long Island Rail Road (LIRR) Main Line to Woodside and Penn Station. Public facilities and institutions are located throughout the segment.

Table 13: Land Use – Woodside/Elmhurst, by Parcel and Area

Land Use Class	Percentage	Area
One- & Two-Family Buildings	56%	31%
Multi-Family Walk Up Building	26%	17%
Multi-Family Elevator Building	1%	7%
Mixed Commercial/Residential Building	5%	5%
Commercial/Office Building	3%	7%
Industrial/Manufacturing	1%	4%
Transportation/Utility	1%	9%
Public Facility & Institutions	1%	7%
Open Space	<1%	8%
Parking Facilities	2%	2%
Vacant Land	2%	2%
Other	<1%	<1%

Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of City Planning

Figure 16: Existing Land Use for Woodside/Elmhurst (Segment 6)



Source: Primary Land Use Tax Output (PLUTO) 2020, New York City Department of Planning

Adjacent Property Analysis

This section describes the land uses and properties within 100 feet of the Project corridor, excluding the existing Bay Ridge Branch right-of-way (ROW). This information is important to understand the relationship of the corridor to the adjacent properties.

Table 14: Track Segments

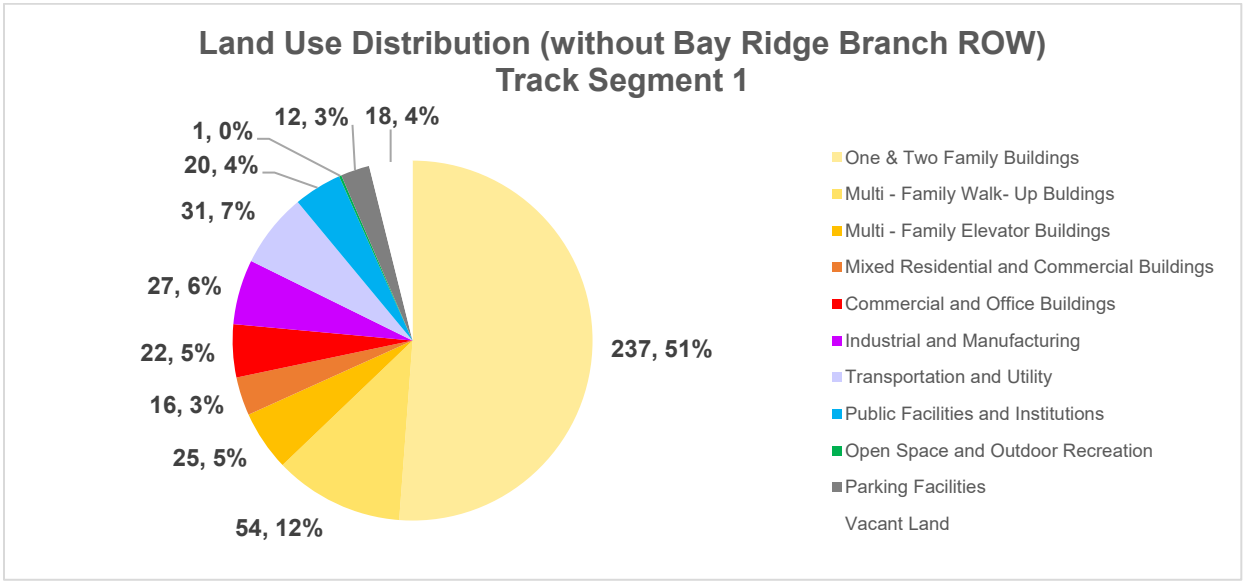
Segment	Start	End	Structure Type	Length (Mile)
1	65th St Yard	Glenwood Rd	Cut Section	5.35
2	Glenwood Rd	New Lots Ave	Embankment	2.53
3	New Lots Ave	East New York Ave	Cut Section	1.05
4	East New York Ave	Evergreen Ave	Tunnel	0.83
5	Evergreen Ave	Fresh Pond Yard	Embankment	1.70
6	Fresh Pond Yard	Calamus Ave	Cut Section	1.84
7	Calamus Ave	Queens Blvd	Embankment	0.40
8	Queens Blvd	35th Ave	Cut Section	0.47

Source: AECOM

Track Segment 1

Track Segment 1 starts at the 65th Street Yard just south of the Brooklyn Army Terminal and ends at Glenwood Road in Flatbush. The distribution of adjacent properties by land use type is presented in **Figure 17**. There are 527 properties, including 64 used for transportation or utilities purposes, that are located wholly or partially within the alignment. Excluding those track properties (transportation and utility properties), 68 percent of these adjacent properties are residential, primarily one- and two-family properties. The neighborhood is a heavily developed, moderate-density residential community that includes several areas with commercial and institutional development.

Figure 17: Land Use of Adjacent Properties (Without Track Property) – Track Segment 1



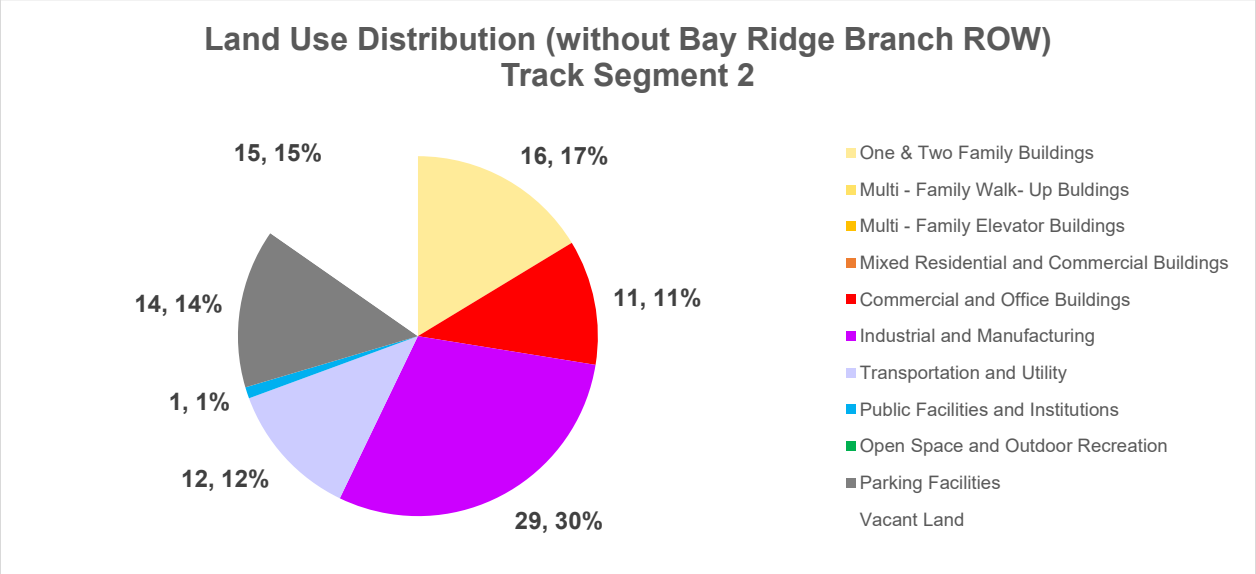
Source: NYC Department of City Planning, MapPLUTO (March 2020)

Of the 527 properties, 80 percent are privately owned, and 20 percent are publicly owned by city and public agencies. Of the 64 parcels that directly intersect the alignment, 46 are fully owned by LIRR. LIRR owns the ROW for the other parcels, although air rights at eleven parcels are privately owned above the project ROW. These developers have rights to overbuild the corridor, subject to the terms established through the sale of such rights. Ownership of these 11 parcels does not include the ROW.

Track Segment 2

Track Segment 2 starts at Glenwood Road between Albany and Utica Avenues and ends at New Lots Avenue. The distribution of adjacent properties by land use type is presented in **Figure 18**. Within 100 feet of the Track Segment 2 alignment, there are 121 properties, including 23 used for transportation or utilities purposes that are located wholly or partially within the alignment. Excluding those properties, 30 percent of the 98 adjacent properties are primarily used for industrial and manufacturing purposes. Of the 121 properties, 74 percent are privately owned. Public ownership comprises the remaining 26 percent including city and state agencies. Of the 23 directly intersected properties, 20 are owned by LIRR, with the remaining three owned privately by Brooklyn Terminal Market Cooperative, Inc., Telese Realty, LLC, and Breit Canarsie Owner, LLC, respectively.

Figure 18: Land Use of Adjacent Properties (Without Track Property) – Track Segment 2



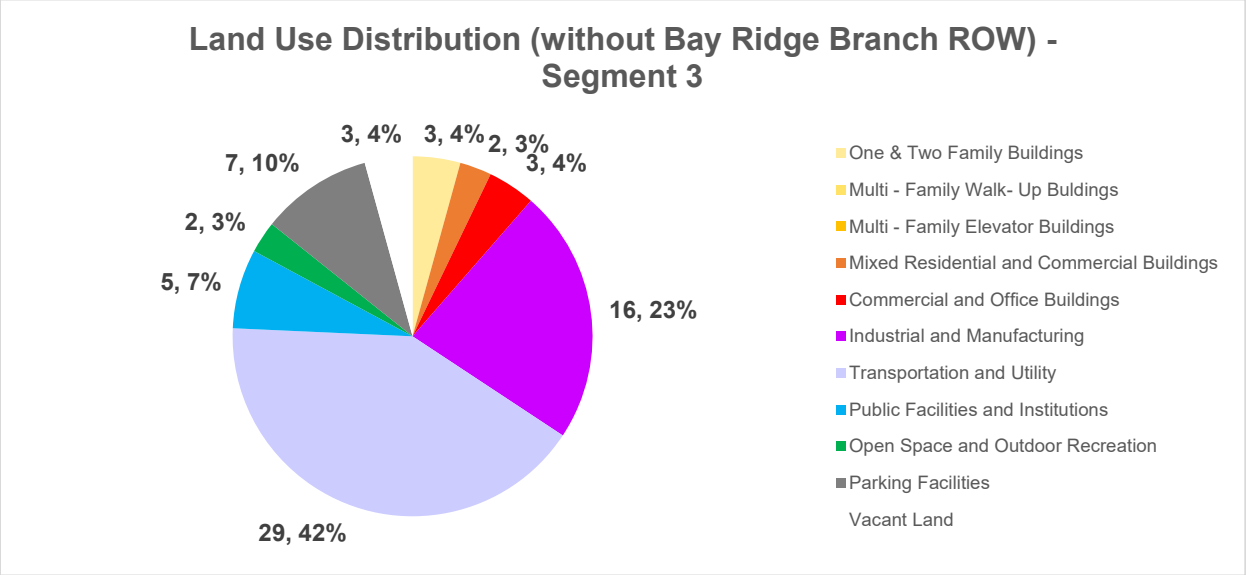
Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 3

Track Segment 3 starts at New Lots Avenue and ends at East New York Avenue. The distribution of adjacent properties by land use type is presented in **Figure 19**. Within 100 feet of the Track Segment 3 alignment are 81 parcels, including 11 used for transportation or utilities purposes that are located wholly or partially within the alignment. Excluding those properties, 42 percent of the 70 adjacent properties are also used for transportation and/or utilities purposes, while 23 percent are used for industrial and manufacturing. This segment is heavily industrial in character.

Of the 81 properties, 52 percent are privately owned. LIRR is a major public owner of the remaining parcels. Of the 11 tax lots that directly intersect the alignment, 10 are owned by LIRR; the remaining parcel is municipally owned.

Figure 19: Land Use of Adjacent Properties (Without Track Property) – Track Segment 3



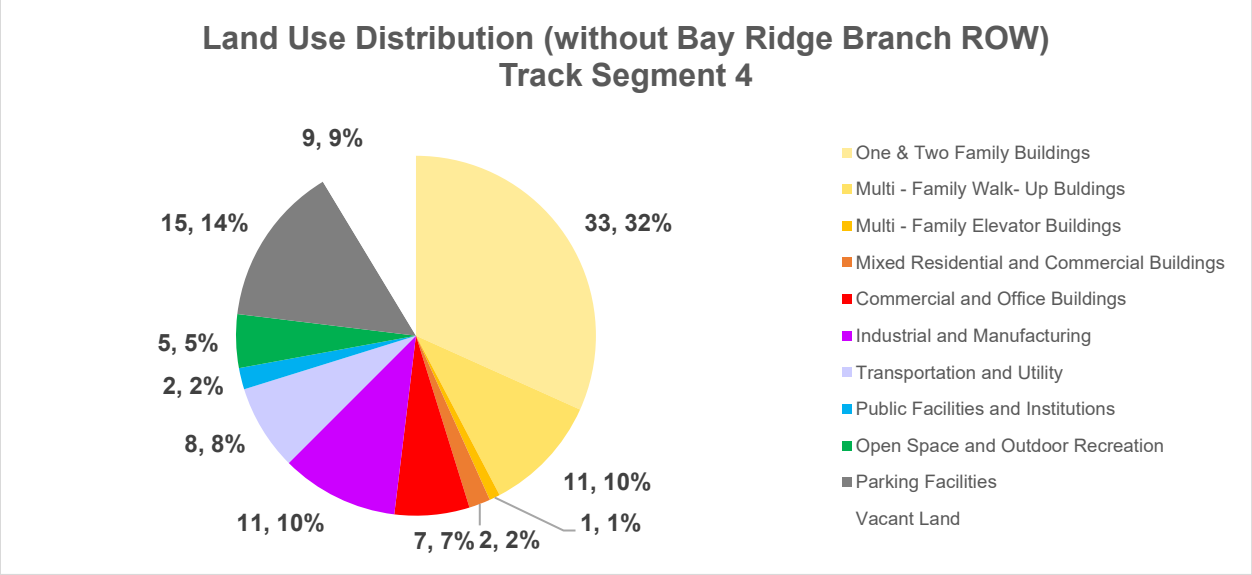
Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 4

Track Segment 4 starts at East New York Avenue and ends at Evergreen Avenue. The distribution of adjacent properties by land use type is presented in **Figure 20**. Within 100 feet of the alignment there are 127 properties, including 23 used for transportation or utilities purposes that are located wholly or partially within the alignment. Excluding those properties, 43 percent of adjacent properties are residential, generally consisting of one- and two -family residences. The neighborhood around this segment is heavily developed, moderate-density residential community that includes several nearby corridors and pockets with commercial and institutional development.

Of the 127 properties, 78 percent are privately owned. Ownership by city and public agencies comprises the remaining parcels. LIRR owns two of the parcels that directly intersect the alignment; the remainder are privately owned.

Figure 20: Land Use of Adjacent Properties (Without Track Property) – Track Segment 4

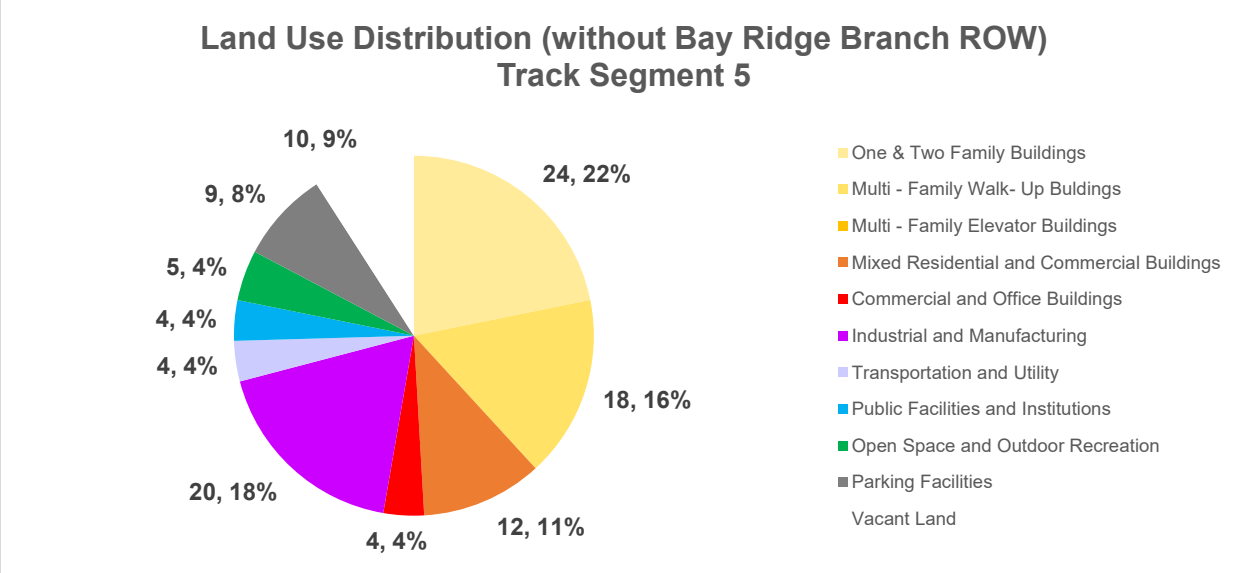


Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 5

Track Segment 5 begins at Evergreen Avenue just north of the East New York tunnel in Brooklyn, and ends at Fresh Pond Yard in Queens. The distribution of adjacent properties by land use type is presented in **Figure 21.** There are 126 properties located within 100 feet of Track Segment 5, including 16 that are located wholly or partially within the alignment. Excluding those properties, 38 percent of the 110 adjacent properties are residential, most of these are one- and two-family properties. About 18 percent of the lots are used for industrial and manufacturing purposes. The alignment in this area also adjoins the Evergreens Cemetery. Of the 126 properties, 73 percent are privately owned. Of the 16 properties that directly intersect the corridor, 11 are owned by LIRR. The remainder are privately held.

Figure 21: Land Use of Adjacent Properties (Without Track Property) – Track Segment 5

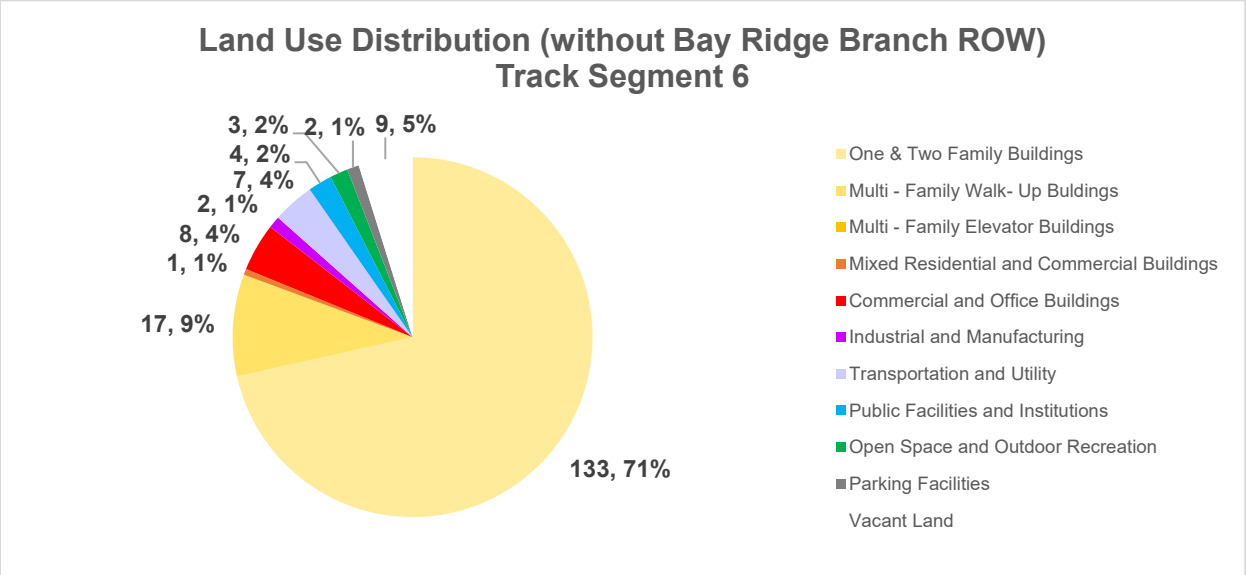


Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 6

Track Segment 6 begins at Fresh Pond Yard and ends at Calamus Avenue in Queens. The distribution of adjacent properties by land use type is presented in **Figure 22**Figure 21**.** There are 204 properties located within 100 feet of Track Segment 6, including 18 transportation parcels that are located wholly or partially within the alignment. Excluding those properties, 81 percent of the 186 adjacent properties are residential. Most of these are one- and two-family properties. Segment 6 is a heavily developed, moderate-density residential community that contains several corridors and pockets of commercial and institutional land use. Of the 204 parcels, 88 percent are privately owned. All 18 parcels that directly intersect the alignment are owned by CSX Transportation, Inc. This segment is adjacent to low density residential areas in the south and high density residential and commercial districts to the north.

Figure 22: Land Use of Adjacent Properties (Without Track Property) – Track Segment 6

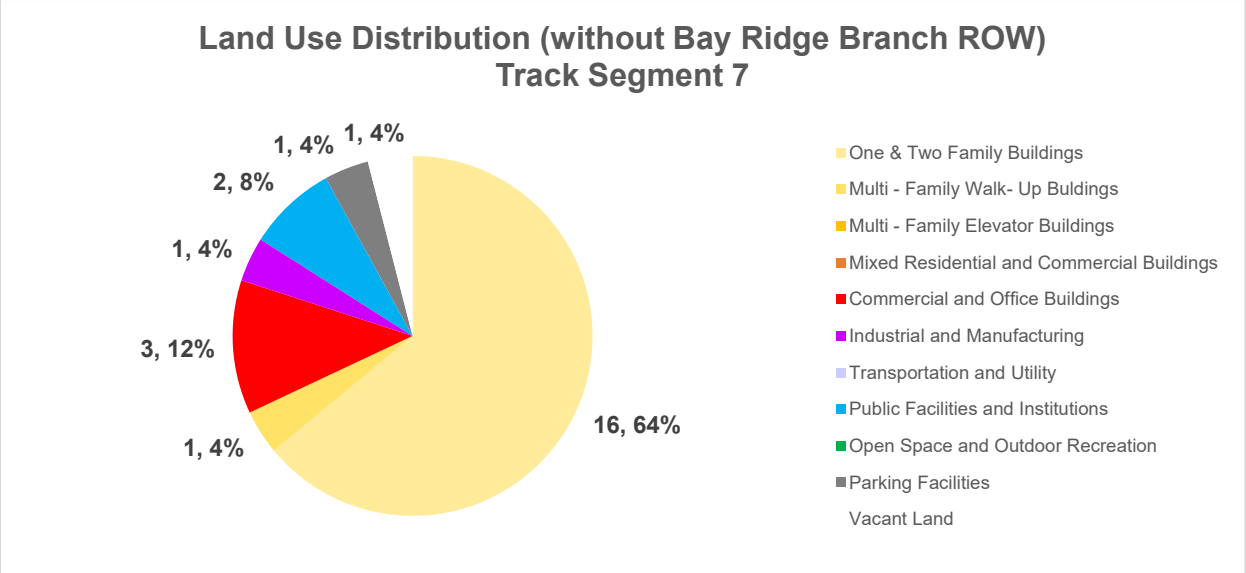


Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 7

Track Segment 7 starts at the Calamus Avenue and ends at Queens Boulevard. The distribution of adjacent properties by land use type is presented in **Figure 23**. There are 31 properties within 100 feet of the Track Segment 7 alignment, including six that are located wholly or partially within the corridor. Excluding those properties, 64 percent of the 25 adjacent properties are residential, primarily one- and two -family properties. The neighborhood around Track Segment 7 is a heavily developed, moderate-density residential community that includes pockets of commercial and institutional development. Of the 31 properties, 84 percent are privately owned. All six trackage parcels are owned by CSX Transportation, Inc.

Figure 23: Land Use of Adjacent Properties (Without Track Property) – Track Segment 7

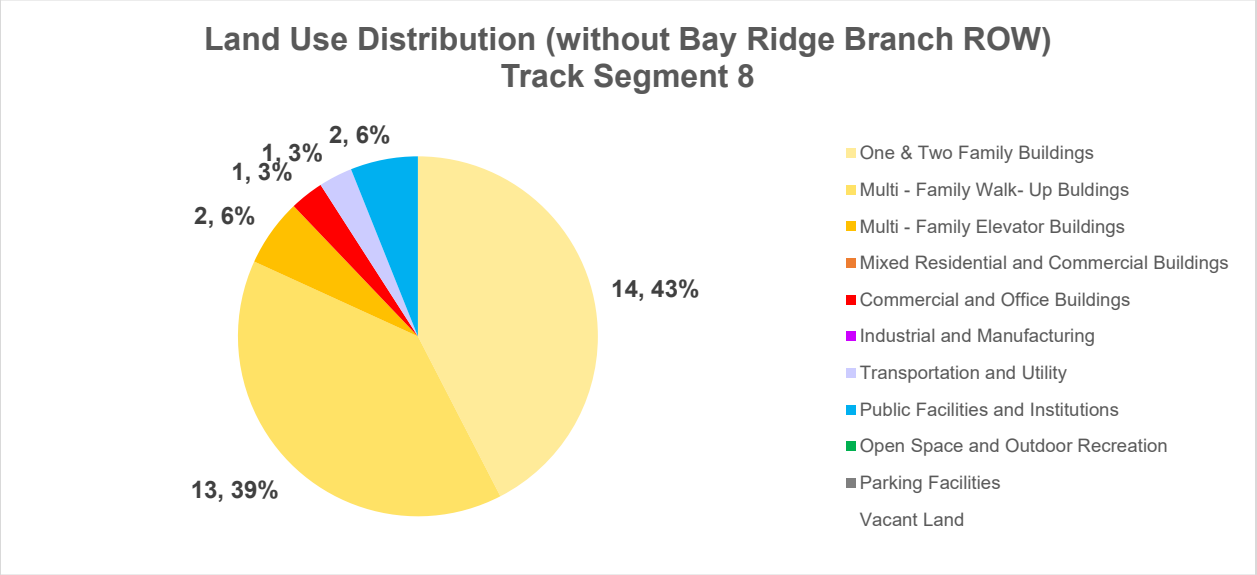


Source: NYC Department of City Planning, MapPLUTO (March 2020)

Track Segment 8

Track Segment 8 starts at the Queens Boulevard and ends at 35th Avenue. The classification of adjacent properties by land use type is presented in **Figure 24**. Within 100 feet of the Track Segment 8 alignment, there are 39 properties, of which six are Transportation properties that directly intersect the alignment. Excluding those properties, 87 percent of the adjacent 33 properties are residential, and consist primarily of one- and two -family properties. The neighborhood around Track Segment 8 is a heavily developed, moderate-density residential community, with pockets of commercial and institutional development. Of the 39 properties, 85 percent are privately owned. All six trackage parcels are owned by CSX Transportation, Inc.

Figure 24: Land Use of Adjacent Properties (Without Track Property) – Track Segment 8



Source: NYC Department of City Planning, MapPLUTO (March 2020)

Economic Development

This section highlights the significant land use and development trends in the Primary Study Area by neighborhood and community segment, as well as the expected synergies between the proposed project and these development trends. It is important to understand the planning context of the corridor and identify locations where new or proposed development would represent a potential change in historic land use patterns and development densities. This analysis is required to properly assess the potential role of new transit service and connections along the IBX corridor, providing an understanding of these land use forces and their connection to existing and growing transit ridership. This includes land uses and development plans that are supportive of expanded transit use, such as transit-oriented development (TOD).

Information about land use and development trends was drawn from a discussion with the Queens and Brooklyn borough offices of the NYCDCP in March 2020 and June 2022, and from public information available from, among other sources, the NYCEDC. **Table 15** summarizes some recent rezoning plans in the Brooklyn portion of the Primary Study Area along or near the Bay Ridge Branch.

Table 15: Rezoning Plans in the Primary Study Area

Community Segment	Project	Total Square Feet	Rezoning Action
Sunset Park / Borough Park (Segment 1)	Commercial	87,000	Manufacturing to commercial rezoning
	Residential and Commercial	2,500,000	Commercial rezoning
	Light Industrial	138,700	Manufacturing rezoning
	Higher-density residential with accessory commercial	759,392	Manufacturing and residential to residential and commercial rezoning
Midwood / Flatbush (Segment 2)	Higher-density residential	273,485	Commercial to residential rezoning
	Higher-density residential	335,103	Residential rezoning
East Flatbush / Canarsie (Segment 3)	Self-Storage Facility near Bay Ridge Branch	127,867	Special permit to develop self-storage at-grade with the Bay Ridge Branch
	Low Income housing	55,200	NYC Housing Preservation and Development project
Brownsville / Bushwick (Segment 4)	Affordable housing	73,715	Residential rezoning
	Higher-density residential and commercial development near Bay Ridge Branch	430,000	Manufacturing and commercial rezoning

Source: New York City Department of City Planning

Sunset Park/Borough Park (Segment 1)

The sections of Sunset Park and the northwestern corner of Bay Ridge near the IBX corridor are part of an historically industrial and commercial waterfront, including the business and industrial complex at Industry City, as well as light manufacturing and warehouse uses within the evolving commercial hub at the Brooklyn Army Terminal. Built in 1919, it served as the nation's largest military supply base during World War II but closed in the 1970s and was sold to the City in 1981. With its historic buildings and campus area upgraded, it is a thriving industrial campus, providing manufacturers tools and space, with over 100 employers and 4,000 employees. These waterfront hubs unite the

maritime and rail freight shipping industries with the unique mix of waterborne, rail and interstate highway freight access combined with nearby subway service. The Bay Ridge Special District includes development restrictions to maintain the low-density context of the area. Levels of development are limited here to maintain contextual appropriateness, and current zoning provides limited opportunities to support TOD. Discussions with NYCDCP indicated that opportunities to benefit and support new transit to create a more sustainable employment growth center could be explored in this segment.

The Southwest Brooklyn Industrial Business Zone, around the Brooklyn Army Terminal, encourages manufacturing and industrial uses. Sunset Park's Vision Plan encourages capitalizing on its transportation resources for the efficient movement of goods, sustainable industrial growth, and green activities. These collectively form a plan for sustained economic growth in the area.

The 61st Street corridor in Sunset Park / Borough Park includes a segment between 8th Avenue and 14th Avenue in Brooklyn that is directly adjacent to the Bay Ridge Branch. Predominantly low-density, several properties in this area have received zoning variances for greater density from both NYCDCP and the Board of Standards and Appeals (BSA), indicating a demand and willingness for increased density.

Planned development actions in this area are shown in **Table 15**, several of which are located near the current Bay Ridge Branch right-of-way:

- **Brooklyn Yards:** A 12-14-story proposal for a commercial and residential development that includes an overbuild above the Bay Ridge Branch rail cut with air rights owned by the developer. Located between 14th Ave and 16th Avenues, Brooklyn Yards potentially conflicts with the Bus Rapid Transit (BRT) and Light Rail Transit (LRT) alternatives, which would operate at street-level in this segment**.** The project is in pre-certification, and the developer has submitted draft designs for DCP's review. The developer has indicated their intention to certify the project by late 2022, with completion of the ULURP process by the end of 2023.
- **6208 8th Avenue:** Located south of 62nd Street between 8th Avenue and 7th Avenue, this is a proposal for a large retail redevelopment. While this is not an overbuild, the plans include using a portion of the right-of-way to connect to the 8th Avenue N Station, potentially tying an entrance to the subway to a retail building. This project is in ULURP pre-certification and is not expected to conflict with any proposed IBX alignment.

Midwood/Flatbush (Segment 2)

At the center of this area, the Flatbush Junction hub around Flatbush and Nostrand Avenues is primed for a transformation from single-story development to mixed use "tower" commercial properties. NYCDCP has been supportive of land use changes in this area to support increased density for housing and retail. This process may be complicated by the presence of national chains, which have long-term leases and staggered lease timelines.

Planned developments in this area include 1584 Flatbush Avenue and 817 Avenue H (**Table 15**).

East Flatbush/Canarsie (Segment 3)

Industrial uses are encouraged in East Flatbush with the Flatlands/Fairfield Industrial Business Zone. New manufacturing and industrial uses can be achieved through tax credits, while protecting these uses through strict zoning safeguards. Activity here is heavily freight- and logistics-related, with warehouse uses in the future to be complemented by increased additional light industrial and manufacturing.

Planned developments in this area as shown in **Table 15** are adjacent to the current Bay Ridge Branch right-of-way, none of which would encroach on the corridor.

Brownsville/Bushwick (Segment 4)

The Special Mixed-Use District around Atlantic Avenue encourages the establishment of commercial and residential uses in proximity to each other to create a mixed-use district with 24/7-type economic and residential vitality. An Enhanced Commercial District along Atlantic Avenue and Fulton Street promotes pedestrian amenities and walkability, as a means of enlivening the streetscape with ground level retail of residential properties. The area around the Broadway Junction subway station complex is being reimagined as a CBD-style hub, with destination retail, big box construction, and tower-style commercial development (see **Table 15**). These activities would take advantage of the extensive transit connections at Broadway Junction and Atlantic Avenue, including multiple subway lines and the Long Island Rail Road. Active places, public facilities, and open spaces are also part of this plan. The planned developments in this area as shown in **Table 15** give a sense of the scale and commercial and residential land uses that are planned, all adjacent to the IBX corridor.

Ridgewood/Middle Village (Segment 5)

These areas in central Queens are expected to maintain their low densities, with only slight densification and redevelopment. No development plans are currently proposed, and the single-family character is expected to be maintained. NYCDCP has indicated its support for a mixed-use residential/commercial development at the current site of the Metro Mall, taking advantage of the existing M train service and the potential service connections provided by the IBX corridor. Challenges to zoning changes elsewhere along Metropolitan Ave east of this site reflect an interest in low-density neighborhood character.

Woodside/Elmhurst (Segment 6)

The dense neighborhoods of Elmhurst and Woodside increasingly foster development activity that caters to their diverse populations, including large-scale affordable housing development. These dense housing zones are tied to transit access provided by the #7 Flushing Line corridor along Roosevelt Avenue. The neighborhoods within the Woodside and Elmhurst segment have some future opportunity for land use changes and growth. Currently there are no proposed developments, but there have been developments historically in this area. The schools within this segment are some of the most overly subscribed schools within NYC, which presents a challenge to increasing density within these areas. A recent higher density residential project in the area won acceptance after incorporating a new school into its development plans.

NYCDCP is supportive of moderate land use changes in this area to support increased density near transit, as long as new schools and more open space for these recreationally underserved communities are included in new developments. Otherwise there appears to be lower levels of market appetite for development along the IBX corridor in this segment when compared with other segments. The existing neighborhood character is expected to be maintained in this segment.

Conclusion

Development trends along the IBX corridor present unique opportunities to the proposed IBX corridor. Key takeaways of the Economic Development analysis include:

- Neighborhoods in Brooklyn (community segments 1 through 4) include land uses and development plans that are generally supportive of expanded transit use.

- There is a potential conflict for the BRT and LRT alternatives with the Brooklyn Yards commercial and residential development in community segment 1 that includes an overbuild of the existing Bay Ridge Branch corridor.
- The NYCDCP is generally supportive of higher-density mixed-use development in some portions of Queens (community segments 5 and 6). However, there are currently no development plans proposed, and there appears to be limited market support for higher-density mixed-use development along the IBX corridor.

Appendix 1.8 LRT & BRT At-Grade Crossings Feasibility Screening Analysis

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

Contents

Attachments

Introduction

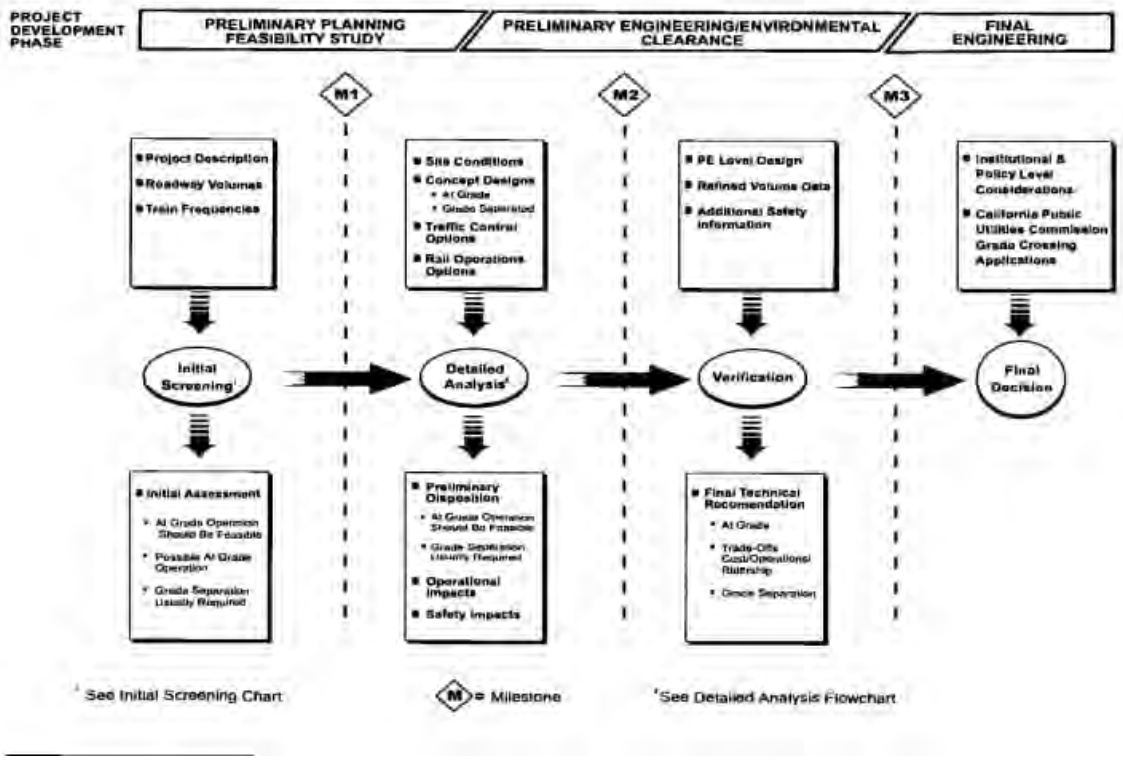
The purpose of this grade crossing analysis is to provide an initial screening to determine if at-grade crossings are potentially feasible along the Metropolitan Transportation Authority's (MTA) Interborough Express (IBX) alignment for Light Rail Transit (LRT) and Bus Rapid Transit (BRT). The at-grade crossing screening methodology was adopted from the Los Angeles County Metropolitan Transportation Authority's "MTA Grade Crossing Policy for Light Rail Transit," dated December 4th, 2003. The at-grade crossing screening analysis was performed for two segments: Segment 1 is for 24 cross streets intersecting with the proposed IBX LRT/BRT alignment between 6th Avenue and Albany Avenue in Brooklyn and Segment 2 focuses on six intersections along Roosevelt Avenue between new CSX's Fremont Secondary intersection and Broadway in Jackson Heights, Queens.

Nomograph Overview

The nomograph screening analysis performed for the at-grade LRT and BRT crossings is the first phase of a three-phase process as shown in **Figure 1** below. The nomograph screening analysis concludes three outcomes: "At Grade Should be Feasible," "Possible At Grade Operation," and "Grade Separation Usually Required." The screening outcome should be further investigated in the next phase of the project, if either LRT or BRT alternative is selected. The screening methodology utilizes transit vehicle frequencies (trips) per direction and the highest peak hour volume per lane of the intersection approach that would conflict with the transit vehicle crossing. The peak hour transit vehicle frequencies are plotted as horizontal lines and the highest peak hour traffic volumes per lane are plotted as vertical lines. The nomograph screening analysis utilized studies performed by the Institute for Transportation Engineers that had been updated to account for advanced signal operations including full and partial transit signal priority in addition to the original study's full traffic signal preemption.

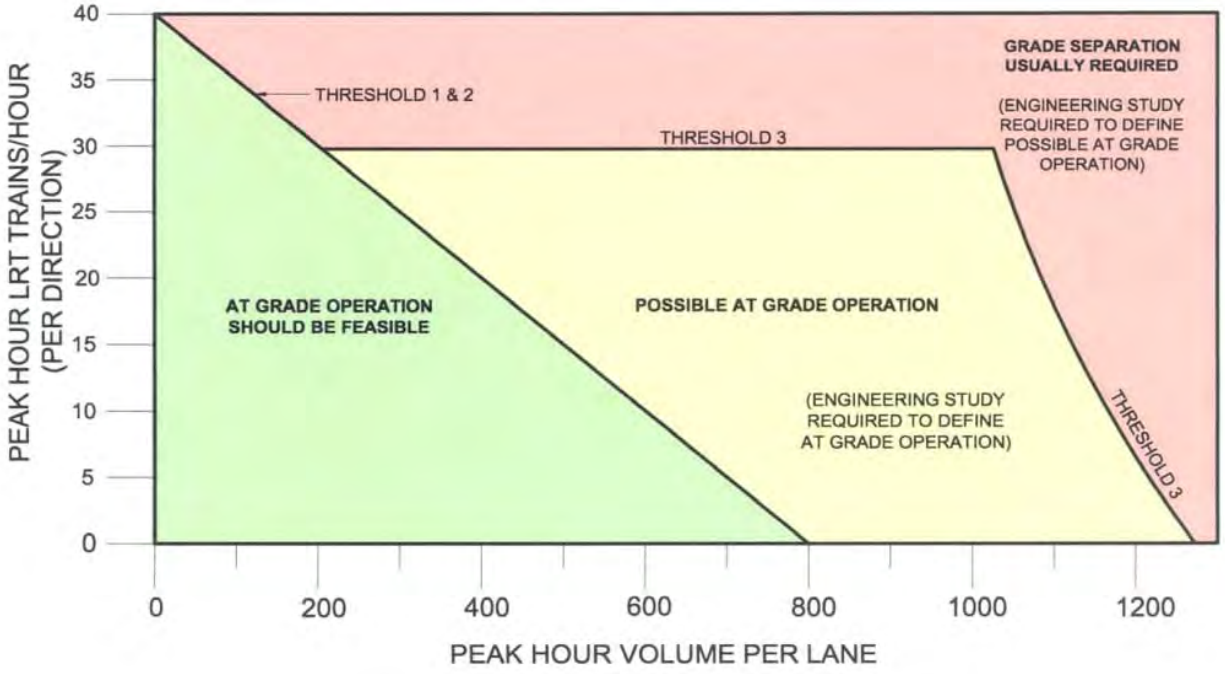
There are three zones on the nomograph (See **Figure 2**), and the outcome is determined depending on where the horizontal and vertical line intersects. The green zone indicates at grade operations should be feasible; the yellow zone indicates at-grade operation is possible and further engineering study is required; and the red zone indicates grade separation is usually required and further engineering study is required. As an initial screening, the nomograph was based upon readily available planning-level information, which lacks detailed geometry information and operational considerations such as downstream queueing, pedestrian volumes, and turning volumes. In the case when the crossing lies in the yellow or red zone, detailed analysis should be conducted for these cross streets to determine if advanced signal timings and geometric design could mitigate the higher vehicle and transit volumes at these locations.

Figure 1 – Light Rail Roadway Crossing Review Process



Source: "MTA Grade Crossing Policy for Light Rail Transit" by Los Angeles County MTA

Figure 2 – Nomograph for Initial Screening



I. At-Grade Crossing Screening for Twenty-Four (24) Cross Streets in Brooklyn

Existing traffic data:

Available cross street traffic volumes were obtained from the New York State Department of Transportation (NYSDOT) Traffic Data Viewer website [1]. Of the 24 locations (**Figure 3**), two intersections could not be screened using the nomograph methodology – East 3rd Street and East 15th Street. For East 3rd Street there was no data found and East 15th Street was identified as being used by pedestrians only. Therefore, the remaining 22 locations were screened. Hourly volumes were summarized by direction for each cross street, and the highest hourly volume of peak direction was used for the screening analysis for each cross street. Raw data (unprocessed data in the original format) is included in Attachment A and an hourly traffic volume summary is included in Attachment B.

Future volume growth:

The screening analysis was performed for the design year 2045. 2045 volumes were developed by growing the raw count volumes at an annual growth rate of approximate 0.54 percent, identified from the New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM). Daily Person Trips Information was extracted for Traffic Assignment Zones (TAZs) along the proposed LRT alignment including Roosevelt Avenue (see **Figure 4** and **Figure 5**). The annual growth rate was applied to raw volumes at each location and compounded for the appropriate number of years from the respective existing year to 2045 due to different count dates at the various locations. Detailed growth rate information can be found in Attachment C and future volume development in Attachment D.

[1] https://www.dot.ny.gov/tdv, accessed in July 2022.

Figure 3 – Cross Streets Intersecting with LRT Alignment

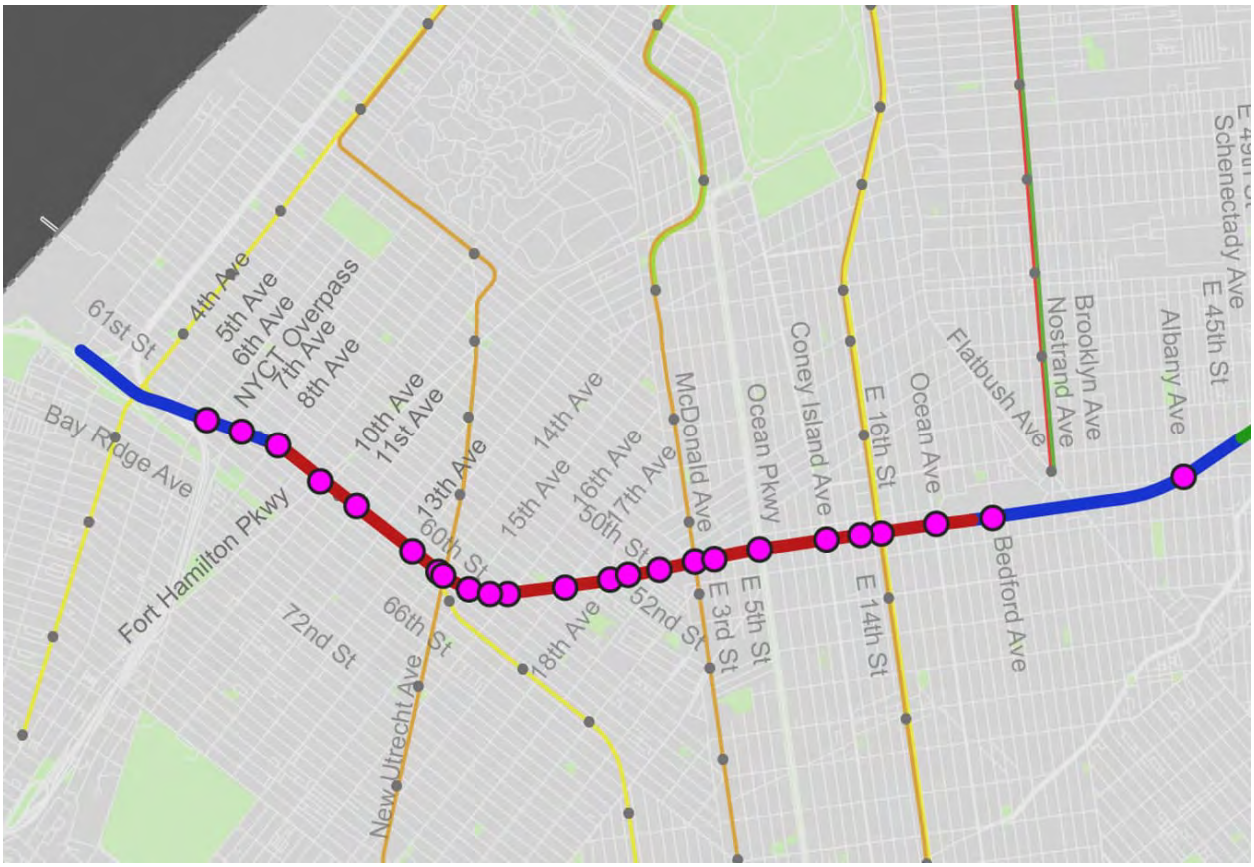
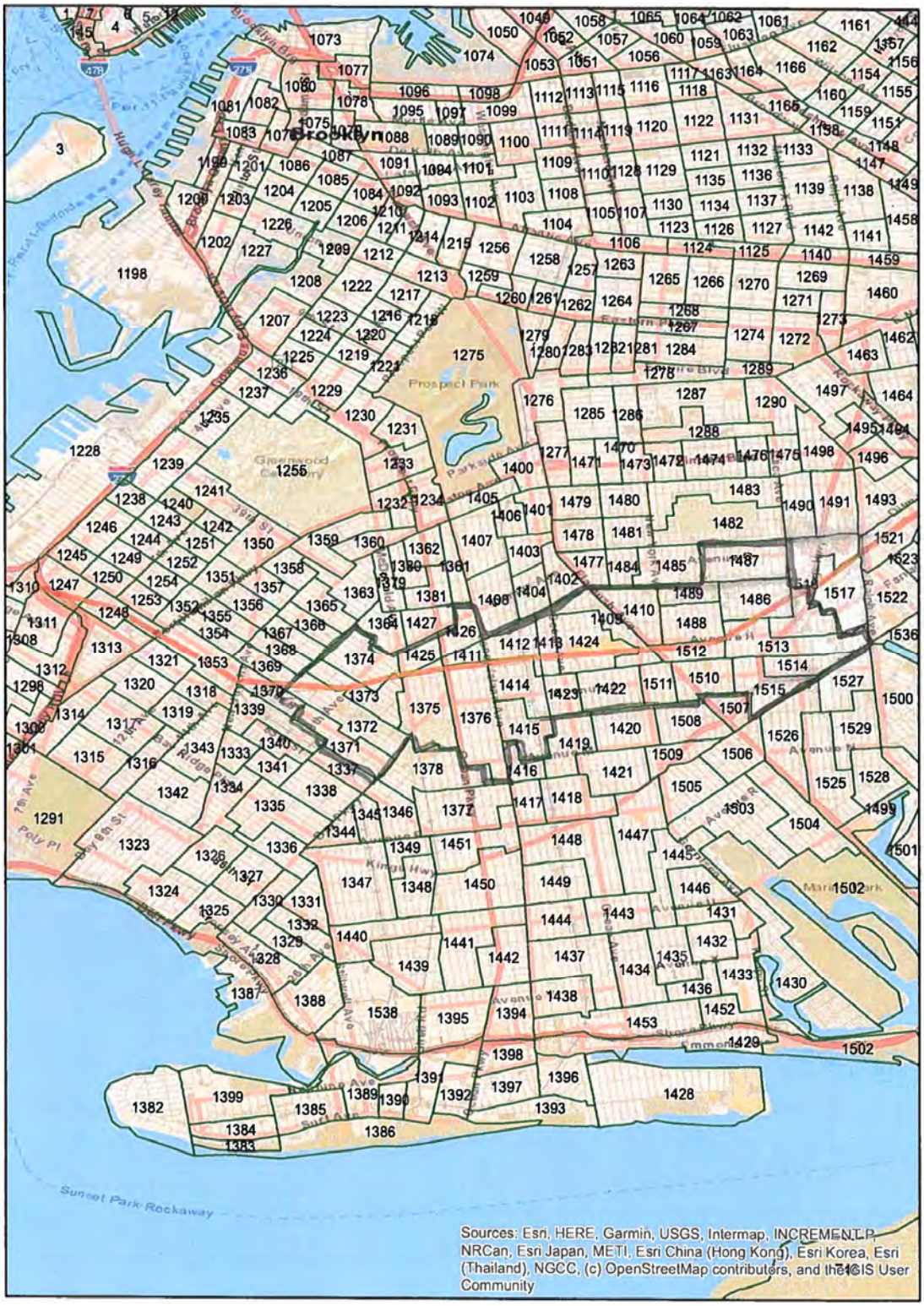
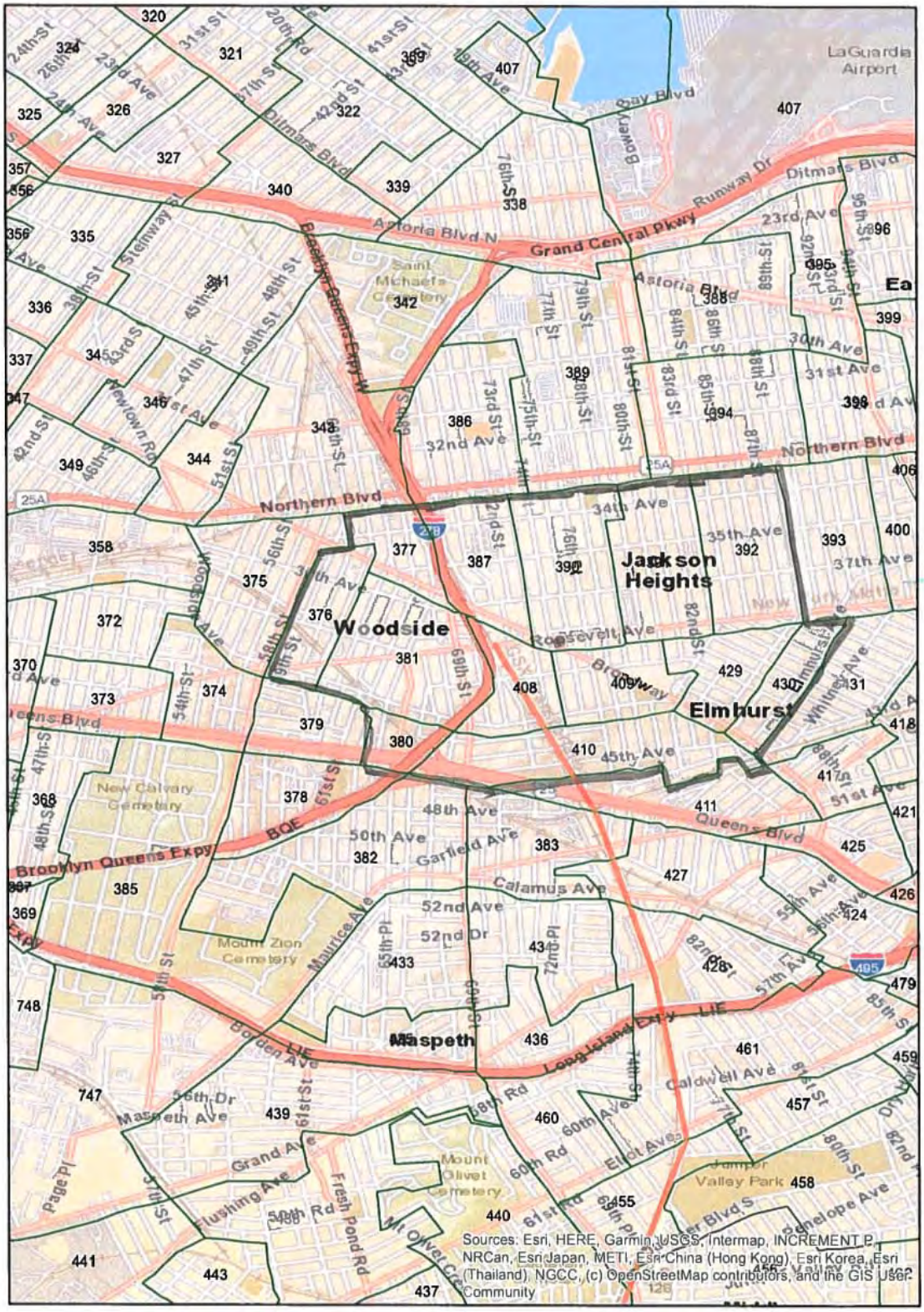


Figure 4 – IBX Alignment – Southern Zone TAZs



Source: New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM) TAZ layer.

Figure 5 – IBX Alignment – Northern (Roosevelt Avenue) Zone TAZs



Source: New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM) TAZ layer.

Peak hour volume per lane by direction

To perform the at-grade crossing screening using the nomograph, volumes were required to be divided by the number of lanes to identify the peak-direction (Northbound or Southbound in this case) volume for each cross street.

Converted LRT frequency

In this analysis, the LRT frequency was 12 trains per direction per hour, while BRT has two alternatives, with 12 buses per hour and 24 buses per hour. According to the "MTA Grade Crossing Policy for Light Rail Transit" by Los Angeles County MTA, all vehicle frequencies must be converted to a Light Rail Vehicle (LRV). One bus (30-second gate down time) is equivalent to 2/3 LRV (45-second gate down time). Accordingly, the converted BRT frequency of 12 buses per hour is equivalent to eight LRVs per hour, and 24 buses to 16 LRVs per hour.

Results

For the LRT, further analysis is required for Albany Avenue, Fort Hamilton Parkway, Ocean Parkway and Coney Island Avenue (**Figure 6**). In the 12 BRT per hour alternative (**Figure 6**), further analysis is required for BRT at Fort Hamilton Parkway, Coney Island Avenue and Ocean Parkway. In the 24 BRT per hour alternative (**Figure 7**), further analysis is required at 8th Avenue, 11th Avenue, 13th Avenue, Ocean Avenue, Bedford Avenue, Fort Hamilton Parkway, Ocean Parkway, Coney Island Avenue and Albany Avenue. Results are summarized by intersection in **Figure 8**.

Figure 6 – Nomograph for 12 Trip LRT and 12 Trip BRT (equivalent to 8 Trip LRT) per hour

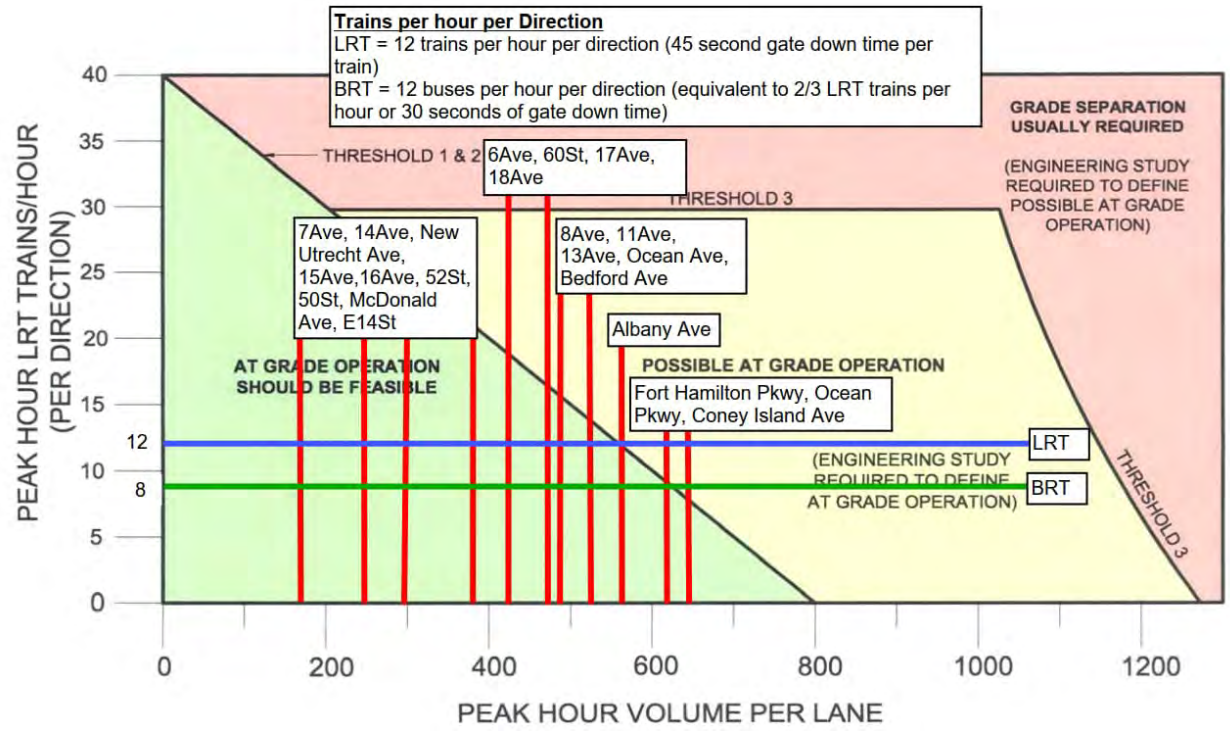


Figure 7 – Nomograph for 12 Trip LRT and 24 Trip BRT (equivalent to 16 Trip LRT) per hour

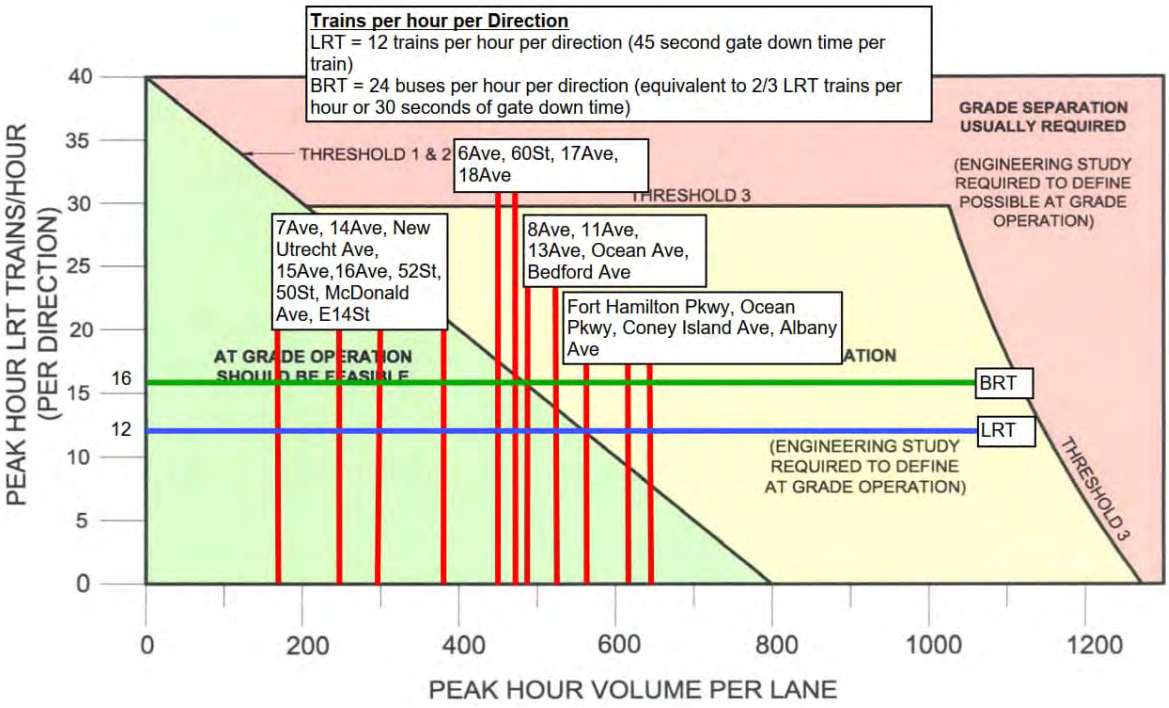


Figure 8 – Nomograph Results Summary – Overall Alignment 24 Cross Streets

2045 IBX - LRT & BRT At-Grade Crossings Feasibility Screening									
	LRT At-Grade Feasbility			24 BRT At-Grade Feasbility			12 BRT At-Grade Feasbility		
Crossing	Likely Feasible	Possibly Feasible - Requires Further Analysis	Grade Separation Likely	Likely Feasible	Possibly Feasible - Requires Further Analysis	Grade Separation Likely	Likely Feasible	Possibly Feasible - Requires Further Analysis	Grade Separation Likely
6th Ave	X			X			X		
7th Ave	X			X			X		
8th Ave	X				X		X		
Fort Hamilton Pkwy		X			X			X	
11th Ave	X				X		X		
13th Ave	X				X		X		
14th Ave	X			X			X		
New Utrecht Ave	X			X			X		
15th Ave	X			X			X		
60th St	X			X			X		
16th Ave	X			X			X		
17th Ave	X			X			X		
18th Ave	X			X			X		
52nd St	X			X			X		
50th St	X			X			X		
Mc Donald Ave	X			X			X		
E 3rd St	Not Applicable								
Ocean Pkwy		X			X			X	
Coney Island Ave		X			X			X	
E 14th St	X			X			X		
E 15th St	Not Applicable								
Ocean Ave	X				X		X		
Bedford Ave	X				X		X		
Albany Ave		X			X		X		

II. At-Grade Crossing Screening For Six (6) Roosevelt Avenue Intersections in Queens

Traffic volume data:

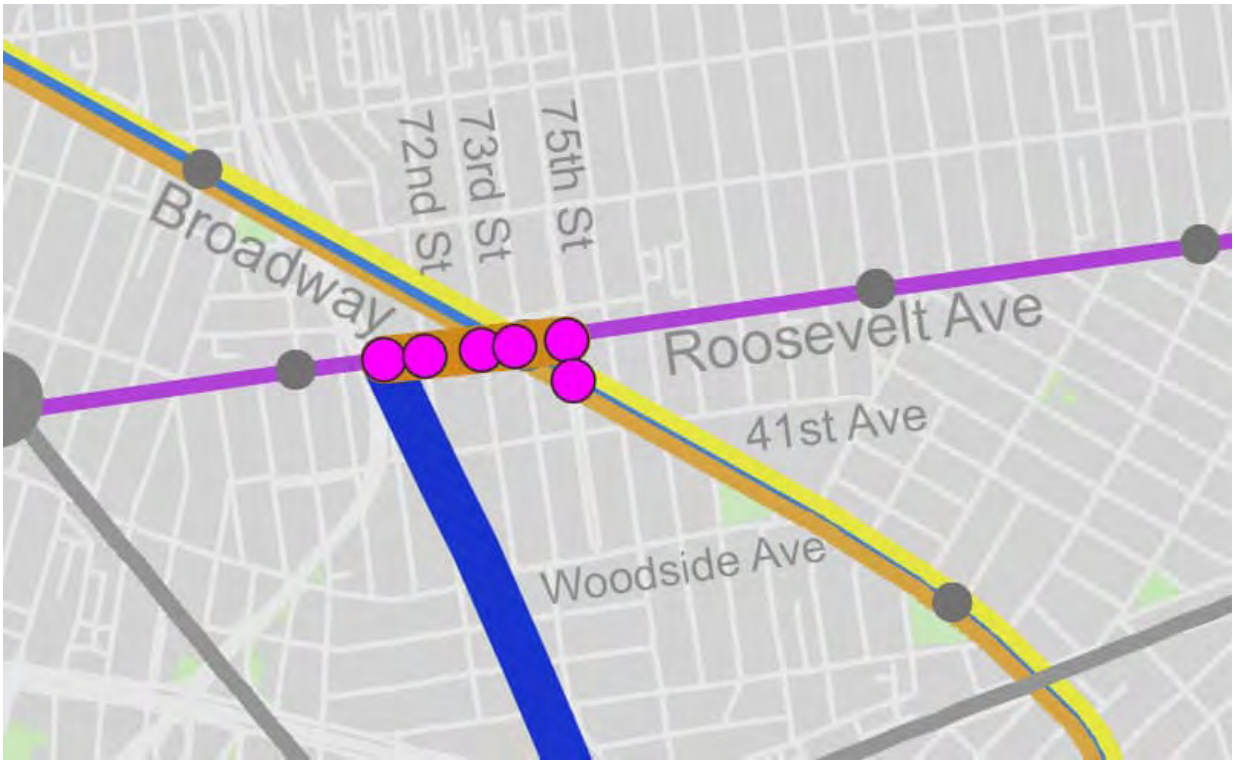
Turning Movement Counts (TMC) data collected for Roosevelt Avenue traffic analysis in May 2022 were used for at-grade screening. TMCs were collected for 8 hours for each intersection from 6 to 10 AM in the morning and 3 to 7 PM in the afternoon (see **Figure 9** for Roosevelt Avenue study intersections). Volumes are summarized in a rolling15-minute for the 8 hours and the peak hour was determined for each intersection separately, with only transit impacted approaches considered, to identify the highest peak hour volumes. Raw TMC counts (unprocessed TMC data in the original format) are included in Attachment E, and the hourly volume summary is shown in Attachment F.

Future volume growth

The screening analysis was performed for the design year of 2045. 2045 volumes were developed by growing the raw count volumes at an annual rate of 0.51 percent, which was extracted from the NYMTC BPM. Daily Person Trips Information was extracted from BPM TAZs along the proposed LRT alignment including Roosevelt Avenue (see **Figure 4** and **5**). The annual growth rate was applied to raw volumes at each location and compounded for the appropriate number of years from existing year

2022 to 2045. Detailed growth rate information can be found in Attachment C and future volume development in Attachment G.

Figure 9 – Roosevelt Avenue Intersections



Peak hour volume per lane by direction

While performing at-grade crossing screening, volumes were divided by lane numbers and then the highest peak hour volume was selected for each intersection to be utilized in the nomograph analysis.

Converted LRT frequency

The proposed BRT frequency has two alternatives, with 12 buses per hour and 24 buses per hour. According to the "MTA Grade Crossing Policy for Light Rail Transit" by Los Angeles County MTA , all vehicle frequencies must be converted to LRV frequency using gate down time, one BRT (30-second gate down time) is equivalent to 2/3 LRV (45-second gate down time). Therefore 12 BRT per hour frequency is equal to eight LRV frequency and 24 BRT per hour frequency is equal to 16 LRV frequency in the nomograph.

Results

In the 12 BRT per hour alternative (**Figure 10)**, at-grade crossing is likely feasible at all study intersections. In the 24 BRT per hour alternative (**Figure 11**), at-grade crossing is likely feasible at Roosevelt Avenue/72nd Street, Roosevelt Avenue/73rd Street, and Broadway/75th Street. Further analysis is required at Roosevelt Avenue/New Transit Intersection, Roosevelt Avenue/Broadway, and Roosevelt Avenue/75th Street. Results are summarized by intersection in **Figure 12**.

Figure 10 – Nomograph for 12 Trip BRT (equivalent to 8 Trip LRT) per hour at Roosevelt Avenue Intersections

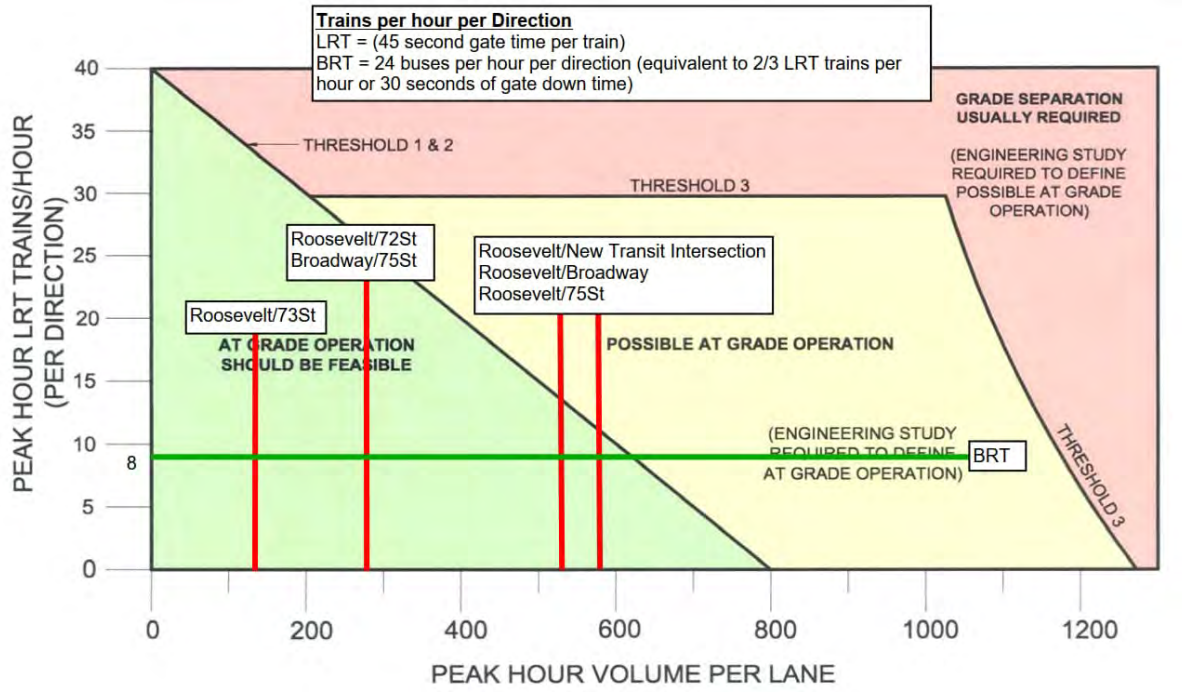


Figure 11 – Nomograph for 24 Trip BRT (equivalent to 16 Trip LRT) per hour at Roosevelt Avenue Intersections

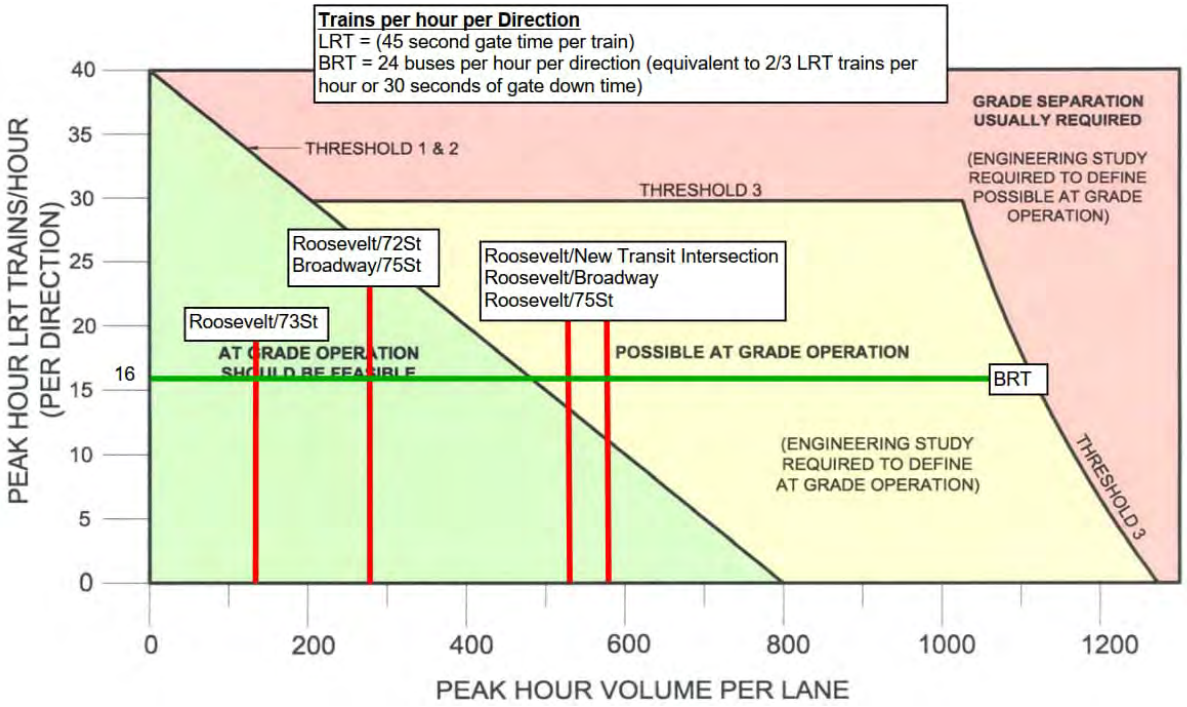


Figure 12 – Nomograph Results Summary – Roosevelt Avenue

	12 BRT At-Grade Feasbility			24 BRT At-Grade Feasbility		
Intersection	Likely Feasible	Possibly Feasible - Requires Further Analysis	Grade Separation Likely	Likely Feasible	Possibly Feasible - Requires Further Analysis	Grade Separation Likely
Roosevelt Ave/New Transit Intersection	X				X	
Roosevelt Ave/ 72nd St	X			X		
Roosevelt Ave/73rd St	X			X		
Roosevelt Ave/Broadway	X				X	
Roosevelt Ave/75th St	X				X	
Broadway/75th St	X			X		

Attachment A: Raw Annual Average Daily Traffic Data for 22 Cross Streets

OBJECTID		74884
RCSTA		21414
RC Code		2
Roadway Name	FT HAMILTON PKW	
Station Start	65TH ST	
Station End	60TH ST	
Functional Class		14
Factor Group		30
Specific Recorder Placement	166 Ft. E/O 65 th St.	
Channel Notes		21414
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		19
Federal Direction	Eastbound	
Full Count		
1200am-0100am		93
0100am-0200am		62
0200am-0300am		38
0300am-0400am		32
0400am-0500am		56
0500am-0600am		166
0600am-0700am		483
0700am-0800am		498
0800am-0900am		512
0900am-1000am		520
1000am-1100am		443
1100am-1200pm		429
1200pm-0100pm		436
0100pm-0200pm		429
0200pm-0300pm		444
0300pm-0400pm		452
0400pm-0500pm		438
0500pm-0600pm		440
0600pm-0700pm		460
0700pm-0800pm		332
0800pm-0900pm		296
0900pm-1000pm		233
1000pm-1100pm		240
1100pm-1200pm		196
Average Weekday Daily Traffic		7728
Seasonal Factor		1.078
Axle Factor		1
AADT		7169
High Hour Value		520
High Hour Interval		10
Average Weekday F1S		45

Average Weekday F2S	6991
Average Weekday F3S	334
Average Weekday F4S	180
Average Weekday F5S	157
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	23
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	7730
Average Weekday Percent F3_13	9
Average Weekday Percent F4_13	5
Average Weekday Percent F4_7	4
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	90
Average Weekday Percent F3	4
Average Weekday Percent F4	2
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63096
Longitude	-74.00861

OBJECTID		74885
RCSTA		21414
RC Code		2
Roadway Name	FT HAMILTON PKW	
Station Start	65TH ST	
Station End	60TH ST	
Functional Class		14
Factor Group		30
Specific Recorder Placement	166 Ft. E/O 65 th St.	
Channel Notes		21414
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		19
Federal Direction	Westbound	
Full Count		
1200am-0100am		124
0100am-0200am		72
0200am-0300am		37
0300am-0400am		46
0400am-0500am		56
0500am-0600am		70
0600am-0700am		140
0700am-0800am		344
0800am-0900am		386
0900am-1000am		360
1000am-1100am		403
1100am-1200pm		376
1200pm-0100pm		428
0100pm-0200pm		427
0200pm-0300pm		522
0300pm-0400pm		404
0400pm-0500pm		416
0500pm-0600pm		402
0600pm-0700pm		398
0700pm-0800pm		446
0800pm-0900pm		348
0900pm-1000pm		262
1000pm-1100pm		239
1100pm-1200pm		206
Average Weekday Daily Traffic		6912
Seasonal Factor		1.078
Axle Factor		1
AADT		6412
High Hour Value		522
High Hour Interval		15
Average Weekday F1S		28

Average Weekday F2S	6157
Average Weekday F3S	336
Average Weekday F4S	154
Average Weekday F5S	201
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	27
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	6903
Average Weekday Percent F3_13	10
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	5
Average Weekday Percent F8_13	0
Average Weekday Percent F1	0
Average Weekday Percent F2	89
Average Weekday Percent F3	5
Average Weekday Percent F4	2
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63096
Longitude	-74.00861

OBJECTID	78183
RCSTA	26117
RC Code	2
Roadway Name	11TH AVE
Station Start	65TH ST
Station End	60TH ST
Functional Class	17
Factor Group	30
Specific Recorder Placement	14' S/o 61st St
Channel Notes	26117
Vehicle Axle Code	1
Count Year	2017
Count Month	9
Day of First Data	19
Federal Direction	Eastbound
Full Count	
1200am-0100am	38
0100am-0200am	28
0200am-0300am	18
0300am-0400am	14
0400am-0500am	12
0500am-0600am	30
0600am-0700am	114
0700am-0800am	214
0800am-0900am	304
0900am-1000am	338
1000am-1100am	264
1100am-1200pm	254
1200pm-0100pm	253
0100pm-0200pm	238
0200pm-0300pm	311
0300pm-0400pm	298
0400pm-0500pm	268
0500pm-0600pm	273
0600pm-0700pm	210
0700pm-0800pm	156
0800pm-0900pm	109
0900pm-1000pm	89
1000pm-1100pm	80
1100pm-1200pm	56
Average Weekday Daily Traffic	3969
Seasonal Factor	1.078
Axle Factor	1
AADT	3682
High Hour Value	338
High Hour Interval	10
Average Weekday F1S	52

Average Weekday F2S	3602
Average Weekday F3S	187
Average Weekday F4S	32
Average Weekday F5S	88
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	2
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	3963
Average Weekday Percent F3_13	8
Average Weekday Percent F4_13	3
Average Weekday Percent F4_7	3
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	91
Average Weekday Percent F3	5
Average Weekday Percent F4	1
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.6309
Longitude	-74.00369

OBJECTID	78184
RCSTA	26117
RC Code	2
Roadway Name	11TH AVE
Station Start	65TH ST
Station End	60TH ST
Functional Class	17
Factor Group	30
Specific Recorder Placement	14' S/o 61st St
Channel Notes	26117
Vehicle Axle Code	1
Count Year	2017
Count Month	9
Day of First Data	19
Federal Direction	Westbound
Full Count	
1200am-0100am	48
0100am-0200am	22
0200am-0300am	20
0300am-0400am	9
0400am-0500am	11
0500am-0600am	26
0600am-0700am	47
0700am-0800am	125
0800am-0900am	195
0900am-1000am	204
1000am-1100am	198
1100am-1200pm	225
1200pm-0100pm	248
0100pm-0200pm	278
0200pm-0300pm	380
0300pm-0400pm	422
0400pm-0500pm	446
0500pm-0600pm	452
0600pm-0700pm	370
0700pm-0800pm	268
0800pm-0900pm	160
0900pm-1000pm	118
1000pm-1100pm	90
1100pm-1200pm	92
Average Weekday Daily Traffic	4454
Seasonal Factor	1.078
Axle Factor	1
AADT	4132
High Hour Value	452
High Hour Interval	18
Average Weekday F1S	24

Average Weekday F2S	4080
Average Weekday F3S	208
Average Weekday F4S	34
Average Weekday F5S	100
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	1
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	4447
Average Weekday Percent F3_13	8
Average Weekday Percent F4_13	3
Average Weekday Percent F4_7	3
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	92
Average Weekday Percent F3	5
Average Weekday Percent F4	1
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.6309
Longitude	-74.00369

OBJECTID		89767
RCSTA		26118
RC Code		2
Roadway Name	13TH AVE	
Station Start	86TH ST	
Station End	60TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	13 Ft. S/O 61 st St.	
Channel Notes		26118
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		12
Federal Direction	Northbound	
Full Count		
1200am-0100am		24
0100am-0200am		12
0200am-0300am		12
0300am-0400am		7
0400am-0500am		13
0500am-0600am		28
0600am-0700am		71
0700am-0800am		200
0800am-0900am		220
0900am-1000am		195
1000am-1100am		184
1100am-1200pm		150
1200pm-0100pm		150
0100pm-0200pm		132
0200pm-0300pm		162
0300pm-0400pm		158
0400pm-0500pm		164
0500pm-0600pm		146
0600pm-0700pm		116
0700pm-0800pm		88
0800pm-0900pm		70
0900pm-1000pm		52
1000pm-1100pm		44
1100pm-1200pm		38
Average Weekday Daily Traffic		2436
Seasonal Factor		1.009
Axle Factor		1
AADT		2414
High Hour Value		220
High Hour Interval		9
Average Weekday F1S		15

Average Weekday F2S	2301
Average Weekday F3S	0
Average Weekday F4S	29
Average Weekday F5S	76
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	8
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	2429
Average Weekday Percent F3_13	5
Average Weekday Percent F4_13	5
Average Weekday Percent F4_7	4
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	95
Average Weekday Percent F3	0
Average Weekday Percent F4	1
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62824
Longitude	-73.99928

OBJECTID		89768
RCSTA		26118
RC Code		2
Roadway Name	13TH AVE	
Station Start	86TH ST	
Station End	60TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	13 Ft. S/O 61 st St.	
Channel Notes		26118
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		12
Federal Direction	Southbound	
Full Count		
1200am-0100am		48
0100am-0200am		29
0200am-0300am		23
0300am-0400am		18
0400am-0500am		20
0500am-0600am		25
0600am-0700am		58
0700am-0800am		197
0800am-0900am		244
0900am-1000am		250
1000am-1100am		238
1100am-1200pm		240
1200pm-0100pm		262
0100pm-0200pm		263
0200pm-0300pm		272
0300pm-0400pm		310
0400pm-0500pm		350
0500pm-0600pm		414
0600pm-0700pm		304
0700pm-0800pm		218
0800pm-0900pm		170
0900pm-1000pm		124
1000pm-1100pm		91
1100pm-1200pm		92
Average Weekday Daily Traffic		4260
Seasonal Factor		1.009
Axle Factor		1
AADT		4222
High Hour Value		414
High Hour Interval		18
Average Weekday F1S		14

Average Weekday F2S	3987
Average Weekday F3S	0
Average Weekday F4S	101
Average Weekday F5S	139
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	11
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	4252
Average Weekday Percent F3_13	6
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	6
Average Weekday Percent F8_13	0
Average Weekday Percent F1	0
Average Weekday Percent F2	94
Average Weekday Percent F3	0
Average Weekday Percent F4	2
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62824
Longitude	-73.99928

OBJECTID		89770
RCSTA		26119
RC Code		2
Roadway Name	14TH AVE	
Station Start	65TH ST	
Station End	60TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	11 Ft. S/O 62 nd St.	
Channel Notes		26119
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		12
Federal Direction	Northbound	
Full Count		
1200am-0100am		36
0100am-0200am		28
0200am-0300am		17
0300am-0400am		11
0400am-0500am		14
0500am-0600am		50
0600am-0700am		108
0700am-0800am		224
0800am-0900am		209
0900am-1000am		201
1000am-1100am		180
1100am-1200pm		160
1200pm-0100pm		144
0100pm-0200pm		136
0200pm-0300pm		220
0300pm-0400pm		133
0400pm-0500pm		160
0500pm-0600pm		163
0600pm-0700pm		182
0700pm-0800pm		129
0800pm-0900pm		82
0900pm-1000pm		80
1000pm-1100pm		65
1100pm-1200pm		58
Average Weekday Daily Traffic		2790
Seasonal Factor		1.009
Axle Factor		1
AADT		2765
High Hour Value		224
High Hour Interval		8
Average Weekday F1S		30

Average Weekday F2S	2413
Average Weekday F3S	166
Average Weekday F4S	69
Average Weekday F5S	98
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	1
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	2777
Average Weekday Percent F3_13	12
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	6
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	87
Average Weekday Percent F3	6
Average Weekday Percent F4	2
Average Weekday Percent F5_7	4
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62628
Longitude	-73.99754

OBJECTID		89771
RCSTA		26119
RC Code		2
Roadway Name	14TH AVE	
Station Start	65TH ST	
Station End	60TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	11 Ft. S/O 62 nd St.	
Channel Notes		26119
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		12
Federal Direction	Southbound	
Full Count		
1200am-0100am		40
0100am-0200am		15
0200am-0300am		18
0300am-0400am		10
0400am-0500am		14
0500am-0600am		17
0600am-0700am		47
0700am-0800am		109
0800am-0900am		130
0900am-1000am		123
1000am-1100am		140
1100am-1200pm		140
1200pm-0100pm		134
0100pm-0200pm		139
0200pm-0300pm		156
0300pm-0400pm		178
0400pm-0500pm		181
0500pm-0600pm		204
0600pm-0700pm		178
0700pm-0800pm		135
0800pm-0900pm		96
0900pm-1000pm		78
1000pm-1100pm		76
1100pm-1200pm		55
Average Weekday Daily Traffic		2413
Seasonal Factor		1.009
Axle Factor		1
AADT		2391
High Hour Value		224
High Hour Interval		8
Average Weekday F1S		25

Average Weekday F2S	2249
Average Weekday F3S	0
Average Weekday F4S	73
Average Weekday F5S	65
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	2
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	2414
Average Weekday Percent F3_13	6
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	6
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	93
Average Weekday Percent F3	0
Average Weekday Percent F4	3
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62628
Longitude	-73.99754

OBJECTID		39961
RCSTA		26121
RC Code		2
Roadway Name	15TH AVE	
Station Start	64TH ST	
Station End	62ND ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	113 Ft. N/O 63rd St.	
Channel Notes		
Vehicle Axle Code		1
Count Year		2016
Count Month		3
Day of First Data		6
Federal Direction	Northbound	
Full Count		
1200am-0100am		34
0100am-0200am		21
0200am-0300am		14
0300am-0400am		12
0400am-0500am		8
0500am-0600am		20
0600am-0700am		68
0700am-0800am		207
0800am-0900am		230
0900am-1000am		224
1000am-1100am		199
1100am-1200pm		202
1200pm-0100pm		180
0100pm-0200pm		163
0200pm-0300pm		203
0300pm-0400pm		220
0400pm-0500pm		197
0500pm-0600pm		178
0600pm-0700pm		150
0700pm-0800pm		112
0800pm-0900pm		94
0900pm-1000pm		70
1000pm-1100pm		58
1100pm-1200pm		39
Average Weekday Daily Traffic		2903
Seasonal Factor		1.006
Axle Factor		1
AADT		2886
High Hour Value		230
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62478
Longitude	-73.99566

OBJECTID		39962
RCSTA		26121
RC Code		2
Roadway Name	15TH AVE	
Station Start	64TH ST	
Station End	62ND ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	113 Ft. N/O 63rd St.	
Channel Notes		
Vehicle Axle Code		1
Count Year		2016
Count Month		3
Day of First Data		6
Federal Direction	Southbound	
Full Count		
1200am-0100am		22
0100am-0200am		13
0200am-0300am		10
0300am-0400am		8
0400am-0500am		7
0500am-0600am		15
0600am-0700am		36
0700am-0800am		101
0800am-0900am		138
0900am-1000am		134
1000am-1100am		136
1100am-1200pm		133
1200pm-0100pm		160
0100pm-0200pm		149
0200pm-0300pm		180
0300pm-0400pm		138
0400pm-0500pm		148
0500pm-0600pm		213
0600pm-0700pm		174
0700pm-0800pm		146
0800pm-0900pm		88
0900pm-1000pm		68
1000pm-1100pm		56
1100pm-1200pm		40
Average Weekday Daily Traffic		2313
Seasonal Factor		1.006
Axle Factor		1
AADT		2299
High Hour Value		230
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62478
Longitude	-73.99566

OBJECTID		94310
RCSTA		26094
RC Code		2
Roadway Name	60TH ST	
Station Start	14TH AVE	
Station End	17TH AVE	
Functional Class		16
Factor Group		30
Specific Recorder Placement	112 Ft. E/O 15th Ave	
Channel Notes		26094
Vehicle Axle Code		1
Count Year		2018
Count Month		6
Day of First Data		11
Federal Direction	Westbound	
Full Count		
1200am-0100am		65
0100am-0200am		34
0200am-0300am		30
0300am-0400am		32
0400am-0500am		52
0500am-0600am		60
0600am-0700am		180
0700am-0800am		307
0800am-0900am		338
0900am-1000am		366
1000am-1100am		347
1100am-1200pm		341
1200pm-0100pm		322
0100pm-0200pm		318
0200pm-0300pm		285
0300pm-0400pm		303
0400pm-0500pm		330
0500pm-0600pm		358
0600pm-0700pm		314
0700pm-0800pm		286
0800pm-0900pm		232
0900pm-1000pm		210
1000pm-1100pm		194
1100pm-1200pm		163
Average Weekday Daily Traffic		5467
Seasonal Factor		1.113
Axle Factor		1
AADT		4912
High Hour Value		406
High Hour Interval		17
Average Weekday F1S		13

Average Weekday F2S	4695
Average Weekday F3S	317
Average Weekday F4S	239
Average Weekday F5S	192
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	10
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	5466
Average Weekday Percent F3_13	14
Average Weekday Percent F4_13	8
Average Weekday Percent F4_7	8
Average Weekday Percent F8_13	0
Average Weekday Percent F1	0
Average Weekday Percent F2	86
Average Weekday Percent F3	6
Average Weekday Percent F4	4
Average Weekday Percent F5_7	4
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62591
Longitude	-73.9938

OBJECTID		94309
RCSTA		26094
RC Code		2
Roadway Name	60TH ST	
Station Start	14TH AVE	
Station End	17TH AVE	
Functional Class		16
Factor Group		30
Specific Recorder Placement	112 Ft. E/O 15th Ave	
Channel Notes		26094
Vehicle Axle Code		1
Count Year		2018
Count Month		6
Day of First Data		11
Federal Direction	Eastbound	
Full Count		
1200am-0100am		118
0100am-0200am		63
0200am-0300am		39
0300am-0400am		38
0400am-0500am		36
0500am-0600am		59
0600am-0700am		148
0700am-0800am		292
0800am-0900am		314
0900am-1000am		334
1000am-1100am		351
1100am-1200pm		350
1200pm-0100pm		355
0100pm-0200pm		380
0200pm-0300pm		355
0300pm-0400pm		375
0400pm-0500pm		406
0500pm-0600pm		396
0600pm-0700pm		402
0700pm-0800pm		381
0800pm-0900pm		324
0900pm-1000pm		252
1000pm-1100pm		268
1100pm-1200pm		185
Average Weekday Daily Traffic		6221
Seasonal Factor		1.113
Axle Factor		1
AADT		5589
High Hour Value		406
High Hour Interval		17
Average Weekday F1S		24

Average Weekday F2S	5295
Average Weekday F3S	416
Average Weekday F4S	221
Average Weekday F5S	251
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	8
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	6215
Average Weekday Percent F3_13	14
Average Weekday Percent F4_13	8
Average Weekday Percent F4_7	8
Average Weekday Percent F8_13	0
Average Weekday Percent F1	0
Average Weekday Percent F2	85
Average Weekday Percent F3	7
Average Weekday Percent F4	4
Average Weekday Percent F5_7	4
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62591
Longitude	-73.9938

OBJECTID		54439
RCSTA		26095
RC Code		2
Roadway Name	16TH AVE	
Station Start	62ND ST	
Station End	57TH ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	95 Ft. S/O 59 Street	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Northbound	
Full Count		
1200am-0100am		19
0100am-0200am		14
0200am-0300am		8
0300am-0400am		5
0400am-0500am		8
0500am-0600am		17
0600am-0700am		66
0700am-0800am		165
0800am-0900am		186
0900am-1000am		186
1000am-1100am		129
1100am-1200pm		128
1200pm-0100pm		117
0100pm-0200pm		132
0200pm-0300pm		165
0300pm-0400pm		146
0400pm-0500pm		155
0500pm-0600pm		131
0600pm-0700pm		100
0700pm-0800pm		92
0800pm-0900pm		76
0900pm-1000pm		60
1000pm-1100pm		49
1100pm-1200pm		47
Average Weekday Daily Traffic		2201
Seasonal Factor		1.017
Axle Factor		0.971
AADT		2164
High Hour Value		186
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62516
Longitude	-73.99161

OBJECTID		54440
RCSTA		26095
RC Code		2
Roadway Name	16TH AVE	
Station Start	62ND ST	
Station End	57TH ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	95 Ft. S/O 59 Street	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Southbound	
Full Count		
1200am-0100am		31
0100am-0200am		16
0200am-0300am		16
0300am-0400am		8
0400am-0500am		12
0500am-0600am		17
0600am-0700am		52
0700am-0800am		130
0800am-0900am		242
0900am-1000am		248
1000am-1100am		241
1100am-1200pm		232
1200pm-0100pm		216
0100pm-0200pm		211
0200pm-0300pm		282
0300pm-0400pm		321
0400pm-0500pm		259
0500pm-0600pm		295
0600pm-0700pm		243
0700pm-0800pm		174
0800pm-0900pm		134
0900pm-1000pm		121
1000pm-1100pm		111
1100pm-1200pm		87
Average Weekday Daily Traffic		3699
Seasonal Factor		1.017
Axle Factor		0.971
AADT		3637
High Hour Value		321
High Hour Interval		16
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62516
Longitude	-73.99161

Version:
Count Type: ATR
Segment ID: 20299
Station ID: NA
Location 1: 17 AV
Location 2: 58 ST
Location 3: 57 ST
Direction: NB
FHWA code: 1 FHWA Numeric Code: 1 = NB, 3
Borough Code: 3 Borough Code: 1 = Manhattan, 2=
Start Date: 1/19/2016
Start Time: 8:45:00 AM
End Date: 1/22/2016
End Time: 09:15 AM
Machine #: 401
Interval (min): 15

Date	Time	Channel 1		
1/19/2016	08:45 AM	6	2	143
1/19/2016	09:00 AM	24	2	192
1/19/2016	09:15 AM	51	2	241
1/19/2016	09:30 AM	62	2	243
1/19/2016	09:45 AM	55	2	232
1/19/2016	10:00 AM	73	2	231
1/19/2016	10:15 AM	53	2	205
1/19/2016	10:30 AM	51	2	199
1/19/2016	10:45 AM	54	2	206
1/19/2016	11:00 AM	47	2	214
1/19/2016	11:15 AM	47	2	226
1/19/2016	11:30 AM	58	2	228
1/19/2016	11:45 AM	62	2	213
1/19/2016	12:00 PM	59	2	200
1/19/2016	12:15 PM	49	2	181
1/19/2016	12:30 PM	43	2	175
1/19/2016	12:45 PM	49	2	185
1/19/2016	01:00 PM	40	2	190
1/19/2016	01:15 PM	43	2	205
1/19/2016	01:30 PM	53	2	220
1/19/2016	01:45 PM	54	2	229
1/19/2016	02:00 PM	55	2	250
1/19/2016	02:15 PM	58	2	252
1/19/2016	02:30 PM	62	2	271
1/19/2016	02:45 PM	75	2	260
1/19/2016	03:00 PM	57	2	250
1/19/2016	03:15 PM	77	2	253
1/19/2016	03:30 PM	51	2	247
1/19/2016	03:45 PM	65	2	264
1/19/2016	04:00 PM	60	2	263
1/19/2016	04:15 PM	71	2	268
1/19/2016	04:30 PM	68	2	257
1/19/2016	04:45 PM	64	2	259
1/19/2016	05:00 PM	65	2	263
1/19/2016	05:15 PM	60	2	272
1/19/2016	05:30 PM	70	2	263
1/19/2016	05:45 PM	68	2	249
1/19/2016	06:00 PM	74	2	230
1/19/2016	06:15 PM	51	2	202
1/19/2016	06:30 PM	56	2	203

1/19/2016	06:45 PM	49	2	195
1/19/2016	07:00 PM	46	2	182
1/19/2016	07:15 PM	52	2	175
1/19/2016	07:30 PM	48	2	160
1/19/2016	07:45 PM	36	2	147
1/19/2016	08:00 PM	39	2	144
1/19/2016	08:15 PM	37	2	134
1/19/2016	08:30 PM	35	2	126
1/19/2016	08:45 PM	33	2	115
1/19/2016	09:00 PM	29	2	113
1/19/2016	09:15 PM	29	2	103
1/19/2016	09:30 PM	24	2	101
1/19/2016	09:45 PM	31	2	101
1/19/2016	10:00 PM	19	2	93
1/19/2016	10:15 PM	27	2	92
1/19/2016	10:30 PM	24	2	82
1/19/2016	10:45 PM	23	2	68
1/19/2016	11:00 PM	18	2	59
1/19/2016	11:15 PM	17	2	49
1/19/2016	11:30 PM	10	2	34
1/19/2016	11:45 PM	14	2	28
1/20/2016	12:00 AM	8	3	20
1/20/2016	12:15 AM	2	3	15
1/20/2016	12:30 AM	4	3	19
1/20/2016	12:45 AM	6	3	20
1/20/2016	01:00 AM	3	3	15
1/20/2016	01:15 AM	6	3	13
1/20/2016	01:30 AM	5	3	10
1/20/2016	01:45 AM	1	3	6
1/20/2016	02:00 AM	1	3	8
1/20/2016	02:15 AM	3	3	9
1/20/2016	02:30 AM	1	3	8
1/20/2016	02:45 AM	3	3	9
1/20/2016	03:00 AM	2	3	7
1/20/2016	03:15 AM	2	3	6
1/20/2016	03:30 AM	2	3	
1/20/2016	03:45 AM	1	3	
1/20/2016	04:00 AM	1	3	
1/20/2016	04:15 AM	0	3	
1/20/2016	04:30 AM	2	3	11
1/20/2016	04:45 AM	2	3	18
1/20/2016	05:00 AM	3	3	25
1/20/2016	05:15 AM	4	3	
1/20/2016	05:30 AM	9	3	
1/20/2016	05:45 AM	9	3	
1/20/2016	06:00 AM	0	3	
1/20/2016	06:15 AM	0	3	
1/20/2016	06:30 AM	0	3	
1/20/2016	06:45 AM	5	3	149
1/20/2016	07:00 AM	32	3	199
1/20/2016	07:15 AM	62	3	231
1/20/2016	07:30 AM	50	3	244
1/20/2016	07:45 AM	55	3	254
1/20/2016	08:00 AM	64	3	286
1/20/2016	08:15 AM	75	3	273
1/20/2016	08:30 AM	60	3	259
1/20/2016	08:45 AM	87	3	242
1/20/2016	09:00 AM	51	3	215
1/20/2016	09:15 AM	61	3	200

1/20/2016	09:30 AM	43	3	190
1/20/2016	09:45 AM	60	3	186
1/20/2016	10:00 AM	36	3	190
1/20/2016	10:15 AM	51	3	219
1/20/2016	10:30 AM	39	3	219
1/20/2016	10:45 AM	64	3	226
1/20/2016	11:00 AM	65	3	217
1/20/2016	11:15 AM	51	3	196
1/20/2016	11:30 AM	46	3	201
1/20/2016	11:45 AM	55	3	216
1/20/2016	12:00 PM	44	3	229
1/20/2016	12:15 PM	56	3	264
1/20/2016	12:30 PM	61	3	239
1/20/2016	12:45 PM	68	3	
1/20/2016	01:00 PM	79	3	
1/20/2016	01:15 PM	31	3	
1/20/2016	01:30 PM	0	3	
1/20/2016	01:45 PM	1	3	128
1/20/2016	02:00 PM	42	3	137
1/20/2016	02:15 PM	71	3	100
1/20/2016	02:30 PM	14	3	32
1/20/2016	02:45 PM	10	3	22
1/20/2016	03:00 PM	5	3	45
1/20/2016	03:15 PM	3	3	110
1/20/2016	03:30 PM	4	3	192
1/20/2016	03:45 PM	33	3	260
1/20/2016	04:00 PM	70	3	286
1/20/2016	04:15 PM	85	3	277
1/20/2016	04:30 PM	72	3	259
1/20/2016	04:45 PM	59	3	258
1/20/2016	05:00 PM	61	3	268
1/20/2016	05:15 PM	67	3	266
1/20/2016	05:30 PM	71	3	243
1/20/2016	05:45 PM	69	3	239
1/20/2016	06:00 PM	59	3	233
1/20/2016	06:15 PM	44	3	239
1/20/2016	06:30 PM	67	3	243
1/20/2016	06:45 PM	63	3	210
1/20/2016	07:00 PM	65	3	193
1/20/2016	07:15 PM	48	3	166
1/20/2016	07:30 PM	34	3	160
1/20/2016	07:45 PM	46	3	174
1/20/2016	08:00 PM	38	3	169
1/20/2016	08:15 PM	42	3	175
1/20/2016	08:30 PM	48	3	166
1/20/2016	08:45 PM	41	3	149
1/20/2016	09:00 PM	44	3	147
1/20/2016	09:15 PM	33	3	129
1/20/2016	09:30 PM	31	3	122
1/20/2016	09:45 PM	39	3	108
1/20/2016	10:00 PM	26	3	85
1/20/2016	10:15 PM	26	3	77
1/20/2016	10:30 PM	17	3	73
1/20/2016	10:45 PM	16	3	76
1/20/2016	11:00 PM	18	3	72
1/20/2016	11:15 PM	22	3	64
1/20/2016	11:30 PM	20	3	51
1/20/2016	11:45 PM	12	3	40
1/21/2016	12:00 AM	10	4	36

1/21/2016	12:15 AM	9	4	32
1/21/2016	12:30 AM	9	4	
1/21/2016	12:45 AM	8	4	
1/21/2016	01:00 AM	6	4	
1/21/2016	01:15 AM	0	4	
1/21/2016	01:30 AM	1	4	
1/21/2016	01:45 AM	1	4	
1/21/2016	02:00 AM	5	4	
1/21/2016	02:15 AM	0	4	
1/21/2016	02:30 AM	2	4	
1/21/2016	02:45 AM	0	4	
1/21/2016	03:00 AM	1	4	
1/21/2016	03:15 AM	0	4	
1/21/2016	03:30 AM	2	4	10
1/21/2016	03:45 AM	3	4	9
1/21/2016	04:00 AM	3	4	9
1/21/2016	04:15 AM	2	4	10
1/21/2016	04:30 AM	1	4	11
1/21/2016	04:45 AM	3	4	15
1/21/2016	05:00 AM	4	4	22
1/21/2016	05:15 AM	3	4	37
1/21/2016	05:30 AM	5	4	55
1/21/2016	05:45 AM	10	4	83
1/21/2016	06:00 AM	19	4	88
1/21/2016	06:15 AM	21	4	110
1/21/2016	06:30 AM	33	4	150
1/21/2016	06:45 AM	15	4	155
1/21/2016	07:00 AM	41	4	188
1/21/2016	07:15 AM	61	4	209
1/21/2016	07:30 AM	38	4	203
1/21/2016	07:45 AM	48	4	194
1/21/2016	08:00 AM	62	4	235
1/21/2016	08:15 AM	55	4	199
1/21/2016	08:30 AM	29	4	194
1/21/2016	08:45 AM	89	4	234
1/21/2016	09:00 AM	26	4	206
1/21/2016	09:15 AM	50	4	218
1/21/2016	09:30 AM	69	4	229
1/21/2016	09:45 AM	61	4	228
1/21/2016	10:00 AM	38	4	223
1/21/2016	10:15 AM	61	4	244
1/21/2016	10:30 AM	68	4	226
1/21/2016	10:45 AM	56	4	216
1/21/2016	11:00 AM	59	4	212
1/21/2016	11:15 AM	43	4	202
1/21/2016	11:30 AM	58	4	224
1/21/2016	11:45 AM	52	4	221
1/21/2016	12:00 PM	49	4	223
1/21/2016	12:15 PM	65	4	226
1/21/2016	12:30 PM	55	4	207
1/21/2016	12:45 PM	54	4	204
1/21/2016	01:00 PM	52	4	210
1/21/2016	01:15 PM	46	4	226
1/21/2016	01:30 PM	52	4	239
1/21/2016	01:45 PM	60	4	266
1/21/2016	02:00 PM	68	4	279
1/21/2016	02:15 PM	59	4	303
1/21/2016	02:30 PM	79	4	315
1/21/2016	02:45 PM	73	4	305

1/21/2016	03:00 PM	92	4	287
1/21/2016	03:15 PM	71	4	254
1/21/2016	03:30 PM	69	4	240
1/21/2016	03:45 PM	55	4	211
1/21/2016	04:00 PM	59	4	229
1/21/2016	04:15 PM	57	4	231
1/21/2016	04:30 PM	40	4	251
1/21/2016	04:45 PM	73	4	284
1/21/2016	05:00 PM	61	4	277
1/21/2016	05:15 PM	77	4	296
1/21/2016	05:30 PM	73	4	287
1/21/2016	05:45 PM	66	4	269
1/21/2016	06:00 PM	80	4	262
1/21/2016	06:15 PM	68	4	251
1/21/2016	06:30 PM	55	4	255
1/21/2016	06:45 PM	59	4	258
1/21/2016	07:00 PM	69	4	257
1/21/2016	07:15 PM	72	4	246
1/21/2016	07:30 PM	58	4	200
1/21/2016	07:45 PM	58	4	194
1/21/2016	08:00 PM	58	4	182
1/21/2016	08:15 PM	26	4	160
1/21/2016	08:30 PM	52	4	177
1/21/2016	08:45 PM	46	4	169
1/21/2016	09:00 PM	36	4	163
1/21/2016	09:15 PM	43	4	158
1/21/2016	09:30 PM	44	4	153
1/21/2016	09:45 PM	40	4	133
1/21/2016	10:00 PM	31	4	118
1/21/2016	10:15 PM	38	4	108
1/21/2016	10:30 PM	24	4	99
1/21/2016	10:45 PM	25	4	109
1/21/2016	11:00 PM	21	4	115
1/21/2016	11:15 PM	29	4	104
1/21/2016	11:30 PM	34	4	79
1/21/2016	11:45 PM	31	4	60
1/22/2016	12:00 AM	10	5	37
1/22/2016	12:15 AM	4	5	31
1/22/2016	12:30 AM	15	5	36
1/22/2016	12:45 AM	8	5	26
1/22/2016	01:00 AM	4	5	21
1/22/2016	01:15 AM	9	5	19
1/22/2016	01:30 AM	5	5	12
1/22/2016	01:45 AM	3	5	10
1/22/2016	02:00 AM	2	5	14
1/22/2016	02:15 AM	2	5	16
1/22/2016	02:30 AM	3	5	16
1/22/2016	02:45 AM	7	5	15
1/22/2016	03:00 AM	4	5	
1/22/2016	03:15 AM	2	5	
1/22/2016	03:30 AM	2	5	
1/22/2016	03:45 AM	0	5	
1/22/2016	04:00 AM	1	5	15
1/22/2016	04:15 AM	6	5	15
1/22/2016	04:30 AM	3	5	16
1/22/2016	04:45 AM	5	5	19
1/22/2016	05:00 AM	1	5	22
1/22/2016	05:15 AM	7	5	34
1/22/2016	05:30 AM	6	5	50

1/22/2016	05:45 AM	8	5	71
1/22/2016	06:00 AM	13	5	101
1/22/2016	06:15 AM	23	5	129
1/22/2016	06:30 AM	27	5	158
1/22/2016	06:45 AM	38	5	171
1/22/2016	07:00 AM	41	5	227
1/22/2016	07:15 AM	52	5	243
1/22/2016	07:30 AM	40	5	262
1/22/2016	07:45 AM	94	5	293
1/22/2016	08:00 AM	57	5	286
1/22/2016	08:15 AM	71	5	286
1/22/2016	08:30 AM	71	5	271
1/22/2016	08:45 AM	87	5	
1/22/2016	09:00 AM	57	5	
1/22/2016	09:15 AM	56	5	

Version:
Count Type: ATR
Segment ID: 20302
Station ID: NA
Location 1: 17 AV
Location 2: 56 ST
Location 3: 57 ST
Direction: SB
FHWA code: 5 FHWA Numeric Code: 1 = NB, 3
Borough Code: 3 Borough Code: 1 = Manhattan, 2
Start Date: 1/19/2016
Start Time: 8:15:00 AM
End Date: 1/22/2016
End Time: 09:00 AM
Machine #: 250
Interval (min): 15

Date	Time	Channel 1		
1/19/2016	08:15 AM	3	2	197
1/19/2016	08:30 AM	68	2	263
1/19/2016	08:45 AM	55	2	263
1/19/2016	09:00 AM	71	2	284
1/19/2016	09:15 AM	69	2	272
1/19/2016	09:30 AM	68	2	269
1/19/2016	09:45 AM	76	2	269
1/19/2016	10:00 AM	59	2	247
1/19/2016	10:15 AM	66	2	246
1/19/2016	10:30 AM	68	2	245
1/19/2016	10:45 AM	54	2	232
1/19/2016	11:00 AM	58	2	236
1/19/2016	11:15 AM	65	2	224
1/19/2016	11:30 AM	55	2	217
1/19/2016	11:45 AM	58	2	226
1/19/2016	12:00 PM	46	2	239
1/19/2016	12:15 PM	58	2	250
1/19/2016	12:30 PM	64	2	269
1/19/2016	12:45 PM	71	2	265
1/19/2016	01:00 PM	57	2	265
1/19/2016	01:15 PM	77	2	285
1/19/2016	01:30 PM	60	2	297
1/19/2016	01:45 PM	71	2	308
1/19/2016	02:00 PM	77	2	319
1/19/2016	02:15 PM	89	2	321
1/19/2016	02:30 PM	71	2	307
1/19/2016	02:45 PM	82	2	319
1/19/2016	03:00 PM	79	2	309
1/19/2016	03:15 PM	75	2	322
1/19/2016	03:30 PM	83	2	321
1/19/2016	03:45 PM	72	2	317
1/19/2016	04:00 PM	92	2	334
1/19/2016	04:15 PM	74	2	345
1/19/2016	04:30 PM	79	2	372
1/19/2016	04:45 PM	89	2	391
1/19/2016	05:00 PM	103	2	382
1/19/2016	05:15 PM	101	2	361

1/19/2016	05:30 PM	98	2	347
1/19/2016	05:45 PM	80	2	338
1/19/2016	06:00 PM	82	2	343
1/19/2016	06:15 PM	87	2	333
1/19/2016	06:30 PM	89	2	322
1/19/2016	06:45 PM	85	2	291
1/19/2016	07:00 PM	72	2	254
1/19/2016	07:15 PM	76	2	221
1/19/2016	07:30 PM	58	2	177
1/19/2016	07:45 PM	48	2	163
1/19/2016	08:00 PM	39	2	157
1/19/2016	08:15 PM	32	2	152
1/19/2016	08:30 PM	44	2	154
1/19/2016	08:45 PM	42	2	144
1/19/2016	09:00 PM	34	2	138
1/19/2016	09:15 PM	34	2	149
1/19/2016	09:30 PM	34	2	152
1/19/2016	09:45 PM	36	2	147
1/19/2016	10:00 PM	45	2	140
1/19/2016	10:15 PM	37	2	119
1/19/2016	10:30 PM	29	2	113
1/19/2016	10:45 PM	29	2	98
1/19/2016	11:00 PM	24	2	90
1/19/2016	11:15 PM	31	2	73
1/19/2016	11:30 PM	14	2	51
1/19/2016	11:45 PM	21	2	43
1/20/2016	12:00 AM	7	3	28
1/20/2016	12:15 AM	9	3	35
1/20/2016	12:30 AM	6	3	31
1/20/2016	12:45 AM	6	3	29
1/20/2016	01:00 AM	14	3	26
1/20/2016	01:15 AM	5	3	13
1/20/2016	01:30 AM	4	3	11
1/20/2016	01:45 AM	3	3	
1/20/2016	02:00 AM	1	3	
1/20/2016	02:15 AM	3	3	
1/20/2016	02:30 AM	0	3	
1/20/2016	02:45 AM	1	3	
1/20/2016	03:00 AM	0	3	
1/20/2016	03:15 AM	3	3	12
1/20/2016	03:30 AM	2	3	10
1/20/2016	03:45 AM	3	3	9
1/20/2016	04:00 AM	4	3	10
1/20/2016	04:15 AM	1	3	9
1/20/2016	04:30 AM	1	3	14
1/20/2016	04:45 AM	4	3	22
1/20/2016	05:00 AM	3	3	23
1/20/2016	05:15 AM	6	3	26
1/20/2016	05:30 AM	9	3	25
1/20/2016	05:45 AM	5	3	39
1/20/2016	06:00 AM	6	3	64
1/20/2016	06:15 AM	5	3	82
1/20/2016	06:30 AM	23	3	113
1/20/2016	06:45 AM	30	3	127
1/20/2016	07:00 AM	24	3	152
1/20/2016	07:15 AM	36	3	205

1/20/2016	07:30 AM	37	3	219
1/20/2016	07:45 AM	55	3	219
1/20/2016	08:00 AM	77	3	233
1/20/2016	08:15 AM	50	3	219
1/20/2016	08:30 AM	37	3	233
1/20/2016	08:45 AM	69	3	260
1/20/2016	09:00 AM	63	3	255
1/20/2016	09:15 AM	64	3	257
1/20/2016	09:30 AM	64	3	247
1/20/2016	09:45 AM	64	3	250
1/20/2016	10:00 AM	65	3	247
1/20/2016	10:15 AM	54	3	237
1/20/2016	10:30 AM	67	3	239
1/20/2016	10:45 AM	61	3	225
1/20/2016	11:00 AM	55	3	229
1/20/2016	11:15 AM	56	3	228
1/20/2016	11:30 AM	53	3	248
1/20/2016	11:45 AM	65	3	256
1/20/2016	12:00 PM	54	3	257
1/20/2016	12:15 PM	76	3	276
1/20/2016	12:30 PM	61	3	232
1/20/2016	12:45 PM	66	3	
1/20/2016	01:00 PM	73	3	
1/20/2016	01:15 PM	32	3	
1/20/2016	01:30 PM	0	3	
1/20/2016	01:45 PM	0	3	
1/20/2016	02:00 PM	0	3	
1/20/2016	02:15 PM	0	3	
1/20/2016	02:30 PM	0	3	
1/20/2016	02:45 PM	0	3	
1/20/2016	03:00 PM	0	3	
1/20/2016	03:15 PM	0	3	
1/20/2016	03:30 PM	0	3	
1/20/2016	03:45 PM	0	3	
1/20/2016	04:00 PM	0	3	
1/20/2016	04:15 PM	0	3	
1/20/2016	04:30 PM	0	3	
1/20/2016	04:45 PM	0	3	
1/20/2016	05:00 PM	0	3	
1/20/2016	05:15 PM	0	3	
1/20/2016	05:30 PM	0	3	
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1/20/2016	06:30 PM	0	3	
1/20/2016	06:45 PM	0	3	
1/20/2016	07:00 PM	0	3	
1/20/2016	07:15 PM	0	3	
1/20/2016	07:30 PM	0	3	
1/20/2016	07:45 PM	0	3	
1/20/2016	08:00 PM	0	3	
1/20/2016	08:15 PM	0	3	
1/20/2016	08:30 PM	0	3	
1/20/2016	08:45 PM	0	3	
1/20/2016	09:00 PM	0	3	
1/20/2016	09:15 PM	0	3	

1/20/2016	09:30 PM	0	3	
1/20/2016	09:45 PM	0	3	
1/20/2016	10:00 PM	0	3	
1/20/2016	10:15 PM	0	3	
1/20/2016	10:30 PM	0	3	
1/20/2016	10:45 PM	0	3	
1/20/2016	11:00 PM	0	3	
1/20/2016	11:15 PM	0	3	
1/20/2016	11:30 PM	0	3	
1/20/2016	11:45 PM	0	3	
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1/21/2016	01:30 AM	0	4	
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1/21/2016	02:00 AM	0	4	
1/21/2016	02:15 AM	0	4	
1/21/2016	02:30 AM	0	4	
1/21/2016	02:45 AM	0	4	
1/21/2016	03:00 AM	0	4	
1/21/2016	03:15 AM	0	4	
1/21/2016	03:30 AM	0	4	
1/21/2016	03:45 AM	0	4	
1/21/2016	04:00 AM	0	4	
1/21/2016	04:15 AM	0	4	
1/21/2016	04:30 AM	0	4	
1/21/2016	04:45 AM	0	4	
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1/21/2016	05:15 AM	0	4	
1/21/2016	05:30 AM	0	4	
1/21/2016	05:45 AM	0	4	
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1/21/2016	06:15 AM	0	4	
1/21/2016	06:30 AM	0	4	
1/21/2016	06:45 AM	0	4	
1/21/2016	07:00 AM	0	4	
1/21/2016	07:15 AM	0	4	
1/21/2016	07:30 AM	2	4	
1/21/2016	07:45 AM	0	4	
1/21/2016	08:00 AM	0	4	
1/21/2016	08:15 AM	25	4	187
1/21/2016	08:30 AM	52	4	240
1/21/2016	08:45 AM	45	4	245
1/21/2016	09:00 AM	65	4	266
1/21/2016	09:15 AM	78	4	271
1/21/2016	09:30 AM	57	4	248
1/21/2016	09:45 AM	66	4	237
1/21/2016	10:00 AM	70	4	237
1/21/2016	10:15 AM	55	4	223
1/21/2016	10:30 AM	46	4	228
1/21/2016	10:45 AM	66	4	244
1/21/2016	11:00 AM	56	4	235
1/21/2016	11:15 AM	60	4	253

1/21/2016	11:30 AM	62	4	257
1/21/2016	11:45 AM	57	4	265
1/21/2016	12:00 PM	74	4	274
1/21/2016	12:15 PM	64	4	281
1/21/2016	12:30 PM	70	4	281
1/21/2016	12:45 PM	66	4	278
1/21/2016	01:00 PM	81	4	275
1/21/2016	01:15 PM	64	4	258
1/21/2016	01:30 PM	67	4	260
1/21/2016	01:45 PM	63	4	289
1/21/2016	02:00 PM	64	4	308
1/21/2016	02:15 PM	66	4	321
1/21/2016	02:30 PM	96	4	348
1/21/2016	02:45 PM	82	4	331
1/21/2016	03:00 PM	77	4	336
1/21/2016	03:15 PM	93	4	344
1/21/2016	03:30 PM	79	4	342
1/21/2016	03:45 PM	87	4	345
1/21/2016	04:00 PM	85	4	329
1/21/2016	04:15 PM	91	4	341
1/21/2016	04:30 PM	82	4	354
1/21/2016	04:45 PM	71	4	365
1/21/2016	05:00 PM	97	4	380
1/21/2016	05:15 PM	104	4	368
1/21/2016	05:30 PM	93	4	337
1/21/2016	05:45 PM	86	4	322
1/21/2016	06:00 PM	85	4	328
1/21/2016	06:15 PM	73	4	325
1/21/2016	06:30 PM	78	4	333
1/21/2016	06:45 PM	92	4	330
1/21/2016	07:00 PM	82	4	303
1/21/2016	07:15 PM	81	4	290
1/21/2016	07:30 PM	75	4	271
1/21/2016	07:45 PM	65	4	250
1/21/2016	08:00 PM	69	4	243
1/21/2016	08:15 PM	62	4	232
1/21/2016	08:30 PM	54	4	209
1/21/2016	08:45 PM	58	4	198
1/21/2016	09:00 PM	58	4	187
1/21/2016	09:15 PM	39	4	194
1/21/2016	09:30 PM	43	4	202
1/21/2016	09:45 PM	47	4	203
1/21/2016	10:00 PM	65	4	202
1/21/2016	10:15 PM	47	4	177
1/21/2016	10:30 PM	44	4	166
1/21/2016	10:45 PM	46	4	147
1/21/2016	11:00 PM	40	4	134
1/21/2016	11:15 PM	36	4	113
1/21/2016	11:30 PM	25	4	99
1/21/2016	11:45 PM	33	4	84
1/22/2016	12:00 AM	19	5	57
1/22/2016	12:15 AM	22	5	59
1/22/2016	12:30 AM	10	5	47
1/22/2016	12:45 AM	6	5	45
1/22/2016	01:00 AM	21	5	48
1/22/2016	01:15 AM	10	5	32

1/22/2016	01:30 AM	8	5	23
1/22/2016	01:45 AM	9	5	19
1/22/2016	02:00 AM	5	5	15
1/22/2016	02:15 AM	1	5	17
1/22/2016	02:30 AM	4	5	19
1/22/2016	02:45 AM	5	5	17
1/22/2016	03:00 AM	7	5	13
1/22/2016	03:15 AM	3	5	8
1/22/2016	03:30 AM	2	5	6
1/22/2016	03:45 AM	1	5	8
1/22/2016	04:00 AM	2	5	10
1/22/2016	04:15 AM	1	5	11
1/22/2016	04:30 AM	4	5	14
1/22/2016	04:45 AM	3	5	18
1/22/2016	05:00 AM	3	5	19
1/22/2016	05:15 AM	4	5	27
1/22/2016	05:30 AM	8	5	31
1/22/2016	05:45 AM	4	5	42
1/22/2016	06:00 AM	11	5	64
1/22/2016	06:15 AM	8	5	92
1/22/2016	06:30 AM	19	5	114
1/22/2016	06:45 AM	26	5	141
1/22/2016	07:00 AM	39	5	161
1/22/2016	07:15 AM	30	5	174
1/22/2016	07:30 AM	46	5	205
1/22/2016	07:45 AM	46	5	219
1/22/2016	08:00 AM	52	5	222
1/22/2016	08:15 AM	61	5	249
1/22/2016	08:30 AM	60	5	
1/22/2016	08:45 AM	49	5	
1/22/2016	09:00 AM	79	5	

OBJECTID		28968
RCSTA		26097
RC Code		2
Roadway Name	18TH AVE	
Station Start	55TH ST	
Station End	50TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	116.81 Ft North of 54 th Str	
Channel Notes		609711
Vehicle Axle Code		2
Count Year		2015
Count Month		9
Day of First Data		12
Federal Direction	Northbound	
Full Count		
1200am-0100am		59
0100am-0200am		35
0200am-0300am		21
0300am-0400am		24
0400am-0500am		31
0500am-0600am		87
0600am-0700am		246
0700am-0800am		355
0800am-0900am		347
0900am-1000am		314
1000am-1100am		325
1100am-1200pm		219
1200pm-0100pm		203
0100pm-0200pm		221
0200pm-0300pm		233
0300pm-0400pm		229
0400pm-0500pm		239
0500pm-0600pm		162
0600pm-0700pm		200
0700pm-0800pm		156
0800pm-0900pm		169
0900pm-1000pm		237
1000pm-1100pm		198
1100pm-1200pm		129
Average Weekday Daily Traffic		4439
Seasonal Factor		1.064
Axle Factor		0.986
AADT		4172
High Hour Value		355
High Hour Interval		8
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62575
Longitude	-73.98355

OBJECTID		28969
RCSTA		26097
RC Code		2
Roadway Name	18TH AVE	
Station Start	55TH ST	
Station End	50TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	116.81 Ft North of 54 th Str	
Channel Notes		609751
Vehicle Axle Code		2
Count Year		2015
Count Month		9
Day of First Data		12
Federal Direction	Southbound	
Full Count		
1200am-0100am		78
0100am-0200am		52
0200am-0300am		35
0300am-0400am		22
0400am-0500am		23
0500am-0600am		49
0600am-0700am		121
0700am-0800am		220
0800am-0900am		303
0900am-1000am		298
1000am-1100am		296
1100am-1200pm		194
1200pm-0100pm		150
0100pm-0200pm		120
0200pm-0300pm		152
0300pm-0400pm		190
0400pm-0500pm		268
0500pm-0600pm		300
0600pm-0700pm		257
0700pm-0800pm		244
0800pm-0900pm		228
0900pm-1000pm		221
1000pm-1100pm		192
1100pm-1200pm		157
Average Weekday Daily Traffic		4170
Seasonal Factor		1.064
Axle Factor		0.986
AADT		3919
High Hour Value		355
High Hour Interval		8
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62575
Longitude	-73.98355

OBJECTID		138069
RCSTA		26098
RC Code		2
Roadway Name	52ND ST	
Station Start	17TH AVE	
Station End	19TH AVE	
Functional Class		19
Factor Group		30
Specific Recorder Placement	372 Ft. E/O 18 th Street	
Channel Notes		26098
Vehicle Axle Code		1
Count Year		2019
Count Month		2
Day of First Data		25
Federal Direction	Eastbound	
Full Count		
1200am-0100am		62
0100am-0200am		27
0200am-0300am		16
0300am-0400am		8
0400am-0500am		7
0500am-0600am		26
0600am-0700am		52
0700am-0800am		144
0800am-0900am		211
0900am-1000am		254
1000am-1100am		230
1100am-1200pm		229
1200pm-0100pm		240
0100pm-0200pm		218
0200pm-0300pm		264
0300pm-0400pm		278
0400pm-0500pm		276
0500pm-0600pm		316
0600pm-0700pm		321
0700pm-0800pm		302
0800pm-0900pm		218
0900pm-1000pm		220
1000pm-1100pm		250
1100pm-1200pm		170
Average Weekday Daily Traffic		4339
Seasonal Factor		0.963
Axle Factor		1
AADT		4506
High Hour Value		321
High Hour Interval		19
Average Weekday F1S		24

Average Weekday F2S	3890
Average Weekday F3S	138
Average Weekday F4S	220
Average Weekday F5S	56
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	0
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	4328
Average Weekday Percent F3_13	10
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	6
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	90
Average Weekday Percent F3	3
Average Weekday Percent F4	5
Average Weekday Percent F5_7	1
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62598
Longitude	-73.98165

OBJECTID		39959
RCSTA		26099
RC Code		2
Roadway Name	50TH ST	
Station Start	18TH AVE	
Station End	20TH AVE	
Functional Class		16
Factor Group		30
Specific Recorder Placement	376 Ft. W/O 19th Ave.	
Channel Notes		
Vehicle Axle Code		1
Count Year		2016
Count Month		3
Day of First Data		6
Federal Direction	Eastbound	
Full Count		
1200am-0100am		59
0100am-0200am		26
0200am-0300am		12
0300am-0400am		14
0400am-0500am		9
0500am-0600am		29
0600am-0700am		63
0700am-0800am		136
0800am-0900am		171
0900am-1000am		192
1000am-1100am		184
1100am-1200pm		201
1200pm-0100pm		192
0100pm-0200pm		199
0200pm-0300pm		228
0300pm-0400pm		221
0400pm-0500pm		246
0500pm-0600pm		252
0600pm-0700pm		274
0700pm-0800pm		264
0800pm-0900pm		211
0900pm-1000pm		178
1000pm-1100pm		182
1100pm-1200pm		121
Average Weekday Daily Traffic		3664
Seasonal Factor		1.006
Axle Factor		1
AADT		3642
High Hour Value		274
High Hour Interval		19
Average Weekday F1S		47

Average Weekday F2S	2734
Average Weekday F3S	375
Average Weekday F4S	71
Average Weekday F5S	175
Average Weekday F6S	22
Average Weekday F7S	0
Average Weekday F8S	53
Average Weekday F9S	2
Average Weekday F10S	1
Average Weekday F11S	1
Average Weekday F12S	5
Average Weekday F13S	16
Average Weekday Unclassified	
Average Weekday Totals	3502
Average Weekday Percent F3_13	21
Average Weekday Percent F4_13	10
Average Weekday Percent F4_7	8
Average Weekday Percent F8_13	2
Average Weekday Percent F1	1
Average Weekday Percent F2	78
Average Weekday Percent F3	11
Average Weekday Percent F4	2
Average Weekday Percent F5_7	6
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	20
50th Percentile Speed	23
85th Percentile Speed	29
Vehicles Exceeding 55mph	0
Vehicles Exceeding 65mph	0
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62704
Longitude	-73.98036

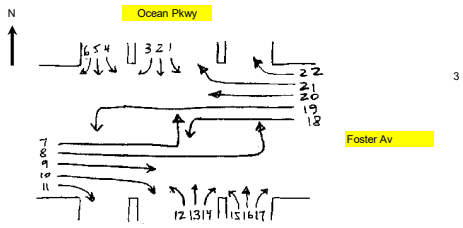
OBJECTID		28885
RCSTA		24255
RC Code		2
Roadway Name	MC DONALD AVE	
Station Start	BAY PKWY	
Station End	AVE I	
Functional Class		16
Factor Group		30
Specific Recorder Placement	321 Ft North of Avenue J	
Channel Notes		242551
Vehicle Axle Code		2
Count Year		2015
Count Month		10
Day of First Data		4
Federal Direction	Northbound	
Full Count		
1200am-0100am		58
0100am-0200am		34
0200am-0300am		33
0300am-0400am		30
0400am-0500am		35
0500am-0600am		83
0600am-0700am		187
0700am-0800am		307
0800am-0900am		212
0900am-1000am		176
1000am-1100am		216
1100am-1200pm		231
1200pm-0100pm		227
0100pm-0200pm		254
0200pm-0300pm		160
0300pm-0400pm		154
0400pm-0500pm		193
0500pm-0600pm		240
0600pm-0700pm		268
0700pm-0800pm		249
0800pm-0900pm		200
0900pm-1000pm		179
1000pm-1100pm		145
1100pm-1200pm		92
Average Weekday Daily Traffic		3963
Seasonal Factor		1.056
Axle Factor		0.986
AADT		3753
High Hour Value		307
High Hour Interval		8
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62446
Longitude	-73.97591

OBJECTID		28886
RCSTA		24255
RC Code		2
Roadway Name	MC DONALD AVE	
Station Start	BAY PKWY	
Station End	AVE I	
Functional Class		16
Factor Group		30
Specific Recorder Placement	321 Ft North of Avenue J	
Channel Notes		242555
Vehicle Axle Code		2
Count Year		2015
Count Month		10
Day of First Data		4
Federal Direction	Southbound	
Full Count		
1200am-0100am		67
0100am-0200am		51
0200am-0300am		33
0300am-0400am		20
0400am-0500am		26
0500am-0600am		48
0600am-0700am		81
0700am-0800am		154
0800am-0900am		189
0900am-1000am		188
1000am-1100am		189
1100am-1200pm		220
1200pm-0100pm		249
0100pm-0200pm		248
0200pm-0300pm		316
0300pm-0400pm		324
0400pm-0500pm		299
0500pm-0600pm		299
0600pm-0700pm		271
0700pm-0800pm		245
0800pm-0900pm		200
0900pm-1000pm		155
1000pm-1100pm		136
1100pm-1200pm		114
Average Weekday Daily Traffic		4122
Seasonal Factor		1.056
Axle Factor		0.986
AADT		3903
High Hour Value		324
High Hour Interval		16
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62446
Longitude	-73.97591

Count type	Turning movement
Node ID:	87495
Location 1 (N/S)	Ocean Pkwy
Location 2 (E/W)	Foster Av
Borough Code:	3
Collect Date:	1/31/2018
Period:	
Interval (min):	15
Start Time:	7:00 AM
End Time:	6:00 PM



Vehicle Type	Heavy Vehicle
Car	Y
Truck	Y
Bus	Y
	N
	N
	N

		DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
		Vehicle																						
From	To	Class	LT	TH	RT	LT	TH	RT	LT	LT	TH	RT	RT	LT	TH	RT	LT	TH	RT	LT	LT	TH	RT	RT
7:00 AM	7:15 AM	Car	14	156	7	6	4	4	8	0	23	6	1	6	417	4	5	8	2	9	1	24	22	3
		Truck	0	3	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		Bus	1	12	0	0	0	0	1	0	1	0	0	1	17	0	1	1	0	4	0	3	5	1
		0																						
		0																						
		0																						
7:15 AM	7:30 AM	Car	21	227	2	3	9	0	13	1	24	5	0	7	433	7	9	13	4	16	0	19	14	0
		Truck	0	3	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0
		Bus	3	15	1	1	3	0	1	0	1	2	0	1	16	1	0	0	2	2	0	3	6	1
		0																						
		0																						
		0																						
7:30 AM	7:45 AM	Car	29	225	3	7	5	2	7	0	22	9	1	7	435	25	14	16	2	22	2	19	15	4
		Truck	0	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0
		Bus	0	9	0	0	1	0	0	0	4	0	0	2	13	0	3	0	1	1	0	2	4	0
		0																						
		0																						
		0																						
7:45 AM	8:00 AM	Car	22	262	3	13	9	2	13	1	38	14	2	4	408	17	14	19	5	18	0	25	21	1
		Truck	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Bus	1	13	1	1	1	0	3	0	6	0	0	0	10	1	1	2	3	1	0	2	1	0
		0																						
		0																						
		0																						
8:00 AM	8:15 AM	Car	27	210	0	19	15	4	14	0	37	12	1	5	410	11	18	15	3	10	0	19	18	3
		Truck	0	1	0	0	1	0	0	0	1	0	0	0	2	0	0	0	1	0	1	0	0	0
		Bus	1	11	2	0	1	0	4	4	4	5	0	0	4	0	0	0	1	2	1	0	3	1
		0																						
		0																						
		0																						
8:15 AM	8:30 AM	Car	30	240	5	13	16	4	8	0	32	17	0	4	438	16	13	21	6	20	0	21	14	3
		Truck	1	3	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
		Bus	1	12	2	2	1	1	2	0	4	1	0	1	9	1	0	2	1	0	0	0	4	1
		0																						
		0																						
		0																						
8:30 AM	8:45 AM	Car	28	256	3	7	14	4	17	1	27	15	1	4	424	7	15	11	4	19	0	30	8	8
		Truck	2	0	0	0	1	0	0	0	2	0	0	0	1	0	1	0	1	0	0	2	0	4
		Bus	2	25	0	0	2	2	3	0	4	2	0	1	12	0	3	0	1	0	0	2	2	1
		0																						
		0																						
		0																						
8:45 AM	9:00 AM	Car	26	288	3	6	12	3	13	0	29	17	1	3	411	5	12	7	3	21	1	25	11	5
		Truck	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	2
		Bus	1	15	0	0	1	1	3	0	5	1	0	1	8	0	1	0	1	0	0	1	2	1
		0																						
		0																						
		0																						
12:00 PM	12:15 PM	Car	27	305	2	9	9	1	20	0	26	19	2	8	324	14	22	6	12	10	0	19	10	2
		Truck	0	1	0	0	0	1	1	0	1	0	0	2	0	0	0	1	0	0	0	2	0	0
		Bus	0	1	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	0	0	1	0	0
		0																						
		0																						
		0																						
12:15 PM	12:30 PM	Car	13	266	3	19	10	2	18	0	36	21	4	13	323	17	17	13	13	15	0	13	12	3
		Truck	0	1	0	0	1	0	1	0	0	0	1	0	3	0	0	0	0	1	0	1	0	0
		Bus	0	10	0	0	0	0	0	0	0	0	0	1	3	0	1	0	0	1	0	0	1	0
		0																						
		0																						
		0																						
12:30 PM	12:45 PM	Car	19	336	3	25	14	1	13	0	31	24	3	12	303	15	11	10	8	12	1	17	17	1
		Truck	0	2	0	0	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	1	0	0
		Bus	0	5	0	0	0	0	2	0	0	0	0	0	3	0	0	0	0	1	0	2	0	0
		0																						
		0																						
		0																						
12:45 PM	1:00 PM	Car	26	331	6	15	15	4	19	1	42	34	3	14	324	12	21	19	9	9	0	19	19	2
		Truck	0	1	0	0	1	0	0	1	0	0	0	0	0	0	1	1	1	0	0	0	1	0
		Bus	1	6	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0
		0																						
		0																						
		0																						
1:00 PM	1:15 PM	Car	28	373	1	17	16	4	11	0	30	18	2	15	367	8	17	9	6	14	0	23	15	3
		Truck	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
		Bus	0	12	0	0	0	0	0	0	1	0	0	0	7	0	2	0	0	0	0	1	1	0
		0																						
		0																						
		0																						
1:15 PM	1:30 PM	Car	19	305	1	15	13	1	10	0	26	15	5	12	292	12	10	12	8	19	2	12	20	0
		Truck	0	3	0	0	0	0	0	0	1	0	0	1	2	0	0	2	0	0	0	0	0	0
		Bus	0	5	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	1	0	5	2	0
		0																						
		0																						
		0																						
1:30 PM	1:45 PM	Car	25	350	8	15	8	2	14	0	33	13	2	13	313	8	11	15	6	20	1	18	21	3
		Truck	0	3	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
		Bus	0	10	0	0	0	0	1	0	2	0	0	1	20	0	0	0	0	0	0	3	0	1
		0																						
		0																						
		0																						
1:45 PM	2:00 PM	Car	23	358	7	13	10	3	16	0	29	17	3	11	309	10	13	13	7	21	1	21	22	2
		Truck	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0	0
		Bus	0	12	0	0	0	0	1	0	1	0	0	0	21	0	1	0	0	1	0	2	0	0
		0																						
		0																						
		0																						
4:00 PM	4:15 PM	Car	13	433	6	18	25	1	17	1	24	21	3	19	289	10	15	10	4	20	1	21	17	2
		Truck	0	0	0	1	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	0	0
		Bus	0	17	0	0	0	1	1	0	1	0	0	1	6	2	1	2	0	4	0	1	0	0
		0																						
		0																						
		0																						
4:15 PM	4:30 PM	Car	25	456	4	13	26	4	7	0	39	20	5	23	340	12	11	12	3	17	2	11	18	2
		Truck	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	1	0	2	0	0
		Bus	0	16	0	1	1	0	1	0	4	0	0	0	7	0	5	0	0	3	0	0	2	0
		0																						
		0																						
		0																						

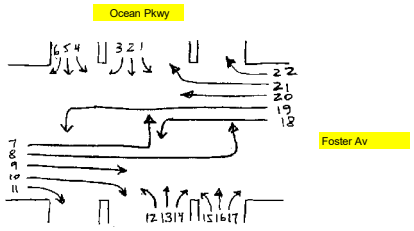
4:30 PM	4:45 PM	Car	28	390	4	15	26	4	10	2	36	21	2	16	317	14	13	12	9	18	1	17	21	1
		Truck	0	2	0	0	0	0	1	0	1	1	0	0	1	0	0	1	0	0	0	2	0	0
		Bus	0	13	1	0	1	0	1	0	3	1	0	0	15	0	1	5	0	1	1	2	0	0
		0																						
		0																						
		0																						
4:45 PM	5:00 PM	Car	11	429	2	11	18	3	12	0	29	19	2	17	274	15	18	17	9	24	0	16	18	0
		Truck	0	1	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0
		Bus	0	9	0	1	3	0	0	0	4	1	1	0	7	1	1	2	0	4	1	1	0	0
		0																						
		0																						
		0																						
5:00 PM	5:15 PM	Car	19	459	8	16	25	4	10	1	31	26	3	18	256	16	19	16	7	20	1	18	16	1
		Truck	0	0	0	0	0	0	1	0	1	0	0	0	3	1	0	1	0	0	0	1	0	0
		Bus	1	8	0	0	1	0	3	0	1	1	0	1	5	0	2	1	0	1	0	0	2	0
		0																						
		0																						
		0																						
5:15 PM	5:30 PM	Car	17	491	3	21	31	5	7	0	30	34	6	12	289	12	13	14	7	25	1	32	26	1
		Truck	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	0	1	0	0
		Bus	0	8	1	0	0	0	0	0	0	0	0	1	4	0	1	1	0	0	0	0	0	0
		0																						
		0																						
		0																						
5:30 PM	5:45 PM	Car	16	398	2	19	25	1	8	2	37	30	5	14	313	13	13	17	4	15	2	13	17	3
		Truck	0	2	0	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	0
		Bus	0	4	1	0	0	0	0	0	0	0	0	0	3	1	2	1	0	3	0	1	1	0
		0																						
		0																						
		0																						
5:45 PM	6:00 PM	Car	14	385	2	17	27	0	5	0	34	26	4	13	307	11	14	10	8	12	2	11	13	1
		Truck	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
		Bus	0	3	0	0	0	0	0	0	0	0	0	0	3	0	2	1	0	1	0	1	0	0
		0																						
		0																						
		0																						

		NB	SB
7:00 AM	8:00 AM	1958	1079
8:00 AM	9:00 AM	1921	1273
12:00 PM	1:00 PM	1564	1476
1:00 PM	2:00 PM	1571	1639
4:00 PM	5:00 PM	1540	2065
5:00 PM	6:00 PM	1458	2088

average		NB	SB
7:00 AM	8:00 AM	1983	1035
8:00 AM	9:00 AM	1963	1299
12:00 PM	1:00 PM	1582	1556
1:00 PM	2:00 PM	1570	1627
4:00 PM	5:00 PM	1548	2069
5:00 PM	6:00 PM	1433	2139

Count type	Turning movement
Node ID:	87495
Location 1 (N/S)	Ocean Pkwy
Location 2 (E/W)	Foster Av
Borough Code:	3
Collect Date:	2/1/2018
Period:	
Interval (min):	15
Start Time:	7:00 AM
End Time:	6:00 PM

Vehicle Type	Heavy Vehicle
Car	Y
Truck	Y
Bus	Y
	N
	N
	N



		DIR	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
From	To	Vehicle Class	LT	TH	RT	LT	TH	RT	LT	LT	TH	RT	RT	LT	TH	RT	LT	TH	RT	LT	LT	TH	RT	RT
7:00 AM	7:15 AM	Car	22	144	5	14	3	2	8	0	18	11	1	6	464	11	12	9	3	22	0	17	23	2
		Truck	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0
		Bus	2	11	0	1	3	0	1	0	1	0	0	1	14	0	2	0	0	1	0	2	4	0
		0																						
		0																						
		0																						
7:15 AM	7:30 AM	Car	11	177	1	9	3	2	15	1	21	12	2	8	404	10	16	14	2	16	1	10	13	0
		Truck	1	3	0	0	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
		Bus	2	9	0	1	2	0	1	0	0	3	0	0	9	1	2	0	0	0	0	4	2	1
		0																						
		0																						
		0																						
7:30 AM	7:45 AM	Car	36	220	4	4	3	8	9	2	30	8	3	12	468	11	9	23	4	17	0	21	12	1
		Truck	0	4	0	0	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	1	0
		Bus	0	10	3	0	0	1	0	0	4	1	1	1	13	0	1	0	0	1	0	3	4	0
		0																						
		0																						
		0																						
7:45 AM	8:00 AM	Car	23	241	10	8	1	4	12	2	26	17	2	12	407	9	17	13	3	19	0	18	19	3
		Truck	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
		Bus	1	14	3	0	0	1	6	0	6	0	0	0	12	1	2	0	0	3	0	1	1	0
		0																						
		0																						
		0																						
8:00 AM	8:15 AM	Car	23	245	8	10	17	3	11	1	28	23	3	9	448	5	15	23	7	22	1	25	23	2
		Truck	0	2	0	0	1	1	0	1	1	0	0	0	2	0	0	0	1	0	0	2	0	2
		Bus	2	11	3	0	0	1	2	0	3	2	1	0	12	0	1	0	0	1	1	1	6	1
		0																						
		0																						
		0																						
8:15 AM	8:30 AM	Car	22	222	2	12	12	3	15	2	32	15	1	6	415	7	21	28	9	25	1	14	23	1
		Truck	1	1	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	1
		Bus	1	19	0	2	3	2	2	0	7	2	0	1	14	0	1	3	0	1	0	1	3	0
		0																						
		0																						
		0																						
8:30 AM	8:45 AM	Car	29	255	2	20	15	7	18	1	30	19	1	10	411	8	15	26	6	22	1	29	20	1
		Truck	0	5	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0
		Bus	1	24	1	2	1	3	7	0	4	1	0	1	12	2	3	0	0	0	0	2	2	1
		0																						
		0																						
		0																						
8:45 AM	9:00 AM	Car	31	261	1	17	16	8	13	1	27	21	2	8	407	6	14	18	7	23	1	22	21	1
		Truck	1	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0	0	0	0
		Bus	0	20	1	1	0	2	5	0	3	1	0	0	10	2	4	3	0	0	0	1	2	0
		0																						
		0																						
		0																						
12:00 PM	12:15 PM	Car	23	376	5	11	19	2	15	2	32	21	1	13	345	12	16	10	6	17	0	28	17	5
		Truck	1	3	1	0	2	0	2	0	2	0	0	0	2	0	0	2	0	0	0	0	0	1
		Bus	0	8	0	0	1	0	0	0	0	0	0	0	4	0	0	0	0	0	0	1	0	0
		0																						
		0																						
		0																						
12:15 PM	12:30 PM	Car	30	327	6	13	14	2	19	2	35	23	2	16	331	9	13	6	9	16	1	29	24	2
		Truck	0	1	0	0	1	0	0	0	1	0	0	0	3	0	1	1	1	0	0	1	1	1
		Bus	2	4	0	0	0	0	0	1	2	0	0	0	8	1	0	0	0	0	0	0	0	0
		0																						
		0																						
		0																						
12:30 PM	12:45 PM	Car	40	347	3	11	15	6	13	3	28	30	2	17	342	13	12	12	5	15	1	30	28	4
		Truck	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	1	1	0	0	0	1	0
		Bus	0	4	0	0	1	0	0	0	0	0	0	0	3	1	0	0	0	1	0	2	1	0
		0																						
		0																						
		0																						
12:45 PM	1:00 PM	Car	30	325	7	9	14	1	10	1	27	15	3	15	312	10	23	10	4	15	1	22	16	1
		Truck	0	1	0	0	1	0	0	1	2	0	0	0	1	0	0	0	0	0	0	3	0	0
		Bus	1	5	0	0	0	0	2	0	1	0	0	0	7	0	0	0	0	0	0	0	0	0
		0																						
		0																						
		0																						
1:00 PM	1:15 PM	Car	25	319	3	12	14	2	15	0	24	21	0	18	286	8	20	16	6	14	4	20	10	1
		Truck	0	5	0	1	1	1	0	0	2	0	0	0	1	0	0	0	0	0	0	2	0	2
		Bus	1	4	0	0	0	0	0	0	0	1	0	1	10	1	1	0	0	1	0	0	0	0
		0																						
		0																						
		0																						
1:15 PM	1:30 PM	Car	28	345	4	13	13	6	16	2	36	18	3	21	316	9	14	15	3	11	1	19	22	2
		Truck	0	0	0	1	0	0	0	0	3	0	1	0	0	1	0	1	1	0	0	0	0	0
		Bus	0	7	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	1	0	2	1	0
		0																						
		0																						
		0																						
1:30 PM	1:45 PM	Car	31	356	2	5	5	4	13	1	38	20	6	12	325	7	10	13	4	20	0	24	27	0
		Truck	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	2	0	0
		Bus	0	7	0	0	0	0	0	0	2	0	0	1	9	0	1	0	0	2	0	8	6	0
		0																						
		0																						
		0																						
1:45 PM	2:00 PM	Car	30	350	3	6	4	3	10	2	35	22	2	19	324	11	20	19	9	24	1	26	29	1
		Truck	0	2	0	0	0	0	2	0	3	0	0	0	2	1	0	0	1	0	0	2	0	0
		Bus	0	6	0	0	0	0	3	0	2	0	0	0	18	0	2	0	0	2	0	5	4	0
		0																						
		0																						
		0																						
4:00 PM	4:15 PM	Car	15	415	7	24	33	12	10	1	31	17	4	16	326	10	9	13	4	29	5	19	22	1
		Truck	0	3	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	0	0	1	0	0
		Bus	0	15	0	1	0	0	1	0	2	1	0	0	8	0	1	1	0	1	0	1	0	0
		0																						
		0																						
		0																						
4:15 PM	4:30 PM	Car	25	406	2	21	26	3	11	1	38	14	5	13	312	10	21	16	10	21	0	19	25	1
		Truck	0	0	0	0	0	0	1	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0
		Bus	1	16	2	0	0	0	2	0	3	4	0	0	5	0	2	3	0	3	1	0	1	1

		0																					
		0																					
		0																					
4:30 PM	4:45 PM	Car	19	391	8	21	36	5	15	2	39	28	5	18	292	20	14	17	12	27	2	17	18	1
		Truck	0	1	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0
		Bus	0	24	1	1	1	0	0	0	0	3	1	0	11	1	1	0	0	2	0	3	1	0
		0																						
		0																						
		0																						
4:45 PM	5:00 PM	Car	20	438	3	24	23	3	12	1	32	20	4	14	308	10	15	16	6	22	4	22	17	0
		Truck	0	1	0	0	1	0	1	1	0	0	1	0	1	0	0	0	1	0	0	2	0	0
		Bus	0	10	1	1	2	0	1	1	2	0	1	0	8	1	1	3	0	4	0	0	1	0
		0																						
		0																						
		0																						
5:00 PM	5:15 PM	Car	22	451	9	28	30	2	15	2	28	22	5	13	284	7	19	13	3	21	2	20	23	1
		Truck	0	0	0	0	2	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0
		Bus	0	13	0	0	1	0	0	0	2	0	2	2	7	0	0	1	0	1	0	0	1	0
		0																						
		0																						
		0																						
5:15 PM	5:30 PM	Car	19	471	7	32	27	1	16	2	9	33	3	8	297	9	10	13	9	24	2	20	28	1
		Truck	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0
		Bus	0	3	0	0	0	0	0	0	1	1	0	1	6	2	1	0	0	2	0	1	1	0
		0																						
		0																						
		0																						
5:30 PM	5:45 PM	Car	16	461	5	28	29	2	13	1	30	21	4	6	310	8	11	10	5	25	1	19	29	1
		Truck	0	1	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
		Bus	0	2	0	1	1	0	1	0	1	0	0	0	6	1	2	0	0	1	0	0	1	0
		0																						
		0																						
		0																						
5:45 PM	6:00 PM	Car	16	453	6	24	21	0	14	1	27	23	2	5	301	7	9	7	4	23	0	18	27	0
		Truck	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0
		Bus	0	2	1	0	1	0	0	0	2	0	0	0	5	0	3	0	0	0	0	0	0	0
		0																						
		0																						
		0																						

		NB	SB
7:00 AM	8:00 AM	2008	991
8:00 AM	9:00 AM	2004	1324
12:00 PM	1:00 PM	1600	1635
1:00 PM	2:00 PM	1568	1614
4:00 PM	5:00 PM	1556	2072
5:00 PM	6:00 PM	1408	2190

OBJECTID		54429
RCSTA		21189
RC Code		2
Roadway Name	CONEY ISLAND AV	
Station Start	AVENUE K	
Station End	DITMAS AVE	
Functional Class		14
Factor Group		30
Specific Recorder Placement	318 Ft. N/O Ave. H.	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Northbound	
Full Count		
1200am-0100am		148
0100am-0200am		113
0200am-0300am		99
0300am-0400am		80
0400am-0500am		108
0500am-0600am		215
0600am-0700am		662
0700am-0800am		1082
0800am-0900am		1096
0900am-1000am		863
1000am-1100am		627
1100am-1200pm		605
1200pm-0100pm		570
0100pm-0200pm		523
0200pm-0300pm		640
0300pm-0400pm		711
0400pm-0500pm		781
0500pm-0600pm		760
0600pm-0700pm		675
0700pm-0800pm		553
0800pm-0900pm		458
0900pm-1000pm		371
1000pm-1100pm		313
1100pm-1200pm		224
Average Weekday Daily Traffic		12277
Seasonal Factor		1.017
Axle Factor		0.979
AADT		12072
High Hour Value		1096
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63049
Longitude	-73.96631

OBJECTID		26477
RCSTA		21189
RC Code		2
Roadway Name	CONEY ISLAND AV	
Station Start	AVENUE K	
Station End	DITMAS AVE	
Functional Class		14
Factor Group		30
Specific Recorder Placement	318 Ft. N/O Ave. H.	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Southbound	
Full Count		
1200am-0100am		215
0100am-0200am		191
0200am-0300am		164
0300am-0400am		102
0400am-0500am		119
0500am-0600am		156
0600am-0700am		258
0700am-0800am		513
0800am-0900am		587
0900am-1000am		611
1000am-1100am		531
1100am-1200pm		517
1200pm-0100pm		545
0100pm-0200pm		548
0200pm-0300pm		586
0300pm-0400pm		756
0400pm-0500pm		811
0500pm-0600pm		956
0600pm-0700pm		933
0700pm-0800pm		721
0800pm-0900pm		499
0900pm-1000pm		380
1000pm-1100pm		355
1100pm-1200pm		258
Average Weekday Daily Traffic		11312
Seasonal Factor		1.017
Axle Factor		0.979
AADT		11123
High Hour Value		1096
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63049
Longitude	-73.96631

OBJECTID		132939
RCSTA		26103
RC Code		2
Roadway Name	E 14TH ST	
Station Start	AVE I	
Station End	AVE H	
Functional Class		19
Factor Group		30
Specific Recorder Placement	267 Ft. S/O Ave. H	
Channel Notes		26103
Vehicle Axle Code		1
Count Year		2019
Count Month		1
Day of First Data		28
Federal Direction	Northbound	
Full Count		
1200am-0100am		10
0100am-0200am		6
0200am-0300am		2
0300am-0400am		2
0400am-0500am		3
0500am-0600am		12
0600am-0700am		34
0700am-0800am		82
0800am-0900am		147
0900am-1000am		86
1000am-1100am		68
1100am-1200pm		56
1200pm-0100pm		64
0100pm-0200pm		62
0200pm-0300pm		70
0300pm-0400pm		97
0400pm-0500pm		84
0500pm-0600pm		75
0600pm-0700pm		60
0700pm-0800pm		50
0800pm-0900pm		42
0900pm-1000pm		24
1000pm-1100pm		25
1100pm-1200pm		12
Average Weekday Daily Traffic		1173
Seasonal Factor		0.942
Axle Factor		1
AADT		1245
High Hour Value		147
High Hour Interval		9
Average Weekday F1S		28

Average Weekday F2S	1043
Average Weekday F3S	46
Average Weekday F4S	35
Average Weekday F5S	13
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	0
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	1165
Average Weekday Percent F3_13	8
Average Weekday Percent F4_13	4
Average Weekday Percent F4_7	4
Average Weekday Percent F8_13	0
Average Weekday Percent F1	2
Average Weekday Percent F2	90
Average Weekday Percent F3	4
Average Weekday Percent F4	3
Average Weekday Percent F5_7	1
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62917
Longitude	-73.96307

OBJECTID		132940
RCSTA		26103
RC Code		2
Roadway Name	E 14TH ST	
Station Start	AVE I	
Station End	AVE H	
Functional Class		19
Factor Group		30
Specific Recorder Placement	267 Ft. S/O Ave. H	
Channel Notes		26103
Vehicle Axle Code		1
Count Year		2019
Count Month		1
Day of First Data		28
Federal Direction	Southbound	
Full Count		
1200am-0100am		18
0100am-0200am		15
0200am-0300am		2
0300am-0400am		8
0400am-0500am		6
0500am-0600am		12
0600am-0700am		30
0700am-0800am		77
0800am-0900am		118
0900am-1000am		98
1000am-1100am		82
1100am-1200pm		78
1200pm-0100pm		87
0100pm-0200pm		98
0200pm-0300pm		110
0300pm-0400pm		106
0400pm-0500pm		124
0500pm-0600pm		120
0600pm-0700pm		111
0700pm-0800pm		86
0800pm-0900pm		72
0900pm-1000pm		48
1000pm-1100pm		36
1100pm-1200pm		26
Average Weekday Daily Traffic		1568
Seasonal Factor		0.942
Axle Factor		1
AADT		1665
High Hour Value		147
High Hour Interval		9
Average Weekday F1S		38

Average Weekday F2S	1388
Average Weekday F3S	78
Average Weekday F4S	36
Average Weekday F5S	25
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	0
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	1565
Average Weekday Percent F3_13	9
Average Weekday Percent F4_13	4
Average Weekday Percent F4_7	4
Average Weekday Percent F8_13	0
Average Weekday Percent F1	2
Average Weekday Percent F2	89
Average Weekday Percent F3	5
Average Weekday Percent F4	2
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62917
Longitude	-73.96307

OBJECTID		66995
RCSTA		21313
RC Code		2
Roadway Name	OCEAN AVE	
Station Start	AVENUE H	
Station End	DITMAS AVE	
Functional Class		14
Factor Group		30
Specific Recorder Placement	261' S/o Farragut Rd	
Channel Notes		/
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		23
Federal Direction	Northbound	
Full Count		
1200am-0100am		140
0100am-0200am		98
0200am-0300am		58
0300am-0400am		65
0400am-0500am		112
0500am-0600am		258
0600am-0700am		609
0700am-0800am		866
0800am-0900am		887
0900am-1000am		791
1000am-1100am		655
1100am-1200pm		645
1200pm-0100pm		655
0100pm-0200pm		661
0200pm-0300pm		694
0300pm-0400pm		663
0400pm-0500pm		686
0500pm-0600pm		745
0600pm-0700pm		672
0700pm-0800pm		582
0800pm-0900pm		544
0900pm-1000pm		424
1000pm-1100pm		319
1100pm-1200pm		236
Average Weekday Daily Traffic		12065
Seasonal Factor		1.078
Axle Factor		1
AADT		11192
High Hour Value		887
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63455
Longitude	-73.95804

OBJECTID		66996
RCSTA		21313
RC Code		2
Roadway Name	OCEAN AVE	
Station Start	AVENUE H	
Station End	DITMAS AVE	
Functional Class		14
Factor Group		30
Specific Recorder Placement	261' S/o Farragut Rd	
Channel Notes		/
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		23
Federal Direction	Southbound	
Full Count		
1200am-0100am		214
0100am-0200am		128
0200am-0300am		78
0300am-0400am		58
0400am-0500am		68
0500am-0600am		123
0600am-0700am		236
0700am-0800am		518
0800am-0900am		570
0900am-1000am		546
1000am-1100am		538
1100am-1200pm		574
1200pm-0100pm		591
0100pm-0200pm		600
0200pm-0300pm		643
0300pm-0400pm		690
0400pm-0500pm		737
0500pm-0600pm		792
0600pm-0700pm		758
0700pm-0800pm		747
0800pm-0900pm		616
0900pm-1000pm		524
1000pm-1100pm		392
1100pm-1200pm		281
Average Weekday Daily Traffic		11022
Seasonal Factor		1.078
Axle Factor		1
AADT		10224
High Hour Value		887
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63455
Longitude	-73.95804

OBJECTID		67088
RCSTA		26105
RC Code		2
Roadway Name	BEDFORD AVE	
Station Start	AVE J	
Station End	FLATBUSH AVE	
Functional Class		16
Factor Group		30
Specific Recorder Placement	284 Ft. N/O Ave. I	
Channel Notes		
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		17
Federal Direction	Northbound	
Full Count		
1200am-0100am		50
0100am-0200am		28
0200am-0300am		15
0300am-0400am		18
0400am-0500am		35
0500am-0600am		116
0600am-0700am		280
0700am-0800am		430
0800am-0900am		429
0900am-1000am		365
1000am-1100am		302
1100am-1200pm		252
1200pm-0100pm		290
0100pm-0200pm		277
0200pm-0300pm		310
0300pm-0400pm		373
0400pm-0500pm		370
0500pm-0600pm		360
0600pm-0700pm		310
0700pm-0800pm		232
0800pm-0900pm		172
0900pm-1000pm		143
1000pm-1100pm		103
1100pm-1200pm		77
Average Weekday Daily Traffic		5337
Seasonal Factor		1.078
Axle Factor		1
AADT		4951
High Hour Value		430
High Hour Interval		8
Average Weekday F1S		149

Average Weekday F2S	3796
Average Weekday F3S	461
Average Weekday F4S	147
Average Weekday F5S	265
Average Weekday F6S	17
Average Weekday F7S	4
Average Weekday F8S	24
Average Weekday F9S	2
Average Weekday F10S	4
Average Weekday F11S	9
Average Weekday F12S	2
Average Weekday F13S	21
Average Weekday Unclassified	
Average Weekday Totals	4901
Average Weekday Percent F3_13	20
Average Weekday Percent F4_13	10
Average Weekday Percent F4_7	9
Average Weekday Percent F8_13	1
Average Weekday Percent F1	3
Average Weekday Percent F2	77
Average Weekday Percent F3	9
Average Weekday Percent F4	3
Average Weekday Percent F5_7	6
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	20
50th Percentile Speed	24
85th Percentile Speed	30
Vehicles Exceeding 55mph	0
Vehicles Exceeding 65mph	0
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62946
Longitude	-73.95221

OBJECTID		67089
RCSTA		26105
RC Code		2
Roadway Name	BEDFORD AVE	
Station Start	AVE J	
Station End	FLATBUSH AVE	
Functional Class		16
Factor Group		30
Specific Recorder Placement	284 Ft. N/O Ave. I	
Channel Notes		
Vehicle Axle Code		1
Count Year		2017
Count Month		9
Day of First Data		17
Federal Direction	Southbound	
Full Count		
1200am-0100am		63
0100am-0200am		43
0200am-0300am		27
0300am-0400am		15
0400am-0500am		19
0500am-0600am		56
0600am-0700am		118
0700am-0800am		282
0800am-0900am		322
0900am-1000am		321
1000am-1100am		258
1100am-1200pm		249
1200pm-0100pm		317
0100pm-0200pm		313
0200pm-0300pm		361
0300pm-0400pm		388
0400pm-0500pm		398
0500pm-0600pm		424
0600pm-0700pm		382
0700pm-0800pm		286
0800pm-0900pm		262
0900pm-1000pm		222
1000pm-1100pm		131
1100pm-1200pm		107
Average Weekday Daily Traffic		5364
Seasonal Factor		1.078
Axle Factor		1
AADT		4976
High Hour Value		430
High Hour Interval		8
Average Weekday F1S		145

Average Weekday F2S	3724
Average Weekday F3S	506
Average Weekday F4S	234
Average Weekday F5S	191
Average Weekday F6S	14
Average Weekday F7S	3
Average Weekday F8S	15
Average Weekday F9S	2
Average Weekday F10S	1
Average Weekday F11S	5
Average Weekday F12S	2
Average Weekday F13S	17
Average Weekday Unclassified	
Average Weekday Totals	4859
Average Weekday Percent F3_13	20
Average Weekday Percent F4_13	10
Average Weekday Percent F4_7	9
Average Weekday Percent F8_13	1
Average Weekday Percent F1	3
Average Weekday Percent F2	77
Average Weekday Percent F3	10
Average Weekday Percent F4	5
Average Weekday Percent F5_7	4
Axle Correction Factor	1
Single Unit Peak	1
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	21
50th Percentile Speed	24
85th Percentile Speed	30
Vehicles Exceeding 55mph	0
Vehicles Exceeding 65mph	0
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62946
Longitude	-73.95221

OBJECTID	102895
RCSTA	26120
RC Code	2
Roadway Name	NEW UTRECHT AV
Station Start	65TH ST
Station End	60TH ST
Functional Class	16
Factor Group	30
Specific Recorder Placement	99 Ft. S/O 61st Street
Channel Notes	26120
Vehicle Axle Code	1
Count Year	2018
Count Month	9
Day of First Data	11
Federal Direction	Northbound
Full Count	
1200am-0100am	48
0100am-0200am	23
0200am-0300am	26
0300am-0400am	20
0400am-0500am	32
0500am-0600am	54
0600am-0700am	139
0700am-0800am	222
0800am-0900am	228
0900am-1000am	198
1000am-1100am	192
1100am-1200pm	181
1200pm-0100pm	181
0100pm-0200pm	180
0200pm-0300pm	190
0300pm-0400pm	204
0400pm-0500pm	168
0500pm-0600pm	168
0600pm-0700pm	156
0700pm-0800pm	138
0800pm-0900pm	106
0900pm-1000pm	90
1000pm-1100pm	82
1100pm-1200pm	73
Average Weekday Daily Traffic	3099
Seasonal Factor	1.078
Axle Factor	1
AADT	2875
High Hour Value	228
High Hour Interval	9
Average Weekday F1S	29

Average Weekday F2S	2696
Average Weekday F3S	220
Average Weekday F4S	43
Average Weekday F5S	104
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	4
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	3096
Average Weekday Percent F3_13	12
Average Weekday Percent F4_13	5
Average Weekday Percent F4_7	5
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	87
Average Weekday Percent F3	7
Average Weekday Percent F4	1
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62659
Longitude	-73.99689

OBJECTID	102896
RCSTA	26120
RC Code	2
Roadway Name	NEW UTRECHT AV
Station Start	65TH ST
Station End	60TH ST
Functional Class	16
Factor Group	30
Specific Recorder Placement	99 Ft. S/O 61st Street
Channel Notes	26120
Vehicle Axle Code	1
Count Year	2018
Count Month	9
Day of First Data	11
Federal Direction	Southbound
Full Count	
1200am-0100am	60
0100am-0200am	29
0200am-0300am	22
0300am-0400am	22
0400am-0500am	36
0500am-0600am	30
0600am-0700am	66
0700am-0800am	120
0800am-0900am	170
0900am-1000am	177
1000am-1100am	177
1100am-1200pm	176
1200pm-0100pm	171
0100pm-0200pm	198
0200pm-0300pm	202
0300pm-0400pm	234
0400pm-0500pm	236
0500pm-0600pm	292
0600pm-0700pm	252
0700pm-0800pm	184
0800pm-0900pm	162
0900pm-1000pm	126
1000pm-1100pm	112
1100pm-1200pm	90
Average Weekday Daily Traffic	3344
Seasonal Factor	1.078
Axle Factor	1
AADT	3102
High Hour Value	292
High Hour Interval	18
Average Weekday F1S	28

Average Weekday F2S	2953
Average Weekday F3S	211
Average Weekday F4S	45
Average Weekday F5S	104
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	5
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	3346
Average Weekday Percent F3_13	11
Average Weekday Percent F4_13	5
Average Weekday Percent F4_7	4
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	88
Average Weekday Percent F3	6
Average Weekday Percent F4	1
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.62659
Longitude	-73.99689

OBJECTID		51347
RCSTA		26113
RC Code		2
Roadway Name	6TH AVE	
Station Start	GOWANUS EXPWY	
Station End	60TH ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	110 Ft. N/O 62nd Street	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Northbound	
Full Count		
1200am-0100am		107
0100am-0200am		66
0200am-0300am		36
0300am-0400am		32
0400am-0500am		39
0500am-0600am		46
0600am-0700am		112
0700am-0800am		247
0800am-0900am		303
0900am-1000am		302
1000am-1100am		315
1100am-1200pm		269
1200pm-0100pm		324
0100pm-0200pm		288
0200pm-0300pm		309
0300pm-0400pm		292
0400pm-0500pm		245
0500pm-0600pm		273
0600pm-0700pm		255
0700pm-0800pm		205
0800pm-0900pm		226
0900pm-1000pm		187
1000pm-1100pm		207
1100pm-1200pm		166
Average Weekday Daily Traffic		4851
Seasonal Factor		1.017
Axle Factor		0.971
AADT		4770
High Hour Value		324
High Hour Interval		13
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63729
Longitude	-74.01485

OBJECTID		51348
RCSTA		26113
RC Code		2
Roadway Name	6TH AVE	
Station Start	GOWANUS EXPWY	
Station End	60TH ST	
Functional Class		17
Factor Group		30
Specific Recorder Placement	110 Ft. N/O 62nd Street	
Channel Notes		
Vehicle Axle Code		2
Count Year		2016
Count Month		11
Day of First Data		26
Federal Direction	Southbound	
Full Count		
1200am-0100am		123
0100am-0200am		81
0200am-0300am		61
0300am-0400am		49
0400am-0500am		69
0500am-0600am		99
0600am-0700am		115
0700am-0800am		270
0800am-0900am		318
0900am-1000am		285
1000am-1100am		362
1100am-1200pm		367
1200pm-0100pm		335
0100pm-0200pm		310
0200pm-0300pm		348
0300pm-0400pm		358
0400pm-0500pm		301
0500pm-0600pm		404
0600pm-0700pm		372
0700pm-0800pm		337
0800pm-0900pm		298
0900pm-1000pm		243
1000pm-1100pm		233
1100pm-1200pm		171
Average Weekday Daily Traffic		5909
Seasonal Factor		1.017
Axle Factor		0.971
AADT		5810
High Hour Value		404
High Hour Interval		18
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63729
Longitude	-74.01485

OBJECTID		143368
RCSTA		26144
RC Code		2
Roadway Name	7TH AVE	
Station Start	65TH ST	
Station End	39TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	99 Ft. S/O 60th Street	
Channel Notes		
Vehicle Axle Code		1
Count Year		2020
Count Month		9
Day of First Data		21
Federal Direction	Northbound	
Full Count		
1200am-0100am		70
0100am-0200am		42
0200am-0300am		28
0300am-0400am		28
0400am-0500am		24
0500am-0600am		62
0600am-0700am		186
0700am-0800am		280
0800am-0900am		300
0900am-1000am		332
1000am-1100am		332
1100am-1200pm		324
1200pm-0100pm		311
0100pm-0200pm		310
0200pm-0300pm		310
0300pm-0400pm		302
0400pm-0500pm		320
0500pm-0600pm		300
0600pm-0700pm		288
0700pm-0800pm		253
0800pm-0900pm		203
0900pm-1000pm		176
1000pm-1100pm		178
1100pm-1200pm		138
Average Weekday Daily Traffic		5097
Seasonal Factor		1.1419
Axle Factor		1
AADT		4464
High Hour Value		332
High Hour Interval		10
Average Weekday F1S		134

Average Weekday F2S	4545
Average Weekday F3S	238
Average Weekday F4S	8
Average Weekday F5S	151
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	14
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	5090
Average Weekday Percent F3_13	8
Average Weekday Percent F4_13	3
Average Weekday Percent F4_7	3
Average Weekday Percent F8_13	0
Average Weekday Percent F1	3
Average Weekday Percent F2	89
Average Weekday Percent F3	5
Average Weekday Percent F4	0
Average Weekday Percent F5_7	3
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63658
Longitude	-74.01205

OBJECTID		143369
RCSTA		26144
RC Code		2
Roadway Name	7TH AVE	
Station Start	65TH ST	
Station End	39TH ST	
Functional Class		16
Factor Group		30
Specific Recorder Placement	99 Ft. S/O 60th Street	
Channel Notes		
Vehicle Axle Code		1
Count Year		2020
Count Month		9
Day of First Data		21
Federal Direction	Southbound	
Full Count		
1200am-0100am		42
0100am-0200am		24
0200am-0300am		20
0300am-0400am		16
0400am-0500am		16
0500am-0600am		20
0600am-0700am		41
0700am-0800am		116
0800am-0900am		172
0900am-1000am		196
1000am-1100am		206
1100am-1200pm		224
1200pm-0100pm		232
0100pm-0200pm		255
0200pm-0300pm		236
0300pm-0400pm		268
0400pm-0500pm		246
0500pm-0600pm		316
0600pm-0700pm		268
0700pm-0800pm		190
0800pm-0900pm		154
0900pm-1000pm		112
1000pm-1100pm		108
1100pm-1200pm		94
Average Weekday Daily Traffic		3572
Seasonal Factor		1.1419
Axle Factor		1
AADT		3128
High Hour Value		332
High Hour Interval		10
Average Weekday F1S		169

Average Weekday F2S	3139
Average Weekday F3S	154
Average Weekday F4S	14
Average Weekday F5S	83
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	2
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	3561
Average Weekday Percent F3_13	7
Average Weekday Percent F4_13	3
Average Weekday Percent F4_7	3
Average Weekday Percent F8_13	0
Average Weekday Percent F1	5
Average Weekday Percent F2	88
Average Weekday Percent F3	4
Average Weekday Percent F4	0
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63658
Longitude	-74.01205

OBJECTID		93307
RCSTA		26115
RC Code		2
Roadway Name	8TH AVE	
Station Start	7TH AVE	
Station End	DEAD END	
Functional Class		16
Factor Group		30
Specific Recorder Placement	60 Ft. S/O 61st Street	
Channel Notes		26115
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		26
Federal Direction	Northbound	
Full Count		
1200am-0100am		106
0100am-0200am		58
0200am-0300am		48
0300am-0400am		41
0400am-0500am		50
0500am-0600am		67
0600am-0700am		136
0700am-0800am		283
0800am-0900am		326
0900am-1000am		307
1000am-1100am		302
1100am-1200pm		260
1200pm-0100pm		269
0100pm-0200pm		167
0200pm-0300pm		230
0300pm-0400pm		268
0400pm-0500pm		258
0500pm-0600pm		292
0600pm-0700pm		262
0700pm-0800pm		227
0800pm-0900pm		200
0900pm-1000pm		166
1000pm-1100pm		148
1100pm-1200pm		141
Average Weekday Daily Traffic		4612
Seasonal Factor		1.009
Axle Factor		1
AADT		4571
High Hour Value		326
High Hour Interval		9
Average Weekday F1S		57

Average Weekday F2S	4293
Average Weekday F3S	0
Average Weekday F4S	150
Average Weekday F5S	103
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	1
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	4604
Average Weekday Percent F3_13	6
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	5
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	93
Average Weekday Percent F3	0
Average Weekday Percent F4	3
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63472
Longitude	-74.0103

OBJECTID		93308
RCSTA		26115
RC Code		2
Roadway Name	8TH AVE	
Station Start	7TH AVE	
Station End	DEAD END	
Functional Class		16
Factor Group		30
Specific Recorder Placement	60 Ft. S/O 61st Street	
Channel Notes		26115
Vehicle Axle Code		1
Count Year		2018
Count Month		3
Day of First Data		26
Federal Direction	Southbound	
Full Count		
1200am-0100am		142
0100am-0200am		90
0200am-0300am		59
0300am-0400am		63
0400am-0500am		61
0500am-0600am		61
0600am-0700am		100
0700am-0800am		276
0800am-0900am		335
0900am-1000am		324
1000am-1100am		301
1100am-1200pm		312
1200pm-0100pm		304
0100pm-0200pm		216
0200pm-0300pm		318
0300pm-0400pm		360
0400pm-0500pm		378
0500pm-0600pm		414
0600pm-0700pm		380
0700pm-0800pm		312
0800pm-0900pm		296
0900pm-1000pm		229
1000pm-1100pm		215
1100pm-1200pm		216
Average Weekday Daily Traffic		5762
Seasonal Factor		1.009
Axle Factor		1
AADT		5711
High Hour Value		414
High Hour Interval		18
Average Weekday F1S		60

Average Weekday F2S	5378
Average Weekday F3S	0
Average Weekday F4S	179
Average Weekday F5S	137
Average Weekday F6S	0
Average Weekday F7S	0
Average Weekday F8S	0
Average Weekday F9S	3
Average Weekday F10S	0
Average Weekday F11S	0
Average Weekday F12S	0
Average Weekday F13S	0
Average Weekday Unclassified	
Average Weekday Totals	5757
Average Weekday Percent F3_13	6
Average Weekday Percent F4_13	6
Average Weekday Percent F4_7	5
Average Weekday Percent F8_13	0
Average Weekday Percent F1	1
Average Weekday Percent F2	93
Average Weekday Percent F3	0
Average Weekday Percent F4	3
Average Weekday Percent F5_7	2
Axle Correction Factor	1
Single Unit Peak	0
Combination Unit Peak	0
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63472
Longitude	-74.0103

OBJECTID		45746
RCSTA		26109
RC Code		2
Roadway Name	ALBANY AVE	
Station Start	AVE K	
Station End	GLENWOOD RD	
Functional Class		16
Factor Group		30
Specific Recorder Placement	180 Ft. E/O Ave. H	
Channel Notes		2610971
Vehicle Axle Code		2
Count Year		2016
Count Month		10
Day of First Data		10
Federal Direction	Westbound	
Full Count		
1200am-0100am		63
0100am-0200am		35
0200am-0300am		21
0300am-0400am		19
0400am-0500am		27
0500am-0600am		56
0600am-0700am		103
0700am-0800am		223
0800am-0900am		272
0900am-1000am		165
1000am-1100am		148
1100am-1200pm		157
1200pm-0100pm		191
0100pm-0200pm		206
0200pm-0300pm		225
0300pm-0400pm		245
0400pm-0500pm		263
0500pm-0600pm		279
0600pm-0700pm		222
0700pm-0800pm		214
0800pm-0900pm		178
0900pm-1000pm		146
1000pm-1100pm		109
1100pm-1200pm		84
Average Weekday Daily Traffic		3651
Seasonal Factor		1.074
Axle Factor		0.971
AADT		3399
High Hour Value		480
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63284
Longitude	-73.93702

OBJECTID		45745
RCSTA		26109
RC Code		2
Roadway Name	ALBANY AVE	
Station Start	AVE K	
Station End	GLENWOOD RD	
Functional Class		16
Factor Group		30
Specific Recorder Placement	180 Ft. E/O Ave. H	
Channel Notes		2610931
Vehicle Axle Code		2
Count Year		2016
Count Month		10
Day of First Data		10
Federal Direction	Eastbound	
Full Count		
1200am-0100am		50
0100am-0200am		29
0200am-0300am		18
0300am-0400am		13
0400am-0500am		17
0500am-0600am		49
0600am-0700am		173
0700am-0800am		477
0800am-0900am		480
0900am-1000am		334
1000am-1100am		282
1100am-1200pm		303
1200pm-0100pm		276
0100pm-0200pm		322
0200pm-0300pm		369
0300pm-0400pm		365
0400pm-0500pm		358
0500pm-0600pm		373
0600pm-0700pm		319
0700pm-0800pm		275
0800pm-0900pm		201
0900pm-1000pm		147
1000pm-1100pm		108
1100pm-1200pm		84
Average Weekday Daily Traffic		5422
Seasonal Factor		1.074
Axle Factor		0.971
AADT		5048
High Hour Value		480
High Hour Interval		9
Average Weekday F1S		

Average Weekday F2S	
Average Weekday F3S	
Average Weekday F4S	
Average Weekday F5S	
Average Weekday F6S	
Average Weekday F7S	
Average Weekday F8S	
Average Weekday F9S	
Average Weekday F10S	
Average Weekday F11S	
Average Weekday F12S	
Average Weekday F13S	
Average Weekday Unclassified	
Average Weekday Totals	
Average Weekday Percent F3_13	
Average Weekday Percent F4_13	
Average Weekday Percent F4_7	
Average Weekday Percent F8_13	
Average Weekday Percent F1	
Average Weekday Percent F2	
Average Weekday Percent F3	
Average Weekday Percent F4	
Average Weekday Percent F5_7	
Axle Correction Factor	
Single Unit Peak	
Combination Unit Peak	
Single Unit AADT	
Combination Unit AADT	
Average Speed	
50th Percentile Speed	
85th Percentile Speed	
Vehicles Exceeding 55mph	
Vehicles Exceeding 65mph	
Region	
Region Number	11
County Number	2
Municipality	
Latitude	40.63284
Longitude	-73.93702

Attachment B: Raw Data Summary for 22 Cross Streets

		Year of Data Collection	
	Crossing Name	NB	SB
1	6th Ave	2016	2016
2	7th Ave	2020	2020
3	8th Ave	2018	2018
4	Fort Hamilton Pkwy	2017	2017
5	11st Ave	2017	2017
6	13th Ave	2018	2018
7	14th Ave	2018	2018
8	New Utrecht Ave	2018	2018
9	15th Ave	2016	2016
10	60th St	2018	2018
11	16th Ave	2016	2016
12	17th Ave	2016	2016
13	18th Ave	2015	2015
14	52nd St		2019
15	50th St		2016
16	Mc Donald Ave	2015	2015
17	E 3rd St		
18	Ocean Pkwy	2018	2018
19	Coney Island Ave	2016	2016
20	E 14th St	2019	2019
21	E 15th St		
22	Ocean Ave	2017	2017
23	Bedford Ave	2017	2017
24	Albany Ave	2016	2016

Hourly volume by Direction

Crossing Name	12-1am		1-2am		2-3am		3-4am		4-5am		5-6am	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
6th Ave	107	123	66	81	36	61	32	49	39	69	46	99
7th Ave	70	42	42	24	28	20	28	16	24	16	62	20
8th Ave	106	142	58	90	48	59	41	63	50	61	67	61
Fort Hamilton Pkwy	93	124	62	72	38	37	32	46	56	56	166	70
11st Ave	38	48	28	22	18	20	14	9	12	11	30	26
13th Ave	24	48	12	29	12	23	7	18	13	20	28	25
14th Ave	36	40	28	15	17	18	11	10	14	14	50	17
New Utrecht Ave	48	60	23	29	26	22	20	22	32	36	54	30
15th Ave	34	22	21	13	14	10	12	8	8	7	20	15
60th St	65	118	34	63	30	39	32	38	52	36	60	59
16th Ave	19	31	14	16	8	16	5	8	8	12	17	17
17th Ave	28	28	15	26	8	15	7	13	9	10	24	23
18th Ave	59	78	35	52	21	35	24	22	31	23	87	49
52nd St		62		27		16		8		7		26
50th St		59		26		12		14		9		29
Mc Donald Ave	58	67	34	51	33	33	30	20	35	26	83	48
E 3rd St												
Ocean Pkwy												
Coney Island Ave	148	215	113	191	99	164	80	102	108	119	215	156
E 14th St	10	18	6	15	2	2	2	8	3	6	12	12
E 15th St												
Ocean Ave	140	214	98	128	58	78	65	58	112	68	258	123
Bedford Ave	50	63	28	43	15	27	18	15	35	19	116	56
Albany Ave	63	50	35	29	21	18	19	13	27	17	56	49

	6-7am		7-8am		8-9am		9-10am		10-11am		11am-12pm	
Crossing Name	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
6th Ave	112	115	247	270	303	318	302	285	315	362	269	367
7th Ave	186	41	280	116	300	172	332	196	332	206	324	224
8th Ave	136	100	283	276	326	335	307	324	302	301	260	312
Fort Hamilton Pkwy	483	140	498	344	512	386	520	360	443	403	429	376
11st Ave	114	47	214	125	304	195	338	204	264	198	254	225
13th Ave	71	58	200	197	220	244	195	250	184	238	150	240
14th Ave	108	47	224	109	209	130	201	123	180	140	160	140
New Utrecht Ave	139	66	222	120	228	170	198	177	192	177	181	176
15th Ave	68	36	207	101	230	138	224	134	199	136	202	133
60th St	180	148	307	292	338	314	366	334	347	351	341	350
16th Ave	66	52	165	130	186	242	186	248	129	241	128	232
17th Ave	88	64	194	152	261	233	204	268	215	244	214	233
18th Ave	246	121	355	220	347	303	314	298	325	296	219	194
52nd St		52		144		211		254		230		229
50th St		63		136		171		192		184		201
Mc Donald Ave	187	81	307	154	212	189	176	188	216	189	231	220
E 3rd St												
Ocean Pkwy			1983	1035	1963	1299						
Coney Island Ave	662	258	1082	513	1096	587	863	611	627	531	605	517
E 14th St	34	30	82	77	147	118	86	98	68	82	56	78
E 15th St												
Ocean Ave	609	236	866	518	887	570	791	546	655	538	645	574
Bedford Ave	280	118	430	282	429	322	365	321	302	258	252	249
Albany Ave	103	173	223	477	272	480	165	334	148	282	157	303

	12-1pm		1-2pm		2-3pm		3-4pm		4-5pm		5-6pm	
Crossing Name	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
6th Ave	324	335	288	310	309	348	292	358	245	301	273	404
7th Ave	311	232	310	255	310	236	302	268	320	246	300	316
8th Ave	269	304	167	216	230	318	268	360	258	378	292	414
Fort Hamilton Pkwy	436	428	429	427	444	522	452	404	438	416	440	402
11st Ave	253	248	238	278	311	380	298	422	268	446	273	452
13th Ave	150	262	132	263	162	272	158	310	164	350	146	414
14th Ave	144	134	136	139	220	156	133	178	160	181	163	204
New Utrecht Ave	181	171	180	198	190	202	204	234	168	236	168	292
15th Ave	180	160	163	149	203	180	220	138	197	148	178	213
60th St	322	355	318	380	285	355	303	375	330	406	358	396
16th Ave	117	216	132	211	165	282	146	321	155	259	131	295
17th Ave	217	257	200	270	222	314	194	323	259	332	269	381
18th Ave	203	150	221	120	233	152	229	190	239	268	162	300
52nd St		240		218		264		278		276		316
50th St		192		199		228		221		246		252
Mc Donald Ave	227	249	254	248	160	316	154	324	193	299	240	299
E 3rd St												
Ocean Pkwy	1582	1556	1570	1627					1548	2069	1433	2139
Coney Island Ave	570	545	523	548	640	586	711	756	781	811	760	956
E 14th St	64	87	62	98	70	110	97	106	84	124	75	120
E 15th St												
Ocean Ave	655	591	661	600	694	643	663	690	686	737	745	792
Bedford Ave	290	317	277	313	310	361	373	388	370	398	360	424
Albany Ave	191	276	206	322	225	369	245	365	263	358	279	373

	6-7pm		7-8pm		8-9pm		9-10pm		10-11pm		11pm-12am	
Crossing Name	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
6th Ave	255	372	205	337	226	298	187	243	207	233	166	171
7th Ave	288	268	253	190	203	154	176	112	178	108	138	94
8th Ave	262	380	227	312	200	296	166	229	148	215	141	216
Fort Hamilton Pkwy	460	398	332	446	296	348	233	262	240	239	196	206
11st Ave	210	370	156	268	109	160	89	118	80	90	56	92
13th Ave	116	304	88	218	70	170	52	124	44	91	38	92
14th Ave	182	178	129	135	82	96	80	78	65	76	58	55
New Utrecht Ave	156	252	138	184	106	162	90	126	82	112	73	90
15th Ave	150	174	112	146	94	88	70	68	58	56	39	40
60th St	314	402	286	381	232	324	210	252	194	268	163	185
16th Ave	100	243	92	174	76	134	60	121	49	111	47	87
17th Ave	242	336	211	279	165	200	141	163	99	171	82	112
18th Ave	200	257	156	244	169	228	237	221	198	192	129	157
52nd St		321		302		218		220		250		170
50th St		274		264		211		178		182		121
Mc Donald Ave	268	271	249	245	200	200	179	155	145	136	92	114
E 3rd St												
Ocean Pkwy												
Coney Island Ave	675	933	553	721	458	499	371	380	313	355	224	258
E 14th St	60	111	50	86	42	72	24	48	25	36	12	26
E 15th St												
Ocean Ave	672	758	582	747	544	616	424	524	319	392	236	281
Bedford Ave	310	382	232	286	172	262	143	222	103	131	77	107
Albany Ave	222	319	214	275	178	201	146	147	109	108	84	84

Attachment C: Best Practice Model Growth Rate

Estimated Weekday Person Trips To/From TAZs

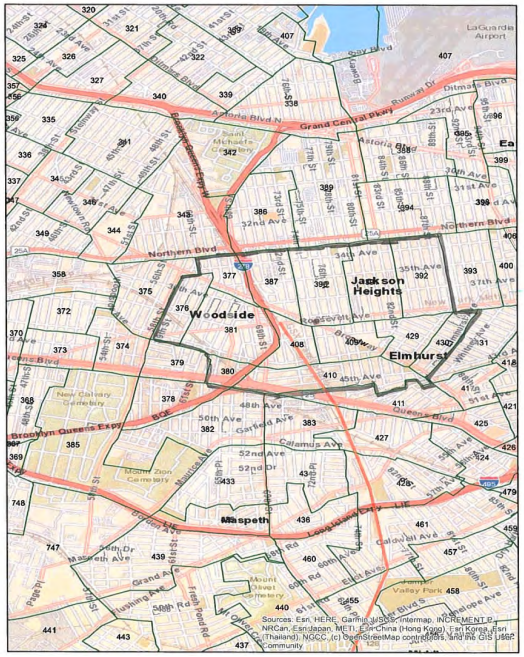
Southern Zone (see Maps Tab)

	2018		2040		2018 to 2040 % Growth	
Zones	Productions	Attractions	Productions	Attractions	Productions	Attractions
1371	9,716	8,371	11,425	9,427	18%	13%
1372	8,032	5,825	9,454	6,559	18%	13%
1373	10,175	8,699	11,976	9,748	18%	12%
1374	10,821	9,533	12,717	10,756	18%	13%
1375	9,000	8,641	10,584	9,714	18%	12%
1376	13,624	11,378	16,019	12,923	18%	14%
1409	9,360	8,153	10,413	9,152	11%	12%
1410	11,516	10,191	12,795	11,520	11%	13%
1411	0	84	0	139	0%	65%
1412	9,536	7,034	10,573	7,909	11%	12%
1413	5,870	3,709	6,476	4,212	10%	14%
1414	10,462	9,206	11,626	10,353	11%	12%
1415	11,971	14,097	13,322	15,771	11%	12%
1422	6,430	5,323	7,153	6,021	11%	13%
1423	6,644	4,643	7,353	5,261	11%	13%
1424	13,329	20,810	14,847	23,295	11%	12%
1425	6,122	7,111	6,822	7,895	11%	11%
1426	8,559	6,521	9,462	7,341	11%	13%
1486	9,221	12,330	10,878	13,761	18%	12%
1487	15,190	12,695	17,873	14,265	18%	12%
1488	10,434	6,687	12,215	7,612	17%	14%
1489	9,042	5,784	10,580	6,579	17%	14%
1510	11,993	10,737	12,993	11,844	8%	10%
1511	5,082	4,501	5,531	5,041	9%	12%
1512	8,697	6,074	9,455	6,788	9%	12%
1513	11,944	9,392	12,939	10,316	8%	10%
1514	7,858	4,918	8,498	5,521	8%	12%
1515	9,344	6,822	10,131	7,628	8%	12%
1516	11,133	15,176	12,038	16,637	8%	10%
Southern Total	271,103	244,443	306,147	273,985	13%	12%

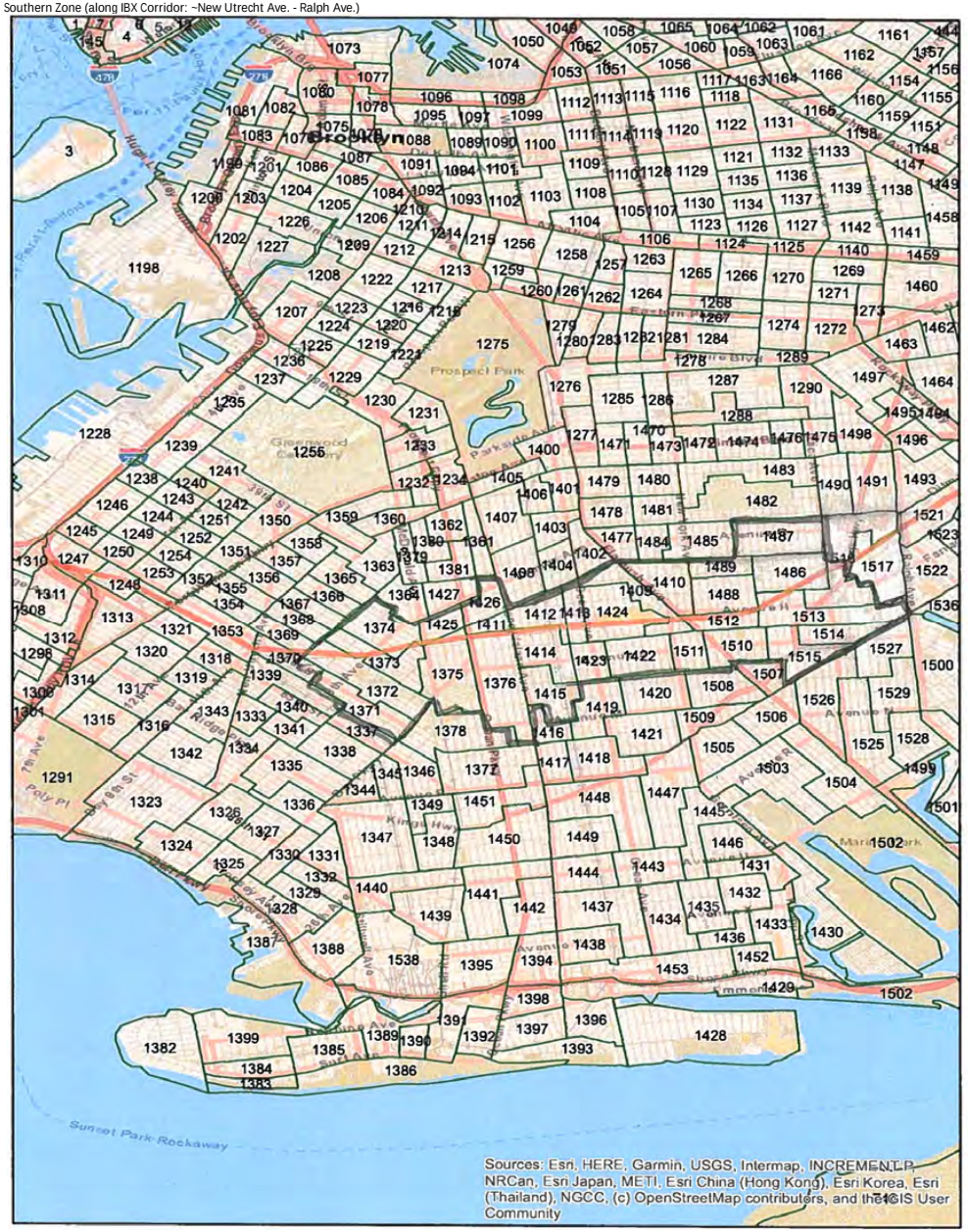
Northern (Roosevelt Ave.) Zone (see Maps Tab)

	2018		2040		2018 to 2040 % Growth	
Zones	Productions	Attractions	Productions	Attractions	Productions	Attractions
376	5,864	5,597	6,662	6,153	14%	10%
377	2,229	2,381	2,539	2,650	14%	11%
380	2,405	2,014	2,731	2,217	14%	10%
381	21,052	18,190	24,005	20,169	14%	11%
387	10,322	7,877	11,809	8,835	14%	12%
391	18,040	17,184	20,663	19,239	15%	12%
392	24,037	16,051	27,610	17,505	15%	9%
408	6,518	5,902	7,004	6,582	7%	12%
409	10,213	16,035	10,927	17,812	7%	11%
410	15,721	13,808	16,871	15,403	7%	12%
429	13,455	13,423	14,467	14,762	8%	10%
430	11,599	10,196	12,454	11,185	7%	10%
Northern Total	552,524	502,659	620,186	561,022	12%	12%

Northern (Roosevelt Ave.) Zone TAZs



Southern Zone (along IBX Corridor: ~New Utrecht Ave. - Ralph Ave.)



Attachment D: Design Year 2045 Volume Development for 22 Cross Streets

		Existing		2045	
Crossing Street	raw data year	NB	SB	NB	SB
6th Ave	2016	324	404	379	472
7th Ave	2020	332	316	380	361
8th Ave	2018	326	414	377	479
Fort Hamilton Pkwy	2017	520	522	604	607
11st Ave	2017	338	452	393	525
13th Ave	2018	220	414	254	479
14th Ave	2018	224	204	259	236
New Utrecht Ave	2018	228	292	264	338
15th Ave	2016	230	213	269	249
60th St	2018	366	406	423	469
16th Ave	2016	186	321	217	375
17th Ave	2016	269	381	315	445
18th Ave	2015	355	303	417	356
52nd St	2019		321		369
50th St	2016		274		320
Mc Donald Ave	2015	307	324	361	381
E 3rd St					
Ocean Pkwy	2018	1983	2139	2292	2472
Coney Island Ave	2016	1096	956	1281	1117
E 14th St	2019	147	124	169	143
E 15th St					
Ocean Ave	2017	887	792	1031	920
Bedford Ave	2017	430	424	500	493
Albany Ave	2016	279	480	326	561

Growth Rate	0.538%
Design Year	2045

Attachment E: Raw Turning Movement Counts Data of Roosevelt Avenue Intersections

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
7:30 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0
8:30 AM	0	0	0	0	1	7	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0
3:00 PM	0	1	2	0	0	7	0	0	0	0	0	0	0	5	1	0
3:15 PM	1	2	0	0	1	6	0	0	0	0	0	0	0	7	0	0
3:30 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	5	0	0
3:45 PM	0	2	0	0	0	5	0	0	0	0	0	0	0	7	0	0
4:00 PM	0	0	0	0	1	4	0	0	0	0	1	0	0	4	0	0
4:15 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
4:30 PM	0	0	1	0	0	4	0	0	0	0	0	0	0	2	0	0
4:45 PM	0	1	0	0	0	7	0	0	0	0	0	0	0	1	0	0
5:00 PM	1	0	0	0	1	3	0	0	1	0	0	0	0	5	1	0
5:15 PM	0	0	2	0	1	1	0	0	0	0	0	0	0	3	1	0
5:30 PM	0	1	1	0	0	6	0	0	0	0	0	0	0	5	1	0
5:45 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	5	1	0
6:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	1	0
6:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0	0
6:30 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	1	0	0
6:45 PM	1	0	1	0	2	6	0	0	0	0	0	0	1	3	2	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	6	1	4	0	1	84	0	0	0	0	0	0	0	21	1	0
6:15 AM	5	3	6	0	3	82	0	0	0	0	0	0	0	20	3	0
6:30 AM	3	5	4	0	3	82	0	0	0	0	0	0	0	13	0	0
6:45 AM	5	0	4	0	4	71	0	0	0	0	0	0	0	30	0	0
7:00 AM	9	4	11	0	0	97	0	0	0	0	0	0	0	26	3	0
7:15 AM	14	8	7	0	1	95	0	0	0	0	0	0	0	24	1	0
7:30 AM	14	4	8	0	4	98	0	0	0	0	0	0	0	32	3	0
7:45 AM	14	11	8	0	4	84	0	0	0	0	0	0	0	25	1	0
8:00 AM	15	8	6	0	5	90	0	1	0	0	0	0	0	42	1	0
8:15 AM	17	14	14	0	4	76	0	0	0	0	0	0	0	34	2	1
8:30 AM	9	6	3	0	4	83	0	0	0	0	0	0	0	40	0	0
8:45 AM	17	9	11	0	9	67	0	1	0	0	0	0	0	27	3	0
9:00 AM	11	5	4	0	1	71	0	0	0	0	0	0	0	25	3	0
9:15 AM	9	7	8	0	3	52	0	0	0	0	0	0	0	35	0	0
9:30 AM	14	1	7	0	3	61	0	0	0	0	0	0	0	41	3	0
9:45 AM	17	7	4	0	2	44	0	0	0	0	0	0	0	51	2	0
3:00 PM	8	14	8	0	8	51	0	1	0	0	0	0	0	66	2	0
3:15 PM	23	13	6	0	6	47	0	0	0	0	0	0	0	62	5	0
3:30 PM	15	15	3	0	5	29	0	0	0	0	0	0	0	69	3	0
3:45 PM	21	15	5	0	5	44	0	0	0	0	0	0	0	62	6	0
4:00 PM	24	29	7	0	5	62	0	1	0	0	0	0	0	68	2	0
4:15 PM	27	43	7	0	6	49	0	0	0	0	0	0	0	69	7	0
4:30 PM	21	24	9	0	2	52	0	0	0	0	0	0	0	64	2	0
4:45 PM	19	16	7	0	10	53	0	0	0	0	0	0	0	60	4	1
5:00 PM	28	22	4	0	5	49	0	0	0	0	0	0	0	69	2	0
5:15 PM	25	18	12	0	5	71	0	0	0	0	0	0	0	59	7	0
5:30 PM	26	20	6	0	2	41	0	0	0	0	0	0	0	52	3	0
5:45 PM	17	22	11	0	4	52	0	0	0	0	0	0	0	76	5	0
6:00 PM	18	16	8	0	11	45	0	0	0	0	0	0	0	71	3	0
6:15 PM	24	14	6	0	5	43	0	0	0	0	0	0	0	50	7	0
6:30 PM	18	15	7	0	8	58	0	0	0	0	0	0	0	76	0	0
6:45 PM	21	12	13	0	3	49	0	0	0	0	0	0	0	64	4	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
7:00 AM	2	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	7	0	0
7:30 AM	2	0	0	0	0	12	0	0	0	0	0	0	0	2	0	0
7:45 AM	3	1	0	0	0	12	0	0	0	0	0	0	0	4	0	0
8:00 AM	3	2	3	0	0	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	13	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
8:45 AM	2	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
9:00 AM	2	0	1	0	0	8	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	6	0	0
9:30 AM	2	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	1	0	0	4	0	0	0	0	0	0	0	5	0	0
3:00 PM	1	0	0	0	1	2	0	0	0	0	0	0	0	4	0	0
3:15 PM	3	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
3:30 PM	1	1	1	0	0	1	0	0	0	0	0	0	0	4	0	0
3:45 PM	1	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0
4:00 PM	0	1	2	0	0	3	0	0	0	0	0	0	0	5	0	0
4:15 PM	2	1	0	0	0	3	0	0	0	0	0	0	0	7	0	0
4:30 PM	0	1	0	0	0	4	0	0	0	0	0	0	1	11	1	0
4:45 PM	4	0	0	0	0	2	0	0	0	0	0	0	0	7	0	0
5:00 PM	1	1	1	0	1	0	0	0	0	0	0	0	0	2	0	0
5:15 PM	1	0	1	0	0	4	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	5	0	0
5:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	2	0
6:00 PM	2	0	0	0	1	3	0	0	0	0	0	0	0	5	0	0
6:15 PM	2	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	6	0	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
8:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
8:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
9:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
9:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
3:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0	0
3:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	10	0	0
5:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
5:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0	0
6:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0
6:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	8	0	0
6:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
6:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	9	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	2	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0
6:45 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:00 AM	1	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
7:15 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
7:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	1	1	0	0	0	5	0	0	0	0	0	0	0	1	0	0
8:00 AM	2	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	0	1	0	0	5	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:45 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
9:00 AM	1	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
9:15 AM	1	0	1	0	0	3	0	0	0	0	0	0	0	3	0	0
9:30 AM	2	2	0	0	0	2	0	0	0	0	0	0	0	3	0	0
9:45 AM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0
3:45 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:30 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	4	0	0
6:15 AM	0	0	1	0	0	17	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	1	3	0	0	9	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	11	0	0	1	0	0	0	0	2	0	0
7:15 AM	0	1	0	0	0	13	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	1	0	0	10	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	8	0	0
8:00 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	1	0	0	10	0	0	0	1	0	0	1	2	1	0
8:45 AM	0	0	1	0	0	8	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	1	0	1	7	1	0	0	0	0	0	0	3	0	0
9:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	10	0	0
3:15 PM	1	0	1	0	0	8	1	0	0	0	0	0	0	4	1	0
3:30 PM	0	1	0	0	0	9	2	0	0	0	0	0	0	8	0	0
3:45 PM	0	0	2	0	0	3	1	0	0	0	0	0	0	5	0	0
4:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	11	0	0
4:15 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	17	0	0
4:30 PM	0	1	3	0	0	4	2	0	0	0	0	0	0	15	0	0
4:45 PM	0	0	1	0	0	7	0	0	0	0	0	0	0	28	0	0
5:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	1	21	1	0
5:15 PM	0	0	0	0	0	11	0	0	0	0	0	0	0	11	1	0
5:30 PM	0	0	0	0	1	10	0	0	0	0	1	0	0	13	1	0
5:45 PM	1	1	2	0	0	5	2	0	0	0	0	0	0	15	0	0
6:00 PM	0	1	1	0	0	9	0	0	0	0	0	0	2	20	0	0
6:15 PM	0	0	1	0	1	5	1	0	0	0	0	0	1	20	0	0
6:30 PM	0	0	1	0	1	5	0	0	0	0	0	0	0	14	1	0
6:45 PM	1	1	1	0	0	2	0	0	0	0	0	0	1	9	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	1	4	0	0	0	0	0	0	0	2	0	0
7:00 AM	1	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	2	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0
3:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	72ND ST Southbound		ROOSEVELT AVE Westbound		72ND ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	2	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	1
7:15 AM	1	0	0	0	2	1	0	0
7:30 AM	1	0	2	0	0	1	0	0
7:45 AM	1	0	1	2	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	1	1	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	1	0	1	3	0	0
9:15 AM	1	1	0	0	0	1	0	1
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	1	0	0	0	0
3:00 PM	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	1	0	0
3:45 PM	2	0	0	0	1	1	0	0
4:00 PM	0	0	1	0	1	1	0	0
4:15 PM	1	0	0	0	0	1	0	1
4:30 PM	4	1	0	1	1	1	0	1
4:45 PM	0	0	0	0	1	0	0	0
5:00 PM	1	2	0	0	3	1	2	0
5:15 PM	1	0	0	0	1	1	1	0
5:30 PM	1	1	1	1	1	1	0	0
5:45 PM	0	0	1	0	0	0	0	1
6:00 PM	1	0	0	1	0	0	0	0
6:15 PM	0	0	2	0	0	0	0	0
6:30 PM	0	0	0	1	0	0	0	1
6:45 PM	3	0	0	0	1	1	0	1

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	72ND ST Southbound		ROOSEVELT AVE Westbound		72ND ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	4	2	7	1	17	7	2	3
6:15 AM	11	7	3	1	12	14	1	1
6:30 AM	6	6	1	0	13	5	0	3
6:45 AM	9	9	8	0	9	9	1	2
7:00 AM	12	7	6	3	12	8	3	2
7:15 AM	6	6	8	0	11	14	1	6
7:30 AM	12	11	6	3	11	15	0	7
7:45 AM	6	5	7	6	23	10	6	5
8:00 AM	12	13	4	0	13	21	4	6
8:15 AM	14	16	2	6	12	14	2	7
8:30 AM	10	18	2	3	16	15	5	4
8:45 AM	13	23	6	4	17	17	0	9
9:00 AM	15	12	7	1	21	15	1	11
9:15 AM	9	18	3	4	10	14	0	3
9:30 AM	18	13	6	0	14	14	1	7
9:45 AM	23	23	10	3	24	16	6	4
3:00 PM	41	22	15	11	32	32	6	9
3:15 PM	20	20	10	10	30	31	13	9
3:30 PM	33	26	2	3	27	26	12	8
3:45 PM	31	21	7	13	35	33	6	7
4:00 PM	34	32	10	10	37	37	8	8
4:15 PM	37	34	6	14	27	45	11	11
4:30 PM	41	46	4	2	34	45	11	12
4:45 PM	28	24	16	8	46	49	14	4
5:00 PM	31	36	9	12	39	48	10	11
5:15 PM	14	36	11	14	41	48	18	13
5:30 PM	23	33	10	10	58	37	13	13
5:45 PM	31	28	9	7	25	44	10	6
6:00 PM	33	21	9	8	40	60	12	5
6:15 PM	39	19	5	8	54	41	16	6
6:30 PM	18	15	14	10	75	60	11	11
6:45 PM	31	23	12	11	33	48	7	5

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	9	1	4	0	1	106	0	0	0	0	0	0	0	33	1	0
6:15 AM	5	3	7	0	3	111	0	0	0	0	0	0	0	28	3	0
6:30 AM	5	7	10	0	3	106	0	0	0	0	0	0	0	25	0	0
6:45 AM	7	1	4	0	5	95	0	0	0	0	0	0	0	42	0	0
7:00 AM	13	6	12	0	0	124	0	0	1	0	0	0	0	38	3	0
7:15 AM	15	11	7	0	3	117	0	0	0	0	0	0	0	44	2	0
7:30 AM	18	4	9	0	4	134	0	0	0	0	0	0	0	44	3	0
7:45 AM	18	13	10	0	4	117	0	0	0	0	0	0	0	47	1	0
8:00 AM	20	10	10	0	5	116	0	1	0	0	0	0	0	59	1	0
8:15 AM	17	16	15	0	4	120	0	0	0	0	0	0	0	48	2	1
8:30 AM	11	7	4	0	5	112	0	0	0	1	0	0	1	58	1	0
8:45 AM	20	9	12	0	9	97	0	1	0	0	0	0	0	44	3	0
9:00 AM	14	5	5	0	1	102	0	0	0	0	0	0	0	38	3	0
9:15 AM	10	7	10	0	4	78	1	0	0	0	0	0	0	50	0	0
9:30 AM	18	4	7	0	3	77	0	0	0	0	0	0	0	58	3	0
9:45 AM	19	7	5	0	3	62	0	0	0	0	0	0	0	65	3	0
3:00 PM	9	16	10	0	10	70	0	1	0	0	0	0	0	97	3	0
3:15 PM	28	15	7	0	7	74	1	0	0	0	0	0	0	84	7	0
3:30 PM	16	19	5	0	6	48	2	0	0	0	0	0	0	97	3	0
3:45 PM	23	18	8	0	5	62	1	0	0	0	0	0	0	86	6	0
4:00 PM	25	30	9	0	6	79	0	1	0	0	1	0	0	97	3	0
4:15 PM	30	44	7	0	6	67	1	0	0	0	0	0	0	100	7	0
4:30 PM	21	26	13	0	2	70	2	0	0	0	0	0	1	97	3	0
4:45 PM	23	17	8	0	10	76	0	0	0	0	0	0	0	106	4	1
5:00 PM	31	23	5	0	7	58	0	0	1	0	1	0	1	104	5	0
5:15 PM	26	18	15	0	6	91	0	0	0	0	0	0	0	85	9	0
5:30 PM	26	22	7	0	3	65	0	0	0	0	1	0	0	85	5	0
5:45 PM	18	24	13	0	5	72	2	0	0	0	0	0	0	110	8	0
6:00 PM	20	17	9	0	13	69	0	0	0	0	0	0	2	108	4	0
6:15 PM	26	14	7	0	6	57	1	0	0	0	0	0	1	89	8	0
6:30 PM	18	17	8	0	11	79	0	0	0	0	0	0	0	98	1	0
6:45 PM	24	13	15	0	5	61	0	0	0	0	0	0	2	86	6	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	0	0	0	0
6:30 AM	0	6	0	0	0	0	1	0	0
6:45 AM	0	3	0	0	0	0	0	0	0
7:00 AM	0	4	0	0	0	0	0	0	0
7:15 AM	0	4	0	0	0	0	0	0	0
7:30 AM	0	5	0	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	3	0	0
8:00 AM	0	0	0	0	1	0	2	0	0
8:15 AM	0	5	0	0	0	0	4	0	0
8:30 AM	0	5	0	0	0	0	1	0	0
8:45 AM	0	4	0	0	0	0	3	0	0
9:00 AM	0	7	0	0	0	0	2	0	0
9:15 AM	0	3	0	0	1	0	0	0	0
9:30 AM	0	2	0	0	0	0	4	0	0
9:45 AM	0	2	0	0	1	0	2	0	0
3:00 PM	0	6	0	1	0	0	4	0	0
3:15 PM	0	3	0	0	0	0	7	0	0
3:30 PM	0	3	0	1	0	0	3	1	0
3:45 PM	0	2	0	0	0	0	9	0	0
4:00 PM	0	5	0	2	0	0	3	0	0
4:15 PM	0	4	0	1	0	0	7	0	0
4:30 PM	0	2	0	0	1	0	8	0	0
4:45 PM	0	4	0	1	0	0	5	0	0
5:00 PM	0	2	0	1	0	0	11	0	0
5:15 PM	0	0	0	0	0	0	5	0	0
5:30 PM	0	6	0	0	0	0	6	0	0
5:45 PM	0	5	0	1	0	0	6	0	0
6:00 PM	0	8	0	2	0	0	6	1	0
6:15 PM	0	6	0	1	0	0	11	0	0
6:30 PM	1	7	0	1	0	0	2	0	0
6:45 PM	0	3	0	1	0	0	8	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	73	1	2	7	0	29	0	0
6:15 AM	0	74	0	9	4	0	24	0	0
6:30 AM	0	76	0	4	6	0	16	0	0
6:45 AM	0	76	0	6	8	0	35	0	1
7:00 AM	0	85	0	4	6	0	31	0	0
7:15 AM	0	83	0	6	4	0	39	0	0
7:30 AM	0	87	0	12	8	0	45	0	0
7:45 AM	0	84	0	13	5	0	42	0	0
8:00 AM	0	79	0	10	8	0	54	0	0
8:15 AM	0	76	0	9	11	0	56	0	0
8:30 AM	0	75	0	8	4	0	52	0	0
8:45 AM	0	72	0	9	5	0	43	0	0
9:00 AM	0	60	0	4	7	0	36	0	0
9:15 AM	0	45	0	10	9	0	41	0	0
9:30 AM	0	52	0	11	7	0	49	0	0
9:45 AM	0	41	0	10	8	0	69	0	0
3:00 PM	0	39	0	16	12	0	82	0	0
3:15 PM	0	37	0	14	17	0	77	0	0
3:30 PM	0	34	0	7	11	0	87	0	0
3:45 PM	0	43	0	5	8	0	90	0	0
4:00 PM	0	62	0	9	7	0	94	0	0
4:15 PM	0	38	0	13	12	1	84	0	0
4:30 PM	0	42	0	9	11	0	87	0	0
4:45 PM	0	46	0	16	15	0	80	0	0
5:00 PM	0	39	0	12	16	0	96	0	0
5:15 PM	0	63	0	13	12	0	71	0	0
5:30 PM	0	30	0	10	14	0	84	0	0
5:45 PM	0	49	0	13	14	0	84	0	0
6:00 PM	0	39	0	9	15	0	92	0	0
6:15 PM	0	43	0	13	16	0	64	0	1
6:30 PM	0	45	0	15	12	0	99	0	0
6:45 PM	0	38	0	16	14	0	81	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	2	0	0
6:15 AM	0	8	0	0	0	0	1	0	0
6:30 AM	0	7	0	0	0	0	0	0	0
6:45 AM	0	2	0	0	0	0	4	0	0
7:00 AM	0	6	0	0	0	0	4	0	0
7:15 AM	0	5	0	1	1	0	7	0	0
7:30 AM	0	12	0	0	2	0	4	0	0
7:45 AM	0	10	0	0	0	0	6	0	0
8:00 AM	0	5	0	0	0	0	2	0	0
8:15 AM	0	11	0	0	1	0	0	0	0
8:30 AM	0	4	0	0	0	0	5	0	0
8:45 AM	0	7	0	0	0	0	3	0	0
9:00 AM	0	7	0	0	0	0	4	0	0
9:15 AM	0	8	0	1	0	0	7	0	0
9:30 AM	0	4	0	0	0	0	3	0	0
9:45 AM	0	3	0	0	0	0	6	0	0
3:00 PM	0	1	0	0	0	0	4	0	0
3:15 PM	0	6	0	0	2	0	7	0	0
3:30 PM	0	1	0	0	0	0	4	0	0
3:45 PM	0	0	0	1	1	0	6	0	0
4:00 PM	0	1	0	2	1	0	4	0	0
4:15 PM	0	4	0	0	1	0	8	0	0
4:30 PM	0	4	0	0	1	0	9	0	0
4:45 PM	0	1	0	0	0	0	10	0	0
5:00 PM	0	2	0	1	1	0	8	0	0
5:15 PM	0	6	0	0	0	0	5	0	0
5:30 PM	0	2	0	1	0	0	8	0	0
5:45 PM	0	7	0	0	0	0	5	0	0
6:00 PM	0	4	0	1	0	0	8	0	0
6:15 PM	0	2	0	0	2	0	5	0	0
6:30 PM	0	2	0	0	0	0	4	0	0
6:45 PM	0	3	0	1	0	0	2	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	4	0	0
6:15 AM	0	5	0	0	0	0	6	0	0
6:30 AM	0	2	0	0	0	0	5	0	0
6:45 AM	0	5	0	0	0	0	5	0	0
7:00 AM	0	3	0	1	0	0	7	0	0
7:15 AM	0	5	0	1	0	0	6	0	0
7:30 AM	0	6	0	0	0	0	6	0	0
7:45 AM	0	5	0	1	0	0	5	0	0
8:00 AM	0	6	0	0	0	0	7	0	0
8:15 AM	0	7	0	0	0	0	8	0	0
8:30 AM	0	4	0	0	0	0	6	0	0
8:45 AM	0	6	0	0	0	0	5	0	0
9:00 AM	0	6	0	0	0	0	6	0	0
9:15 AM	0	8	0	0	0	0	3	0	0
9:30 AM	0	2	0	0	0	0	8	0	0
9:45 AM	0	6	0	0	0	0	4	0	0
3:00 PM	0	3	0	0	0	0	4	0	0
3:15 PM	0	3	0	0	1	0	6	0	0
3:30 PM	0	4	0	0	0	0	7	0	0
3:45 PM	0	4	0	0	0	0	6	0	0
4:00 PM	0	4	0	0	0	0	5	0	0
4:15 PM	0	4	0	0	0	0	6	0	0
4:30 PM	0	4	0	0	0	0	6	0	0
4:45 PM	0	5	0	0	0	0	7	0	0
5:00 PM	0	5	0	0	0	0	7	0	0
5:15 PM	0	2	0	0	0	0	11	0	0
5:30 PM	0	7	0	0	0	0	7	0	0
5:45 PM	0	3	0	0	0	0	6	0	0
6:00 PM	0	6	0	0	0	0	6	0	0
6:15 PM	0	4	0	0	0	0	7	0	0
6:30 PM	0	6	0	0	0	0	4	0	0
6:45 PM	0	2	0	0	0	0	9	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	2	0	0	0	0	5	0	0
6:15 AM	0	1	0	0	0	0	0	0	0
6:30 AM	0	1	0	0	0	0	3	0	0
6:45 AM	0	1	0	0	0	0	2	0	0
7:00 AM	0	3	0	0	0	0	2	0	0
7:15 AM	0	2	0	0	1	0	2	0	0
7:30 AM	0	1	0	0	0	0	2	0	0
7:45 AM	0	4	0	0	0	0	2	0	0
8:00 AM	0	3	0	0	1	0	6	0	0
8:15 AM	0	5	0	0	0	0	2	0	0
8:30 AM	0	4	0	0	1	0	2	0	0
8:45 AM	0	4	0	0	0	0	3	0	0
9:00 AM	0	3	0	1	2	0	3	0	0
9:15 AM	0	3	0	0	0	0	4	0	0
9:30 AM	0	2	0	0	0	0	5	0	0
9:45 AM	0	2	0	1	0	0	1	0	0
3:00 PM	0	1	0	0	0	0	5	0	0
3:15 PM	0	1	0	1	0	0	1	0	0
3:30 PM	0	2	0	0	1	0	0	0	0
3:45 PM	0	3	0	0	0	0	4	0	0
4:00 PM	0	1	0	0	1	0	4	0	0
4:15 PM	0	0	0	1	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	1	0	0
5:15 PM	0	3	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	3	0	0
5:45 PM	0	1	0	0	0	0	1	0	0
6:00 PM	0	1	0	1	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	3	0	1	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	1	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	9	0	0	0	0	4	0	0
6:15 AM	0	18	0	0	0	0	0	0	0
6:30 AM	0	5	0	1	0	0	4	0	0
6:45 AM	0	8	0	0	0	0	4	0	0
7:00 AM	0	9	0	0	0	0	1	0	0
7:15 AM	0	16	0	0	1	0	6	0	0
7:30 AM	0	10	0	0	1	0	2	0	0
7:45 AM	1	10	0	0	1	0	7	0	0
8:00 AM	0	10	0	0	0	0	3	1	0
8:15 AM	0	13	0	0	1	0	1	0	0
8:30 AM	0	12	0	0	0	0	1	0	0
8:45 AM	0	10	0	0	1	0	5	0	0
9:00 AM	0	7	0	0	0	0	1	0	0
9:15 AM	0	7	0	0	0	0	3	0	0
9:30 AM	0	11	0	0	0	0	1	0	0
9:45 AM	0	14	0	0	1	0	2	1	0
3:00 PM	0	4	0	0	1	0	10	0	0
3:15 PM	0	7	0	0	0	0	2	1	0
3:30 PM	0	7	0	0	0	0	7	0	0
3:45 PM	0	4	0	0	1	0	5	1	0
4:00 PM	0	3	0	0	1	0	8	0	0
4:15 PM	0	6	0	0	0	0	6	0	0
4:30 PM	0	6	0	0	1	0	7	0	0
4:45 PM	0	9	0	0	0	0	17	0	0
5:00 PM	0	3	0	0	0	0	16	0	0
5:15 PM	0	11	0	1	0	0	9	0	0
5:30 PM	0	8	0	0	2	0	12	0	0
5:45 PM	0	5	0	0	0	0	7	0	0
6:00 PM	0	4	0	0	2	0	14	2	0
6:15 PM	0	5	0	1	1	0	17	0	0
6:30 PM	0	4	0	1	2	0	12	0	0
6:45 PM	0	2	0	0	1	0	6	1	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	0	1	0	0
6:30 AM	0	1	0	0	1	0	1	0	0
6:45 AM	0	4	0	0	2	0	2	0	0
7:00 AM	0	5	0	0	1	0	1	0	0
7:15 AM	0	2	0	0	0	0	2	0	0
7:30 AM	0	1	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0	0
8:45 AM	0	1	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	0	2	0	0
3:15 PM	0	1	0	1	1	0	1	0	0
3:30 PM	0	1	0	0	1	0	2	0	0
3:45 PM	0	2	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	ROOSEVELT AVE Westbound		73RD ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	1	0	0	0	0
6:15 AM	0	0	0	0	0	0
6:30 AM	0	0	1	1	0	0
6:45 AM	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	0
8:00 AM	0	0	1	0	0	0
8:15 AM	0	0	1	0	0	0
8:30 AM	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0
9:00 AM	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0
9:30 AM	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0
3:15 PM	0	0	1	2	0	0
3:30 PM	0	0	1	1	0	1
3:45 PM	0	0	0	1	0	0
4:00 PM	1	0	0	0	0	2
4:15 PM	0	0	1	0	0	1
4:30 PM	1	0	1	0	1	0
4:45 PM	0	0	1	0	0	0
5:00 PM	0	0	1	0	0	0
5:15 PM	0	0	2	1	0	0
5:30 PM	0	0	1	1	0	0
5:45 PM	1	0	3	0	0	0
6:00 PM	1	0	3	1	0	0
6:15 PM	0	0	0	0	0	0
6:30 PM	0	0	0	1	0	0
6:45 PM	0	0	1	2	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	ROOSEVELT AVE Westbound		73RD ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	3	3	16	6	1	15
6:15 AM	4	4	10	13	3	15
6:30 AM	3	1	11	7	3	19
6:45 AM	3	1	10	11	3	22
7:00 AM	4	1	12	10	5	30
7:15 AM	1	4	10	13	7	34
7:30 AM	8	7	18	15	13	36
7:45 AM	7	2	25	14	7	43
8:00 AM	5	1	14	23	7	52
8:15 AM	4	1	22	19	5	27
8:30 AM	5	0	22	20	13	29
8:45 AM	5	2	20	18	8	17
9:00 AM	10	7	19	18	11	27
9:15 AM	6	4	13	19	11	19
9:30 AM	6	7	28	18	18	15
9:45 AM	5	6	27	18	5	27
3:00 PM	8	24	33	53	32	27
3:15 PM	14	12	41	42	43	28
3:30 PM	19	7	26	30	35	30
3:45 PM	15	12	45	38	63	34
4:00 PM	10	10	28	34	37	26
4:15 PM	18	9	30	32	48	41
4:30 PM	12	17	29	31	59	35
4:45 PM	12	18	37	53	63	29
5:00 PM	8	7	50	39	43	32
5:15 PM	12	12	47	51	72	40
5:30 PM	16	27	65	55	48	26
5:45 PM	25	7	29	76	47	40
6:00 PM	9	11	49	45	49	51
6:15 PM	9	13	59	40	69	54
6:30 PM	10	15	66	47	55	39
6:45 PM	12	16	51	45	62	40

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	93	1	2	7	0	44	0	0
6:15 AM	0	108	0	9	4	0	32	0	0
6:30 AM	0	98	0	5	7	0	30	0	0
6:45 AM	0	99	0	6	10	0	52	0	1
7:00 AM	0	115	0	5	7	0	47	0	0
7:15 AM	0	117	0	8	7	0	62	0	0
7:30 AM	0	122	0	12	11	0	61	0	0
7:45 AM	1	114	0	14	6	0	66	0	0
8:00 AM	0	105	0	10	10	0	74	1	0
8:15 AM	0	118	0	9	13	0	71	0	0
8:30 AM	0	104	0	8	5	0	68	0	0
8:45 AM	0	104	0	9	6	0	63	0	0
9:00 AM	0	90	0	5	9	0	52	0	0
9:15 AM	0	74	0	11	10	0	58	0	0
9:30 AM	0	73	0	11	7	0	70	0	0
9:45 AM	0	68	0	11	10	0	85	1	0
3:00 PM	0	56	0	18	13	0	111	0	0
3:15 PM	0	58	0	16	21	0	101	1	0
3:30 PM	0	52	0	8	13	0	110	1	0
3:45 PM	0	58	0	6	10	0	120	1	0
4:00 PM	0	76	0	13	10	0	119	0	0
4:15 PM	0	56	0	15	13	1	111	0	0
4:30 PM	0	60	0	9	14	0	117	0	0
4:45 PM	0	67	0	17	15	0	121	0	0
5:00 PM	0	51	0	14	17	0	139	0	0
5:15 PM	0	85	0	14	12	0	101	0	0
5:30 PM	0	53	0	11	16	0	120	0	0
5:45 PM	0	70	0	14	14	0	109	0	0
6:00 PM	0	62	0	13	17	0	127	3	0
6:15 PM	0	60	0	15	19	0	104	0	1
6:30 PM	1	67	0	18	14	0	122	0	0
6:45 PM	0	48	0	18	15	0	106	1	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	7	1	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	4	4	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	6	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	4	1	0	0	1	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	5	1	0	0	1	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	3	2	0	0	1	0	0	0	1	1	0
8:45 AM	0	0	0	0	0	5	1	0	0	1	0	0	0	3	0	0
9:00 AM	0	1	0	0	0	5	1	0	0	3	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	2	0
9:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	1	3	0	0
9:45 AM	0	1	0	0	0	2	1	0	2	2	0	0	0	2	1	0
3:00 PM	1	3	0	0	1	4	0	0	1	0	2	0	0	1	2	0
3:15 PM	0	4	0	0	0	5	3	0	0	2	0	0	0	8	1	0
3:30 PM	0	3	0	0	0	2	0	0	0	2	0	0	0	6	1	0
3:45 PM	0	3	0	0	0	2	0	0	0	1	0	0	0	7	0	0
4:00 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
4:15 PM	0	2	0	0	1	2	0	0	1	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0
4:45 PM	0	2	0	0	0	2	1	0	0	2	0	0	0	1	1	0
5:00 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	1	0
5:15 PM	1	1	0	0	0	1	0	0	0	3	0	0	0	3	1	0
5:30 PM	0	2	0	0	0	5	2	0	0	3	0	0	0	6	0	0
5:45 PM	0	2	0	0	0	5	1	0	0	2	0	0	0	3	0	0
6:00 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	2	0
6:15 PM	0	0	0	0	0	2	0	0	1	3	0	0	0	2	1	0
6:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	2	0	1	0	0	0	0	0	1	0	0	0	3	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	3	29	0	1	0	71	25	0	7	31	2	0	0	34	6	0
6:15 AM	0	36	0	0	0	72	26	0	1	24	2	0	0	21	9	0
6:30 AM	1	43	0	0	0	76	21	1	2	24	6	0	0	16	6	0
6:45 AM	3	71	0	0	0	78	23	0	2	29	2	0	0	28	16	0
7:00 AM	2	54	0	0	0	80	23	2	6	42	5	0	0	28	7	0
7:15 AM	1	63	0	0	0	80	26	0	5	31	2	0	1	29	15	0
7:30 AM	3	66	0	0	1	79	23	0	3	37	1	0	0	40	13	0
7:45 AM	1	62	0	0	0	85	19	0	1	25	3	0	0	37	11	0
8:00 AM	0	79	0	0	0	71	15	0	5	44	3	0	0	46	16	0
8:15 AM	0	61	1	0	1	79	19	1	4	33	3	0	0	42	23	0
8:30 AM	1	60	0	0	0	66	27	0	5	32	5	0	0	42	13	0
8:45 AM	0	56	0	0	2	67	24	0	5	24	5	0	0	42	9	0
9:00 AM	2	77	0	2	0	56	13	2	2	30	3	0	0	26	13	0
9:15 AM	1	57	0	0	0	50	26	0	0	29	2	0	2	40	14	0
9:30 AM	1	74	0	0	1	43	12	0	3	29	6	0	0	38	12	0
9:45 AM	2	59	1	0	0	39	18	0	2	39	4	0	0	55	22	0
3:00 PM	1	60	1	0	2	37	35	0	3	26	5	0	0	67	27	0
3:15 PM	2	65	1	0	1	31	23	0	4	41	6	0	0	64	25	0
3:30 PM	2	48	0	0	1	33	27	0	1	32	4	0	0	65	36	0
3:45 PM	1	77	0	1	0	41	21	0	2	41	4	0	1	69	27	0
4:00 PM	1	68	1	0	0	57	23	0	4	41	3	0	0	75	21	0
4:15 PM	5	55	0	0	0	35	23	0	2	35	2	0	0	73	31	0
4:30 PM	0	63	2	0	1	42	20	0	3	28	7	0	1	77	25	0
4:45 PM	6	55	1	0	1	40	19	0	5	44	4	0	1	65	20	0
5:00 PM	2	66	0	0	0	40	28	0	1	30	1	0	0	80	39	0
5:15 PM	2	80	0	0	0	58	19	0	5	45	0	0	0	57	22	0
5:30 PM	1	54	0	0	0	32	20	0	2	35	0	0	2	66	32	0
5:45 PM	5	69	0	0	0	44	15	0	2	30	0	0	0	73	26	0
6:00 PM	0	62	1	0	2	36	21	0	1	27	3	0	1	79	30	0
6:15 PM	2	68	1	0	2	40	20	0	2	35	5	0	1	51	18	0
6:30 PM	5	60	1	0	0	39	17	0	3	35	6	0	1	77	37	0
6:45 PM	4	83	0	0	2	37	28	0	0	38	3	0	0	61	34	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	9	0	0	0	0	0	0	1	1	0
6:15 AM	0	1	0	0	0	7	2	0	0	3	0	0	0	0	1	0
6:30 AM	0	1	0	0	0	2	3	0	1	2	1	0	0	0	0	0
6:45 AM	0	0	0	0	0	4	6	0	0	1	0	0	0	3	0	0
7:00 AM	1	2	0	0	0	5	2	0	1	3	0	0	0	3	0	0
7:15 AM	0	3	0	0	0	4	2	0	0	0	0	0	0	6	2	0
7:30 AM	0	6	0	0	0	11	3	0	1	0	0	0	0	6	0	0
7:45 AM	0	3	0	0	0	12	3	0	1	2	0	0	0	6	0	0
8:00 AM	0	6	0	0	0	2	3	0	0	2	0	0	0	3	0	0
8:15 AM	0	5	0	0	0	9	0	0	1	2	0	0	0	1	1	0
8:30 AM	0	0	0	0	0	1	0	0	0	3	0	0	0	4	0	0
8:45 AM	0	2	0	0	0	7	5	0	0	1	0	0	0	3	0	0
9:00 AM	0	6	0	0	0	5	3	0	1	4	0	0	0	3	1	0
9:15 AM	1	6	0	0	0	10	2	0	0	2	0	0	0	4	1	0
9:30 AM	0	5	0	0	0	3	0	0	0	3	0	0	0	1	2	0
9:45 AM	0	5	0	0	0	2	2	0	0	1	0	0	0	5	1	0
3:00 PM	0	5	0	0	0	1	1	0	0	1	0	0	0	4	1	0
3:15 PM	0	4	0	0	0	4	3	0	0	0	0	0	0	8	2	0
3:30 PM	0	3	0	0	0	0	1	0	0	0	0	0	0	3	2	0
3:45 PM	0	3	0	0	0	0	2	0	0	3	0	0	0	4	3	0
4:00 PM	0	5	0	0	0	1	1	0	0	1	0	0	0	7	1	0
4:15 PM	0	3	0	0	0	3	3	0	0	0	4	0	0	9	1	0
4:30 PM	0	1	0	0	0	4	0	0	0	1	5	0	0	9	3	0
4:45 PM	0	4	0	0	0	0	1	0	0	1	1	0	0	7	2	0
5:00 PM	0	3	0	0	0	1	2	0	0	2	0	0	0	7	0	0
5:15 PM	0	3	0	0	0	3	1	0	0	1	0	0	0	6	0	0
5:30 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	6	1	0
5:45 PM	1	4	0	0	0	6	3	0	0	1	0	0	0	5	1	0
6:00 PM	0	1	1	0	0	1	1	0	0	1	0	0	0	7	0	0
6:15 PM	0	4	0	0	0	1	0	0	0	1	0	0	0	6	2	0
6:30 PM	0	0	0	0	0	2	2	0	0	4	0	0	0	3	1	0
6:45 PM	0	1	0	0	0	2	1	0	0	1	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	1	0	0	0	1	0	0	2	4	2	0	0	2	2	0
6:15 AM	1	0	0	0	0	2	0	0	3	3	3	0	0	3	2	0
6:30 AM	2	0	0	0	0	0	0	0	2	5	3	0	0	3	2	0
6:45 AM	1	2	0	0	0	3	0	0	2	4	3	0	0	3	2	0
7:00 AM	2	0	0	0	0	1	0	0	2	3	3	0	0	4	3	0
7:15 AM	2	0	0	0	0	2	0	0	3	5	3	0	0	4	2	0
7:30 AM	2	1	0	0	0	1	2	0	5	4	5	0	0	4	2	0
7:45 AM	1	2	0	0	0	1	0	0	3	5	3	0	0	4	1	0
8:00 AM	1	0	0	0	0	2	1	0	4	6	5	0	0	5	2	0
8:15 AM	1	1	0	0	0	1	0	0	6	7	1	0	0	6	2	0
8:30 AM	2	0	0	0	0	2	0	0	3	4	6	0	0	5	2	0
8:45 AM	0	1	0	0	0	2	0	0	3	7	6	0	0	5	1	0
9:00 AM	2	0	0	0	0	2	3	0	4	7	6	0	0	3	1	0
9:15 AM	1	1	0	0	0	3	0	0	3	2	2	0	0	2	1	0
9:30 AM	1	0	0	0	0	1	1	0	2	4	6	0	0	7	1	0
9:45 AM	0	0	0	0	0	1	0	0	4	3	3	0	0	2	2	0
3:00 PM	2	0	0	0	0	1	0	0	2	3	4	0	0	2	2	0
3:15 PM	1	1	0	0	0	1	0	0	4	2	5	0	0	6	1	0
3:30 PM	4	0	0	0	0	2	0	0	2	1	2	0	0	5	2	0
3:45 PM	2	0	0	0	0	1	0	0	3	2	7	0	0	4	2	0
4:00 PM	1	0	0	0	0	2	2	0	2	2	6	0	0	4	1	0
4:15 PM	3	0	0	0	0	1	0	0	3	3	0	0	0	4	2	0
4:30 PM	3	0	0	0	0	1	0	0	3	1	0	0	0	4	2	0
4:45 PM	3	0	0	0	0	2	0	0	3	4	9	0	0	5	2	0
5:00 PM	0	0	0	0	0	2	0	0	4	2	0	0	0	4	3	0
5:15 PM	2	0	0	0	0	1	0	0	1	1	0	0	0	8	1	0
5:30 PM	4	0	0	0	0	2	0	0	5	2	0	0	0	5	2	0
5:45 PM	1	0	0	0	0	1	0	0	2	3	0	0	0	5	2	0
6:00 PM	2	0	0	0	0	1	0	0	4	2	5	0	0	6	0	0
6:15 PM	3	1	0	0	0	2	1	0	3	1	9	0	0	5	2	0
6:30 PM	3	0	0	0	0	3	0	0	3	2	4	0	0	3	1	0
6:45 PM	1	1	0	0	0	0	0	0	3	1	4	0	0	7	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	2	0	0	0	3	0	0	0	4	1	0
6:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	3	0	0	0	1	0	0	0	1	0	0	0	3	0	0
6:45 AM	0	2	0	0	0	1	0	0	0	1	0	0	0	2	0	0
7:00 AM	0	2	0	0	0	3	1	0	0	0	0	0	0	3	0	0
7:15 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
7:30 AM	1	0	0	0	0	1	1	0	0	1	0	0	0	1	1	0
7:45 AM	1	1	0	0	0	6	0	0	0	1	0	0	0	1	2	0
8:00 AM	0	4	0	0	0	2	1	0	0	0	0	0	0	4	1	0
8:15 AM	1	1	0	0	0	6	1	0	0	1	0	0	0	2	0	0
8:30 AM	0	2	0	0	1	5	0	0	0	1	0	0	0	1	2	0
8:45 AM	0	2	1	0	0	3	0	0	0	1	0	0	0	2	1	0
9:00 AM	0	4	0	0	0	4	1	0	1	1	0	0	0	3	1	0
9:15 AM	0	4	0	0	0	2	0	0	1	1	0	0	0	4	1	0
9:30 AM	0	3	0	0	0	2	2	0	0	1	0	0	0	4	0	0
9:45 AM	0	2	0	0	0	2	1	0	0	1	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	1	1	0	0	1	0	0	0	3	2	0
3:15 PM	0	1	0	0	0	1	1	0	0	2	0	0	0	1	0	0
3:30 PM	0	1	0	0	0	0	4	0	2	1	0	0	0	0	1	0
3:45 PM	0	1	0	0	0	3	0	0	1	0	0	0	1	3	0	0
4:00 PM	0	2	0	0	0	0	1	0	0	2	0	0	0	2	2	0
4:15 PM	1	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0
4:30 PM	1	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	3	0	0	0	2	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	1	0	0
5:15 PM	0	1	0	0	0	2	0	0	0	1	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	3	0	0	0	1	2	0	0	0	0	0	0	1	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
7:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	9	2	0	0	1	0	0	0	1	1	0
6:15 AM	0	1	0	0	0	13	1	0	1	1	1	0	0	1	0	0
6:30 AM	0	3	0	0	0	5	2	0	0	3	1	0	0	1	0	0
6:45 AM	0	0	0	0	0	9	2	0	0	2	2	0	0	2	0	0
7:00 AM	0	1	0	0	0	6	2	0	1	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	6	0	0
7:30 AM	0	2	0	0	0	9	2	0	0	1	0	0	0	0	0	0
7:45 AM	1	1	0	0	0	11	1	0	0	3	0	0	0	7	0	0
8:00 AM	1	2	0	0	0	10	2	0	0	1	0	0	0	2	0	0
8:15 AM	0	2	0	0	0	12	2	0	1	0	0	0	0	5	0	0
8:30 AM	0	0	0	0	0	9	3	0	1	0	0	0	0	1	0	0
8:45 AM	0	1	1	0	0	7	3	0	0	0	0	0	0	5	0	0
9:00 AM	0	1	0	0	0	8	0	0	0	3	0	0	0	0	1	0
9:15 AM	0	1	0	0	0	10	2	0	1	1	0	0	0	1	3	0
9:30 AM	0	1	0	0	0	9	0	0	1	1	0	0	0	1	1	0
9:45 AM	0	1	0	0	0	11	3	0	0	0	0	0	0	3	0	0
3:00 PM	2	1	0	0	0	5	3	0	1	0	0	0	0	5	5	0
3:15 PM	0	3	0	0	0	5	2	0	0	0	0	0	0	1	1	0
3:30 PM	0	2	0	0	0	4	4	0	0	1	0	0	0	2	3	0
3:45 PM	0	1	0	0	0	2	1	0	0	1	1	0	0	4	2	0
4:00 PM	0	4	0	0	0	6	2	0	0	2	0	0	0	14	1	0
4:15 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	15	4	0
4:30 PM	0	6	0	0	0	4	0	0	1	1	0	0	0	13	1	0
4:45 PM	1	5	0	0	0	12	1	0	0	4	0	0	0	26	1	0
5:00 PM	0	3	0	0	0	3	1	0	0	1	0	0	0	10	5	0
5:15 PM	0	2	0	0	0	10	3	0	0	3	0	0	1	7	0	0
5:30 PM	0	2	1	0	0	11	2	0	0	1	0	0	0	10	2	0
5:45 PM	1	10	0	0	0	9	1	0	0	2	0	0	0	11	1	0
6:00 PM	1	5	0	0	0	6	2	0	0	3	0	0	0	16	4	0
6:15 PM	0	7	0	0	0	5	0	0	1	5	0	0	0	15	7	0
6:30 PM	0	4	0	0	0	10	4	0	0	1	0	0	0	7	3	0
6:45 PM	0	4	0	0	0	4	4	0	0	1	2	0	0	10	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0
6:30 AM	0	3	0	0	0	1	2	0	0	0	0	0	0	2	0	0
6:45 AM	0	2	0	0	0	5	0	0	0	2	0	0	0	3	1	0
7:00 AM	0	4	0	0	0	5	1	0	0	0	0	0	0	0	1	0
7:15 AM	0	3	0	0	0	2	2	0	1	2	0	0	0	1	1	0
7:30 AM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	1	1	0	0	1	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	2	1	0	0	2	0	0	0	2	0	0
3:15 PM	0	1	0	0	0	1	1	0	0	2	0	0	0	2	0	0
3:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	1	0
3:45 PM	0	4	0	0	0	2	0	0	0	1	0	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	BROADWAY Southbound		ROOSEVELT AVE Westbound		BROADWAY Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	1
6:30 AM	1	0	0	0	0	0	0	0
6:45 AM	0	0	2	0	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	1
7:15 AM	1	0	0	0	1	0	0	1
7:30 AM	2	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	1	0	1	0
8:00 AM	1	0	0	0	0	0	0	0
8:15 AM	2	0	1	0	0	0	0	0
8:30 AM	2	0	0	0	0	0	1	0
8:45 AM	1	1	2	0	0	1	1	0
9:00 AM	0	0	1	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	2	0
9:30 AM	0	0	1	0	0	0	1	0
9:45 AM	0	0	0	0	0	0	0	0
3:00 PM	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	1	1	0	0
3:30 PM	2	1	0	0	1	1	1	0
3:45 PM	2	0	1	0	2	0	2	0
4:00 PM	0	0	0	2	1	0	0	1
4:15 PM	0	1	1	0	0	0	1	1
4:30 PM	2	0	1	1	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0
5:00 PM	1	0	0	0	1	1	0	0
5:15 PM	1	1	0	0	2	0	0	0
5:30 PM	3	1	0	1	0	1	0	1
5:45 PM	0	1	0	0	0	1	2	0
6:00 PM	1	2	0	0	1	0	0	0
6:15 PM	0	0	1	0	1	0	0	0
6:30 PM	0	2	0	1	0	0	0	0
6:45 PM	0	0	1	0	0	0	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	BROADWAY Southbound		ROOSEVELT AVE Westbound		BROADWAY Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	6	5	7	2	11	8	3	3
6:15 AM	3	4	4	1	13	17	1	2
6:30 AM	3	4	0	1	6	13	4	8
6:45 AM	8	2	1	1	18	11	2	2
7:00 AM	9	8	5	2	15	15	2	7
7:15 AM	8	7	1	2	15	17	3	10
7:30 AM	8	6	6	7	28	26	4	11
7:45 AM	13	9	4	1	18	12	15	13
8:00 AM	9	9	7	3	19	22	9	9
8:15 AM	11	11	4	0	28	26	7	20
8:30 AM	12	13	3	2	29	20	11	9
8:45 AM	13	10	0	3	24	33	3	14
9:00 AM	11	7	0	4	17	30	8	15
9:15 AM	9	11	2	1	14	27	7	9
9:30 AM	9	12	3	7	27	21	12	13
9:45 AM	20	16	1	4	33	35	12	23
3:00 PM	31	22	11	6	51	55	33	25
3:15 PM	30	20	8	10	54	55	25	38
3:30 PM	28	15	7	8	35	48	16	27
3:45 PM	28	14	9	6	49	45	18	27
4:00 PM	37	27	6	8	36	47	18	27
4:15 PM	29	38	6	5	41	40	18	31
4:30 PM	31	34	4	5	51	54	18	25
4:45 PM	31	27	10	13	39	46	28	21
5:00 PM	29	25	4	1	53	40	14	33
5:15 PM	22	38	2	2	49	53	18	31
5:30 PM	26	32	5	7	65	65	22	21
5:45 PM	26	30	3	2	55	75	20	33
6:00 PM	30	18	8	7	47	51	22	38
6:15 PM	25	23	5	6	44	58	29	33
6:30 PM	26	13	2	5	57	44	24	24
6:45 PM	24	25	5	3	48	50	19	27

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	5	39	0	1	0	87	37	0	9	39	4	0	0	42	11	0
6:15 AM	1	40	0	0	0	97	30	0	5	32	6	0	0	27	12	0
6:30 AM	3	53	0	0	0	92	29	1	5	35	11	0	0	27	8	0
6:45 AM	4	77	0	0	0	103	32	0	4	43	7	0	0	41	19	0
7:00 AM	5	63	0	0	0	104	33	2	10	49	8	0	0	39	12	0
7:15 AM	3	71	1	0	0	110	30	0	9	38	5	0	1	49	20	0
7:30 AM	6	78	0	0	1	105	34	0	9	45	6	0	0	53	16	0
7:45 AM	4	73	0	0	0	115	24	0	5	37	6	0	0	56	14	0
8:00 AM	2	91	1	0	0	89	23	0	9	53	8	0	0	63	19	0
8:15 AM	3	70	1	0	1	112	23	1	12	44	4	0	0	57	26	0
8:30 AM	3	63	0	0	1	86	32	0	9	41	11	0	0	54	18	0
8:45 AM	0	63	2	0	2	92	34	0	8	35	11	0	0	61	11	0
9:00 AM	4	89	0	2	0	80	21	2	8	48	9	0	0	37	17	0
9:15 AM	3	71	0	0	0	77	30	0	5	36	4	0	2	52	22	0
9:30 AM	2	84	0	0	1	58	16	0	6	38	13	0	1	54	16	0
9:45 AM	2	68	1	0	0	57	26	0	8	46	7	0	0	69	26	0
3:00 PM	6	71	1	0	3	51	41	0	7	33	11	0	0	84	39	0
3:15 PM	3	79	1	0	1	48	33	0	8	49	11	0	0	90	30	0
3:30 PM	6	57	0	0	1	42	37	0	5	37	6	0	0	83	46	0
3:45 PM	3	89	0	1	0	51	24	0	6	49	12	0	2	91	34	0
4:00 PM	2	81	1	0	0	67	31	0	6	48	9	0	0	103	27	0
4:15 PM	9	66	0	0	1	46	28	0	6	39	6	0	0	101	39	0
4:30 PM	4	71	2	0	1	54	21	0	8	35	12	0	1	103	32	0
4:45 PM	10	67	1	0	1	57	22	0	8	58	14	0	1	106	26	0
5:00 PM	2	76	0	0	0	53	31	0	5	37	1	0	0	110	48	0
5:15 PM	5	89	0	0	0	75	23	0	6	56	0	0	1	84	24	0
5:30 PM	6	59	1	0	0	51	25	0	7	43	0	0	2	97	37	0
5:45 PM	8	86	0	0	0	66	20	0	4	38	0	0	0	98	30	0
6:00 PM	3	72	2	0	2	46	26	0	5	34	8	0	1	109	36	0
6:15 PM	5	81	1	0	2	50	21	0	7	46	14	0	1	79	30	0
6:30 PM	8	67	1	0	0	59	23	0	6	42	10	0	1	91	42	0
6:45 PM	5	92	0	1	2	43	33	0	3	45	9	0	0	81	38	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	1	0	0	2	0	0
6:45 AM	1	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0
7:00 AM	0	2	0	0	0	7	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	1	0	0	1	5	1	0	0	0	0	0	0	1	0	0
7:30 AM	0	2	0	0	0	6	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
8:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	1	1	0	0
8:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	1	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
9:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	2	0	0
9:45 AM	0	0	0	0	0	5	0	0	0	1	0	0	0	4	0	0
3:00 PM	0	0	1	0	0	4	1	0	0	2	0	0	0	2	0	0
3:15 PM	0	2	0	0	0	8	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	1	0	0	1	0	1	0	2	1	0	0	2	0	0
3:45 PM	1	2	0	0	0	3	0	0	0	1	0	0	2	6	0	0
4:00 PM	1	3	1	0	0	2	0	0	0	1	0	0	1	3	0	0
4:15 PM	0	0	0	0	0	2	1	0	0	0	1	0	0	6	0	0
4:30 PM	0	2	0	0	1	3	0	0	1	1	1	0	1	5	0	0
4:45 PM	0	0	0	0	0	7	0	0	0	3	1	0	0	9	0	0
5:00 PM	0	1	0	0	0	6	0	0	0	1	0	0	0	9	0	0
5:15 PM	1	0	0	0	0	2	0	0	0	1	0	0	0	5	0	0
5:30 PM	0	2	1	0	0	11	0	0	0	0	0	0	1	6	0	0
5:45 PM	0	2	0	0	0	7	0	0	0	0	1	0	0	3	0	0
6:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	8	0	0
6:15 PM	0	2	0	0	0	6	0	0	0	0	0	0	0	5	1	0
6:30 PM	1	0	1	0	1	8	0	0	0	3	0	0	0	1	0	0
6:45 PM	0	1	0	0	0	4	0	0	1	2	0	0	1	6	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	10	8	0	2	99	4	0	2	6	6	0	2	28	4	0
6:15 AM	1	5	10	0	1	72	7	0	5	10	6	0	4	18	0	0
6:30 AM	3	7	10	0	1	88	2	0	5	6	5	0	0	12	2	0
6:45 AM	2	10	9	0	2	90	3	0	4	5	2	0	1	23	4	0
7:00 AM	4	9	10	0	2	101	7	0	0	8	5	0	1	30	3	0
7:15 AM	4	12	14	0	5	84	10	0	3	15	4	0	2	18	1	1
7:30 AM	3	11	10	0	3	92	3	0	5	8	9	0	3	35	2	0
7:45 AM	3	8	12	0	3	82	9	0	3	12	6	0	1	33	1	0
8:00 AM	4	19	5	0	2	85	8	0	5	15	9	0	3	44	1	0
8:15 AM	2	17	11	0	3	83	12	0	7	20	13	0	5	28	4	0
8:30 AM	1	14	8	0	6	89	6	0	6	12	8	0	4	38	3	0
8:45 AM	4	14	11	0	6	84	12	0	7	24	6	0	3	29	4	0
9:00 AM	1	6	9	0	2	66	12	0	4	15	13	0	5	27	6	0
9:15 AM	1	15	11	0	5	69	5	0	2	19	4	0	0	34	1	0
9:30 AM	4	15	5	0	2	59	6	0	1	11	8	0	5	46	1	0
9:45 AM	6	10	7	0	4	44	7	0	6	18	12	0	8	40	2	0
3:00 PM	1	16	12	0	1	53	5	1	5	24	11	0	5	55	3	0
3:15 PM	1	15	5	0	0	51	3	0	8	25	11	0	8	56	3	0
3:30 PM	4	18	9	0	0	59	10	0	6	24	9	0	7	56	1	0
3:45 PM	4	21	11	1	3	50	4	0	5	12	8	0	5	58	1	0
4:00 PM	3	11	6	0	4	65	5	0	12	25	14	0	5	60	5	0
4:15 PM	2	9	6	0	5	44	14	0	3	13	6	1	4	67	2	0
4:30 PM	8	13	5	0	3	43	6	0	7	29	13	0	10	62	2	0
4:45 PM	3	19	8	0	2	61	6	0	2	16	17	1	7	63	1	0
5:00 PM	6	13	15	0	3	51	10	0	3	21	15	0	12	64	2	0
5:15 PM	7	15	17	0	4	65	14	0	4	28	9	0	3	54	3	0
5:30 PM	4	14	5	1	2	43	7	1	3	21	11	0	5	53	1	0
5:45 PM	3	12	7	0	4	50	8	0	3	17	8	0	9	67	4	0
6:00 PM	3	15	17	0	4	51	8	0	2	19	12	0	8	63	1	0
6:15 PM	2	16	10	0	3	60	3	0	6	23	7	0	8	51	1	0
6:30 PM	3	21	11	1	1	41	6	0	4	18	20	0	10	68	0	0
6:45 PM	3	12	13	0	1	52	8	0	10	20	10	0	6	57	3	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	0	0	1	0	0	0	0	2	0	0
6:15 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0	0
6:45 AM	1	0	0	0	0	5	0	0	2	0	0	0	0	1	0	0
7:00 AM	0	0	1	0	1	10	1	0	0	0	1	0	0	5	2	0
7:15 AM	0	0	1	0	0	8	0	0	0	0	0	0	1	3	1	0
7:30 AM	0	0	1	0	0	14	1	0	0	0	0	0	0	5	0	0
7:45 AM	0	0	0	0	0	20	0	0	0	0	1	0	0	5	0	0
8:00 AM	0	1	0	0	0	6	0	0	0	1	0	0	0	3	0	0
8:15 AM	0	1	1	0	0	9	1	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	9	1	0	0	0	0	0	0	3	0	0
9:00 AM	0	1	0	0	0	10	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	3	1	0	0	11	1	0	0	0	3	0	0	1	0	0
9:30 AM	0	1	0	0	0	5	1	0	0	1	0	0	0	1	0	0
9:45 AM	0	0	1	0	0	4	1	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	1	0	0	1	2	0	0	1	0	0	0	5	0	0
3:15 PM	0	0	1	0	1	6	0	0	0	0	2	0	0	7	0	0
3:30 PM	1	1	0	0	0	3	0	0	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	3	0	0	1	0	0	0	1	3	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	0	1	0	0	3	0	0
4:15 PM	1	1	1	0	0	5	0	0	0	0	1	0	0	10	0	0
4:30 PM	0	0	0	0	0	4	1	0	1	1	0	0	1	6	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	1	7	0	0
5:00 PM	0	0	1	0	0	3	0	0	0	1	1	0	0	7	0	0
5:15 PM	0	2	0	0	0	7	0	0	0	0	1	0	0	6	0	0
5:30 PM	0	0	1	0	0	1	0	0	1	2	0	0	1	7	0	0
5:45 PM	1	0	1	0	0	5	1	0	1	1	2	0	0	6	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	9	0	0
6:15 PM	0	0	1	0	0	2	0	0	0	1	0	0	0	5	0	0
6:30 PM	0	1	1	0	0	3	0	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	1	1	0	0	0	0	0	0	0	1	3	0
6:15 AM	0	3	0	0	2	2	0	0	0	0	0	0	0	2	5	0
6:30 AM	0	5	0	0	2	1	0	0	0	0	0	0	0	2	5	0
6:45 AM	0	3	0	0	1	2	0	0	0	0	0	0	0	1	4	0
7:00 AM	0	5	0	0	2	2	0	0	0	0	0	0	0	3	2	0
7:15 AM	0	7	0	0	4	2	0	0	0	0	0	0	0	1	5	0
7:30 AM	0	6	1	0	1	1	0	0	1	0	0	0	0	3	5	0
7:45 AM	0	6	0	0	3	1	0	0	0	0	0	0	0	2	5	0
8:00 AM	0	5	0	0	2	2	0	0	1	0	0	0	0	3	6	0
8:15 AM	0	9	0	0	2	1	0	0	0	0	0	0	0	2	2	0
8:30 AM	0	5	0	0	3	2	0	0	0	0	0	0	0	3	6	0
8:45 AM	0	8	0	0	3	2	0	0	0	0	0	0	0	2	6	0
9:00 AM	0	4	1	0	1	3	0	0	1	0	0	0	0	4	6	0
9:15 AM	0	2	0	0	1	3	0	0	0	0	0	0	0	1	5	0
9:30 AM	0	4	0	0	2	1	0	0	1	0	0	0	0	4	6	0
9:45 AM	0	5	0	0	2	2	0	0	0	0	0	0	0	1	2	0
3:00 PM	0	3	0	0	1	1	0	0	0	0	0	0	0	4	3	0
3:15 PM	0	2	0	0	2	1	0	0	0	0	0	0	1	2	6	0
3:30 PM	0	4	0	0	1	1	0	0	0	0	0	0	0	3	5	0
3:45 PM	0	3	0	0	4	1	0	0	0	0	0	0	1	4	6	0
4:00 PM	0	2	1	0	0	3	0	0	0	0	1	0	0	2	6	0
4:15 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	3	6	0
4:30 PM	0	3	0	0	1	0	0	0	0	0	0	0	1	2	6	0
4:45 PM	0	4	0	0	3	3	0	0	0	0	0	0	0	4	7	0
5:00 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	2	4	0
5:15 PM	0	4	0	0	1	1	0	0	0	0	0	0	0	4	5	0
5:30 PM	0	3	0	0	2	2	0	0	0	0	0	0	0	3	7	0
5:45 PM	0	8	0	0	1	1	0	0	0	0	0	0	0	2	6	0
6:00 PM	0	4	2	0	1	2	0	0	0	0	0	0	0	2	6	0
6:15 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	5	5	0
6:30 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	2	5	0
6:45 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	3	6	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	1	0	0	1	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0
7:00 AM	0	0	1	0	0	3	0	0	0	0	1	0	0	2	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	1	0	0
7:45 AM	0	1	2	0	0	5	1	0	0	1	0	0	0	4	0	0
8:00 AM	0	0	1	0	0	2	0	0	0	0	1	0	0	4	0	0
8:15 AM	1	2	0	0	0	6	1	0	1	0	0	0	1	2	0	0
8:30 AM	1	0	0	0	0	6	0	0	1	0	1	0	0	1	0	0
8:45 AM	1	0	0	0	0	4	0	0	0	0	1	0	1	1	0	0
9:00 AM	0	0	1	0	0	3	0	0	0	0	0	0	0	3	0	0
9:15 AM	1	0	0	0	0	3	0	0	0	2	1	0	1	1	0	0
9:30 AM	0	0	1	0	0	2	0	0	1	0	0	0	1	2	0	0
9:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0
3:00 PM	0	0	1	0	0	1	0	0	0	1	0	0	1	2	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
4:30 PM	0	0	1	0	0	1	0	0	0	0	2	0	0	1	0	0
4:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	1	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	1	0	0	8	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	2	0	0	0	6	0	0	0	0	0	0	0	0	1	0
6:30 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	2	1	0
6:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	6	0	0	0	0	1	0	0	1	0	0
7:15 AM	0	0	0	0	1	9	1	0	0	0	0	0	0	7	0	0
7:30 AM	0	0	0	0	1	15	1	0	0	1	0	0	0	2	0	0
7:45 AM	0	2	1	0	0	7	0	0	0	0	0	0	0	8	0	0
8:00 AM	0	2	1	0	0	10	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	1	13	0	0	0	2	1	0	0	3	0	0
8:30 AM	1	0	0	0	0	11	0	0	0	1	0	0	0	1	0	0
8:45 AM	0	0	2	0	0	9	0	0	0	1	0	0	0	4	0	0
9:00 AM	0	1	0	0	1	6	1	0	0	1	0	0	0	0	0	0
9:15 AM	0	0	1	0	0	11	0	0	1	1	0	0	1	2	0	0
9:30 AM	0	0	1	0	0	12	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	3	1	0	1	9	2	0	0	0	0	0	0	1	0	0
3:00 PM	1	0	0	0	0	9	0	0	0	1	1	0	0	8	0	0
3:15 PM	0	2	0	0	0	6	0	0	0	2	0	0	0	3	0	0
3:30 PM	1	4	0	0	1	6	1	0	0	0	2	0	0	2	0	0
3:45 PM	0	3	1	0	1	3	0	0	0	0	2	0	0	4	0	0
4:00 PM	0	2	0	0	0	7	1	0	0	0	0	0	1	6	0	0
4:15 PM	0	0	0	0	1	2	0	0	0	0	1	0	0	12	0	0
4:30 PM	0	3	0	0	1	4	1	0	0	1	0	0	0	7	0	0
4:45 PM	0	2	1	0	0	3	2	0	0	0	2	0	2	19	0	0
5:00 PM	0	3	1	0	1	2	0	0	0	1	0	0	0	10	1	0
5:15 PM	0	2	1	0	3	10	0	0	0	2	0	0	1	9	1	0
5:30 PM	1	1	2	0	0	6	0	0	0	0	0	0	1	9	0	0
5:45 PM	0	1	0	0	0	6	1	0	0	0	1	0	0	11	0	0
6:00 PM	0	0	0	0	0	8	0	0	0	1	1	0	0	10	0	0
6:15 PM	0	2	1	0	1	4	0	0	0	0	1	0	0	12	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	10	0	0
6:45 PM	1	1	0	0	0	1	0	0	0	0	1	0	0	8	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0
6:45 AM	0	0	0	0	0	4	0	0	1	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	4	0	0	1	1	0	0	0	1	0	0
7:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
3:15 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	75TH ST Southbound		ROOSEVELT AVE Westbound		75TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	1	0
6:15 AM	0	0	1	2	1	1	0	0
6:30 AM	1	0	0	0	0	1	0	0
6:45 AM	0	1	0	0	0	0	0	0
7:00 AM	0	1	0	0	0	0	1	0
7:15 AM	1	0	0	0	0	1	0	0
7:30 AM	0	0	1	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	1	0	0	1	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0
9:00 AM	1	1	1	1	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	1	0	0	0	0	1	1	0
9:45 AM	2	0	0	0	0	1	0	0
3:00 PM	1	0	0	1	0	0	0	0
3:15 PM	0	0	0	0	0	0	1	0
3:30 PM	1	2	0	0	1	0	1	0
3:45 PM	0	1	0	0	0	0	0	2
4:00 PM	0	1	0	0	1	0	0	0
4:15 PM	0	0	0	1	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	1	1	1	0	0	1	0
5:00 PM	0	2	0	2	1	0	0	0
5:15 PM	0	0	0	1	1	1	0	0
5:30 PM	0	0	0	0	0	0	1	0
5:45 PM	1	0	0	0	0	0	0	0
6:00 PM	1	1	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	1	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	75TH ST Southbound		ROOSEVELT AVE Westbound		75TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	14	6	13	20	41	67	37	17
6:15 AM	28	15	20	18	56	66	42	16
6:30 AM	33	12	16	18	37	58	46	10
6:45 AM	33	19	28	17	40	68	35	17
7:00 AM	46	15	25	23	55	90	59	22
7:15 AM	50	34	36	57	59	101	76	34
7:30 AM	56	25	53	54	60	93	72	32
7:45 AM	50	26	23	53	57	102	72	22
8:00 AM	69	24	36	38	74	110	66	25
8:15 AM	66	36	34	74	86	114	86	37
8:30 AM	64	24	32	53	76	110	76	17
8:45 AM	67	37	47	53	73	82	58	25
9:00 AM	36	26	26	28	48	87	53	25
9:15 AM	60	32	29	27	33	47	46	18
9:30 AM	31	33	13	30	50	51	40	31
9:45 AM	68	54	33	25	60	57	37	32
3:00 PM	93	99	105	66	163	141	43	85
3:15 PM	74	55	79	39	126	140	46	66
3:30 PM	79	106	97	52	166	124	53	89
3:45 PM	84	60	103	44	185	124	67	65
4:00 PM	73	105	94	70	125	121	70	74
4:15 PM	81	131	95	56	194	132	50	91
4:30 PM	92	94	89	56	160	105	49	104
4:45 PM	74	85	86	51	206	115	54	87
5:00 PM	94	100	136	64	208	129	77	84
5:15 PM	69	120	128	76	235	115	46	90
5:30 PM	94	113	117	58	214	134	44	100
5:45 PM	104	103	116	39	232	109	63	82
6:00 PM	71	70	97	70	146	121	32	71
6:15 PM	73	86	99	61	177	128	58	79
6:30 PM	77	122	89	54	155	115	38	78
6:45 PM	85	88	87	60	150	102	42	41

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	15	9	0	3	125	4	0	3	7	6	0	3	36	7	0
6:15 AM	1	12	10	0	3	99	7	0	5	10	6	0	4	23	6	0
6:30 AM	3	12	10	0	3	112	2	0	5	7	6	0	1	21	8	0
6:45 AM	4	13	9	0	3	114	4	0	7	6	3	0	1	33	8	0
7:00 AM	4	18	12	0	5	133	8	0	1	9	8	0	1	44	7	0
7:15 AM	4	21	15	0	11	115	12	0	3	15	4	0	3	33	7	1
7:30 AM	3	19	12	0	5	133	5	0	6	10	10	0	3	48	7	0
7:45 AM	3	18	15	0	6	119	10	0	3	13	7	0	1	56	6	0
8:00 AM	4	30	8	0	4	108	8	0	6	16	10	0	4	61	7	0
8:15 AM	3	29	12	0	6	117	14	0	8	22	14	0	6	39	6	0
8:30 AM	4	19	8	0	9	119	6	0	7	13	9	0	4	49	9	0
8:45 AM	5	22	13	0	9	115	13	0	7	25	7	0	4	41	10	0
9:00 AM	1	12	11	0	4	93	13	0	5	16	13	0	6	41	12	0
9:15 AM	2	20	13	0	6	97	7	0	4	23	8	0	2	40	6	0
9:30 AM	4	21	7	0	4	81	7	0	3	12	8	0	6	56	7	0
9:45 AM	6	18	9	0	7	67	10	0	6	19	12	0	9	52	4	0
3:00 PM	2	20	15	0	2	72	8	1	5	29	12	0	6	77	6	0
3:15 PM	1	24	6	0	3	76	3	0	8	27	13	0	9	76	9	0
3:30 PM	6	28	11	0	2	75	11	1	6	27	12	0	7	65	6	0
3:45 PM	5	29	12	1	8	65	4	0	6	14	10	0	9	79	7	0
4:00 PM	4	18	8	0	4	83	6	0	12	28	16	0	7	77	11	0
4:15 PM	3	15	7	0	7	56	15	0	3	13	9	1	4	99	8	0
4:30 PM	8	21	6	0	6	56	8	0	10	33	16	0	13	83	8	0
4:45 PM	3	25	9	0	5	77	9	0	2	20	21	1	11	103	8	0
5:00 PM	6	21	17	0	4	63	10	0	3	24	16	0	12	93	7	0
5:15 PM	8	23	18	0	8	86	14	0	4	31	10	0	4	80	9	0
5:30 PM	5	20	10	1	4	63	7	1	4	23	11	0	8	80	8	0
5:45 PM	4	23	8	0	5	70	10	0	4	18	12	0	9	90	10	0
6:00 PM	3	21	19	0	5	64	8	0	2	20	13	0	8	92	7	0
6:15 PM	2	24	12	0	5	74	3	0	6	24	8	0	8	79	7	0
6:30 PM	4	27	13	1	2	59	6	0	4	21	20	0	10	84	5	0
6:45 PM	4	18	13	0	1	61	8	0	11	22	11	0	7	76	9	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:15 AM	1	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	7	2	0	0	0	1	0	0	0	0	0
7:00 AM	2	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	3	0	0	0	2	0	0	0	3	0	0
9:30 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	3	1	0	0	0	0	0	0	1	0	0
3:00 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	7	0	0
3:15 PM	0	2	0	0	0	4	0	0	0	1	1	0	0	5	0	0
3:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	8	0	0
3:45 PM	0	0	0	0	0	6	1	0	1	0	0	0	0	2	0	0
4:00 PM	0	2	0	0	0	2	0	0	0	3	1	0	0	3	0	0
4:15 PM	1	1	0	0	0	1	0	0	0	0	1	0	1	7	0	0
4:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	4	0	0
4:45 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	7	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0
5:15 PM	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	1	1	0	0	0	0	0	1	0	0	0	0	2	0	0
6:00 PM	1	0	0	0	0	7	0	0	0	0	0	0	0	5	1	0
6:15 PM	1	2	1	0	0	3	0	0	0	1	1	0	0	6	0	0
6:30 PM	0	0	1	0	0	2	0	0	0	4	0	0	0	7	0	0
6:45 PM	0	2	0	0	0	2	0	0	0	2	0	0	0	4	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	4	11	0	0	0	36	8	0	4	5	6	0	4	25	3	0
6:15 AM	5	1	0	0	0	29	1	0	6	6	2	0	8	31	1	0
6:30 AM	3	6	0	0	1	28	3	0	7	8	4	1	5	34	3	0
6:45 AM	8	6	3	0	2	35	4	0	4	3	9	0	4	75	1	0
7:00 AM	3	6	2	0	4	47	2	1	10	3	13	0	5	44	3	1
7:15 AM	8	6	3	0	1	42	10	0	6	6	10	1	3	58	2	0
7:30 AM	11	5	0	0	1	37	5	0	11	6	9	1	9	59	1	0
7:45 AM	6	3	0	0	1	33	4	0	10	14	7	0	1	59	0	0
8:00 AM	7	12	1	0	2	40	14	0	14	13	18	0	5	69	2	1
8:15 AM	12	13	0	0	0	44	10	0	7	13	18	1	6	60	3	0
8:30 AM	9	8	1	0	1	31	7	0	13	10	11	1	9	51	4	0
8:45 AM	9	14	3	0	1	35	9	0	10	17	10	0	5	56	0	0
9:00 AM	7	7	0	0	2	32	6	0	10	19	4	0	10	60	3	0
9:15 AM	6	12	0	0	0	37	9	0	7	5	8	0	4	57	6	0
9:30 AM	7	12	0	0	0	30	8	0	11	5	9	1	8	52	5	0
9:45 AM	7	7	2	0	4	43	15	0	13	11	12	0	6	60	3	0
3:00 PM	9	8	1	0	6	34	10	0	7	17	7	0	11	62	2	0
3:15 PM	10	7	1	0	2	40	11	0	10	21	17	1	5	54	5	0
3:30 PM	6	10	1	0	2	41	6	0	11	18	12	0	11	61	1	0
3:45 PM	10	11	1	0	0	42	11	0	10	14	22	0	5	74	3	0
4:00 PM	12	4	3	0	5	30	13	1	17	23	10	2	11	65	5	0
4:15 PM	10	10	1	0	1	29	10	0	10	10	19	0	8	57	4	3
4:30 PM	5	11	0	0	2	37	15	0	10	19	13	0	15	53	4	1
4:45 PM	9	11	1	0	0	41	9	0	9	14	10	1	12	43	1	0
5:00 PM	8	11	0	0	0	36	7	0	13	17	13	1	8	73	3	1
5:15 PM	8	11	1	0	2	40	8	0	11	21	20	0	13	66	1	1
5:30 PM	10	9	0	0	4	36	8	2	15	20	18	2	9	62	7	0
5:45 PM	10	8	2	0	1	28	8	0	10	16	12	0	8	70	5	1
6:00 PM	7	11	1	0	2	40	13	0	11	15	8	0	8	66	2	2
6:15 PM	8	8	1	0	0	30	7	0	12	18	12	1	7	70	6	0
6:30 PM	11	9	0	0	2	35	6	0	15	24	13	2	12	64	4	1
6:45 PM	5	10	0	0	0	30	10	0	13	20	18	1	12	83	3	3

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
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Light Goods Vehicles

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0
6:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
6:30 AM	0	0	0	0	0	2	1	0	2	1	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	1	2	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
7:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	3	1	0
8:00 AM	1	0	0	0	0	2	0	0	0	1	0	0	0	4	0	0
8:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0
9:00 AM	1	0	0	0	0	5	0	0	0	0	1	0	0	6	0	0
9:15 AM	2	0	0	0	0	1	1	0	1	3	1	0	0	9	0	0
9:30 AM	1	0	0	0	0	2	0	0	0	0	1	0	0	6	0	0
9:45 AM	0	0	0	0	1	1	0	0	0	1	0	0	0	9	0	0
3:00 PM	0	1	0	0	0	1	0	1	0	1	0	0	0	2	0	0
3:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	2	4	0	0
3:30 PM	0	1	0	0	0	2	1	0	0	0	1	0	0	2	0	0
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0
4:15 PM	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	0
4:30 PM	0	0	0	0	0	1	2	0	1	0	1	0	0	2	0	0
4:45 PM	0	0	0	0	0	1	1	0	1	1	3	0	0	5	0	0
5:00 PM	1	0	0	0	0	2	0	0	0	2	1	0	0	5	0	0
5:15 PM	2	0	0	0	0	1	0	0	0	2	0	0	1	0	1	0
5:30 PM	0	0	0	0	0	2	1	0	0	1	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	2	1	0	1	4	0	0
6:00 PM	1	0	0	0	0	1	1	0	0	1	1	0	0	2	0	0
6:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0
6:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
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Site Code

Buses

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	1	4	0	0	1	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	2	3	0	0	1	0	0	0	0	0	0	0	3	0	0
6:30 AM	1	2	3	0	0	2	0	0	0	0	1	0	0	2	0	0
6:45 AM	1	1	2	0	0	1	0	0	0	0	0	0	0	5	0	0
7:00 AM	1	2	3	0	0	1	0	0	0	1	0	0	0	2	0	0
7:15 AM	2	2	6	0	0	3	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	1	4	0	0	1	0	0	0	0	0	0	0	3	0	0
7:45 AM	0	3	6	0	0	3	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	2	7	0	0	2	1	0	0	0	0	0	0	2	0	0
8:15 AM	0	2	7	0	0	3	0	0	0	0	0	0	0	3	0	0
8:30 AM	0	1	6	0	0	2	1	0	0	0	0	0	0	2	0	0
8:45 AM	0	2	11	0	0	3	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	1	6	0	0	3	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	2	1	0	0	2	0	0	0	0	0	0	0	2	0	0
9:30 AM	0	1	6	0	0	3	1	0	0	0	0	0	0	1	0	0
9:45 AM	0	1	3	0	0	3	0	0	0	0	0	0	0	2	0	0
3:00 PM	1	1	1	0	0	3	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	2	3	0	1	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	2	3	0	0	1	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	3	4	0	0	3	0	0	0	0	0	0	0	2	0	0
4:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	2	4	0	0	3	0	0	0	0	0	0	0	2	0	0
4:30 PM	0	1	4	0	0	2	0	0	0	0	0	0	0	3	0	0
4:45 PM	0	3	5	0	0	3	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	1	2	0	0	2	0	0	0	0	0	0	0	3	0	0
5:15 PM	0	2	1	0	0	2	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	3	6	0	0	3	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	2	6	0	0	1	0	0	0	0	0	0	0	2	0	0
6:00 PM	0	2	4	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	2	5	0	0	3	0	0	0	0	0	0	0	3	0	0
6:30 PM	0	2	3	0	0	2	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	2	3	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name 7-Broadway and 75th St
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Start Time 6:00 AM
Site Code

Single-Unit Trucks

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
7:00 AM	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0
7:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	4	0	0
8:45 AM	0	0	0	0	2	1	0	0	0	1	0	0	0	4	0	0
9:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0
9:15 AM	0	0	0	0	0	1	1	0	1	1	0	0	0	5	0	0
9:30 AM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	1	1	1	0	0	0	1	0	0	7	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	1	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
4:30 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
5:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	2	1	0	0	1	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	1	0	0	0	1	0	0	0	2	0	0	0	3	0	0
9:15 AM	0	0	0	0	0	3	0	0	0	1	0	0	0	2	0	0
9:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
9:45 AM	0	1	0	0	0	3	0	0	0	2	0	0	0	1	1	0
3:00 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
4:00 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:30 PM	0	2	0	0	0	3	0	0	0	1	0	0	0	1	0	0
4:45 PM	0	0	2	0	0	2	1	0	0	1	0	0	1	2	0	0
5:00 PM	1	2	0	0	0	5	0	0	0	0	0	0	0	8	1	0
5:15 PM	0	0	0	0	0	6	0	0	0	2	1	0	0	2	0	0
5:30 PM	0	0	0	0	0	3	0	0	0	1	1	0	0	3	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	4	1	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	4	0	0	2	0	0	0	0	5	0	0
6:30 PM	0	0	0	0	0	3	1	0	1	3	0	0	0	3	0	0
6:45 PM	0	0	0	0	0	4	2	0	0	0	0	0	0	1	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	1	1	0	0	0	1	0	0	5	0	0
7:15 AM	0	1	0	0	0	2	0	0	1	0	1	0	0	3	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0
3:15 PM	1	2	0	0	0	1	0	0	2	0	1	0	0	2	0	0
3:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	75TH ST Southbound		BROADWAY Westbound		75TH ST Northbound		BROADWAY Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	1	0	0	1	0	0
6:45 AM	1	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	1	0	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	0	1	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	0	0	0	0	1	1	1	0
9:45 AM	0	0	0	0	0	3	0	0
3:00 PM	0	2	0	0	0	0	0	0
3:15 PM	0	0	1	0	0	0	1	0
3:30 PM	0	1	0	0	1	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	2	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	1	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	1	0	0	0
5:30 PM	0	0	0	0	2	1	0	0
5:45 PM	0	0	0	0	1	1	0	1
6:00 PM	0	0	0	0	0	0	0	0
6:15 PM	0	0	1	0	1	1	0	1
6:30 PM	0	0	0	1	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	75TH ST Southbound		BROADWAY Westbound		75TH ST Northbound		BROADWAY Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	14	12	3	6	21	8	10	2
6:15 AM	25	16	3	15	20	11	7	3
6:30 AM	30	18	7	12	19	7	11	7
6:45 AM	29	24	6	11	25	6	5	8
7:00 AM	19	22	9	18	24	4	10	8
7:15 AM	58	26	8	25	30	14	23	10
7:30 AM	68	27	13	22	26	13	17	15
7:45 AM	60	40	16	24	25	12	13	17
8:00 AM	63	38	19	22	23	20	20	18
8:15 AM	57	53	13	21	23	15	22	17
8:30 AM	58	32	14	26	21	17	18	16
8:45 AM	49	25	14	29	14	16	12	15
9:00 AM	25	20	10	23	20	12	9	12
9:15 AM	46	20	15	25	20	19	11	14
9:30 AM	40	29	14	28	18	13	12	14
9:45 AM	60	24	18	23	31	24	13	18
3:00 PM	52	49	21	28	62	23	24	20
3:15 PM	43	42	22	37	49	34	36	24
3:30 PM	55	52	14	34	39	30	37	15
3:45 PM	60	42	15	35	37	27	31	14
4:00 PM	49	42	20	27	53	24	38	11
4:15 PM	55	36	17	29	46	19	41	17
4:30 PM	66	36	14	31	43	30	33	26
4:45 PM	55	39	22	47	44	18	36	19
5:00 PM	79	37	24	40	63	42	39	27
5:15 PM	61	56	21	45	49	28	39	20
5:30 PM	58	46	15	42	66	31	36	28
5:45 PM	56	64	14	54	33	41	24	25
6:00 PM	70	45	9	52	45	24	26	25
6:15 PM	57	55	20	49	59	27	42	37
6:30 PM	37	47	20	40	54	33	31	28
6:45 PM	40	40	15	25	64	29	33	23

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	6	13	4	0	0	41	8	0	4	5	7	0	6	35	3	0
6:15 AM	6	5	3	0	0	39	1	0	7	6	2	0	8	41	1	0
6:30 AM	4	8	3	0	1	36	5	0	9	12	5	1	5	46	3	0
6:45 AM	9	7	5	0	2	48	8	0	4	5	12	0	4	86	1	0
7:00 AM	7	10	5	0	4	51	3	1	12	5	14	0	7	56	3	1
7:15 AM	11	9	9	0	1	50	10	0	7	6	12	1	3	67	3	0
7:30 AM	12	6	4	0	1	41	5	0	11	6	9	1	9	71	1	0
7:45 AM	7	7	6	0	1	39	4	0	10	16	7	0	1	71	1	0
8:00 AM	10	14	8	0	2	45	15	0	14	14	18	0	5	80	2	1
8:15 AM	13	17	7	0	0	48	11	0	7	14	18	1	6	73	4	0
8:30 AM	9	9	7	0	1	37	9	0	13	10	11	1	9	62	4	0
8:45 AM	9	16	15	0	3	43	9	0	10	18	12	0	5	66	0	0
9:00 AM	8	9	6	0	2	48	6	0	10	21	5	0	11	74	3	0
9:15 AM	8	14	1	0	0	47	11	0	9	12	9	0	4	80	6	0
9:30 AM	8	14	6	0	0	37	10	0	13	6	10	1	8	61	5	0
9:45 AM	7	9	5	0	5	54	16	0	13	14	12	0	6	76	4	0
3:00 PM	10	12	2	0	7	47	11	1	8	19	8	0	11	80	2	0
3:15 PM	11	14	4	0	3	50	11	0	12	24	19	1	7	66	5	0
3:30 PM	6	14	4	0	3	49	7	0	12	20	13	0	11	77	1	0
3:45 PM	10	14	5	0	0	53	14	0	11	15	23	0	5	84	3	0
4:00 PM	13	6	5	0	5	37	13	1	18	26	13	2	12	76	6	0
4:15 PM	13	15	6	0	1	37	10	0	10	10	21	0	10	72	4	3
4:30 PM	5	15	4	0	2	48	19	0	11	21	14	0	15	64	4	1
4:45 PM	9	15	8	0	0	56	11	0	10	16	13	1	13	60	1	0
5:00 PM	10	14	2	0	0	48	7	0	13	20	14	1	8	95	4	1
5:15 PM	10	13	3	0	2	54	8	0	12	26	21	0	14	73	2	1
5:30 PM	10	12	6	0	4	48	9	2	15	22	20	2	9	71	7	0
5:45 PM	10	11	9	0	1	33	8	0	11	19	14	0	9	83	6	1
6:00 PM	9	13	5	0	2	52	14	0	11	16	9	0	8	83	3	2
6:15 PM	10	12	7	0	0	41	7	0	14	19	13	1	8	86	6	0
6:30 PM	11	11	4	0	3	44	7	0	16	31	14	2	12	77	4	1
6:45 PM	5	14	3	0	0	42	12	0	14	22	19	1	13	93	4	3

Attachment F: Raw Data Summary for Roosevelt Avenue Intersections

Hourly Volume by Approach

Intersection	Approach	6:00-7:00am	6:15-7:15am	6:30-7:30am	6:45-7:45am	7:00-8:00am	7:15-8:15am	7:30-8:30am	7:45-8:45am
Roosevelt Ave/New Transit Intersection	EB	101	107	120	144	145	161	166	173
	WB	379	405	417	440	467	454	462	438
Roosevelt Ave/ 72nd St	SB	58	75	93	105	134	143	159	150
Roosevelt Ave/73rd St	NB	49	51	51	62	64	73	81	72
Roosevelt Ave/Broadway	EB	162	158	183	217	222	252	264	265
	WB	459	477	491	502	507	474	471	450
	SE	209	233	267	295	289	314	311	296
	NW	152	167	177	185	178	178	178	180
Roosevelt Ave/75th St	WB	443	457	479	491	505	475	474	468
	SB	82	89	104	111	115	121	123	121
Broadway/75th St	WB	173	185	208	216	202	203	201	200
total		2267	2404	2590	2768	2828	2848	2890	2813

Highest Hourly Volume

Intersection	Approach	8:00-9:00am	8:15-9:15am	8:30-9:30am	8:45-9:45am	9:00-10:00am	3:00-4:00pm	3:15-4:15pm	3:30-4:30pm	3:45-4:45pm
Roosevelt Ave/New Transit Intersection	EB	175	162	163	167	191	331	329	334	331
	WB	419	400	357	330	291	240	247	245	277
Roosevelt Ave/ 72nd St	SB	149	133	111	119	110	168	198	231	248
Roosevelt Ave/73rd St	NB	68	62	62	67	73	102	94	87	88
Roosevelt Ave/Broadway	EB	268	244	243	240	267	452	453	457	456
	WB	440	433	403	362	314	301	301	296	297
	SE	286	288	289	309	317	298	304	292	303
	NW	184	175	166	162	175	193	203	191	198
Roosevelt Ave/75th St	WB	467	459	434	393	338	292	302	301	285
	SB	124	108	105	107	101	136	128	122	115
Broadway/75th St	WB	211	204	201	198	215	239	232	214	221
total		2791	2668	2534	2454	2392	2752	2791	2770	2819

Intersection	Approach	4:00-5:00pm	4:15-5:15pm	4:30-5:30pm	4:45-5:45pm	5:00-6:00pm	5:15-6:15pm	5:30-6:30pm	5:45-6:45pm	6-7pm
Roosevelt Ave/New Transit Intersection	EB	324	322	309	297	317	323	320	332	312
	WB	287	265	293	277	280	286	249	268	265
Roosevelt Ave/ 72nd St	SB	248	242	220	219	223	209	196	183	181
Roosevelt Ave/73rd St	NB	105	114	110	113	109	106	113	117	121
Roosevelt Ave/Broadway	EB	440	466	443	444	454	438	427	430	419
	WB	291	283	298	288	298	285	266	270	265
	SE	282	278	302	293	306	300	286	296	306
	NW	205	190	202	195	170	167	158	164	175
Roosevelt Ave/75th St	WB	297	288	309	311	307	300	281	279	272
	SB	105	116	137	137	133	134	123	134	137
Broadway/75th St	WB	220	215	229	222	200	217	202	193	199
total		2804	2779	2852	2796	2797	2765	2621	2666	2652

Attachment G: Design Year 2045 Volume Development for Roosevelt Avenue Intersections

		Peak hour volume	
Intersection	Approach	2022	2045
Roosevelt Ave/New Transit Intersection	EB	334	376
	WB	467	525
Roosevelt Ave/ 72nd St	SB	248	279
Roosevelt Ave/73rd St	NB	121	136
Roosevelt Ave/Broadway	EB	466	524
	WB	507	570
	SE	317	357
	NW	205	231
Roosevelt Ave/75th St	WB	505	568
	SB	137	154
Broadway/75th St	WB	239	269

Growth Rate	0.514%
Design Year	2045

Appendix 1.9 Roosevelt Avenue Segment LRT Vissim Model Development

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

Contents

Attachments

Introduction

In order to maximize connectivity with New York City's existing public transportation network, the MTA's Interborough Express (IBX) project proposes to develop its Queens terminal in transit-rich Jackson Heights. A concept was developed for IBX's Light Rail Transit (LRT) alternative to exit the cut of CSX's Fremont Secondary via a ramp and travel east along Roosevelt Avenue to reach the proposed LRT terminal on Broadway between 74th Street and 75th Street. This would create a convenient transfer to both New York City Transit's (NYCT) Jackson Heights – Roosevelt Avenue Station and the Victor Moore Bus Terminal. Due to the complex and physically constrained nature of this segment of the proposed alignment, a detailed evaluation was performed using Vissim traffic microsimulation software. The traffic microsimulation analysis study area (see **Figure 1**) included eight existing intersections on Roosevelt Avenue from 69th Street to 76th Street, plus 76th Street at Broadway, and one proposed intersection where the LRT/BRT alignment ramp from the Fremont Secondary connects to Roosevelt Avenue. Vissim replicates the complex transit-to-roadway signaling processes—whether it be traffic signal priority or preemption for LRT—to identify critical queuing and delay issues at adjacent intersections that would require further study during the NEPA process. The LRT alignment and traffic analysis area is introduced in **Figure 2**.

Figure 1 Study Area, TMC and ATR Locations

Methodology and Summary

To support the development of the Vissim model, traffic counts were performed at the Roosevelt Avenue corridor. The counts were reviewed and summarized to identify weekday AM and PM peak hours, which were modeled for the Existing Conditions and calibrated. A No Build Conditions model for the 2045 Build year was developed and analyzed to provide a comparison to the Build LRT model results. For the 2045 Build LRT (AM and PM peak hour) Conditions, it was determined, that due to the short block lengths and train consist lengths, transit signal preemption would be required. For the Build Conditions, the signal timings at the intersections along the corridor were optimized to mitigate

potential delays and queues and provide adequate clearance for the transit vehicles. The optimized Build model was then compared to the No Build models to identify any noticeable changes in delay or queues.

The 2045 Build model indicated that there were increases to the predicted travel times in the respective peak direction when compared with the 2045 No Build model. During the AM peak, travel time on westbound Roosevelt Avenue increased by 89 seconds (a 51% increase), and during the PM peak, eastbound travel time increased by 37 seconds (a 21% increase). Conversely, AM travel time in the eastbound (non-peak) direction decreased by 8 seconds (a 5% decrease), and PM travel time decreased by 1 second (a 0.5% decrease). Furthermore, LRT interruptions worsen the Level of Service (LOS) for 25 out of 76 lane groups in the AM peak hour and 19 lane groups in the PM peak hour. LOS improves for 14 lane groups in the AM peak hour and 1 lane group in the PM peak hour.

Figure 2: Proposed LRT Alignment and Traffic Analysis Area

Traffic Data Collection

A traffic data collection effort was conducted to obtain recent traffic volumes and observations within the Roosevelt Avenue segment of the proposed IBX LRT alignment. Turning Movement Counts (TMC) and Automatic Traffic Recorder (ATR) data were collected in May 2022. Field observations were performed at the study intersections on Tuesday, May 17th from 6:00 AM to 10:00 AM and from 4:00 PM to 7:00 PM. TMC data was collected on Wednesday, May 18th during the same peak periods. Raw TMC data is included in **Attachment A**, and raw ATR data is included in **Attachment B**.

Peak Hour Identification

A review of the summarized traffic counts determined the Weekday AM and PM peak hours to be 7:30 AM – 8:30 AM and 4:30 PM – 5:30 PM (**Figure 3** and **Figure 4**). Aggregated ATR and TMC summary spreadsheets are in **Attachment C**.

Figure 3: Aggregated TMC & ATR Hourly Total Volume Summary – AM Peak

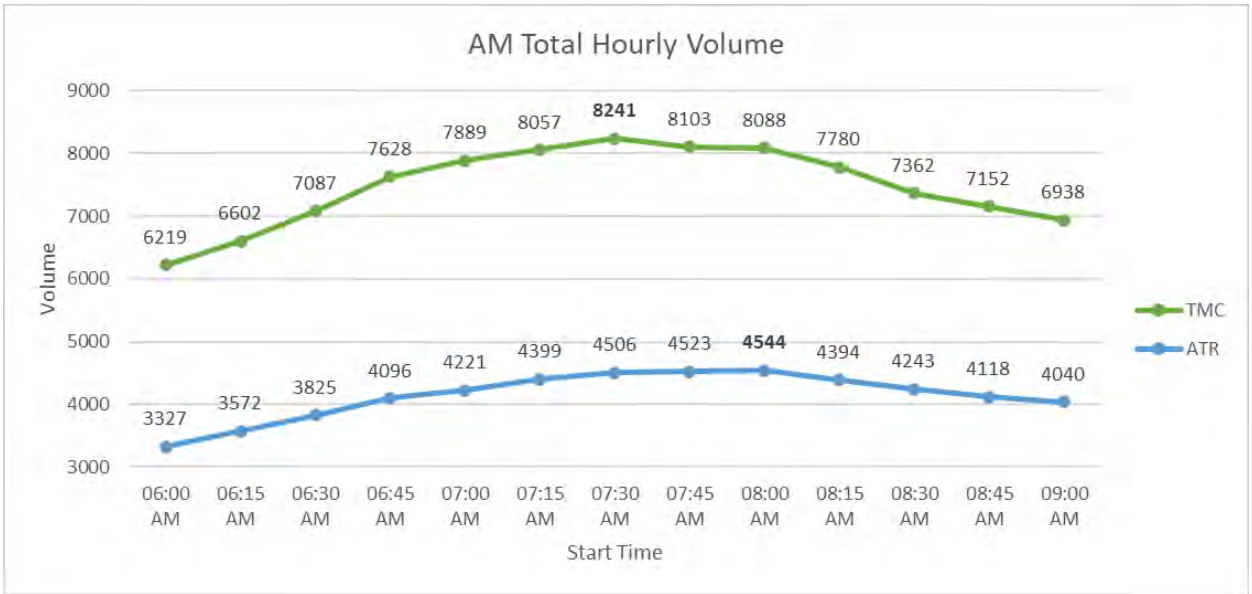
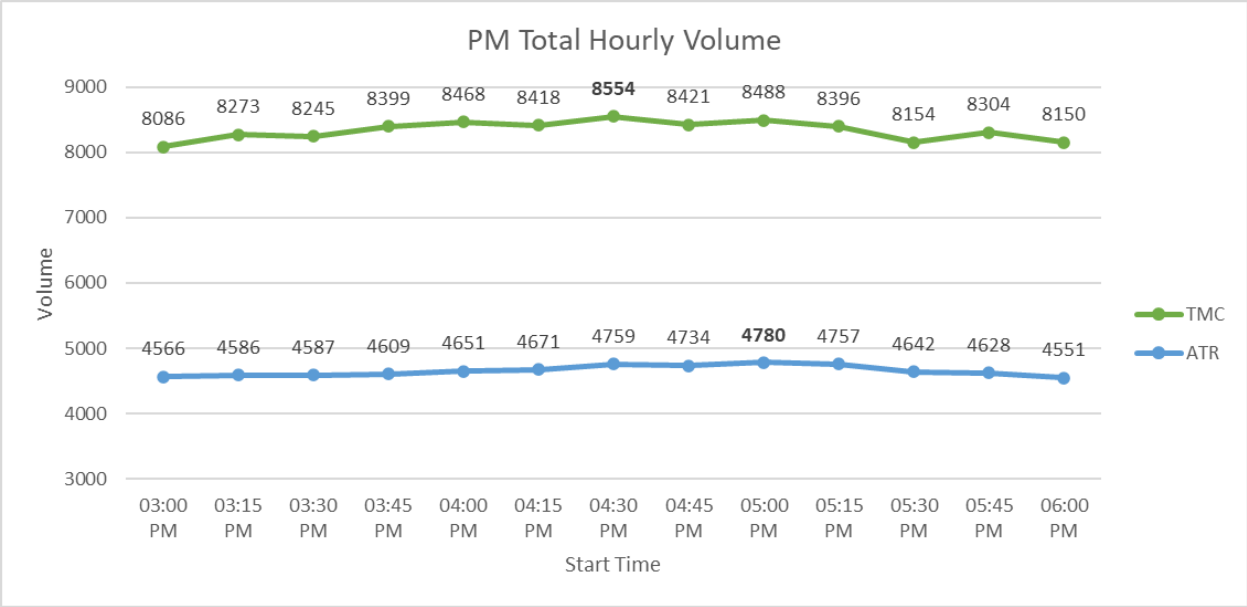


Figure 4: TMC & ATR Hourly Volume Summary – PM Peak



Existing Conditions Model Development

Weekday AM and PM Peak Hour traffic microsimulation models were developed using PTV's Vissim Version 2021 software. The Existing Conditions model geometry, including lane widths and block lengths, was developed according to roadway plans for Roosevelt Avenue where available, and supported with Google Maps.

Existing Weekday AM and PM peak hour balanced volumes were used to develop vehicle inputs with vehicle compositions according to the volumes counted at the specific network entries, which were assigned vehicle types including cars, trucks, and buses. The vehicle input compositions were input with an average speed of 25 mph. A model seeding period of 15 minutes was added to provide a base level of traffic volumes to "seed" the roadways at the start of the actual peak hour. Volume diagrams for pedestrians and bicycles conflicting with vehicle movements were also created for the peak hour and entered as vehicle inputs in order to replicate the traffic interactions between turning vehicles and conflicting pedestrians and bicyclists. The Existing AM and PM peak hour balanced vehicle, pedestrian, and bicycle diagrams are included in **Attachment D**.

Reduced speed areas were coded at vehicle turns with the average right turn speed of 12.5 mph and the average left turn at 20 mph. To replicate the yielding behavior of turning vehicles, conflict areas were primarily used with additional priority rules coded as needed.

NYCT bus volumes and schedules were obtained from the NYCT website[1], summarized by bus route and direction, and coded as public transit lines separately from other traffic inputs. Coded bus lines included Q32, Q33, Q47, Q53-SBS and Q70-SBS; related bus schedule documents are included in **Attachment E**. The dwell times of buses used an average of 40 seconds for roadside stops and 5 minutes of layover for those entering the bus arcade, which were based on video observation and industry standards.

[1] https://new.mta.info/schedules/bus/queens, accessed on 7/5/2022.

Traffic signal timings that were input for the respective time of day plan were provided by New York City Department of Traffic (NYCDOT) dated 2022 and were fixed time operation. Signal timing plans are included in **Attachment F**.

Existing Conditions Model Calibration

2022 AM and PM Existing Conditions Vissim models' outputs were calibrated to counted volumes and field observed queues. The traffic microsimulation calibration targets were adopted from the commonly used Wisconsin Department of Transportation criteria that are cited as an example in the Federal Highway Administration's (FHA) "Traffic Analysis Toolbox 2004 Version - Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software."

During the calibration, the conflict areas and priority rules were adjusted intersection by intersection based on TMC videos to try to meet the target model vs. count differences for volumes and model vs. field criteria for queues. Extra care was given to queue length calibration and the unintended consequences of aggressive parameter adjustments that did not substantially improve the overall queue differences while worsening volume calibration targets or affecting upstream or downstream queues.

All volume calibration targets were met (see **Table 1** and **Table 2**). The field notes and videos were reviewed during the calibration process as a recorded basis for field operations. Due to the limited field queue observations, traffic operations and throughputs are therefore the primary targets, with queue lengths secondary. Queue calibration results are shown in **Table 3**.

Table 1: Existing Conditions Volumes Calibration Summary – AM Peak Hour

MTA IBX Transportation Study - Existing Conditions Volumes Calibration Summary - AM Peak Hour				
Roadway Type	***MOE Criteria***	***Target***	***7:30-8:30 AM***	***7:30-8:30 AM***
Local Streets	Individual Link Flows (within 100 vph for flow < 700 vph)	> 85% of cases	100%	*Calibrated*
	Individual Link Flows (within 15% for 700 vph < flow < 2700 vph)	> 85% of cases	-	-
	Individual Link Flows (within 400 vph for flow > 2700 vph)	> 85% of cases	-	-
	Sum of all link flows	within 5% of sum of all link counts	0.2%	*Calibrated*
	GEH < 5 - Individual Link Flows	> 85% of cases	100%	*Calibrated*
	GEH - Sum of all link flows	GEH < 4 for sum of all link counts	0.2	*Calibrated*

vph = vehicles per hour
The GEH statistics is computed as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/_2}}$$

where: E: model estimated volume, and V: Field count.

Table 2: Existing Conditions Volumes Calibration Summary – PM Peak Hour

MTA IBX Transportation Study - Existing Conditions Volumes Calibration Summary - PM Peak Hour				
Roadway Type	***MOE Criteria***	***Target***	***4:30-5:30 PM***	***4:30-5:30 PM***
Local Streets	Individual Link Flows (within 100 vph for flow < 700 vph)	> 85% of cases	100%	*Calibrated*
	Individual Link Flows (within 15% for 700 vph < flow < 2700 vph)	> 85% of cases	-	-
	Individual Link Flows (within 400 vph for flow > 2700 vph)	> 85% of cases	-	-
	Sum of all link flows	within 5% of sum of all link counts	0.1%	*Calibrated*
	GEH < 5 - Individual Link Flows	> 85% of cases	100%	*Calibrated*
	GEH - Sum of all link flows	GEH < 4 for sum of all link counts	0.1	*Calibrated*

vph = vehicles per hour
The GEH statistics is computed as follows:

$$GEH = \sqrt{\frac{(E-V)^2}{(E+V)/_2}}$$

where: E: model estimated volume, and V: Field count.

Table 3: Existing Conditions Queue Length Summary – AM & PM Peak Hours

MTA IBX VISSIM Existing Conditions Queue Length Summary			
	Total Number of Lane Groups	Queue Lengths within Recommendation Range	Queue Lengths not within Recommendation Range
AM	28	18	7
PM	28	10	17

The Vissim model parameters below were adjusted to replicate the field operation and achieve calibration targets:

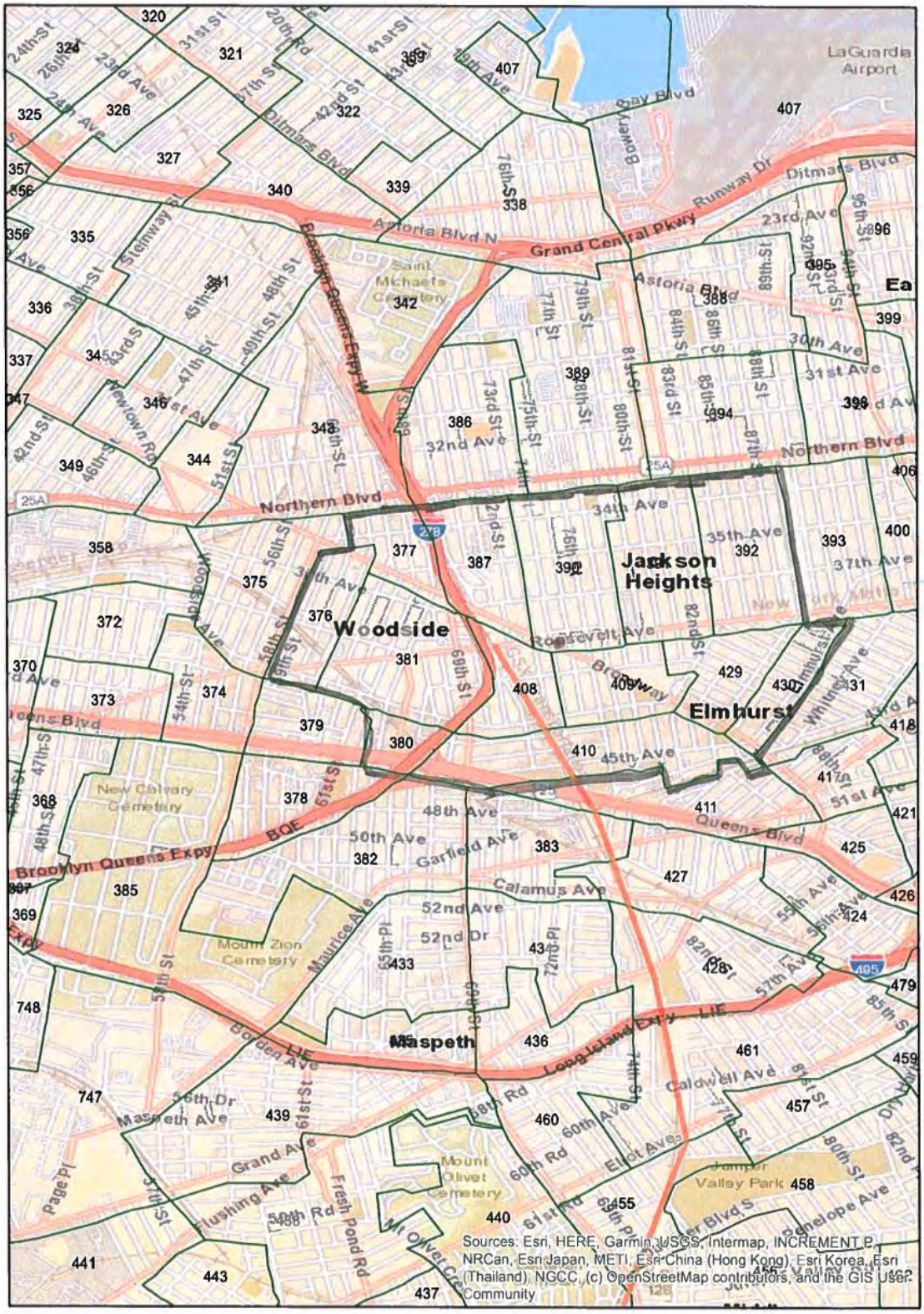
1) **Interaction between right turning vehicles and conflicting pedestrians**: According to TMC videos, it was noticed that turning vehicles proceeded more aggressively than what was replicated using conflict areas. It was also noticed that right-turning buses were given priority by the conflicting pedestrians to provide a smoother traffic flow and operation without obstructing the through traffic trailing buses along Roosevelt Avenue. Priority rules instead of conflict areas were coded to replicate the more aggressive bus operation and pedestrian's cooperation.
2) **Interaction between left turning vehicles and through traffic**: According to TMC videos and field observation notes, left-turning vehicles do not block through vehicles, which swerve around the left-turning vehicles that are waiting for an available gap in the opposite direction, and proceed through the intersection without (or with a minimal) slowdown.

No Build Models Development

The calibrated Existing Conditions Vissim models were updated with 2045 forecasted volumes to create the No Build 2045 Vissim models.

2045 volumes were developed based on growth rates between year 2018 and 2040(as shown in **Table 4**), identified from the New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM). Daily Person Trips Information was extracted for Traffic Assignment Zones (TAZs) along the proposed LRT alignment including Roosevelt Avenue (see Error! Reference source not found.). The annual growth rate was calculated first, and was applied to the 2022 existing Balanced Vehicular, Pedestrian, and Bicycle Diagram volumes to develop 2045 No Build (and Build) Balanced Volume Diagrams for the Weekday AM and PM peak hours. The growth rate is provided in **Attachment G**, and the No Build AM and PM peak hour balanced volumes (vehicle, pedestrian, and bicycle) are provided in **Attachment H**.

Figure 5: Northern (Roosevelt Avenue) Zone TAZs



Source: New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM) TAZ layer.

Table 4: Roosevelt Avenue Traffic Assignment Zones

	2018		2040		2018 to 2040 % Growth	
Zone #	Productions	Attractions	Productions	Attractions	Productions	Attractions
376	5,864	5,597	6,662	6,153	14%	10%
377	2,229	2,381	2,539	2,650	14%	11%
380	2,405	2,014	2,731	2,217	14%	10%
381	21,052	18,190	24,005	20,169	14%	11%
387	10,322	7,877	11,809	8,835	14%	12%
391	18,040	17,184	20,663	19,239	15%	12%
392	24,037	16,051	27,610	17,505	15%	9%
408	6,518	5,902	7,004	6,582	7%	12%
409	10,213	16,035	10,927	17,812	7%	11%
410	15,721	13,808	16,871	15,403	7%	12%
429	13,455	13,423	14,467	14,762	8%	10%
430	11,599	10,196	12,454	11,185	7%	10%
Northern Total	552,524	502,659	620,186	561,022	12%	12%

Source: New York Metropolitan Transportation Council's (NYMTC) Best Practice Model (BPM).

Build Models Development

The No Build Vissim models, including the 2045 No Build volumes, were used as the basis for the 2045 Build Model. Single track LRT was coded based on the proposed mixed-use alignment running on Roosevelt Avenue along the south curbside (parking) lane between 72nd Street and Broadway, where the LRT turns right and approaches the terminal stop on Broadway between 74th Street and 75th Street (see **Figure 6**).

Figure 6: Proposed LRT – Roosevelt Avenue Segment Alignment

Below are the assumptions used for the LRT traffic operational analyses.

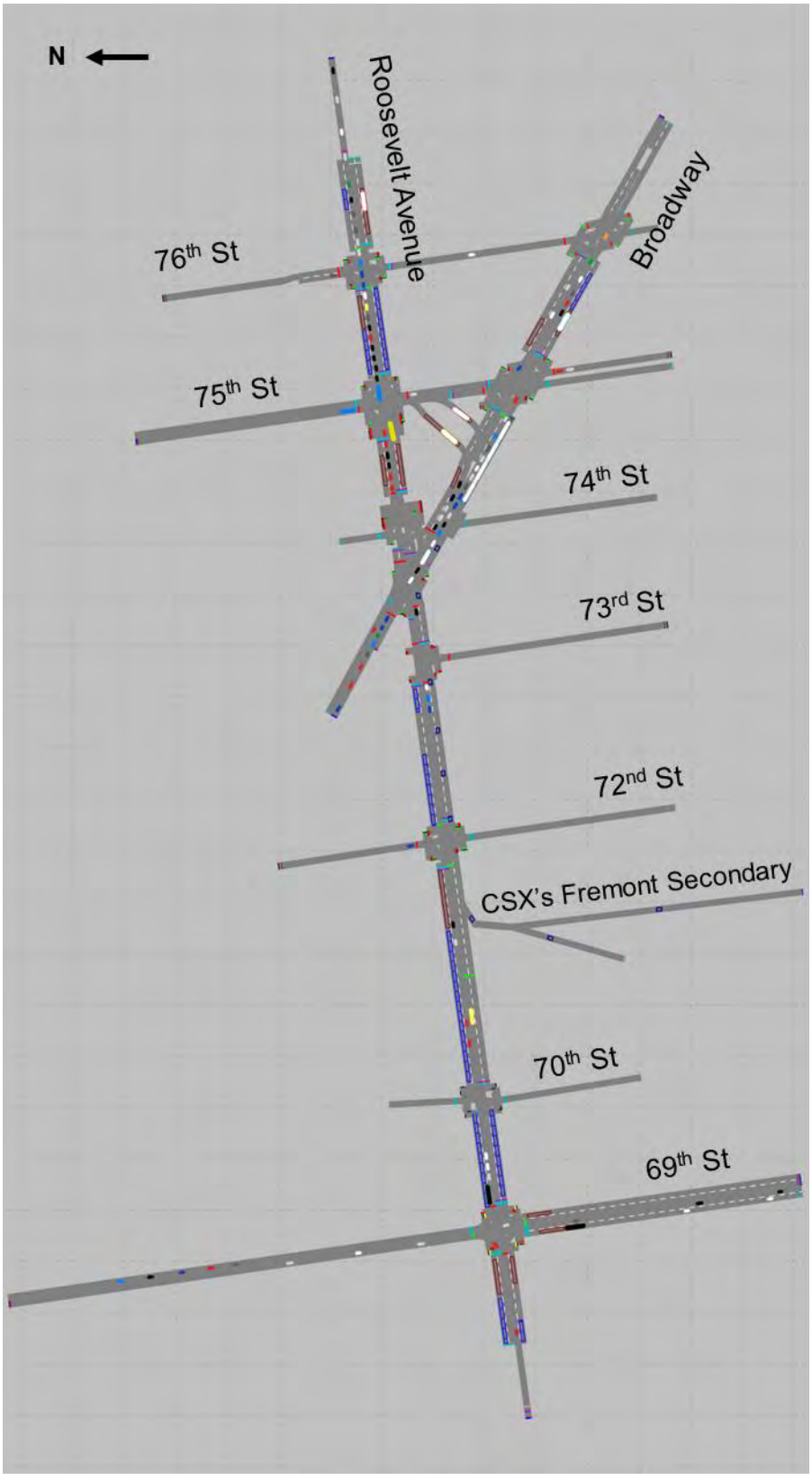
Light Rail Vehicles (LRV) were assumed to travel at 20 mph except at the two curves that were assumed to be 5 mph. The bus stop on eastbound Roosevelt Avenue at the far side of 72nd Street that serves Bus Route Q32 and Q47 was removed to avoid conflicts with LRT.

LRV dwell time at the terminal stop was assumed to be 2.5 minutes. The headway was assumed to be 5 minutes to avoid the conflict of eastbound and westbound LRVs at the western segment of the single track before the alignment returns to double track. No gates (physical barrier) would be used to keep the intersections clear.

LRT is running with Transit Signal Preemption (TSP), which stops all traffic at intersections—including vehicles, pedestrians, and bicycles—by switching from normal signal operations to a red phase. LRT "check-in" detections are located at a distance before an intersection that permits 20 seconds to clear any vehicles in conflict (waiting in the intersection from last time step). Normal traffic signal timing resumes once the LRV completely passes through an intersection or "checks-out." The signal recovery phases alternate to avoid extra impedance on major/minor streets. The resuming exit phase is eastbound/westbound Roosevelt Avenue after an eastbound LRT crossing event, and the northbound/southbound cross-streets phase after a westbound LRT crossing event. For instance, when an eastbound LRV is detected approaching an intersection, all movements instantly turn to a red phase, including vehicular, bicycle, and pedestrian. Eastbound and westbound Roosevelt Avenue traffic resume operations after the LRV completely passes through the intersection. Due to frequent eastbound and westbound LRT events and interruptions on general traffic, the resuming phases after a westbound LRV passes through an intersection are coded as the northbound/southbound cross-streets. In this way, vehicular traffic is alternatively served to avoid extensive added delays on cross-streets only.

The effects of parking space losses on a street in a central business district and the potential stopping of vehicles in the general travel lane have not been studied. They may result in additional traffic volumes and instances of double-parking. The 2045 Build Condition VISSIM model with LRT in simulation is displayed in **Figure 7**.

Figure 7: 2045 Build AM Peak Hour Vissim Model



No Build 2045 vs. Build 2045 volume, queue length and travel time Measures of Effectiveness (MOE) are compared in the tables below for the future 2045 AM and PM peak hours.

During the 2045 Build AM peak hour, the eastbound Roosevelt Avenue travel time would decrease by 4.9%, while the westbound Roosevelt Avenue travel time would increase by 51.2% (**Table 5**) compared to the No Build Conditions. During the 2045 Build PM peak hour, the eastbound Roosevelt Avenue travel time would increase by 21.2%, while the westbound Roosevelt Avenue travel time would decrease by 0.5% compared to the No Build Conditions. The LRT would benefit the non-peak directional traffic as the signal preemption shortens the normal cycle length and thus reduces intersection delays. The traffic flows for the peak direction would be noticeably affected by the LRT interruption that frequently stops traffic and disrupts the coordination due to the alternating exit phases. As the LRT travels along Roosevelt Avenue between 72nd Street and 74th Street/Broadway, the signal operation with LRT preemption within this segment would result in uncoordinated operations. This uncoordinated condition in the peak Roosevelt Avenue direction would result in traffic saturation or starvation at different times for the closely spaced intersections as well as additional travel delays.

Table 5: 2045 No Build vs. 2045 Build Conditions Travel Time Comparison – Weekday AM & PM Peak Hours

MTA IBX Travel Time Comparison NoBuild vs. Build - AM Peak Hour 7:30 - 8:30 AM							
	Travel Time Section			Travel Time (min:ss)			
		From	To	2045 NoBuild	2045 Build	Diff	Diff in %
1	EB Roosevelt Ave	69th St	76th St	02:36	02:28	00:08	4.9%
2	WB Roosevelt Ave	76th St	69th St	02:53	04:22	01:29	51.2%

MTA IBX Travel Time Comparison NoBuild vs. Build - PM Peak Hour 4:30 - 5:30 PM							
	Travel Time Section			Travel Time (min:ss)			
		From	To	2045 NoBuild	2045 Build	Diff	Diff in %
1	EB Roosevelt Ave	69th St	76th St	02:57	03:34	00:37	21.2%
2	WB Roosevelt Ave	76th St	69th St	03:13	03:12	00:01	0.5%

	Travel time decreased
	Travel time increased

As shown in **Table 6**, during the 2045 Build AM peak hour, the Level of Service (LOS) of 25 of 76 lane groups worsens and the LOS of 14 of 76 lane groups improves. 10 of 76 study intersection lane groups worsen from LOS D or better in the 2045 No Build AM peak hour to LOS E or F with the LRT Build conditions. The following approaches all experience increased delays because of LRT interruptions: northbound 73rd Street approach at Roosevelt Avenue, the southeast-bound Broadway approach at Roosevelt Avenue, the northwest-bound and southeast-bound Broadway approaches at Roosevelt Avenue/74th Street, and the southbound Roosevelt Avenue right turn to 76th Street.

As shown in

Table 7, during the 2045 Build PM peak hour, the LOS of 19 of 76 lane groups worsens, and 1 of 76 lane groups' LOS improves. The LOS of 13 of 76 lane groups worsens from LOS D or better to LOS E or F. The following approaches would realize increases in delay because of LRT interruptions: the southbound 72nd Street approach at Roosevelt Avenue, the northbound 73rd Street approach at Roosevelt Avenue, and the northwest-bound and southeast-bound Broadway approaches at Roosevelt Avenue/74th Street.

A comparison of modeled queue length and available storage length (**Table 8** and **Table 9**) found that the average queue of the westbound Roosevelt Avenue approach at 76th Street exceeded its storage length in the AM peak hour by more than 50 feet. In addition, the average queue of the southeast Broadway approach at Roosevelt Avenue exceeded storage length by more than 70 feet in the PM peak hour.

Table 6: 2045 No Build vs. 2045 Build Conditions Intersection MOE Comparison – AM Peak Hour

MTA IBX Intersection MOE Comparison NoBuild vs. Build AM Peak Hour 7:30 - 8:30 AM								
Int'n ID	Int'n Name	Movement	Volume (vehs)		Delay (Sec)		Level of Service (LOS)	
			2045 NoBuild	2045 Build	2045 NoBuild	2045 Build	2045 NoBuild	2045 Build
1	Roosevelt Avenue/69th Street (Signalized)	EBL	78	77	25.5	27.6	C	C
		EBT	179	178	16.1	16.6	B	B
		EBR	42	42	18.4	18.9	B	B
		WBL	39	37	19.1	23.2	B	C
		WBT	439	433	11.7	16.6	B	B
		WBR	53	53	14.8	20.1	B	C
		NBL	29	29	54.2	54.1	D	D
		NBT	124	124	40.1	39.8	D	D
		NBR	45	45	46.2	44.1	D	D
		SBL	19	19	49.7	50.7	D	D
		SBT	208	208	45.8	45.7	D	D
		SBR	88	88	47.6	49.0	D	D
		Overall	1342	1333	26.5	28.7	C	C
2	Roosevelt Avenue/70th Street (Unsignalized)	EBL	9	9	5.9	6.3	A	A
		EBT	214	214	0.5	0.5	A	A
		EBR	20	20	1.1	1.2	A	A
		WBL	10	11	6.1	12.0	A	B
		WBT	530	524	6.5	13.4	A	B
		WBR	9	9	5.1	13.5	A	B
		Overall	793	786	4.7	9.5	A	A
3	Roosevelt Avenue/72nd Street (Signalized)	EBT	206	207	8.8	20.4	A	C
		EBR	9	9	8.0	23.4	A	C
		WBL	17	17	9.9	20.5	A	C
		WBT	499	495	6.7	15.7	A	B
		SBL	80	79	40.3	50.9	D	D
		SBT	46	46	37.0	48.4	D	D
		SBR	50	50	37.8	52.8	D	D
		Overall	907	903	13.5	23.7	B	C
4	Roosevelt Avenue/73rd Street (Signalized)	EBT	286	287	22.6	13.9	C	B
		WBT	465	461	1.8	3.0	A	A
		NBL	52	51	36.1	58.6	D	E
		NBR	43	44	34.9	55.1	C	E
		Overall	846	843	12.6	12.8	B	B
5	Roosevelt Avenue/74th Street/Broadway (Signalized)	EBT @ Broadway	245	245	9.0	9.4	A	A
		EBR @ Broadway	84	84	9.2	11.0	A	B
		WBL @ Broadway	2	2	21.0	35.0	C	D
		WBT @ Broadway	432	429	21.1	7.4	C	A
		WBR @ Broadway	101	102	27.6	11.3	C	B
		WBT @ 74th St	535	556	22.3	25.6	C	C
		WBR @ 74th St	25	25	21.9	9.3	C	A
		NWL @ 74th St	30	29	61.4	73.2	E	E
		NWT @ 74th St	210	210	46.6	113.8	D	F
		NWR1 @ 74th St	20	20	41.7	73.2	D	E
		NWR2 @ 74th St	10	10	74.1	74.5	E	E
		SEL @ Roosevelt Ave	15	15	51.6	75.9	D	E
		SET @ Roosevelt Ave	344	339	43.2	74.2	D	E
		SER @ Roosevelt Ave	3	3	49.4	26.7	D	C
		SET @ 74th St	358	354	36.2	61.6	D	E
		SER @ 74th St	72	71	37.7	61.5	D	E
		Overall	2486	2494	29.3	43.1	C	D
6	Roosevelt Avenue/75th Street (Signalized)	EBL	13	13	24.4	21.5	C	C
		EBT	211	211	5.5	2.5	A	A
		EBR	26	26	18.8	7.1	B	A
		WBL	12	12	20.2	27.8	C	C
		WBT	486	483	26.2	36.6	C	D
		WBR	40	39	15.9	27.5	B	C
		NBL	23	24	88.6	55.5	F	E
		NBT	70	70	48.3	41.7	D	D
		NBR	44	44	56.0	50.8	E	D
		SBL	15	15	47.7	52.5	D	D
		SBT	82	82	38.7	37.2	D	D
		SBR	52	52	69.5	47.5	E	D
		Overall	1083	1081	28.8	30.7	C	C
7	Broadway/75th Street (Signalized)	EBL	26	25	24.0	23.3	C	C
		EBT	325	322	13.6	13.8	B	B
		EBR	8	8	24.8	19.9	C	B
		WBL	4	4	22.8	7.7	C	A
		WBT	189	188	15.9	8.0	B	A
		WBR	39	39	33.3	8.8	C	A
		NBL	51	51	32.8	39.6	C	D
		NBT	73	73	28.2	26.1	C	C
		NBR	62	62	29.8	29.6	C	C
		SBL	46	46	40.2	34.7	D	C
		SBT	50	50	31.9	30.7	C	C
		SBR	18	18	51.6	49.6	D	D
		Overall	891	886	22.1	19.1	C	B
8	Roosevelt Avenue/76th Street (Signalized)	EBT	249	249	7.8	12.6	A	B
		EBR	21	21	12.8	18.6	B	B
		WBL	73	73	55.2	73.6	E	E
		WBT	483	479	47.9	71.4	D	E
		SBL	23	23	41.0	41.1	D	D
		SBT	95	94	34.2	34.7	C	C
		SBR	66	65	47.4	64.6	D	E
		Overall	1009	1004	36.4	51.4	D	D
		OVERALL	9357	9330				
			Lane group worsen in Build Condition					
			LOS D					
			LOS E					
			LOS F					

Table 7: 2045 No Build vs. 2045 Build Conditions Intersection MOE Comparison – PM Peak Hour

MTA IBX Intersection MOE Comparison NoBuild vs. Build PM Peak Hour 4:30 - 5:30 PM								
Int'n ID	Int'n Name	Movement	Volume (vehs)		Delay (Sec)		Level of Service (LOS)	
			2045 NoBuild	2045 Build	2045 NoBuild	2045 Build	2045 NoBuild	2045 Build
1	Roosevelt Avenue/69th Street (Signalized)	EBL	69	69	25.0	24.7	C	C
		EBT	351	351	18.7	18.4	B	B
		EBR	83	83	29.3	28.9	C	C
		WBL	36	34	37.6	34.3	D	C
		WBT	215	213	19.9	15.1	B	B
		WBR	51	50	27.9	23.1	C	C
		NBL	29	29	56.3	56.1	E	E
		NBT	112	112	43.0	42.4	D	D
		NBR	51	51	45.8	45.2	D	D
		SBL	56	56	49.3	49.2	D	D
		SBT	278	278	46.0	46.0	D	D
		SBR	47	47	47.6	47.7	D	D
		Overall	1377	1372	32.2	31.0	C	C
2	Roosevelt Avenue/70th Street (Unsignalized)	EBL	13	13	5.3	6.8	A	A
		EBT	394	393	1.5	2.0	A	A
		EBR	51	51	2.1	2.1	A	A
		WBL	15	15	6.3	8.3	A	A
		WBT	302	299	5.6	5.5	A	A
		WBR	30	30	6.8	6.7	A	A
		Overall	805	800	3.5	3.7	A	A
3	Roosevelt Avenue/72nd Street (Signalized)	EBT	369	370	28.5	34.2	C	C
		EBR	23	23	34.9	38.6	C	D
		WBL	28	28	35.7	36.7	D	D
		WBT	303	302	21.0	22.0	C	C
		SBL	112	112	40.2	78.3	D	E
		SBT	94	93	35.8	69.8	D	E
		SBR	44	44	40.3	76.6	D	E
		Overall	974	971	29.1	41.1	C	D
4	Roosevelt Avenue/73rd Street (Signalized)	EBT	481	480	24.9	32.4	C	C
		WBT	271	268	2.2	3.3	A	A
		NBL	62	62	42.9	73.0	D	E
		NBR	64	63	52.1	93.4	D	F
		Overall	877	873	21.2	30.9	C	C
5	Roosevelt Avenue/74th Street/Broadway (Signalized)	EBT @ Broadway	410	410	13.9	21.0	B	C
		EBR @ Broadway	135	134	24.7	24.6	C	C
		WBL @ Broadway	3	3	23.6	20.0	C	C
		WBT @ Broadway	241	239	18.1	20.5	B	C
		WBR @ Broadway	106	107	20.7	20.2	C	C
		WBT @ 74th St	350	380	18.9	19.8	B	B
		WBR @ 74th St	33	33	11.4	14.0	B	B
		NWL @ 74th St	26	25	47.8	92.8	D	F
		NWT @ 74th St	205	204	36.8	67.7	D	E
		NWR1 @ 74th St	17	17	39.1	68.3	D	E
		NWR2 @ 74th St	12	12	86.2	94.5	F	F
		SEL @ Roosevelt Ave	21	20	38.4	82.3	D	F
		SET @ Roosevelt Ave	328	322	43.7	78.7	D	E
		SER @ Roosevelt Ave	4	4	58.3	92.4	E	F
		SET @ 74th St	382	376	38.2	63.3	D	E
		SER @ 74th St	84	83	37.5	58.8	D	E
		Overall	2357	2369	27.2	42.7	C	D
6	Roosevelt Avenue/75th Street (Signalized)	EBL	39	39	29.5	34.2	C	C
		EBT	353	353	8.2	14.9	A	B
		EBR	29	29	36.1	37.7	D	D
		WBL	15	15	22.1	23.3	C	C
		WBT	310	309	14.7	22.1	B	C
		WBR	39	39	23.9	26.0	C	C
		NBL	17	17	58.3	55.2	E	E
		NBT	83	82	42.2	41.3	D	D
		NBR	43	42	65.4	62.5	E	E
		SBL	27	27	55.2	55.8	E	E
		SBT	77	77	42.5	43.3	D	D
		SBR	55	55	62.0	58.8	E	E
		Overall	1092	1089	24.2	28.4	C	C
7	Broadway/75th Street (Signalized)	EBL	60	60	33.9	34.3	C	C
		EBT	310	307	15.3	17.3	B	B
		EBR	13	12	32.5	34.5	C	C
		WBL	4	4	37.2	42.4	D	D
		WBT	212	212	29.3	40.6	C	D
		WBR	50	50	43.8	47.5	D	D
		NBL	19	19	36.9	44.1	D	D
		NBT	31	31	25.8	25.6	C	C
		NBR	22	22	25.4	25.1	C	C
		SBL	38	38	28.6	32.9	C	C
		SBT	60	60	26.3	29.1	C	C
		SBR	15	15	36.5	43.5	D	D
		Overall	835	829	25.2	29.9	C	C
8	Roosevelt Avenue/76th Street (Signalized)	EBT	398	399	9.3	8.7	A	A
		EBR	25	25	28.5	28.8	C	C
		WBL	63	63	41.5	42.7	D	D
		WBT	301	299	28.1	28.4	C	C
		SBL	36	36	37.8	37.1	D	D
		SBT	172	172	33.8	33.5	C	C
		SBR	68	68	47.6	49.9	D	D
		Overall	1063	1062	24.4	24.4	C	C
		OVERALL	9380	9365				
			Lane group worsen in Build Condition					
			LOS D					
			LOS E					
			LOS F					

Table 8: 2045 No Build vs. 2045 Build Conditions Queue Comparison – AM Peak Hour

MTA IBX Queue Comparison NoBuild vs. Build - AM Peak Hour 7:30 - 8:30 AM							
Int'n ID	Int'n Name	Lane Group	Average Queue Length (ft)		Maximum Queue Length (ft)		Storage Space (ft)
			2045 NoBuild	2045 Build	2045 NoBuild	2045 Build	
1	Roosevelt Avenue/69th Street (Signalized)	EBLTR	29	31	260	266	168
		WBLTR	44	75	288	303	175
		NBLTR	53	52	272	272	555
		SBLTR	96	97	447	449	186
2	Roosevelt Avenue/70th Street (Unsignalized)	EBLTR	0	0	66	67	180
		WBLTR	13	38	387	476	466
3	Roosevelt Avenue/72nd Street (Signalized)	EBTR	10	23	124	273	450
		WBLT	12	47	280	335	280
		SBLTR	38	51	215	245	290
4	Roosevelt Avenue/73rd Street (Signalized)	EBT	42	22	316	356	280
		WBT	5	21	150	315	85
		NBLR	16	27	128	155	520
5	Roosevelt Avenue/74th Street/Broadway (Signalized)	EBTR @ Broadway	11	12	151	166	90
		WBTR @ 74th St	104	107	267	260	177
		NWLT @ Broadway	121	185	413	455	290
		SET @ Roosevelt Ave	104	160	267	260	87
6	Roosevelt Avenue/75th Street (Signalized)	EBLTR	23	23	153	128	175
		WBLTR	77	121	284	288	187
		NBLTR	42	32	250	196	173
		SBLTR	36	35	253	244	80
7	Broadway/75th Street (Signalized)	EBLTR	29	38	321	416	204
		WBLTR	9	5	121	133	224
		NBLTR	26	26	176	176	238
		SBLTR	30	27	219	218	159
8	Roosevelt Avenue/76th Street (Signalized)	EBTR	11	24	190	297	187
		WBLT	167	238	410	415	175
		SBLT	30	33	207	203	81
		SBR	30	33	207	203	81

Table 9: 2045 No Build vs. 2045 Build Conditions Queue Comparison – PM Peak Hour

MTA IBX Queue Comparison NoBuild vs. Build - PM Peak Hour 4:30 - 5:30 PM							
Int'n ID	Int'n Name	Lane Group	Average Queue Length (ft)		Maximum Queue Length (ft)		Storage Space (ft)
			2045 NoBuild	2045 Build	2045 NoBuild	2045 Build	
1	Roosevelt Avenue/69th Street (Signalized)	EBLTR	60	59	416	415	168
		WBLTR	43	34	286	283	175
		NBLTR	49	48	263	263	555
		SBLTR	116	116	495	498	186
2	Roosevelt Avenue/70th Street (Unsignalized)	EBLTR	1	3	138	176	180
		WBLTR	7	9	269	278	466
3	Roosevelt Avenue/72nd Street (Signalized)	EBTR	64	72	435	458	450
		WBLT	42	47	340	341	280
		SBLTR	52	104	255	273	290
4	Roosevelt Avenue/73rd Street (Signalized)	EBT	81	105	387	387	280
		WBT	2	7	78	188	85
		NBLR	25	50	159	217	520
5	Roosevelt Avenue/74th Street/Broadway (Signalized)	EBTR @ Broadway	41	50	180	184	90
		WBTR @ 74th St	39	53	230	244	177
		NWLT @ Broadway	97	208	383	428	290
		SET @ Roosevelt Ave	84	160	258	263	87
6	Roosevelt Avenue/75th Street (Signalized)	EBLTR	41	74	347	356	175
		WBLTR	34	42	256	264	187
		NBLTR	40	39	228	260	173
		SBLTR	40	41	234	236	80
7	Broadway/75th Street (Signalized)	EBLTR	35	44	359	423	204
		WBLTR	32	38	280	338	224
		NBLTR	9	9	81	80	238
		SBLTR	20	24	201	219	159
8	Roosevelt Avenue/76th Street (Signalized)	EBTR	23	23	317	313	187
		WBLT	60	60	370	341	175
		SBLT	48	48	265	272	81
		SBR	48	48	265	272	81

Conclusion

This report documented the development of a Vissim model to analyze future predicted traffic conditions after the introduction of IBX LRT service. Traffic counts along the Roosevelt Avenue corridor were conducted to identify weekday AM and PM peak hours. A predicted growth rate was applied to the peak hour counts to model Existing Conditions and develop a No Build Conditions model for the 2045 Build year. A 2045 Build Conditions model was developed by coding a single-track mixed-use LRT alignment along the study area with optimized signal timings. The results of the No Build and Build models were then compared.

In the 2045 Build Condition, both the AM and PM peaks see time travel increases over the 2045 No Build Condition. During the AM peak, travel time on westbound Roosevelt Avenue increased by 89 seconds (a 51% increase), and during the PM peak, eastbound travel time increased by 37 seconds (a 21% increase) over the No Build model. Conversely, AM travel time in the eastbound (non-peak) direction decreased by 8 seconds (a 5% decrease), and PM travel time decreased by 1 second (a 0.5% decrease). Furthermore, LRT interruptions worsen the Level of Service (LOS) for 25 out of 76 lane groups in the AM peak hour and 19 lane groups in the PM peak hour. LOS improves for 14 lane groups in the AM peak hour and 1 lane group in the PM peak hour.

Attachment A: Raw Turning Movement Counts Data

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	1	0	0	0	0	0	0	1	0	0	0	0	2	0
6:30 AM	1	0	0	0	0	6	0	0	0	1	0	0	0	0	0	0
6:45 AM	0	1	0	0	0	2	0	0	0	1	0	0	0	0	0	0
7:00 AM	0	0	1	0	0	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	6	0	0	0	2	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0
7:45 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	4	0	0
8:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	4	0	0
9:00 AM	0	0	0	0	0	7	0	0	0	1	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9:30 AM	1	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0
9:45 AM	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	0
3:00 PM	0	2	2	0	0	5	0	0	1	1	0	0	0	2	0	0
3:15 PM	1	1	0	0	1	8	0	0	0	0	0	0	0	5	0	0
3:30 PM	0	0	0	0	0	2	0	0	1	1	1	0	1	4	0	0
3:45 PM	0	0	0	0	0	5	0	0	0	1	0	0	0	5	0	0
4:00 PM	0	1	0	0	1	3	0	0	0	0	0	0	0	8	0	0
4:15 PM	1	1	0	0	1	4	1	0	1	1	0	0	0	9	1	0
4:30 PM	0	1	1	0	0	4	0	0	0	2	0	0	0	5	0	0
4:45 PM	1	1	0	0	2	4	0	0	0	0	3	0	0	10	0	0
5:00 PM	1	2	1	0	0	7	0	0	0	1	1	0	0	5	0	0
5:15 PM	0	2	0	0	0	3	1	0	0	1	3	0	0	3	0	0
5:30 PM	0	0	0	0	0	4	2	0	0	0	0	0	1	3	0	0
5:45 PM	0	2	2	0	0	4	1	0	0	1	0	0	1	6	0	0
6:00 PM	0	1	0	0	0	4	1	0	0	1	1	0	1	4	0	0
6:15 PM	1	3	1	0	2	4	1	0	0	0	1	0	0	8	0	0
6:30 PM	1	0	0	0	0	6	0	0	0	4	0	0	0	3	1	0
6:45 PM	1	0	1	0	0	5	1	0	1	0	1	0	0	3	1	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	5	8	7	1	7	39	32	0	3	9	4	0	14	19	8	0
6:15 AM	6	18	16	0	8	58	16	0	4	13	2	0	13	20	4	0
6:30 AM	3	20	8	0	4	66	15	0	7	10	3	0	14	11	3	0
6:45 AM	7	18	9	0	4	59	12	0	3	15	6	0	10	26	6	0
7:00 AM	4	28	9	0	7	74	18	0	8	19	9	0	20	20	6	0
7:15 AM	2	38	6	0	4	71	17	0	3	17	5	0	12	28	2	0
7:30 AM	4	41	11	0	5	81	14	0	4	29	6	0	11	24	9	0
7:45 AM	5	30	11	0	9	77	6	0	7	21	7	0	9	29	7	0
8:00 AM	3	26	15	0	1	77	12	0	5	20	9	0	19	43	6	0
8:15 AM	3	44	33	1	6	72	10	0	5	22	9	0	17	31	11	0
8:30 AM	6	43	16	0	7	62	9	0	4	15	3	0	15	33	9	0
8:45 AM	10	40	24	0	1	63	10	0	5	13	8	0	8	25	4	0
9:00 AM	10	30	16	0	8	54	15	0	5	15	8	0	17	19	4	0
9:15 AM	11	35	17	0	3	35	8	0	1	14	8	0	19	36	7	0
9:30 AM	7	28	20	0	9	46	13	0	5	19	17	0	8	36	4	0
9:45 AM	10	26	21	0	7	36	6	0	10	22	12	0	12	46	8	0
3:00 PM	16	52	8	0	8	34	9	0	4	24	10	0	22	60	9	0
3:15 PM	7	41	11	0	3	37	8	0	8	25	11	0	15	64	7	0
3:30 PM	8	47	13	0	1	20	8	0	4	26	6	0	9	59	12	0
3:45 PM	8	38	7	0	4	35	6	0	5	25	12	0	18	66	15	0
4:00 PM	6	69	6	0	1	49	5	0	11	16	6	0	7	78	15	0
4:15 PM	12	47	8	0	7	40	11	0	6	21	9	0	12	68	21	0
4:30 PM	12	53	8	0	8	35	7	0	8	16	8	0	11	62	20	0
4:45 PM	7	56	15	0	8	39	11	0	3	16	5	0	10	58	13	1
5:00 PM	15	55	5	0	6	30	11	0	7	27	11	0	16	66	17	0
5:15 PM	11	48	9	0	1	46	15	0	5	24	5	0	16	71	22	0
5:30 PM	7	57	10	0	5	33	12	0	7	19	10	0	22	47	12	0
5:45 PM	8	60	11	0	5	42	7	0	8	21	7	1	20	81	20	0
6:00 PM	14	56	9	0	5	32	10	0	3	16	11	0	14	71	17	0
6:15 PM	16	37	12	0	4	37	8	0	2	22	15	0	25	58	12	0
6:30 PM	13	57	6	0	8	31	10	0	8	20	14	0	18	64	22	0
6:45 PM	12	34	11	0	4	29	13	0	11	27	13	0	16	66	22	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	2	0	0	1	1	0	0	3	1	0	1	0	1	0
6:15 AM	0	3	0	0	0	2	3	0	2	1	0	0	4	0	1	0
6:30 AM	0	2	0	0	1	4	3	0	2	2	0	0	2	0	0	0
6:45 AM	0	1	2	0	0	0	2	0	4	2	0	0	0	2	0	0
7:00 AM	0	3	3	0	0	7	1	0	1	0	0	0	3	0	1	0
7:15 AM	0	11	4	0	0	8	2	0	2	4	1	0	3	5	2	0
7:30 AM	0	4	2	0	0	11	2	0	0	2	2	0	1	1	0	0
7:45 AM	0	8	2	0	1	11	1	0	1	2	0	0	0	2	1	0
8:00 AM	0	5	1	0	0	5	1	0	0	1	0	0	0	0	0	0
8:15 AM	0	3	2	0	3	7	2	0	0	1	0	0	2	2	0	0
8:30 AM	2	1	1	1	0	3	0	0	0	2	0	0	1	2	0	0
8:45 AM	0	10	2	0	0	6	2	0	1	5	0	0	2	0	0	0
9:00 AM	0	2	0	0	1	10	0	0	1	1	0	0	0	2	0	0
9:15 AM	0	7	0	0	0	10	0	0	0	1	0	0	0	5	0	0
9:30 AM	0	3	1	0	1	2	0	0	0	0	0	0	2	1	1	0
9:45 AM	0	6	3	0	0	3	2	0	0	1	1	0	0	2	0	0
3:00 PM	0	3	0	0	0	1	0	0	1	0	1	0	0	5	1	0
3:15 PM	0	2	0	0	0	4	0	0	0	1	1	0	1	5	3	0
3:30 PM	1	5	0	0	0	1	1	0	2	2	1	0	0	0	1	0
3:45 PM	2	6	2	0	0	2	1	0	0	1	0	0	3	3	2	0
4:00 PM	0	8	0	0	0	3	1	0	1	1	0	0	1	7	1	0
4:15 PM	0	3	0	0	0	3	1	0	1	2	0	0	1	6	0	0
4:30 PM	0	5	0	0	0	4	0	0	0	1	0	0	2	12	2	0
4:45 PM	0	2	0	0	0	2	0	0	0	4	0	0	3	6	0	0
5:00 PM	1	6	0	0	0	1	0	0	1	3	1	0	2	1	0	0
5:15 PM	1	8	0	0	2	3	1	0	1	1	2	0	0	5	0	0
5:30 PM	1	6	0	0	0	3	1	0	0	0	0	0	3	6	1	0
5:45 PM	1	2	0	0	0	5	1	0	1	2	2	0	3	5	1	0
6:00 PM	1	4	1	0	0	2	1	0	0	2	1	0	1	6	1	0
6:15 PM	1	3	1	0	0	2	1	0	0	1	0	0	1	2	0	0
6:30 PM	0	1	1	0	0	1	0	0	1	0	1	0	2	2	0	0
6:45 PM	1	2	1	0	1	2	1	0	1	1	0	0	0	0	1	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	5	0	0	1	1	0	0	0	0	1	0	0	4	0	0
6:15 AM	0	0	0	0	1	4	0	0	0	0	1	0	0	4	0	0
6:30 AM	0	3	0	0	1	3	0	0	0	0	1	0	0	4	0	0
6:45 AM	0	2	0	0	1	4	0	0	0	0	1	0	0	3	0	0
7:00 AM	0	2	0	0	2	3	0	0	0	0	2	0	1	6	0	0
7:15 AM	0	4	0	0	1	2	0	0	0	0	1	0	1	3	0	0
7:30 AM	0	1	0	0	3	5	0	0	0	1	1	0	0	5	0	0
7:45 AM	0	0	0	0	3	1	0	0	0	0	2	0	0	2	0	0
8:00 AM	0	0	0	0	1	6	0	0	0	0	2	0	2	7	0	0
8:15 AM	0	0	0	0	3	2	0	0	0	0	3	0	0	3	0	0
8:30 AM	0	0	0	0	2	3	0	0	0	0	2	0	0	6	0	0
8:45 AM	0	0	0	0	2	4	0	0	0	0	2	0	1	3	0	0
9:00 AM	0	0	0	0	0	4	0	0	0	0	2	0	0	3	0	0
9:15 AM	0	0	0	0	2	4	1	0	0	0	2	0	1	3	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	1	0	1	6	0	0
9:45 AM	0	0	0	0	3	2	0	0	0	0	2	0	0	2	0	0
3:00 PM	0	1	0	0	1	3	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	2	0	0	1	4	0	0	0	1	2	0	0	6	0	0
3:30 PM	0	0	0	0	1	3	0	0	0	0	1	0	1	5	0	0
3:45 PM	0	0	0	0	1	3	0	0	0	0	1	0	2	4	0	0
4:00 PM	0	1	0	0	2	2	0	0	0	0	1	0	1	5	0	0
4:15 PM	1	0	0	0	1	2	0	0	0	0	2	0	0	5	0	0
4:30 PM	0	1	0	0	1	4	0	0	0	0	2	0	1	5	0	0
4:45 PM	0	0	0	0	2	3	1	0	0	0	1	0	1	6	0	0
5:00 PM	0	0	0	0	2	4	0	0	0	0	1	0	0	4	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	10	0	0
5:30 PM	0	0	0	0	3	3	0	0	0	0	2	0	0	6	0	0
5:45 PM	0	0	0	0	1	3	0	0	0	0	1	0	0	4	0	0
6:00 PM	0	0	0	0	2	3	0	0	0	0	3	0	1	3	0	0
6:15 PM	0	0	0	0	2	2	1	0	0	0	2	0	1	5	0	0
6:30 PM	0	0	0	0	2	3	0	0	0	0	3	0	0	4	0	0
6:45 PM	0	1	0	0	0	3	0	0	0	0	1	0	0	5	0	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	1	0	0	1	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	2	1	0	0	2	0	0	0	1	0	0	1	1	1	0
6:30 AM	0	4	2	0	0	2	0	0	1	1	1	0	1	0	0	0
6:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:00 AM	0	3	0	0	0	2	1	0	2	0	0	0	1	1	0	0
7:15 AM	0	7	1	0	0	2	0	0	1	1	0	0	0	4	1	0
7:30 AM	0	2	1	0	0	1	0	0	0	1	0	0	2	0	0	0
7:45 AM	0	6	2	0	0	5	0	0	0	1	0	0	1	2	2	0
8:00 AM	2	4	0	0	1	2	0	0	1	0	0	0	1	1	0	0
8:15 AM	0	1	0	0	0	6	0	0	0	1	1	0	2	2	0	0
8:30 AM	0	5	1	0	1	3	0	0	0	1	1	0	0	1	1	0
8:45 AM	0	4	1	0	0	2	1	0	0	1	0	0	0	2	0	0
9:00 AM	2	1	0	0	0	4	2	0	0	0	0	0	2	1	0	0
9:15 AM	1	2	0	0	0	3	0	0	0	0	1	0	0	1	1	0
9:30 AM	0	1	1	0	0	2	0	0	0	0	0	0	3	3	0	0
9:45 AM	0	5	2	0	0	1	0	0	1	0	1	0	0	1	1	0
3:00 PM	0	3	0	0	0	1	0	0	0	0	0	0	3	2	0	0
3:15 PM	0	3	0	0	0	0	1	0	0	0	0	0	3	1	0	0
3:30 PM	0	1	0	0	0	3	0	0	0	1	0	0	1	1	1	0
3:45 PM	0	2	0	0	0	2	0	0	0	1	0	0	0	4	2	0
4:00 PM	0	2	0	0	0	1	0	0	0	0	2	0	0	0	1	0
4:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0
4:30 PM	0	1	1	0	0	1	0	0	0	1	0	0	1	1	0	0
4:45 PM	0	2	0	0	0	1	1	0	0	0	0	0	1	1	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:15 PM	0	1	0	0	0	0	1	0	1	0	0	0	0	2	0	0
5:30 PM	1	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0
6:00 PM	0	1	0	0	0	1	0	0	0	0	0	0	1	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
6:30 PM	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0
6:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	1	0	0	0	0	0	0	1	0	0	2	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0
9:15 AM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
9:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	10	0	0	0	0	1	0	0	0	0	0
6:15 AM	0	1	0	0	0	17	3	0	0	0	0	0	0	0	0	0
6:30 AM	0	3	0	0	0	13	1	0	0	0	0	0	0	5	0	0
6:45 AM	0	1	0	0	1	9	1	0	1	0	1	0	0	1	1	0
7:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	3	0	0
7:15 AM	0	1	1	0	1	11	0	0	0	2	0	0	0	3	0	0
7:30 AM	0	0	0	0	0	15	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	2	1	0	1	10	0	0	0	2	0	0	0	3	1	0
8:00 AM	0	2	1	0	0	12	1	0	0	0	1	0	0	1	1	0
8:15 AM	0	1	0	0	0	11	1	0	1	0	0	0	0	2	0	0
8:30 AM	1	1	0	0	0	13	0	0	0	1	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	11	0	0	0	1	1	0	0	4	0	0
9:00 AM	0	0	1	0	0	7	1	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	4	1	0
9:30 AM	0	0	0	0	0	13	0	0	0	2	1	0	0	1	0	0
9:45 AM	1	0	0	0	1	12	1	0	0	3	1	0	0	2	0	0
3:00 PM	0	1	0	0	0	6	1	0	0	0	1	0	0	6	2	0
3:15 PM	1	4	0	0	0	6	3	0	0	2	0	0	0	8	0	0
3:30 PM	0	2	0	0	0	7	0	0	0	0	0	0	0	6	0	0
3:45 PM	0	1	0	0	0	4	1	0	1	0	0	0	1	9	0	0
4:00 PM	0	0	0	0	0	5	0	0	0	1	0	0	0	7	3	0
4:15 PM	0	0	0	0	0	7	2	0	0	1	0	0	1	13	2	0
4:30 PM	1	2	1	0	0	7	0	0	1	0	1	0	0	9	1	0
4:45 PM	0	0	1	0	0	6	0	0	0	1	0	0	0	19	0	0
5:00 PM	0	3	0	0	0	5	0	0	1	1	0	0	0	20	1	0
5:15 PM	0	0	0	0	0	10	1	0	0	1	2	0	0	9	0	0
5:30 PM	1	4	0	0	0	8	2	0	0	0	0	0	0	12	0	0
5:45 PM	1	3	1	0	1	6	2	0	0	1	1	0	0	6	2	0
6:00 PM	0	2	0	0	1	10	1	0	0	1	2	0	1	19	1	1
6:15 PM	0	2	0	0	0	5	1	0	0	3	1	0	0	17	1	0
6:30 PM	1	2	0	0	0	4	0	0	0	0	2	0	0	9	2	0
6:45 PM	0	1	0	0	0	4	2	0	0	2	1	0	0	11	0	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	1	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
6:45 AM	0	4	0	0	0	4	0	0	1	0	0	0	0	4	0	0
7:00 AM	0	1	1	0	1	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	2	0	0	0	2	0	0	1	1	1	0	0	2	0	0
7:30 AM	0	0	2	0	0	1	0	0	0	0	0	0	0	0	1	0
7:45 AM	0	2	0	0	0	2	0	0	0	2	0	0	0	0	1	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0
8:45 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
9:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	0	1	0	0	0	1	0	0	1	0	0
3:15 PM	0	4	0	0	0	1	0	0	0	3	0	0	0	2	0	0
3:30 PM	1	1	1	0	0	0	0	0	1	1	0	0	0	2	0	0
3:45 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	0	1	0
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	69TH ST Southbound		ROOSEVELT AVE Westbound		69TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	1	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	1	0	0
7:30 AM	1	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	1	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	1	1	0	0	0	0	0
8:30 AM	1	0	0	0	0	0	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	1	0	1	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	1	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
3:00 PM	0	1	0	0	1	0	0	0
3:15 PM	2	1	0	2	1	1	1	0
3:30 PM	2	0	0	0	1	0	0	1
3:45 PM	2	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	2	1	1	1
4:15 PM	2	1	0	0	1	0	1	2
4:30 PM	0	0	1	0	1	0	1	0
4:45 PM	0	1	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	1
5:45 PM	3	0	0	1	1	0	1	1
6:00 PM	1	0	0	0	0	0	0	2
6:15 PM	0	1	0	0	2	1	1	0
6:30 PM	0	3	0	0	0	0	2	2
6:45 PM	1	0	0	0	1	0	1	0

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	69TH ST Southbound		ROOSEVELT AVE Westbound		69TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	6	6	3	3	22	12	0	8
6:15 AM	10	5	6	7	13	17	2	4
6:30 AM	15	14	7	6	14	28	4	8
6:45 AM	14	9	6	5	13	19	10	5
7:00 AM	14	10	4	7	17	39	8	8
7:15 AM	6	10	4	2	14	28	9	8
7:30 AM	26	14	13	8	22	53	10	8
7:45 AM	11	13	6	3	21	29	12	8
8:00 AM	19	30	6	6	19	39	10	13
8:15 AM	11	11	8	2	15	47	14	8
8:30 AM	5	13	8	3	17	37	4	7
8:45 AM	19	26	5	9	24	29	16	5
9:00 AM	14	17	10	3	22	25	10	12
9:15 AM	12	25	3	14	16	24	3	8
9:30 AM	21	17	11	10	29	20	9	14
9:45 AM	20	18	15	4	32	21	13	9
3:00 PM	24	16	6	6	58	42	13	6
3:15 PM	25	24	17	17	39	77	3	10
3:30 PM	29	26	15	15	41	40	8	7
3:45 PM	29	18	12	14	33	58	14	8
4:00 PM	35	33	7	4	44	38	15	13
4:15 PM	33	45	14	13	37	51	22	8
4:30 PM	27	40	13	10	44	40	20	2
4:45 PM	25	39	5	9	47	45	8	7
5:00 PM	28	41	18	12	57	63	10	4
5:15 PM	26	47	10	12	56	68	14	13
5:30 PM	25	48	9	16	59	73	15	18
5:45 PM	43	25	23	22	52	56	17	5
6:00 PM	31	37	23	22	71	66	15	18
6:15 PM	33	28	24	23	57	56	11	14
6:30 PM	39	33	19	27	46	69	10	20
6:45 PM	33	19	12	9	42	44	15	9

Study Name 1-Roosevelt Ave and 69th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	69TH ST Southbound				ROOSEVELT AVE Westbound				69TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	6	16	11	1	8	56	34	0	3	13	7	0	17	25	9	0
6:15 AM	6	26	18	0	9	84	22	0	6	16	3	0	18	26	9	0
6:30 AM	4	34	10	0	6	94	19	0	10	14	6	0	17	20	3	0
6:45 AM	7	28	11	0	6	79	15	0	9	18	8	0	10	37	7	0
7:00 AM	4	38	14	0	10	105	20	0	11	19	11	0	25	31	7	0
7:15 AM	2	63	13	0	6	102	19	0	7	27	8	0	16	46	5	0
7:30 AM	4	49	16	0	9	117	16	0	4	33	9	0	14	33	10	0
7:45 AM	6	49	16	0	14	107	7	0	8	28	9	0	10	40	12	0
8:00 AM	5	37	17	0	3	106	14	0	6	22	12	0	22	54	7	0
8:15 AM	3	50	35	1	12	103	14	0	8	25	13	0	21	44	11	0
8:30 AM	9	53	18	1	10	86	9	0	5	20	6	0	16	46	10	0
8:45 AM	10	56	28	0	3	87	13	0	6	20	11	0	11	39	4	0
9:00 AM	12	33	19	0	9	86	18	0	6	17	10	0	20	28	4	0
9:15 AM	12	45	17	0	5	63	9	0	2	19	11	0	20	49	9	0
9:30 AM	8	32	22	0	10	69	13	0	5	22	19	0	15	48	6	0
9:45 AM	11	39	27	0	11	56	9	0	11	26	18	0	12	54	9	0
3:00 PM	16	64	10	0	9	50	11	0	6	25	13	0	25	79	12	0
3:15 PM	9	57	11	0	5	60	12	0	8	32	14	0	19	91	10	0
3:30 PM	10	56	14	0	2	36	9	0	8	31	9	0	12	77	14	0
3:45 PM	10	50	9	0	5	53	8	0	6	28	13	0	24	91	20	0
4:00 PM	6	83	6	0	4	63	6	0	12	18	9	0	9	106	20	0
4:15 PM	14	55	8	0	9	57	15	0	8	25	11	0	15	101	24	0
4:30 PM	13	65	11	0	9	56	7	0	9	20	11	0	15	94	23	0
4:45 PM	8	61	16	0	12	55	13	0	3	21	9	0	15	100	13	1
5:00 PM	17	68	6	0	8	47	11	0	9	32	14	0	18	98	18	0
5:15 PM	12	60	9	0	3	64	19	0	7	27	14	0	17	100	22	0
5:30 PM	10	70	10	0	8	51	17	0	7	20	12	0	26	76	13	0
5:45 PM	10	67	14	0	7	61	11	0	9	25	11	1	25	103	23	0
6:00 PM	15	64	10	0	8	52	13	0	3	20	18	0	19	104	19	1
6:15 PM	18	45	14	0	8	50	12	0	2	27	19	0	27	91	13	0
6:30 PM	15	60	8	0	10	46	11	0	9	24	20	0	21	82	25	0
6:45 PM	14	39	13	0	5	44	17	0	13	30	16	0	16	85	24	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	1	1	0	0
8:15 AM	0	0	0	0	0	5	1	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	3	1	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	0	7	1	0	0	0	0	0	0	6	0	0
3:15 PM	0	0	0	0	0	9	0	0	0	0	1	0	0	11	1	0
3:30 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	6	1	0
3:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	7	0	0
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0
4:15 PM	0	0	0	0	0	3	1	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	11	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	5	1	0
5:30 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	4	0	0
5:45 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0
6:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	11	0	0
6:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	3	77	3	0	0	0	0	0	2	22	5	0
6:15 AM	0	0	0	0	3	82	3	0	0	0	0	0	1	23	3	1
6:30 AM	0	0	0	0	0	82	2	0	0	0	0	0	1	11	3	0
6:45 AM	0	0	0	0	2	80	1	0	0	0	0	0	0	32	4	1
7:00 AM	0	0	0	0	1	97	3	0	0	0	0	0	1	29	5	0
7:15 AM	0	0	0	1	1	94	0	1	0	0	0	0	0	29	4	0
7:30 AM	0	0	0	0	1	98	0	0	0	0	0	0	0	34	5	0
7:45 AM	0	0	0	0	2	93	1	0	0	0	0	0	1	29	4	0
8:00 AM	0	0	0	0	2	87	3	0	0	0	0	0	1	47	7	1
8:15 AM	0	0	0	0	3	91	2	1	0	0	0	0	4	31	2	0
8:30 AM	0	0	0	0	2	76	5	0	0	0	0	0	4	41	3	0
8:45 AM	0	0	0	0	0	76	4	0	0	0	0	0	0	36	4	1
9:00 AM	0	0	0	0	2	76	1	0	0	0	0	0	2	27	6	0
9:15 AM	0	0	0	0	2	51	4	0	0	0	0	0	5	45	5	0
9:30 AM	0	0	0	0	2	68	1	0	0	0	0	0	2	47	11	0
9:45 AM	0	0	0	0	3	51	0	1	0	0	1	0	6	60	0	3
3:00 PM	0	0	0	0	2	50	5	0	0	0	0	0	4	73	9	1
3:15 PM	0	0	0	0	4	49	6	1	0	0	0	0	2	73	5	0
3:30 PM	0	0	0	0	0	33	4	0	0	0	0	0	4	73	9	0
3:45 PM	0	0	0	0	0	45	1	0	0	0	1	0	2	69	6	1
4:00 PM	0	0	0	0	2	56	4	0	0	0	0	0	3	82	10	0
4:15 PM	0	0	0	0	3	54	7	0	0	0	0	0	3	69	10	1
4:30 PM	0	0	0	0	2	49	10	0	0	0	0	0	5	66	9	0
4:45 PM	0	0	0	0	5	57	3	0	0	0	1	0	2	52	12	0
5:00 PM	0	0	0	0	3	45	5	0	0	0	0	0	2	82	8	0
5:15 PM	0	0	0	0	1	64	8	1	0	0	0	0	2	67	16	0
5:30 PM	0	0	0	0	2	47	2	1	0	0	0	0	2	52	14	0
5:45 PM	0	0	0	0	3	55	6	0	0	0	0	0	2	78	17	0
6:00 PM	0	0	0	0	3	47	6	0	0	0	0	0	1	82	13	1
6:15 PM	0	0	0	0	1	50	8	0	0	0	0	0	4	65	15	0
6:30 PM	0	0	0	0	3	51	11	0	0	0	0	0	5	72	14	0
6:45 PM	0	0	0	0	3	46	5	0	0	0	0	0	4	69	17	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	1	5	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
7:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	5	0	0
7:30 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	14	1	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	1	2	0	0
8:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	1	0	0	0
9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	2	3	0	0
3:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	1	0
3:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
4:00 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	7	0	0
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	9	0	0
4:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	11	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
5:15 PM	0	0	0	0	1	5	0	0	0	0	0	0	1	4	0	0
5:30 PM	0	0	0	0	0	4	1	0	0	0	0	0	0	7	1	0
5:45 PM	0	0	0	0	0	6	0	0	0	0	0	0	1	7	0	0
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
6:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	2	0
6:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0
6:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	6	0	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
8:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
8:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0
9:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
9:15 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	5	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0	0
9:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0
3:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
3:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	9	0	0
3:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
4:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
4:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	5	0	0
5:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	12	0	0
5:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
5:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
6:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0
6:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0
6:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	2	3	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	2	1	0
8:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	3	1	0	0	0	0	0	1	2	0	0
9:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	4	0	0
6:15 AM	0	0	0	0	0	17	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	1	0	0	14	0	0	0	0	0	0	0	4	0	0
6:45 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	3	0	0
7:15 AM	1	0	0	0	0	11	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	0	16	0	0	0	0	0	0	0	1	1	0
7:45 AM	0	0	0	0	0	9	2	0	0	0	0	0	0	6	0	0
8:00 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	0	12	1	0	0	0	0	0	0	3	0	0
8:30 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	8	0	0	1	0	1	0	0	6	0	0
9:00 AM	0	0	0	0	0	11	2	0	0	0	1	0	0	2	0	0
9:15 AM	0	0	0	0	1	11	0	0	0	0	0	0	0	4	0	0
9:30 AM	0	0	0	0	0	15	1	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	14	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	1	6	0	0	0	0	1	0	0	5	1	0
3:15 PM	0	0	0	0	0	10	0	0	0	1	0	0	0	3	0	0
3:30 PM	0	0	0	0	0	6	0	0	0	1	0	0	0	7	0	0
3:45 PM	0	0	0	0	0	6	1	0	1	0	0	0	0	4	0	0
4:00 PM	0	0	0	0	0	6	1	0	0	0	1	0	0	11	0	0
4:15 PM	0	0	0	0	0	10	0	0	0	0	2	0	0	18	1	0
4:30 PM	0	0	3	0	1	9	0	0	0	0	1	0	1	19	0	0
4:45 PM	0	1	0	0	0	5	1	0	0	0	1	0	0	23	0	0
5:00 PM	0	0	0	0	0	4	0	0	2	0	0	0	0	21	0	0
5:15 PM	0	0	0	0	0	11	1	0	0	0	0	0	0	17	0	0
5:30 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	16	1	0
5:45 PM	0	0	0	0	1	8	0	0	0	0	0	0	0	19	0	0
6:00 PM	0	0	0	0	0	14	0	1	0	0	0	0	0	20	1	0
6:15 PM	0	0	0	0	0	8	0	0	0	0	0	0	1	17	1	0
6:30 PM	0	0	0	0	0	4	1	0	0	0	0	0	1	12	0	0
6:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	10	2	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	1	2	1	0
7:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	2	1	0
3:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	70TH ST Southbound		ROOSEVELT AVE Westbound		70TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	1	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	1	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	2	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	1	1	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	1	0	1	0	0	0	0	0
9:00 AM	2	0	1	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	1	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	1	0	0	0
3:15 PM	2	1	0	0	0	0	0	0
3:30 PM	1	1	0	0	0	0	0	0
3:45 PM	1	0	0	0	0	0	0	0
4:00 PM	0	0	1	0	1	0	0	1
4:15 PM	0	0	0	0	1	0	0	0
4:30 PM	1	0	0	0	1	0	1	1
4:45 PM	0	0	0	0	2	0	0	0
5:00 PM	0	2	0	0	0	0	1	0
5:15 PM	1	0	0	0	1	0	0	0
5:30 PM	1	0	0	0	0	1	0	1
5:45 PM	2	0	1	0	0	0	0	0
6:00 PM	0	0	0	0	1	0	0	0
6:15 PM	0	0	0	0	1	1	0	0
6:30 PM	0	1	0	0	1	0	0	0
6:45 PM	3	0	0	0	1	0	0	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	70TH ST Southbound		ROOSEVELT AVE Westbound		70TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	3	3	1	0	6	4	0	1
6:15 AM	9	4	0	1	7	5	1	0
6:30 AM	6	4	0	0	6	2	0	1
6:45 AM	7	9	1	0	5	3	1	2
7:00 AM	14	7	1	3	3	6	0	0
7:15 AM	4	4	0	0	1	3	0	1
7:30 AM	11	4	0	0	6	4	1	0
7:45 AM	6	8	0	1	11	4	1	3
8:00 AM	9	11	1	0	4	12	3	0
8:15 AM	14	9	2	0	3	10	1	1
8:30 AM	6	15	1	0	4	9	1	0
8:45 AM	14	13	2	0	7	13	1	2
9:00 AM	15	14	2	2	13	6	1	0
9:15 AM	13	22	2	1	7	7	1	1
9:30 AM	20	10	3	0	12	6	1	2
9:45 AM	10	25	0	1	9	13	0	7
3:00 PM	31	23	0	0	7	7	3	3
3:15 PM	29	18	0	0	10	10	7	1
3:30 PM	28	17	4	1	11	7	4	1
3:45 PM	22	16	4	1	12	15	1	0
4:00 PM	31	35	2	0	14	15	8	3
4:15 PM	33	33	2	1	7	22	2	5
4:30 PM	36	42	0	0	10	18	8	1
4:45 PM	19	29	0	1	10	15	2	1
5:00 PM	35	31	3	1	7	9	1	1
5:15 PM	15	39	0	2	2	12	4	3
5:30 PM	15	37	3	1	1	5	4	2
5:45 PM	38	25	4	2	1	5	6	6
6:00 PM	24	21	1	1	3	14	4	0
6:15 PM	32	26	1	0	5	8	3	0
6:30 PM	26	24	2	3	9	7	4	2
6:45 PM	34	30	0	2	0	10	1	0

Study Name 2-Roosevelt Ave and 70th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	70TH ST Southbound				ROOSEVELT AVE Westbound				70TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	3	97	3	0	0	0	0	0	2	34	5	0
6:15 AM	0	0	0	0	4	117	3	0	0	0	0	0	2	32	3	1
6:30 AM	0	0	1	0	1	112	2	0	0	0	0	0	1	24	3	0
6:45 AM	0	0	0	0	2	106	1	0	0	0	0	0	1	45	5	1
7:00 AM	0	0	0	0	1	130	3	0	0	0	0	0	1	42	5	0
7:15 AM	1	0	0	1	1	132	0	1	0	0	0	0	2	45	5	0
7:30 AM	0	0	0	0	1	142	0	0	0	0	0	0	0	45	6	0
7:45 AM	0	0	0	0	2	131	4	0	0	0	0	0	1	43	4	0
8:00 AM	0	0	0	0	2	118	4	0	0	0	0	0	2	63	7	1
8:15 AM	0	0	0	0	3	134	4	1	0	0	0	0	4	45	3	0
8:30 AM	0	0	0	0	2	102	5	0	0	0	0	0	5	58	3	0
8:45 AM	0	0	0	0	0	106	5	0	1	0	1	0	1	53	4	1
9:00 AM	0	0	0	0	2	107	3	0	0	0	1	0	2	39	6	0
9:15 AM	0	0	0	0	3	82	5	0	0	0	0	0	6	57	5	0
9:30 AM	0	0	0	0	2	92	2	0	0	0	0	0	2	62	11	0
9:45 AM	0	0	0	0	3	76	0	1	0	0	1	0	6	75	0	3
3:00 PM	0	0	0	0	3	69	6	0	0	0	1	0	6	96	10	1
3:15 PM	0	0	0	0	6	79	6	1	0	1	1	0	2	99	8	0
3:30 PM	0	0	0	0	1	49	4	0	1	1	0	0	5	100	10	0
3:45 PM	0	0	0	0	0	64	3	0	1	0	1	0	2	87	7	1
4:00 PM	0	0	0	0	2	74	6	0	0	0	1	0	3	117	10	0
4:15 PM	0	0	0	0	3	76	8	0	0	0	2	0	3	102	12	1
4:30 PM	0	0	3	0	3	71	10	0	0	0	1	0	6	105	9	0
4:45 PM	0	1	0	0	5	79	4	0	0	0	2	0	2	100	12	0
5:00 PM	0	0	0	0	3	61	5	0	2	0	0	0	2	124	8	0
5:15 PM	0	0	0	0	2	85	9	1	0	0	1	0	3	107	17	0
5:30 PM	0	0	0	0	2	72	3	1	0	0	0	0	2	89	16	0
5:45 PM	0	0	0	0	4	79	7	0	0	0	0	0	3	117	17	0
6:00 PM	0	0	0	0	3	74	6	1	0	0	0	0	1	121	14	1
6:15 PM	0	0	0	0	1	67	8	0	0	0	0	0	5	103	16	0
6:30 PM	0	0	0	0	3	68	12	0	0	0	0	0	6	96	16	0
6:45 PM	0	0	0	0	3	62	6	0	0	0	0	0	4	95	19	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
7:30 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	3	0	0
8:00 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	4	0	0
8:30 AM	0	0	0	0	1	7	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0
3:00 PM	0	1	2	0	0	7	0	0	0	0	0	0	0	5	1	0
3:15 PM	1	2	0	0	1	6	0	0	0	0	0	0	0	7	0	0
3:30 PM	0	1	0	0	1	2	0	0	0	0	0	0	0	5	0	0
3:45 PM	0	2	0	0	0	5	0	0	0	0	0	0	0	7	0	0
4:00 PM	0	0	0	0	1	4	0	0	0	0	1	0	0	4	0	0
4:15 PM	1	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
4:30 PM	0	0	1	0	0	4	0	0	0	0	0	0	0	2	0	0
4:45 PM	0	1	0	0	0	7	0	0	0	0	0	0	0	1	0	0
5:00 PM	1	0	0	0	1	3	0	0	1	0	0	0	0	5	1	0
5:15 PM	0	0	2	0	1	1	0	0	0	0	0	0	0	3	1	0
5:30 PM	0	1	1	0	0	6	0	0	0	0	0	0	0	5	1	0
5:45 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	5	1	0
6:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	1	0
6:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0	0
6:30 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	1	0	0
6:45 PM	1	0	1	0	2	6	0	0	0	0	0	0	1	3	2	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	6	1	4	0	1	84	0	0	0	0	0	0	0	21	1	0
6:15 AM	5	3	6	0	3	82	0	0	0	0	0	0	0	20	3	0
6:30 AM	3	5	4	0	3	82	0	0	0	0	0	0	0	13	0	0
6:45 AM	5	0	4	0	4	71	0	0	0	0	0	0	0	30	0	0
7:00 AM	9	4	11	0	0	97	0	0	0	0	0	0	0	26	3	0
7:15 AM	14	8	7	0	1	95	0	0	0	0	0	0	0	24	1	0
7:30 AM	14	4	8	0	4	98	0	0	0	0	0	0	0	32	3	0
7:45 AM	14	11	8	0	4	84	0	0	0	0	0	0	0	25	1	0
8:00 AM	15	8	6	0	5	90	0	1	0	0	0	0	0	42	1	0
8:15 AM	17	14	14	0	4	76	0	0	0	0	0	0	0	34	2	1
8:30 AM	9	6	3	0	4	83	0	0	0	0	0	0	0	40	0	0
8:45 AM	17	9	11	0	9	67	0	1	0	0	0	0	0	27	3	0
9:00 AM	11	5	4	0	1	71	0	0	0	0	0	0	0	25	3	0
9:15 AM	9	7	8	0	3	52	0	0	0	0	0	0	0	35	0	0
9:30 AM	14	1	7	0	3	61	0	0	0	0	0	0	0	41	3	0
9:45 AM	17	7	4	0	2	44	0	0	0	0	0	0	0	51	2	0
3:00 PM	8	14	8	0	8	51	0	1	0	0	0	0	0	66	2	0
3:15 PM	23	13	6	0	6	47	0	0	0	0	0	0	0	62	5	0
3:30 PM	15	15	3	0	5	29	0	0	0	0	0	0	0	69	3	0
3:45 PM	21	15	5	0	5	44	0	0	0	0	0	0	0	62	6	0
4:00 PM	24	29	7	0	5	62	0	1	0	0	0	0	0	68	2	0
4:15 PM	27	43	7	0	6	49	0	0	0	0	0	0	0	69	7	0
4:30 PM	21	24	9	0	2	52	0	0	0	0	0	0	0	64	2	0
4:45 PM	19	16	7	0	10	53	0	0	0	0	0	0	0	60	4	1
5:00 PM	28	22	4	0	5	49	0	0	0	0	0	0	0	69	2	0
5:15 PM	25	18	12	0	5	71	0	0	0	0	0	0	0	59	7	0
5:30 PM	26	20	6	0	2	41	0	0	0	0	0	0	0	52	3	0
5:45 PM	17	22	11	0	4	52	0	0	0	0	0	0	0	76	5	0
6:00 PM	18	16	8	0	11	45	0	0	0	0	0	0	0	71	3	0
6:15 PM	24	14	6	0	5	43	0	0	0	0	0	0	0	50	7	0
6:30 PM	18	15	7	0	8	58	0	0	0	0	0	0	0	76	0	0
6:45 PM	21	12	13	0	3	49	0	0	0	0	0	0	0	64	4	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	2	0	0	4	0	0	0	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
7:00 AM	2	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	7	0	0
7:30 AM	2	0	0	0	0	12	0	0	0	0	0	0	0	2	0	0
7:45 AM	3	1	0	0	0	12	0	0	0	0	0	0	0	4	0	0
8:00 AM	3	2	3	0	0	3	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	13	0	0	0	0	0	0	0	0	0	0
8:30 AM	2	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
8:45 AM	2	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0
9:00 AM	2	0	1	0	0	8	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	6	0	0
9:30 AM	2	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	1	0	0	4	0	0	0	0	0	0	0	5	0	0
3:00 PM	1	0	0	0	1	2	0	0	0	0	0	0	0	4	0	0
3:15 PM	3	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
3:30 PM	1	1	1	0	0	1	0	0	0	0	0	0	0	4	0	0
3:45 PM	1	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0
4:00 PM	0	1	2	0	0	3	0	0	0	0	0	0	0	5	0	0
4:15 PM	2	1	0	0	0	3	0	0	0	0	0	0	0	7	0	0
4:30 PM	0	1	0	0	0	4	0	0	0	0	0	0	1	11	1	0
4:45 PM	4	0	0	0	0	2	0	0	0	0	0	0	0	7	0	0
5:00 PM	1	1	1	0	1	0	0	0	0	0	0	0	0	2	0	0
5:15 PM	1	0	1	0	0	4	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	5	0	0
5:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	2	0
6:00 PM	2	0	0	0	1	3	0	0	0	0	0	0	0	5	0	0
6:15 PM	2	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:45 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	6	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	6	0	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
8:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
8:15 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
8:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
9:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	0
9:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
9:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
3:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0	0
3:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	6	0	0
4:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	5	0	0
4:45 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
5:00 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	10	0	0
5:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0
5:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	8	0	0
6:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0	0
6:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	8	0	0
6:30 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
6:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	9	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	2	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0
6:45 AM	1	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:00 AM	1	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
7:15 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
7:30 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	1	1	0	0	0	5	0	0	0	0	0	0	0	1	0	0
8:00 AM	2	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	0	1	0	0	5	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:45 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
9:00 AM	1	0	0	0	0	6	0	0	0	0	0	0	0	2	0	0
9:15 AM	1	0	1	0	0	3	0	0	0	0	0	0	0	3	0	0
9:30 AM	2	2	0	0	0	2	0	0	0	0	0	0	0	3	0	0
9:45 AM	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0
3:45 PM	1	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:00 PM	1	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
6:30 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	4	0	0
6:15 AM	0	0	1	0	0	17	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	1	3	0	0	9	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	4	0	0
7:00 AM	0	0	0	0	0	11	0	0	1	0	0	0	0	2	0	0
7:15 AM	0	1	0	0	0	13	0	0	0	0	0	0	0	4	0	0
7:30 AM	0	0	1	0	0	10	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	8	0	0
8:00 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	1	0	0	10	0	0	0	1	0	0	1	2	1	0
8:45 AM	0	0	1	0	0	8	0	0	0	0	0	0	0	5	0	0
9:00 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	1	0	1	7	1	0	0	0	0	0	0	3	0	0
9:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	10	0	0
3:15 PM	1	0	1	0	0	8	1	0	0	0	0	0	0	4	1	0
3:30 PM	0	1	0	0	0	9	2	0	0	0	0	0	0	8	0	0
3:45 PM	0	0	2	0	0	3	1	0	0	0	0	0	0	5	0	0
4:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	11	0	0
4:15 PM	0	0	0	0	0	5	1	0	0	0	0	0	0	17	0	0
4:30 PM	0	1	3	0	0	4	2	0	0	0	0	0	0	15	0	0
4:45 PM	0	0	1	0	0	7	0	0	0	0	0	0	0	28	0	0
5:00 PM	1	0	0	0	0	0	0	0	0	0	1	0	1	21	1	0
5:15 PM	0	0	0	0	0	11	0	0	0	0	0	0	0	11	1	0
5:30 PM	0	0	0	0	1	10	0	0	0	0	1	0	0	13	1	0
5:45 PM	1	1	2	0	0	5	2	0	0	0	0	0	0	15	0	0
6:00 PM	0	1	1	0	0	9	0	0	0	0	0	0	2	20	0	0
6:15 PM	0	0	1	0	1	5	1	0	0	0	0	0	1	20	0	0
6:30 PM	0	0	1	0	1	5	0	0	0	0	0	0	0	14	1	0
6:45 PM	1	1	1	0	0	2	0	0	0	0	0	0	1	9	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	1	4	0	0	0	0	0	0	0	2	0	0
7:00 AM	1	2	0	0	0	6	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	1	0	0	1	2	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	1	0
3:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	72ND ST Southbound		ROOSEVELT AVE Westbound		72ND ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	2	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	1
7:15 AM	1	0	0	0	2	1	0	0
7:30 AM	1	0	2	0	0	1	0	0
7:45 AM	1	0	1	2	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	1	1	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	1	0	1	3	0	0
9:15 AM	1	1	0	0	0	1	0	1
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	1	0	0	0	0
3:00 PM	1	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	1	0	0	0	1	0	0
3:45 PM	2	0	0	0	1	1	0	0
4:00 PM	0	0	1	0	1	1	0	0
4:15 PM	1	0	0	0	0	1	0	1
4:30 PM	4	1	0	1	1	1	0	1
4:45 PM	0	0	0	0	1	0	0	0
5:00 PM	1	2	0	0	3	1	2	0
5:15 PM	1	0	0	0	1	1	1	0
5:30 PM	1	1	1	1	1	1	0	0
5:45 PM	0	0	1	0	0	0	0	1
6:00 PM	1	0	0	1	0	0	0	0
6:15 PM	0	0	2	0	0	0	0	0
6:30 PM	0	0	0	1	0	0	0	1
6:45 PM	3	0	0	0	1	1	0	1

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	72ND ST Southbound		ROOSEVELT AVE Westbound		72ND ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	4	2	7	1	17	7	2	3
6:15 AM	11	7	3	1	12	14	1	1
6:30 AM	6	6	1	0	13	5	0	3
6:45 AM	9	9	8	0	9	9	1	2
7:00 AM	12	7	6	3	12	8	3	2
7:15 AM	6	6	8	0	11	14	1	6
7:30 AM	12	11	6	3	11	15	0	7
7:45 AM	6	5	7	6	23	10	6	5
8:00 AM	12	13	4	0	13	21	4	6
8:15 AM	14	16	2	6	12	14	2	7
8:30 AM	10	18	2	3	16	15	5	4
8:45 AM	13	23	6	4	17	17	0	9
9:00 AM	15	12	7	1	21	15	1	11
9:15 AM	9	18	3	4	10	14	0	3
9:30 AM	18	13	6	0	14	14	1	7
9:45 AM	23	23	10	3	24	16	6	4
3:00 PM	41	22	15	11	32	32	6	9
3:15 PM	20	20	10	10	30	31	13	9
3:30 PM	33	26	2	3	27	26	12	8
3:45 PM	31	21	7	13	35	33	6	7
4:00 PM	34	32	10	10	37	37	8	8
4:15 PM	37	34	6	14	27	45	11	11
4:30 PM	41	46	4	2	34	45	11	12
4:45 PM	28	24	16	8	46	49	14	4
5:00 PM	31	36	9	12	39	48	10	11
5:15 PM	14	36	11	14	41	48	18	13
5:30 PM	23	33	10	10	58	37	13	13
5:45 PM	31	28	9	7	25	44	10	6
6:00 PM	33	21	9	8	40	60	12	5
6:15 PM	39	19	5	8	54	41	16	6
6:30 PM	18	15	14	10	75	60	11	11
6:45 PM	31	23	12	11	33	48	7	5

Study Name 3-Roosevelt Ave and 72nd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	72ND ST Southbound				ROOSEVELT AVE Westbound				72ND ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	9	1	4	0	1	106	0	0	0	0	0	0	0	33	1	0
6:15 AM	5	3	7	0	3	111	0	0	0	0	0	0	0	28	3	0
6:30 AM	5	7	10	0	3	106	0	0	0	0	0	0	0	25	0	0
6:45 AM	7	1	4	0	5	95	0	0	0	0	0	0	0	42	0	0
7:00 AM	13	6	12	0	0	124	0	0	1	0	0	0	0	38	3	0
7:15 AM	15	11	7	0	3	117	0	0	0	0	0	0	0	44	2	0
7:30 AM	18	4	9	0	4	134	0	0	0	0	0	0	0	44	3	0
7:45 AM	18	13	10	0	4	117	0	0	0	0	0	0	0	47	1	0
8:00 AM	20	10	10	0	5	116	0	1	0	0	0	0	0	59	1	0
8:15 AM	17	16	15	0	4	120	0	0	0	0	0	0	0	48	2	1
8:30 AM	11	7	4	0	5	112	0	0	0	1	0	0	1	58	1	0
8:45 AM	20	9	12	0	9	97	0	1	0	0	0	0	0	44	3	0
9:00 AM	14	5	5	0	1	102	0	0	0	0	0	0	0	38	3	0
9:15 AM	10	7	10	0	4	78	1	0	0	0	0	0	0	50	0	0
9:30 AM	18	4	7	0	3	77	0	0	0	0	0	0	0	58	3	0
9:45 AM	19	7	5	0	3	62	0	0	0	0	0	0	0	65	3	0
3:00 PM	9	16	10	0	10	70	0	1	0	0	0	0	0	97	3	0
3:15 PM	28	15	7	0	7	74	1	0	0	0	0	0	0	84	7	0
3:30 PM	16	19	5	0	6	48	2	0	0	0	0	0	0	97	3	0
3:45 PM	23	18	8	0	5	62	1	0	0	0	0	0	0	86	6	0
4:00 PM	25	30	9	0	6	79	0	1	0	0	1	0	0	97	3	0
4:15 PM	30	44	7	0	6	67	1	0	0	0	0	0	0	100	7	0
4:30 PM	21	26	13	0	2	70	2	0	0	0	0	0	1	97	3	0
4:45 PM	23	17	8	0	10	76	0	0	0	0	0	0	0	106	4	1
5:00 PM	31	23	5	0	7	58	0	0	1	0	1	0	1	104	5	0
5:15 PM	26	18	15	0	6	91	0	0	0	0	0	0	0	85	9	0
5:30 PM	26	22	7	0	3	65	0	0	0	0	1	0	0	85	5	0
5:45 PM	18	24	13	0	5	72	2	0	0	0	0	0	0	110	8	0
6:00 PM	20	17	9	0	13	69	0	0	0	0	0	0	2	108	4	0
6:15 PM	26	14	7	0	6	57	1	0	0	0	0	0	1	89	8	0
6:30 PM	18	17	8	0	11	79	0	0	0	0	0	0	0	98	1	0
6:45 PM	24	13	15	0	5	61	0	0	0	0	0	0	2	86	6	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	0	0	0	0
6:30 AM	0	6	0	0	0	0	1	0	0
6:45 AM	0	3	0	0	0	0	0	0	0
7:00 AM	0	4	0	0	0	0	0	0	0
7:15 AM	0	4	0	0	0	0	0	0	0
7:30 AM	0	5	0	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	3	0	0
8:00 AM	0	0	0	0	1	0	2	0	0
8:15 AM	0	5	0	0	0	0	4	0	0
8:30 AM	0	5	0	0	0	0	1	0	0
8:45 AM	0	4	0	0	0	0	3	0	0
9:00 AM	0	7	0	0	0	0	2	0	0
9:15 AM	0	3	0	0	1	0	0	0	0
9:30 AM	0	2	0	0	0	0	4	0	0
9:45 AM	0	2	0	0	1	0	2	0	0
3:00 PM	0	6	0	1	0	0	4	0	0
3:15 PM	0	3	0	0	0	0	7	0	0
3:30 PM	0	3	0	1	0	0	3	1	0
3:45 PM	0	2	0	0	0	0	9	0	0
4:00 PM	0	5	0	2	0	0	3	0	0
4:15 PM	0	4	0	1	0	0	7	0	0
4:30 PM	0	2	0	0	1	0	8	0	0
4:45 PM	0	4	0	1	0	0	5	0	0
5:00 PM	0	2	0	1	0	0	11	0	0
5:15 PM	0	0	0	0	0	0	5	0	0
5:30 PM	0	6	0	0	0	0	6	0	0
5:45 PM	0	5	0	1	0	0	6	0	0
6:00 PM	0	8	0	2	0	0	6	1	0
6:15 PM	0	6	0	1	0	0	11	0	0
6:30 PM	1	7	0	1	0	0	2	0	0
6:45 PM	0	3	0	1	0	0	8	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	73	1	2	7	0	29	0	0
6:15 AM	0	74	0	9	4	0	24	0	0
6:30 AM	0	76	0	4	6	0	16	0	0
6:45 AM	0	76	0	6	8	0	35	0	1
7:00 AM	0	85	0	4	6	0	31	0	0
7:15 AM	0	83	0	6	4	0	39	0	0
7:30 AM	0	87	0	12	8	0	45	0	0
7:45 AM	0	84	0	13	5	0	42	0	0
8:00 AM	0	79	0	10	8	0	54	0	0
8:15 AM	0	76	0	9	11	0	56	0	0
8:30 AM	0	75	0	8	4	0	52	0	0
8:45 AM	0	72	0	9	5	0	43	0	0
9:00 AM	0	60	0	4	7	0	36	0	0
9:15 AM	0	45	0	10	9	0	41	0	0
9:30 AM	0	52	0	11	7	0	49	0	0
9:45 AM	0	41	0	10	8	0	69	0	0
3:00 PM	0	39	0	16	12	0	82	0	0
3:15 PM	0	37	0	14	17	0	77	0	0
3:30 PM	0	34	0	7	11	0	87	0	0
3:45 PM	0	43	0	5	8	0	90	0	0
4:00 PM	0	62	0	9	7	0	94	0	0
4:15 PM	0	38	0	13	12	1	84	0	0
4:30 PM	0	42	0	9	11	0	87	0	0
4:45 PM	0	46	0	16	15	0	80	0	0
5:00 PM	0	39	0	12	16	0	96	0	0
5:15 PM	0	63	0	13	12	0	71	0	0
5:30 PM	0	30	0	10	14	0	84	0	0
5:45 PM	0	49	0	13	14	0	84	0	0
6:00 PM	0	39	0	9	15	0	92	0	0
6:15 PM	0	43	0	13	16	0	64	0	1
6:30 PM	0	45	0	15	12	0	99	0	0
6:45 PM	0	38	0	16	14	0	81	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	2	0	0
6:15 AM	0	8	0	0	0	0	1	0	0
6:30 AM	0	7	0	0	0	0	0	0	0
6:45 AM	0	2	0	0	0	0	4	0	0
7:00 AM	0	6	0	0	0	0	4	0	0
7:15 AM	0	5	0	1	1	0	7	0	0
7:30 AM	0	12	0	0	2	0	4	0	0
7:45 AM	0	10	0	0	0	0	6	0	0
8:00 AM	0	5	0	0	0	0	2	0	0
8:15 AM	0	11	0	0	1	0	0	0	0
8:30 AM	0	4	0	0	0	0	5	0	0
8:45 AM	0	7	0	0	0	0	3	0	0
9:00 AM	0	7	0	0	0	0	4	0	0
9:15 AM	0	8	0	1	0	0	7	0	0
9:30 AM	0	4	0	0	0	0	3	0	0
9:45 AM	0	3	0	0	0	0	6	0	0
3:00 PM	0	1	0	0	0	0	4	0	0
3:15 PM	0	6	0	0	2	0	7	0	0
3:30 PM	0	1	0	0	0	0	4	0	0
3:45 PM	0	0	0	1	1	0	6	0	0
4:00 PM	0	1	0	2	1	0	4	0	0
4:15 PM	0	4	0	0	1	0	8	0	0
4:30 PM	0	4	0	0	1	0	9	0	0
4:45 PM	0	1	0	0	0	0	10	0	0
5:00 PM	0	2	0	1	1	0	8	0	0
5:15 PM	0	6	0	0	0	0	5	0	0
5:30 PM	0	2	0	1	0	0	8	0	0
5:45 PM	0	7	0	0	0	0	5	0	0
6:00 PM	0	4	0	1	0	0	8	0	0
6:15 PM	0	2	0	0	2	0	5	0	0
6:30 PM	0	2	0	0	0	0	4	0	0
6:45 PM	0	3	0	1	0	0	2	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	4	0	0
6:15 AM	0	5	0	0	0	0	6	0	0
6:30 AM	0	2	0	0	0	0	5	0	0
6:45 AM	0	5	0	0	0	0	5	0	0
7:00 AM	0	3	0	1	0	0	7	0	0
7:15 AM	0	5	0	1	0	0	6	0	0
7:30 AM	0	6	0	0	0	0	6	0	0
7:45 AM	0	5	0	1	0	0	5	0	0
8:00 AM	0	6	0	0	0	0	7	0	0
8:15 AM	0	7	0	0	0	0	8	0	0
8:30 AM	0	4	0	0	0	0	6	0	0
8:45 AM	0	6	0	0	0	0	5	0	0
9:00 AM	0	6	0	0	0	0	6	0	0
9:15 AM	0	8	0	0	0	0	3	0	0
9:30 AM	0	2	0	0	0	0	8	0	0
9:45 AM	0	6	0	0	0	0	4	0	0
3:00 PM	0	3	0	0	0	0	4	0	0
3:15 PM	0	3	0	0	1	0	6	0	0
3:30 PM	0	4	0	0	0	0	7	0	0
3:45 PM	0	4	0	0	0	0	6	0	0
4:00 PM	0	4	0	0	0	0	5	0	0
4:15 PM	0	4	0	0	0	0	6	0	0
4:30 PM	0	4	0	0	0	0	6	0	0
4:45 PM	0	5	0	0	0	0	7	0	0
5:00 PM	0	5	0	0	0	0	7	0	0
5:15 PM	0	2	0	0	0	0	11	0	0
5:30 PM	0	7	0	0	0	0	7	0	0
5:45 PM	0	3	0	0	0	0	6	0	0
6:00 PM	0	6	0	0	0	0	6	0	0
6:15 PM	0	4	0	0	0	0	7	0	0
6:30 PM	0	6	0	0	0	0	4	0	0
6:45 PM	0	2	0	0	0	0	9	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	2	0	0	0	0	5	0	0
6:15 AM	0	1	0	0	0	0	0	0	0
6:30 AM	0	1	0	0	0	0	3	0	0
6:45 AM	0	1	0	0	0	0	2	0	0
7:00 AM	0	3	0	0	0	0	2	0	0
7:15 AM	0	2	0	0	1	0	2	0	0
7:30 AM	0	1	0	0	0	0	2	0	0
7:45 AM	0	4	0	0	0	0	2	0	0
8:00 AM	0	3	0	0	1	0	6	0	0
8:15 AM	0	5	0	0	0	0	2	0	0
8:30 AM	0	4	0	0	1	0	2	0	0
8:45 AM	0	4	0	0	0	0	3	0	0
9:00 AM	0	3	0	1	2	0	3	0	0
9:15 AM	0	3	0	0	0	0	4	0	0
9:30 AM	0	2	0	0	0	0	5	0	0
9:45 AM	0	2	0	1	0	0	1	0	0
3:00 PM	0	1	0	0	0	0	5	0	0
3:15 PM	0	1	0	1	0	0	1	0	0
3:30 PM	0	2	0	0	1	0	0	0	0
3:45 PM	0	3	0	0	0	0	4	0	0
4:00 PM	0	1	0	0	1	0	4	0	0
4:15 PM	0	0	0	1	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	0	1	0	0
5:15 PM	0	3	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	3	0	0
5:45 PM	0	1	0	0	0	0	1	0	0
6:00 PM	0	1	0	1	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	3	0	1	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	1	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	9	0	0	0	0	4	0	0
6:15 AM	0	18	0	0	0	0	0	0	0
6:30 AM	0	5	0	1	0	0	4	0	0
6:45 AM	0	8	0	0	0	0	4	0	0
7:00 AM	0	9	0	0	0	0	1	0	0
7:15 AM	0	16	0	0	1	0	6	0	0
7:30 AM	0	10	0	0	1	0	2	0	0
7:45 AM	1	10	0	0	1	0	7	0	0
8:00 AM	0	10	0	0	0	0	3	1	0
8:15 AM	0	13	0	0	1	0	1	0	0
8:30 AM	0	12	0	0	0	0	1	0	0
8:45 AM	0	10	0	0	1	0	5	0	0
9:00 AM	0	7	0	0	0	0	1	0	0
9:15 AM	0	7	0	0	0	0	3	0	0
9:30 AM	0	11	0	0	0	0	1	0	0
9:45 AM	0	14	0	0	1	0	2	1	0
3:00 PM	0	4	0	0	1	0	10	0	0
3:15 PM	0	7	0	0	0	0	2	1	0
3:30 PM	0	7	0	0	0	0	7	0	0
3:45 PM	0	4	0	0	1	0	5	1	0
4:00 PM	0	3	0	0	1	0	8	0	0
4:15 PM	0	6	0	0	0	0	6	0	0
4:30 PM	0	6	0	0	1	0	7	0	0
4:45 PM	0	9	0	0	0	0	17	0	0
5:00 PM	0	3	0	0	0	0	16	0	0
5:15 PM	0	11	0	1	0	0	9	0	0
5:30 PM	0	8	0	0	2	0	12	0	0
5:45 PM	0	5	0	0	0	0	7	0	0
6:00 PM	0	4	0	0	2	0	14	2	0
6:15 PM	0	5	0	1	1	0	17	0	0
6:30 PM	0	4	0	1	2	0	12	0	0
6:45 PM	0	2	0	0	1	0	6	1	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	0	1	0	0
6:30 AM	0	1	0	0	1	0	1	0	0
6:45 AM	0	4	0	0	2	0	2	0	0
7:00 AM	0	5	0	0	1	0	1	0	0
7:15 AM	0	2	0	0	0	0	2	0	0
7:30 AM	0	1	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0	0
8:45 AM	0	1	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	0	2	0	0
3:15 PM	0	1	0	1	1	0	1	0	0
3:30 PM	0	1	0	0	1	0	2	0	0
3:45 PM	0	2	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	ROOSEVELT AVE Westbound		73RD ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	1	0	0	0	0
6:15 AM	0	0	0	0	0	0
6:30 AM	0	0	1	1	0	0
6:45 AM	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0
7:15 AM	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	0
7:45 AM	0	1	0	1	0	0
8:00 AM	0	0	1	0	0	0
8:15 AM	0	0	1	0	0	0
8:30 AM	0	0	1	0	0	1
8:45 AM	0	0	0	0	0	0
9:00 AM	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0
9:30 AM	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0
3:15 PM	0	0	1	2	0	0
3:30 PM	0	0	1	1	0	1
3:45 PM	0	0	0	1	0	0
4:00 PM	1	0	0	0	0	2
4:15 PM	0	0	1	0	0	1
4:30 PM	1	0	1	0	1	0
4:45 PM	0	0	1	0	0	0
5:00 PM	0	0	1	0	0	0
5:15 PM	0	0	2	1	0	0
5:30 PM	0	0	1	1	0	0
5:45 PM	1	0	3	0	0	0
6:00 PM	1	0	3	1	0	0
6:15 PM	0	0	0	0	0	0
6:30 PM	0	0	0	1	0	0
6:45 PM	0	0	1	2	0	0

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	ROOSEVELT AVE Westbound		73RD ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	3	3	16	6	1	15
6:15 AM	4	4	10	13	3	15
6:30 AM	3	1	11	7	3	19
6:45 AM	3	1	10	11	3	22
7:00 AM	4	1	12	10	5	30
7:15 AM	1	4	10	13	7	34
7:30 AM	8	7	18	15	13	36
7:45 AM	7	2	25	14	7	43
8:00 AM	5	1	14	23	7	52
8:15 AM	4	1	22	19	5	27
8:30 AM	5	0	22	20	13	29
8:45 AM	5	2	20	18	8	17
9:00 AM	10	7	19	18	11	27
9:15 AM	6	4	13	19	11	19
9:30 AM	6	7	28	18	18	15
9:45 AM	5	6	27	18	5	27
3:00 PM	8	24	33	53	32	27
3:15 PM	14	12	41	42	43	28
3:30 PM	19	7	26	30	35	30
3:45 PM	15	12	45	38	63	34
4:00 PM	10	10	28	34	37	26
4:15 PM	18	9	30	32	48	41
4:30 PM	12	17	29	31	59	35
4:45 PM	12	18	37	53	63	29
5:00 PM	8	7	50	39	43	32
5:15 PM	12	12	47	51	72	40
5:30 PM	16	27	65	55	48	26
5:45 PM	25	7	29	76	47	40
6:00 PM	9	11	49	45	49	51
6:15 PM	9	13	59	40	69	54
6:30 PM	10	15	66	47	55	39
6:45 PM	12	16	51	45	62	40

Study Name 4-Roosevelt Ave and 73rd St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	ROOSEVELT AVE Westbound			73RD ST Northbound			ROOSEVELT AVE Eastbound		
Start Time	Left	Thru	U-Turn	Left	Right	U-Turn	Thru	Right	U-Turn
6:00 AM	0	93	1	2	7	0	44	0	0
6:15 AM	0	108	0	9	4	0	32	0	0
6:30 AM	0	98	0	5	7	0	30	0	0
6:45 AM	0	99	0	6	10	0	52	0	1
7:00 AM	0	115	0	5	7	0	47	0	0
7:15 AM	0	117	0	8	7	0	62	0	0
7:30 AM	0	122	0	12	11	0	61	0	0
7:45 AM	1	114	0	14	6	0	66	0	0
8:00 AM	0	105	0	10	10	0	74	1	0
8:15 AM	0	118	0	9	13	0	71	0	0
8:30 AM	0	104	0	8	5	0	68	0	0
8:45 AM	0	104	0	9	6	0	63	0	0
9:00 AM	0	90	0	5	9	0	52	0	0
9:15 AM	0	74	0	11	10	0	58	0	0
9:30 AM	0	73	0	11	7	0	70	0	0
9:45 AM	0	68	0	11	10	0	85	1	0
3:00 PM	0	56	0	18	13	0	111	0	0
3:15 PM	0	58	0	16	21	0	101	1	0
3:30 PM	0	52	0	8	13	0	110	1	0
3:45 PM	0	58	0	6	10	0	120	1	0
4:00 PM	0	76	0	13	10	0	119	0	0
4:15 PM	0	56	0	15	13	1	111	0	0
4:30 PM	0	60	0	9	14	0	117	0	0
4:45 PM	0	67	0	17	15	0	121	0	0
5:00 PM	0	51	0	14	17	0	139	0	0
5:15 PM	0	85	0	14	12	0	101	0	0
5:30 PM	0	53	0	11	16	0	120	0	0
5:45 PM	0	70	0	14	14	0	109	0	0
6:00 PM	0	62	0	13	17	0	127	3	0
6:15 PM	0	60	0	15	19	0	104	0	1
6:30 PM	1	67	0	18	14	0	122	0	0
6:45 PM	0	48	0	18	15	0	106	1	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	7	1	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	3	1	0	0	4	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	4	4	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	6	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	4	1	0	0	1	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
8:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	5	1	0	0	1	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	3	2	0	0	1	0	0	0	1	1	0
8:45 AM	0	0	0	0	0	5	1	0	0	1	0	0	0	3	0	0
9:00 AM	0	1	0	0	0	5	1	0	0	3	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	2	0
9:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	1	3	0	0
9:45 AM	0	1	0	0	0	2	1	0	2	2	0	0	0	2	1	0
3:00 PM	1	3	0	0	1	4	0	0	1	0	2	0	0	1	2	0
3:15 PM	0	4	0	0	0	5	3	0	0	2	0	0	0	8	1	0
3:30 PM	0	3	0	0	0	2	0	0	0	2	0	0	0	6	1	0
3:45 PM	0	3	0	0	0	2	0	0	0	1	0	0	0	7	0	0
4:00 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
4:15 PM	0	2	0	0	1	2	0	0	1	0	0	0	0	0	1	0
4:30 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0
4:45 PM	0	2	0	0	0	2	1	0	0	2	0	0	0	1	1	0
5:00 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	1	0
5:15 PM	1	1	0	0	0	1	0	0	0	3	0	0	0	3	1	0
5:30 PM	0	2	0	0	0	5	2	0	0	3	0	0	0	6	0	0
5:45 PM	0	2	0	0	0	5	1	0	0	2	0	0	0	3	0	0
6:00 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	2	0
6:15 PM	0	0	0	0	0	2	0	0	1	3	0	0	0	2	1	0
6:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	2	0	1	0	0	0	0	0	1	0	0	0	3	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	3	29	0	1	0	71	25	0	7	31	2	0	0	34	6	0
6:15 AM	0	36	0	0	0	72	26	0	1	24	2	0	0	21	9	0
6:30 AM	1	43	0	0	0	76	21	1	2	24	6	0	0	16	6	0
6:45 AM	3	71	0	0	0	78	23	0	2	29	2	0	0	28	16	0
7:00 AM	2	54	0	0	0	80	23	2	6	42	5	0	0	28	7	0
7:15 AM	1	63	0	0	0	80	26	0	5	31	2	0	1	29	15	0
7:30 AM	3	66	0	0	1	79	23	0	3	37	1	0	0	40	13	0
7:45 AM	1	62	0	0	0	85	19	0	1	25	3	0	0	37	11	0
8:00 AM	0	79	0	0	0	71	15	0	5	44	3	0	0	46	16	0
8:15 AM	0	61	1	0	1	79	19	1	4	33	3	0	0	42	23	0
8:30 AM	1	60	0	0	0	66	27	0	5	32	5	0	0	42	13	0
8:45 AM	0	56	0	0	2	67	24	0	5	24	5	0	0	42	9	0
9:00 AM	2	77	0	2	0	56	13	2	2	30	3	0	0	26	13	0
9:15 AM	1	57	0	0	0	50	26	0	0	29	2	0	2	40	14	0
9:30 AM	1	74	0	0	1	43	12	0	3	29	6	0	0	38	12	0
9:45 AM	2	59	1	0	0	39	18	0	2	39	4	0	0	55	22	0
3:00 PM	1	60	1	0	2	37	35	0	3	26	5	0	0	67	27	0
3:15 PM	2	65	1	0	1	31	23	0	4	41	6	0	0	64	25	0
3:30 PM	2	48	0	0	1	33	27	0	1	32	4	0	0	65	36	0
3:45 PM	1	77	0	1	0	41	21	0	2	41	4	0	1	69	27	0
4:00 PM	1	68	1	0	0	57	23	0	4	41	3	0	0	75	21	0
4:15 PM	5	55	0	0	0	35	23	0	2	35	2	0	0	73	31	0
4:30 PM	0	63	2	0	1	42	20	0	3	28	7	0	1	77	25	0
4:45 PM	6	55	1	0	1	40	19	0	5	44	4	0	1	65	20	0
5:00 PM	2	66	0	0	0	40	28	0	1	30	1	0	0	80	39	0
5:15 PM	2	80	0	0	0	58	19	0	5	45	0	0	0	57	22	0
5:30 PM	1	54	0	0	0	32	20	0	2	35	0	0	2	66	32	0
5:45 PM	5	69	0	0	0	44	15	0	2	30	0	0	0	73	26	0
6:00 PM	0	62	1	0	2	36	21	0	1	27	3	0	1	79	30	0
6:15 PM	2	68	1	0	2	40	20	0	2	35	5	0	1	51	18	0
6:30 PM	5	60	1	0	0	39	17	0	3	35	6	0	1	77	37	0
6:45 PM	4	83	0	0	2	37	28	0	0	38	3	0	0	61	34	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	0	9	0	0	0	0	0	0	1	1	0
6:15 AM	0	1	0	0	0	7	2	0	0	3	0	0	0	0	1	0
6:30 AM	0	1	0	0	0	2	3	0	1	2	1	0	0	0	0	0
6:45 AM	0	0	0	0	0	4	6	0	0	1	0	0	0	3	0	0
7:00 AM	1	2	0	0	0	5	2	0	1	3	0	0	0	3	0	0
7:15 AM	0	3	0	0	0	4	2	0	0	0	0	0	0	6	2	0
7:30 AM	0	6	0	0	0	11	3	0	1	0	0	0	0	6	0	0
7:45 AM	0	3	0	0	0	12	3	0	1	2	0	0	0	6	0	0
8:00 AM	0	6	0	0	0	2	3	0	0	2	0	0	0	3	0	0
8:15 AM	0	5	0	0	0	9	0	0	1	2	0	0	0	1	1	0
8:30 AM	0	0	0	0	0	1	0	0	0	3	0	0	0	4	0	0
8:45 AM	0	2	0	0	0	7	5	0	0	1	0	0	0	3	0	0
9:00 AM	0	6	0	0	0	5	3	0	1	4	0	0	0	3	1	0
9:15 AM	1	6	0	0	0	10	2	0	0	2	0	0	0	4	1	0
9:30 AM	0	5	0	0	0	3	0	0	0	3	0	0	0	1	2	0
9:45 AM	0	5	0	0	0	2	2	0	0	1	0	0	0	5	1	0
3:00 PM	0	5	0	0	0	1	1	0	0	1	0	0	0	4	1	0
3:15 PM	0	4	0	0	0	4	3	0	0	0	0	0	0	8	2	0
3:30 PM	0	3	0	0	0	0	1	0	0	0	0	0	0	3	2	0
3:45 PM	0	3	0	0	0	0	2	0	0	3	0	0	0	4	3	0
4:00 PM	0	5	0	0	0	1	1	0	0	1	0	0	0	7	1	0
4:15 PM	0	3	0	0	0	3	3	0	0	0	4	0	0	9	1	0
4:30 PM	0	1	0	0	0	4	0	0	0	1	5	0	0	9	3	0
4:45 PM	0	4	0	0	0	0	1	0	0	1	1	0	0	7	2	0
5:00 PM	0	3	0	0	0	1	2	0	0	2	0	0	0	7	0	0
5:15 PM	0	3	0	0	0	3	1	0	0	1	0	0	0	6	0	0
5:30 PM	1	1	0	0	0	1	0	0	0	1	0	0	0	6	1	0
5:45 PM	1	4	0	0	0	6	3	0	0	1	0	0	0	5	1	0
6:00 PM	0	1	1	0	0	1	1	0	0	1	0	0	0	7	0	0
6:15 PM	0	4	0	0	0	1	0	0	0	1	0	0	0	6	2	0
6:30 PM	0	0	0	0	0	2	2	0	0	4	0	0	0	3	1	0
6:45 PM	0	1	0	0	0	2	1	0	0	1	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	1	0	0	0	1	0	0	2	4	2	0	0	2	2	0
6:15 AM	1	0	0	0	0	2	0	0	3	3	3	0	0	3	2	0
6:30 AM	2	0	0	0	0	0	0	0	2	5	3	0	0	3	2	0
6:45 AM	1	2	0	0	0	3	0	0	2	4	3	0	0	3	2	0
7:00 AM	2	0	0	0	0	1	0	0	2	3	3	0	0	4	3	0
7:15 AM	2	0	0	0	0	2	0	0	3	5	3	0	0	4	2	0
7:30 AM	2	1	0	0	0	1	2	0	5	4	5	0	0	4	2	0
7:45 AM	1	2	0	0	0	1	0	0	3	5	3	0	0	4	1	0
8:00 AM	1	0	0	0	0	2	1	0	4	6	5	0	0	5	2	0
8:15 AM	1	1	0	0	0	1	0	0	6	7	1	0	0	6	2	0
8:30 AM	2	0	0	0	0	2	0	0	3	4	6	0	0	5	2	0
8:45 AM	0	1	0	0	0	2	0	0	3	7	6	0	0	5	1	0
9:00 AM	2	0	0	0	0	2	3	0	4	7	6	0	0	3	1	0
9:15 AM	1	1	0	0	0	3	0	0	3	2	2	0	0	2	1	0
9:30 AM	1	0	0	0	0	1	1	0	2	4	6	0	0	7	1	0
9:45 AM	0	0	0	0	0	1	0	0	4	3	3	0	0	2	2	0
3:00 PM	2	0	0	0	0	1	0	0	2	3	4	0	0	2	2	0
3:15 PM	1	1	0	0	0	1	0	0	4	2	5	0	0	6	1	0
3:30 PM	4	0	0	0	0	2	0	0	2	1	2	0	0	5	2	0
3:45 PM	2	0	0	0	0	1	0	0	3	2	7	0	0	4	2	0
4:00 PM	1	0	0	0	0	2	2	0	2	2	6	0	0	4	1	0
4:15 PM	3	0	0	0	0	1	0	0	3	3	0	0	0	4	2	0
4:30 PM	3	0	0	0	0	1	0	0	3	1	0	0	0	4	2	0
4:45 PM	3	0	0	0	0	2	0	0	3	4	9	0	0	5	2	0
5:00 PM	0	0	0	0	0	2	0	0	4	2	0	0	0	4	3	0
5:15 PM	2	0	0	0	0	1	0	0	1	1	0	0	0	8	1	0
5:30 PM	4	0	0	0	0	2	0	0	5	2	0	0	0	5	2	0
5:45 PM	1	0	0	0	0	1	0	0	2	3	0	0	0	5	2	0
6:00 PM	2	0	0	0	0	1	0	0	4	2	5	0	0	6	0	0
6:15 PM	3	1	0	0	0	2	1	0	3	1	9	0	0	5	2	0
6:30 PM	3	0	0	0	0	3	0	0	3	2	4	0	0	3	1	0
6:45 PM	1	1	0	0	0	0	0	0	3	1	4	0	0	7	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	0	2	0	0	0	3	0	0	0	4	1	0
6:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	3	0	0	0	1	0	0	0	1	0	0	0	3	0	0
6:45 AM	0	2	0	0	0	1	0	0	0	1	0	0	0	2	0	0
7:00 AM	0	2	0	0	0	3	1	0	0	0	0	0	0	3	0	0
7:15 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
7:30 AM	1	0	0	0	0	1	1	0	0	1	0	0	0	1	1	0
7:45 AM	1	1	0	0	0	6	0	0	0	1	0	0	0	1	2	0
8:00 AM	0	4	0	0	0	2	1	0	0	0	0	0	0	4	1	0
8:15 AM	1	1	0	0	0	6	1	0	0	1	0	0	0	2	0	0
8:30 AM	0	2	0	0	1	5	0	0	0	1	0	0	0	1	2	0
8:45 AM	0	2	1	0	0	3	0	0	0	1	0	0	0	2	1	0
9:00 AM	0	4	0	0	0	4	1	0	1	1	0	0	0	3	1	0
9:15 AM	0	4	0	0	0	2	0	0	1	1	0	0	0	4	1	0
9:30 AM	0	3	0	0	0	2	2	0	0	1	0	0	0	4	0	0
9:45 AM	0	2	0	0	0	2	1	0	0	1	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	1	1	0	0	1	0	0	0	3	2	0
3:15 PM	0	1	0	0	0	1	1	0	0	2	0	0	0	1	0	0
3:30 PM	0	1	0	0	0	0	4	0	2	1	0	0	0	0	1	0
3:45 PM	0	1	0	0	0	3	0	0	1	0	0	0	1	3	0	0
4:00 PM	0	2	0	0	0	0	1	0	0	2	0	0	0	2	2	0
4:15 PM	1	0	0	0	0	0	2	0	0	1	0	0	0	0	0	0
4:30 PM	1	1	0	0	0	1	0	0	0	2	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	3	0	0	0	2	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	1	0	0
5:15 PM	0	1	0	0	0	2	0	0	0	1	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0
5:45 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	3	0	0	0	1	2	0	0	0	0	0	0	1	0	0
6:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	1	0	0	0	0	0	0	0	3	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0
7:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	9	2	0	0	1	0	0	0	1	1	0
6:15 AM	0	1	0	0	0	13	1	0	1	1	1	0	0	1	0	0
6:30 AM	0	3	0	0	0	5	2	0	0	3	1	0	0	1	0	0
6:45 AM	0	0	0	0	0	9	2	0	0	2	2	0	0	2	0	0
7:00 AM	0	1	0	0	0	6	2	0	1	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	6	0	0
7:30 AM	0	2	0	0	0	9	2	0	0	1	0	0	0	0	0	0
7:45 AM	1	1	0	0	0	11	1	0	0	3	0	0	0	7	0	0
8:00 AM	1	2	0	0	0	10	2	0	0	1	0	0	0	2	0	0
8:15 AM	0	2	0	0	0	12	2	0	1	0	0	0	0	5	0	0
8:30 AM	0	0	0	0	0	9	3	0	1	0	0	0	0	1	0	0
8:45 AM	0	1	1	0	0	7	3	0	0	0	0	0	0	5	0	0
9:00 AM	0	1	0	0	0	8	0	0	0	3	0	0	0	0	1	0
9:15 AM	0	1	0	0	0	10	2	0	1	1	0	0	0	1	3	0
9:30 AM	0	1	0	0	0	9	0	0	1	1	0	0	0	1	1	0
9:45 AM	0	1	0	0	0	11	3	0	0	0	0	0	0	3	0	0
3:00 PM	2	1	0	0	0	5	3	0	1	0	0	0	0	5	5	0
3:15 PM	0	3	0	0	0	5	2	0	0	0	0	0	0	1	1	0
3:30 PM	0	2	0	0	0	4	4	0	0	1	0	0	0	2	3	0
3:45 PM	0	1	0	0	0	2	1	0	0	1	1	0	0	4	2	0
4:00 PM	0	4	0	0	0	6	2	0	0	2	0	0	0	14	1	0
4:15 PM	0	6	0	0	0	5	0	0	0	0	0	0	0	15	4	0
4:30 PM	0	6	0	0	0	4	0	0	1	1	0	0	0	13	1	0
4:45 PM	1	5	0	0	0	12	1	0	0	4	0	0	0	26	1	0
5:00 PM	0	3	0	0	0	3	1	0	0	1	0	0	0	10	5	0
5:15 PM	0	2	0	0	0	10	3	0	0	3	0	0	1	7	0	0
5:30 PM	0	2	1	0	0	11	2	0	0	1	0	0	0	10	2	0
5:45 PM	1	10	0	0	0	9	1	0	0	2	0	0	0	11	1	0
6:00 PM	1	5	0	0	0	6	2	0	0	3	0	0	0	16	4	0
6:15 PM	0	7	0	0	0	5	0	0	1	5	0	0	0	15	7	0
6:30 PM	0	4	0	0	0	10	4	0	0	1	0	0	0	7	3	0
6:45 PM	0	4	0	0	0	4	4	0	0	1	2	0	0	10	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	1	1	0	0	0	0	0	0	1	0	0
6:30 AM	0	3	0	0	0	1	2	0	0	0	0	0	0	2	0	0
6:45 AM	0	2	0	0	0	5	0	0	0	2	0	0	0	3	1	0
7:00 AM	0	4	0	0	0	5	1	0	0	0	0	0	0	0	1	0
7:15 AM	0	3	0	0	0	2	2	0	1	2	0	0	0	1	1	0
7:30 AM	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	1	1	0	0	1	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	2	1	0	0	2	0	0	0	2	0	0
3:15 PM	0	1	0	0	0	1	1	0	0	2	0	0	0	2	0	0
3:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	1	0
3:45 PM	0	4	0	0	0	2	0	0	0	1	0	0	0	0	0	0
4:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	BROADWAY Southbound		ROOSEVELT AVE Westbound		BROADWAY Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	1
6:30 AM	1	0	0	0	0	0	0	0
6:45 AM	0	0	2	0	0	0	0	0
7:00 AM	0	0	0	0	0	1	0	1
7:15 AM	1	0	0	0	1	0	0	1
7:30 AM	2	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	1	0	1	0
8:00 AM	1	0	0	0	0	0	0	0
8:15 AM	2	0	1	0	0	0	0	0
8:30 AM	2	0	0	0	0	0	1	0
8:45 AM	1	1	2	0	0	1	1	0
9:00 AM	0	0	1	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	2	0
9:30 AM	0	0	1	0	0	0	1	0
9:45 AM	0	0	0	0	0	0	0	0
3:00 PM	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	1	1	0	0
3:30 PM	2	1	0	0	1	1	1	0
3:45 PM	2	0	1	0	2	0	2	0
4:00 PM	0	0	0	2	1	0	0	1
4:15 PM	0	1	1	0	0	0	1	1
4:30 PM	2	0	1	1	0	0	0	0
4:45 PM	0	1	0	0	0	0	0	0
5:00 PM	1	0	0	0	1	1	0	0
5:15 PM	1	1	0	0	2	0	0	0
5:30 PM	3	1	0	1	0	1	0	1
5:45 PM	0	1	0	0	0	1	2	0
6:00 PM	1	2	0	0	1	0	0	0
6:15 PM	0	0	1	0	1	0	0	0
6:30 PM	0	2	0	1	0	0	0	0
6:45 PM	0	0	1	0	0	0	2	0

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	BROADWAY Southbound		ROOSEVELT AVE Westbound		BROADWAY Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	6	5	7	2	11	8	3	3
6:15 AM	3	4	4	1	13	17	1	2
6:30 AM	3	4	0	1	6	13	4	8
6:45 AM	8	2	1	1	18	11	2	2
7:00 AM	9	8	5	2	15	15	2	7
7:15 AM	8	7	1	2	15	17	3	10
7:30 AM	8	6	6	7	28	26	4	11
7:45 AM	13	9	4	1	18	12	15	13
8:00 AM	9	9	7	3	19	22	9	9
8:15 AM	11	11	4	0	28	26	7	20
8:30 AM	12	13	3	2	29	20	11	9
8:45 AM	13	10	0	3	24	33	3	14
9:00 AM	11	7	0	4	17	30	8	15
9:15 AM	9	11	2	1	14	27	7	9
9:30 AM	9	12	3	7	27	21	12	13
9:45 AM	20	16	1	4	33	35	12	23
3:00 PM	31	22	11	6	51	55	33	25
3:15 PM	30	20	8	10	54	55	25	38
3:30 PM	28	15	7	8	35	48	16	27
3:45 PM	28	14	9	6	49	45	18	27
4:00 PM	37	27	6	8	36	47	18	27
4:15 PM	29	38	6	5	41	40	18	31
4:30 PM	31	34	4	5	51	54	18	25
4:45 PM	31	27	10	13	39	46	28	21
5:00 PM	29	25	4	1	53	40	14	33
5:15 PM	22	38	2	2	49	53	18	31
5:30 PM	26	32	5	7	65	65	22	21
5:45 PM	26	30	3	2	55	75	20	33
6:00 PM	30	18	8	7	47	51	22	38
6:15 PM	25	23	5	6	44	58	29	33
6:30 PM	26	13	2	5	57	44	24	24
6:45 PM	24	25	5	3	48	50	19	27

Study Name 5-Roosevelt Ave and Broadway
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	BROADWAY Southbound				ROOSEVELT AVE Westbound				BROADWAY Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	5	39	0	1	0	87	37	0	9	39	4	0	0	42	11	0
6:15 AM	1	40	0	0	0	97	30	0	5	32	6	0	0	27	12	0
6:30 AM	3	53	0	0	0	92	29	1	5	35	11	0	0	27	8	0
6:45 AM	4	77	0	0	0	103	32	0	4	43	7	0	0	41	19	0
7:00 AM	5	63	0	0	0	104	33	2	10	49	8	0	0	39	12	0
7:15 AM	3	71	1	0	0	110	30	0	9	38	5	0	1	49	20	0
7:30 AM	6	78	0	0	1	105	34	0	9	45	6	0	0	53	16	0
7:45 AM	4	73	0	0	0	115	24	0	5	37	6	0	0	56	14	0
8:00 AM	2	91	1	0	0	89	23	0	9	53	8	0	0	63	19	0
8:15 AM	3	70	1	0	1	112	23	1	12	44	4	0	0	57	26	0
8:30 AM	3	63	0	0	1	86	32	0	9	41	11	0	0	54	18	0
8:45 AM	0	63	2	0	2	92	34	0	8	35	11	0	0	61	11	0
9:00 AM	4	89	0	2	0	80	21	2	8	48	9	0	0	37	17	0
9:15 AM	3	71	0	0	0	77	30	0	5	36	4	0	2	52	22	0
9:30 AM	2	84	0	0	1	58	16	0	6	38	13	0	1	54	16	0
9:45 AM	2	68	1	0	0	57	26	0	8	46	7	0	0	69	26	0
3:00 PM	6	71	1	0	3	51	41	0	7	33	11	0	0	84	39	0
3:15 PM	3	79	1	0	1	48	33	0	8	49	11	0	0	90	30	0
3:30 PM	6	57	0	0	1	42	37	0	5	37	6	0	0	83	46	0
3:45 PM	3	89	0	1	0	51	24	0	6	49	12	0	2	91	34	0
4:00 PM	2	81	1	0	0	67	31	0	6	48	9	0	0	103	27	0
4:15 PM	9	66	0	0	1	46	28	0	6	39	6	0	0	101	39	0
4:30 PM	4	71	2	0	1	54	21	0	8	35	12	0	1	103	32	0
4:45 PM	10	67	1	0	1	57	22	0	8	58	14	0	1	106	26	0
5:00 PM	2	76	0	0	0	53	31	0	5	37	1	0	0	110	48	0
5:15 PM	5	89	0	0	0	75	23	0	6	56	0	0	1	84	24	0
5:30 PM	6	59	1	0	0	51	25	0	7	43	0	0	2	97	37	0
5:45 PM	8	86	0	0	0	66	20	0	4	38	0	0	0	98	30	0
6:00 PM	3	72	2	0	2	46	26	0	5	34	8	0	1	109	36	0
6:15 PM	5	81	1	0	2	50	21	0	7	46	14	0	1	79	30	0
6:30 PM	8	67	1	0	0	59	23	0	6	42	10	0	1	91	42	0
6:45 PM	5	92	0	1	2	43	33	0	3	45	9	0	0	81	38	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	2	0	0	0	4	0	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	1	0	0	2	0	0
6:45 AM	1	0	0	0	0	4	0	0	0	1	0	0	0	0	0	0
7:00 AM	0	2	0	0	0	7	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	1	0	0	1	5	1	0	0	0	0	0	0	1	0	0
7:30 AM	0	2	0	0	0	6	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
8:00 AM	0	1	0	0	0	2	0	0	0	0	0	0	1	1	0	0
8:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	1	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	0
9:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	2	0	0
9:45 AM	0	0	0	0	0	5	0	0	0	1	0	0	0	4	0	0
3:00 PM	0	0	1	0	0	4	1	0	0	2	0	0	0	2	0	0
3:15 PM	0	2	0	0	0	8	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	1	0	0	1	0	1	0	2	1	0	0	2	0	0
3:45 PM	1	2	0	0	0	3	0	0	0	1	0	0	2	6	0	0
4:00 PM	1	3	1	0	0	2	0	0	0	1	0	0	1	3	0	0
4:15 PM	0	0	0	0	0	2	1	0	0	0	1	0	0	6	0	0
4:30 PM	0	2	0	0	1	3	0	0	1	1	1	0	1	5	0	0
4:45 PM	0	0	0	0	0	7	0	0	0	3	1	0	0	9	0	0
5:00 PM	0	1	0	0	0	6	0	0	0	1	0	0	0	9	0	0
5:15 PM	1	0	0	0	0	2	0	0	0	1	0	0	0	5	0	0
5:30 PM	0	2	1	0	0	11	0	0	0	0	0	0	1	6	0	0
5:45 PM	0	2	0	0	0	7	0	0	0	0	1	0	0	3	0	0
6:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	8	0	0
6:15 PM	0	2	0	0	0	6	0	0	0	0	0	0	0	5	1	0
6:30 PM	1	0	1	0	1	8	0	0	0	3	0	0	0	1	0	0
6:45 PM	0	1	0	0	0	4	0	0	1	2	0	0	1	6	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	10	8	0	2	99	4	0	2	6	6	0	2	28	4	0
6:15 AM	1	5	10	0	1	72	7	0	5	10	6	0	4	18	0	0
6:30 AM	3	7	10	0	1	88	2	0	5	6	5	0	0	12	2	0
6:45 AM	2	10	9	0	2	90	3	0	4	5	2	0	1	23	4	0
7:00 AM	4	9	10	0	2	101	7	0	0	8	5	0	1	30	3	0
7:15 AM	4	12	14	0	5	84	10	0	3	15	4	0	2	18	1	1
7:30 AM	3	11	10	0	3	92	3	0	5	8	9	0	3	35	2	0
7:45 AM	3	8	12	0	3	82	9	0	3	12	6	0	1	33	1	0
8:00 AM	4	19	5	0	2	85	8	0	5	15	9	0	3	44	1	0
8:15 AM	2	17	11	0	3	83	12	0	7	20	13	0	5	28	4	0
8:30 AM	1	14	8	0	6	89	6	0	6	12	8	0	4	38	3	0
8:45 AM	4	14	11	0	6	84	12	0	7	24	6	0	3	29	4	0
9:00 AM	1	6	9	0	2	66	12	0	4	15	13	0	5	27	6	0
9:15 AM	1	15	11	0	5	69	5	0	2	19	4	0	0	34	1	0
9:30 AM	4	15	5	0	2	59	6	0	1	11	8	0	5	46	1	0
9:45 AM	6	10	7	0	4	44	7	0	6	18	12	0	8	40	2	0
3:00 PM	1	16	12	0	1	53	5	1	5	24	11	0	5	55	3	0
3:15 PM	1	15	5	0	0	51	3	0	8	25	11	0	8	56	3	0
3:30 PM	4	18	9	0	0	59	10	0	6	24	9	0	7	56	1	0
3:45 PM	4	21	11	1	3	50	4	0	5	12	8	0	5	58	1	0
4:00 PM	3	11	6	0	4	65	5	0	12	25	14	0	5	60	5	0
4:15 PM	2	9	6	0	5	44	14	0	3	13	6	1	4	67	2	0
4:30 PM	8	13	5	0	3	43	6	0	7	29	13	0	10	62	2	0
4:45 PM	3	19	8	0	2	61	6	0	2	16	17	1	7	63	1	0
5:00 PM	6	13	15	0	3	51	10	0	3	21	15	0	12	64	2	0
5:15 PM	7	15	17	0	4	65	14	0	4	28	9	0	3	54	3	0
5:30 PM	4	14	5	1	2	43	7	1	3	21	11	0	5	53	1	0
5:45 PM	3	12	7	0	4	50	8	0	3	17	8	0	9	67	4	0
6:00 PM	3	15	17	0	4	51	8	0	2	19	12	0	8	63	1	0
6:15 PM	2	16	10	0	3	60	3	0	6	23	7	0	8	51	1	0
6:30 PM	3	21	11	1	1	41	6	0	4	18	20	0	10	68	0	0
6:45 PM	3	12	13	0	1	52	8	0	10	20	10	0	6	57	3	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	0	0	1	0	0	0	0	2	0	0
6:15 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0	0
6:45 AM	1	0	0	0	0	5	0	0	2	0	0	0	0	1	0	0
7:00 AM	0	0	1	0	1	10	1	0	0	0	1	0	0	5	2	0
7:15 AM	0	0	1	0	0	8	0	0	0	0	0	0	1	3	1	0
7:30 AM	0	0	1	0	0	14	1	0	0	0	0	0	0	5	0	0
7:45 AM	0	0	0	0	0	20	0	0	0	0	1	0	0	5	0	0
8:00 AM	0	1	0	0	0	6	0	0	0	1	0	0	0	3	0	0
8:15 AM	0	1	1	0	0	9	1	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	9	1	0	0	0	0	0	0	3	0	0
9:00 AM	0	1	0	0	0	10	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	3	1	0	0	11	1	0	0	0	3	0	0	1	0	0
9:30 AM	0	1	0	0	0	5	1	0	0	1	0	0	0	1	0	0
9:45 AM	0	0	1	0	0	4	1	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	1	0	0	1	2	0	0	1	0	0	0	5	0	0
3:15 PM	0	0	1	0	1	6	0	0	0	0	2	0	0	7	0	0
3:30 PM	1	1	0	0	0	3	0	0	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	3	0	0	1	0	0	0	1	3	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	0	1	0	0	3	0	0
4:15 PM	1	1	1	0	0	5	0	0	0	0	1	0	0	10	0	0
4:30 PM	0	0	0	0	0	4	1	0	1	1	0	0	1	6	0	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	1	0	1	7	0	0
5:00 PM	0	0	1	0	0	3	0	0	0	1	1	0	0	7	0	0
5:15 PM	0	2	0	0	0	7	0	0	0	0	1	0	0	6	0	0
5:30 PM	0	0	1	0	0	1	0	0	1	2	0	0	1	7	0	0
5:45 PM	1	0	1	0	0	5	1	0	1	1	2	0	0	6	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	9	0	0
6:15 PM	0	0	1	0	0	2	0	0	0	1	0	0	0	5	0	0
6:30 PM	0	1	1	0	0	3	0	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	3	0	0	1	1	0	0	0	0	0	0	0	1	3	0
6:15 AM	0	3	0	0	2	2	0	0	0	0	0	0	0	2	5	0
6:30 AM	0	5	0	0	2	1	0	0	0	0	0	0	0	2	5	0
6:45 AM	0	3	0	0	1	2	0	0	0	0	0	0	0	1	4	0
7:00 AM	0	5	0	0	2	2	0	0	0	0	0	0	0	3	2	0
7:15 AM	0	7	0	0	4	2	0	0	0	0	0	0	0	1	5	0
7:30 AM	0	6	1	0	1	1	0	0	1	0	0	0	0	3	5	0
7:45 AM	0	6	0	0	3	1	0	0	0	0	0	0	0	2	5	0
8:00 AM	0	5	0	0	2	2	0	0	1	0	0	0	0	3	6	0
8:15 AM	0	9	0	0	2	1	0	0	0	0	0	0	0	2	2	0
8:30 AM	0	5	0	0	3	2	0	0	0	0	0	0	0	3	6	0
8:45 AM	0	8	0	0	3	2	0	0	0	0	0	0	0	2	6	0
9:00 AM	0	4	1	0	1	3	0	0	1	0	0	0	0	4	6	0
9:15 AM	0	2	0	0	1	3	0	0	0	0	0	0	0	1	5	0
9:30 AM	0	4	0	0	2	1	0	0	1	0	0	0	0	4	6	0
9:45 AM	0	5	0	0	2	2	0	0	0	0	0	0	0	1	2	0
3:00 PM	0	3	0	0	1	1	0	0	0	0	0	0	0	4	3	0
3:15 PM	0	2	0	0	2	1	0	0	0	0	0	0	1	2	6	0
3:30 PM	0	4	0	0	1	1	0	0	0	0	0	0	0	3	5	0
3:45 PM	0	3	0	0	4	1	0	0	0	0	0	0	1	4	6	0
4:00 PM	0	2	1	0	0	3	0	0	0	0	1	0	0	2	6	0
4:15 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	3	6	0
4:30 PM	0	3	0	0	1	0	0	0	0	0	0	0	1	2	6	0
4:45 PM	0	4	0	0	3	3	0	0	0	0	0	0	0	4	7	0
5:00 PM	0	4	0	0	0	1	0	0	0	0	0	0	0	2	4	0
5:15 PM	0	4	0	0	1	1	0	0	0	0	0	0	0	4	5	0
5:30 PM	0	3	0	0	2	2	0	0	0	0	0	0	0	3	7	0
5:45 PM	0	8	0	0	1	1	0	0	0	0	0	0	0	2	6	0
6:00 PM	0	4	2	0	1	2	0	0	0	0	0	0	0	2	6	0
6:15 PM	0	4	0	0	1	2	0	0	0	0	0	0	0	5	5	0
6:30 PM	0	4	0	0	0	2	0	0	0	0	0	0	0	2	5	0
6:45 PM	0	4	0	0	0	0	0	0	0	0	0	0	0	3	6	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	1	0	0	1	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	2	0	0
7:00 AM	0	0	1	0	0	3	0	0	0	0	1	0	0	2	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	1	0	0
7:45 AM	0	1	2	0	0	5	1	0	0	1	0	0	0	4	0	0
8:00 AM	0	0	1	0	0	2	0	0	0	0	1	0	0	4	0	0
8:15 AM	1	2	0	0	0	6	1	0	1	0	0	0	1	2	0	0
8:30 AM	1	0	0	0	0	6	0	0	1	0	1	0	0	1	0	0
8:45 AM	1	0	0	0	0	4	0	0	0	0	1	0	1	1	0	0
9:00 AM	0	0	1	0	0	3	0	0	0	0	0	0	0	3	0	0
9:15 AM	1	0	0	0	0	3	0	0	0	2	1	0	1	1	0	0
9:30 AM	0	0	1	0	0	2	0	0	1	0	0	0	1	2	0	0
9:45 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0
3:00 PM	0	0	1	0	0	1	0	0	0	1	0	0	1	2	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
4:30 PM	0	0	1	0	0	1	0	0	0	0	2	0	0	1	0	0
4:45 PM	0	0	0	0	0	2	1	0	0	0	0	0	1	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	1	0	0	8	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	2	0	0	0	6	0	0	0	0	0	0	0	0	1	0
6:30 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	2	1	0
6:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	6	0	0	0	0	1	0	0	1	0	0
7:15 AM	0	0	0	0	1	9	1	0	0	0	0	0	0	7	0	0
7:30 AM	0	0	0	0	1	15	1	0	0	1	0	0	0	2	0	0
7:45 AM	0	2	1	0	0	7	0	0	0	0	0	0	0	8	0	0
8:00 AM	0	2	1	0	0	10	0	0	0	0	0	0	0	5	0	0
8:15 AM	0	0	0	0	1	13	0	0	0	2	1	0	0	3	0	0
8:30 AM	1	0	0	0	0	11	0	0	0	1	0	0	0	1	0	0
8:45 AM	0	0	2	0	0	9	0	0	0	1	0	0	0	4	0	0
9:00 AM	0	1	0	0	1	6	1	0	0	1	0	0	0	0	0	0
9:15 AM	0	0	1	0	0	11	0	0	1	1	0	0	1	2	0	0
9:30 AM	0	0	1	0	0	12	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	3	1	0	1	9	2	0	0	0	0	0	0	1	0	0
3:00 PM	1	0	0	0	0	9	0	0	0	1	1	0	0	8	0	0
3:15 PM	0	2	0	0	0	6	0	0	0	2	0	0	0	3	0	0
3:30 PM	1	4	0	0	1	6	1	0	0	0	2	0	0	2	0	0
3:45 PM	0	3	1	0	1	3	0	0	0	0	2	0	0	4	0	0
4:00 PM	0	2	0	0	0	7	1	0	0	0	0	0	1	6	0	0
4:15 PM	0	0	0	0	1	2	0	0	0	0	1	0	0	12	0	0
4:30 PM	0	3	0	0	1	4	1	0	0	1	0	0	0	7	0	0
4:45 PM	0	2	1	0	0	3	2	0	0	0	2	0	2	19	0	0
5:00 PM	0	3	1	0	1	2	0	0	0	1	0	0	0	10	1	0
5:15 PM	0	2	1	0	3	10	0	0	0	2	0	0	1	9	1	0
5:30 PM	1	1	2	0	0	6	0	0	0	0	0	0	1	9	0	0
5:45 PM	0	1	0	0	0	6	1	0	0	0	1	0	0	11	0	0
6:00 PM	0	0	0	0	0	8	0	0	0	1	1	0	0	10	0	0
6:15 PM	0	2	1	0	1	4	0	0	0	0	1	0	0	12	0	0
6:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	10	0	0
6:45 PM	1	1	0	0	0	1	0	0	0	0	1	0	0	8	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0
6:45 AM	0	0	0	0	0	4	0	0	1	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	4	0	0	1	1	0	0	0	1	0	0
7:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	1	1	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
3:15 PM	0	3	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	1	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	75TH ST Southbound		ROOSEVELT AVE Westbound		75TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	1	0
6:15 AM	0	0	1	2	1	1	0	0
6:30 AM	1	0	0	0	0	1	0	0
6:45 AM	0	1	0	0	0	0	0	0
7:00 AM	0	1	0	0	0	0	1	0
7:15 AM	1	0	0	0	0	1	0	0
7:30 AM	0	0	1	0	0	0	0	0
7:45 AM	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	1	0	0	1	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0
9:00 AM	1	1	1	1	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	1	0	0	0	0	1	1	0
9:45 AM	2	0	0	0	0	1	0	0
3:00 PM	1	0	0	1	0	0	0	0
3:15 PM	0	0	0	0	0	0	1	0
3:30 PM	1	2	0	0	1	0	1	0
3:45 PM	0	1	0	0	0	0	0	2
4:00 PM	0	1	0	0	1	0	0	0
4:15 PM	0	0	0	1	0	0	1	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	1	1	1	0	0	1	0
5:00 PM	0	2	0	2	1	0	0	0
5:15 PM	0	0	0	1	1	1	0	0
5:30 PM	0	0	0	0	0	0	1	0
5:45 PM	1	0	0	0	0	0	0	0
6:00 PM	1	1	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	1	0

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	75TH ST Southbound		ROOSEVELT AVE Westbound		75TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	14	6	13	20	41	67	37	17
6:15 AM	28	15	20	18	56	66	42	16
6:30 AM	33	12	16	18	37	58	46	10
6:45 AM	33	19	28	17	40	68	35	17
7:00 AM	46	15	25	23	55	90	59	22
7:15 AM	50	34	36	57	59	101	76	34
7:30 AM	56	25	53	54	60	93	72	32
7:45 AM	50	26	23	53	57	102	72	22
8:00 AM	69	24	36	38	74	110	66	25
8:15 AM	66	36	34	74	86	114	86	37
8:30 AM	64	24	32	53	76	110	76	17
8:45 AM	67	37	47	53	73	82	58	25
9:00 AM	36	26	26	28	48	87	53	25
9:15 AM	60	32	29	27	33	47	46	18
9:30 AM	31	33	13	30	50	51	40	31
9:45 AM	68	54	33	25	60	57	37	32
3:00 PM	93	99	105	66	163	141	43	85
3:15 PM	74	55	79	39	126	140	46	66
3:30 PM	79	106	97	52	166	124	53	89
3:45 PM	84	60	103	44	185	124	67	65
4:00 PM	73	105	94	70	125	121	70	74
4:15 PM	81	131	95	56	194	132	50	91
4:30 PM	92	94	89	56	160	105	49	104
4:45 PM	74	85	86	51	206	115	54	87
5:00 PM	94	100	136	64	208	129	77	84
5:15 PM	69	120	128	76	235	115	46	90
5:30 PM	94	113	117	58	214	134	44	100
5:45 PM	104	103	116	39	232	109	63	82
6:00 PM	71	70	97	70	146	121	32	71
6:15 PM	73	86	99	61	177	128	58	79
6:30 PM	77	122	89	54	155	115	38	78
6:45 PM	85	88	87	60	150	102	42	41

Study Name 6-Roosevelt Ave and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	75TH ST Southbound				ROOSEVELT AVE Westbound				75TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	2	15	9	0	3	125	4	0	3	7	6	0	3	36	7	0
6:15 AM	1	12	10	0	3	99	7	0	5	10	6	0	4	23	6	0
6:30 AM	3	12	10	0	3	112	2	0	5	7	6	0	1	21	8	0
6:45 AM	4	13	9	0	3	114	4	0	7	6	3	0	1	33	8	0
7:00 AM	4	18	12	0	5	133	8	0	1	9	8	0	1	44	7	0
7:15 AM	4	21	15	0	11	115	12	0	3	15	4	0	3	33	7	1
7:30 AM	3	19	12	0	5	133	5	0	6	10	10	0	3	48	7	0
7:45 AM	3	18	15	0	6	119	10	0	3	13	7	0	1	56	6	0
8:00 AM	4	30	8	0	4	108	8	0	6	16	10	0	4	61	7	0
8:15 AM	3	29	12	0	6	117	14	0	8	22	14	0	6	39	6	0
8:30 AM	4	19	8	0	9	119	6	0	7	13	9	0	4	49	9	0
8:45 AM	5	22	13	0	9	115	13	0	7	25	7	0	4	41	10	0
9:00 AM	1	12	11	0	4	93	13	0	5	16	13	0	6	41	12	0
9:15 AM	2	20	13	0	6	97	7	0	4	23	8	0	2	40	6	0
9:30 AM	4	21	7	0	4	81	7	0	3	12	8	0	6	56	7	0
9:45 AM	6	18	9	0	7	67	10	0	6	19	12	0	9	52	4	0
3:00 PM	2	20	15	0	2	72	8	1	5	29	12	0	6	77	6	0
3:15 PM	1	24	6	0	3	76	3	0	8	27	13	0	9	76	9	0
3:30 PM	6	28	11	0	2	75	11	1	6	27	12	0	7	65	6	0
3:45 PM	5	29	12	1	8	65	4	0	6	14	10	0	9	79	7	0
4:00 PM	4	18	8	0	4	83	6	0	12	28	16	0	7	77	11	0
4:15 PM	3	15	7	0	7	56	15	0	3	13	9	1	4	99	8	0
4:30 PM	8	21	6	0	6	56	8	0	10	33	16	0	13	83	8	0
4:45 PM	3	25	9	0	5	77	9	0	2	20	21	1	11	103	8	0
5:00 PM	6	21	17	0	4	63	10	0	3	24	16	0	12	93	7	0
5:15 PM	8	23	18	0	8	86	14	0	4	31	10	0	4	80	9	0
5:30 PM	5	20	10	1	4	63	7	1	4	23	11	0	8	80	8	0
5:45 PM	4	23	8	0	5	70	10	0	4	18	12	0	9	90	10	0
6:00 PM	3	21	19	0	5	64	8	0	2	20	13	0	8	92	7	0
6:15 PM	2	24	12	0	5	74	3	0	6	24	8	0	8	79	7	0
6:30 PM	4	27	13	1	2	59	6	0	4	21	20	0	10	84	5	0
6:45 PM	4	18	13	0	1	61	8	0	11	22	11	0	7	76	9	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:15 AM	1	1	0	0	0	2	0	0	1	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	7	2	0	0	0	1	0	0	0	0	0
7:00 AM	2	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	1	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	3	0	0	0	2	0	0	0	3	0	0
9:30 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	3	1	0	0	0	0	0	0	1	0	0
3:00 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	7	0	0
3:15 PM	0	2	0	0	0	4	0	0	0	1	1	0	0	5	0	0
3:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	8	0	0
3:45 PM	0	0	0	0	0	6	1	0	1	0	0	0	0	2	0	0
4:00 PM	0	2	0	0	0	2	0	0	0	3	1	0	0	3	0	0
4:15 PM	1	1	0	0	0	1	0	0	0	0	1	0	1	7	0	0
4:30 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	4	0	0
4:45 PM	0	1	0	0	0	5	0	0	0	0	0	0	0	7	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0
5:15 PM	0	0	0	0	0	2	0	0	1	1	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	1	1	0	0	0	0	0	1	0	0	0	0	2	0	0
6:00 PM	1	0	0	0	0	7	0	0	0	0	0	0	0	5	1	0
6:15 PM	1	2	1	0	0	3	0	0	0	1	1	0	0	6	0	0
6:30 PM	0	0	1	0	0	2	0	0	0	4	0	0	0	7	0	0
6:45 PM	0	2	0	0	0	2	0	0	0	2	0	0	0	4	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	4	11	0	0	0	36	8	0	4	5	6	0	4	25	3	0
6:15 AM	5	1	0	0	0	29	1	0	6	6	2	0	8	31	1	0
6:30 AM	3	6	0	0	1	28	3	0	7	8	4	1	5	34	3	0
6:45 AM	8	6	3	0	2	35	4	0	4	3	9	0	4	75	1	0
7:00 AM	3	6	2	0	4	47	2	1	10	3	13	0	5	44	3	1
7:15 AM	8	6	3	0	1	42	10	0	6	6	10	1	3	58	2	0
7:30 AM	11	5	0	0	1	37	5	0	11	6	9	1	9	59	1	0
7:45 AM	6	3	0	0	1	33	4	0	10	14	7	0	1	59	0	0
8:00 AM	7	12	1	0	2	40	14	0	14	13	18	0	5	69	2	1
8:15 AM	12	13	0	0	0	44	10	0	7	13	18	1	6	60	3	0
8:30 AM	9	8	1	0	1	31	7	0	13	10	11	1	9	51	4	0
8:45 AM	9	14	3	0	1	35	9	0	10	17	10	0	5	56	0	0
9:00 AM	7	7	0	0	2	32	6	0	10	19	4	0	10	60	3	0
9:15 AM	6	12	0	0	0	37	9	0	7	5	8	0	4	57	6	0
9:30 AM	7	12	0	0	0	30	8	0	11	5	9	1	8	52	5	0
9:45 AM	7	7	2	0	4	43	15	0	13	11	12	0	6	60	3	0
3:00 PM	9	8	1	0	6	34	10	0	7	17	7	0	11	62	2	0
3:15 PM	10	7	1	0	2	40	11	0	10	21	17	1	5	54	5	0
3:30 PM	6	10	1	0	2	41	6	0	11	18	12	0	11	61	1	0
3:45 PM	10	11	1	0	0	42	11	0	10	14	22	0	5	74	3	0
4:00 PM	12	4	3	0	5	30	13	1	17	23	10	2	11	65	5	0
4:15 PM	10	10	1	0	1	29	10	0	10	10	19	0	8	57	4	3
4:30 PM	5	11	0	0	2	37	15	0	10	19	13	0	15	53	4	1
4:45 PM	9	11	1	0	0	41	9	0	9	14	10	1	12	43	1	0
5:00 PM	8	11	0	0	0	36	7	0	13	17	13	1	8	73	3	1
5:15 PM	8	11	1	0	2	40	8	0	11	21	20	0	13	66	1	1
5:30 PM	10	9	0	0	4	36	8	2	15	20	18	2	9	62	7	0
5:45 PM	10	8	2	0	1	28	8	0	10	16	12	0	8	70	5	1
6:00 PM	7	11	1	0	2	40	13	0	11	15	8	0	8	66	2	2
6:15 PM	8	8	1	0	0	30	7	0	12	18	12	1	7	70	6	0
6:30 PM	11	9	0	0	2	35	6	0	15	24	13	2	12	64	4	1
6:45 PM	5	10	0	0	0	30	10	0	13	20	18	1	12	83	3	3

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	2	1	0	0
6:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
6:30 AM	0	0	0	0	0	2	1	0	2	1	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	0	0	0
7:00 AM	0	1	0	0	0	1	0	0	0	0	0	0	1	2	0	0
7:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0
7:45 AM	0	0	0	0	0	2	0	0	0	1	0	0	0	3	1	0
8:00 AM	1	0	0	0	0	2	0	0	0	1	0	0	0	4	0	0
8:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	5	0	0
8:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0
9:00 AM	1	0	0	0	0	5	0	0	0	0	1	0	0	6	0	0
9:15 AM	2	0	0	0	0	1	1	0	1	3	1	0	0	9	0	0
9:30 AM	1	0	0	0	0	2	0	0	0	0	1	0	0	6	0	0
9:45 AM	0	0	0	0	1	1	0	0	0	1	0	0	0	9	0	0
3:00 PM	0	1	0	0	0	1	0	1	0	1	0	0	0	2	0	0
3:15 PM	0	1	0	0	0	0	0	0	0	1	0	0	2	4	0	0
3:30 PM	0	1	0	0	0	2	1	0	0	0	1	0	0	2	0	0
3:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0
4:15 PM	1	0	1	0	0	0	0	0	0	0	1	0	0	3	0	0
4:30 PM	0	0	0	0	0	1	2	0	1	0	1	0	0	2	0	0
4:45 PM	0	0	0	0	0	1	1	0	1	1	3	0	0	5	0	0
5:00 PM	1	0	0	0	0	2	0	0	0	2	1	0	0	5	0	0
5:15 PM	2	0	0	0	0	1	0	0	0	2	0	0	1	0	1	0
5:30 PM	0	0	0	0	0	2	1	0	0	1	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	2	1	0	1	4	0	0
6:00 PM	1	0	0	0	0	1	1	0	0	1	1	0	0	2	0	0
6:15 PM	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0
6:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	1	4	0	0	1	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	2	3	0	0	1	0	0	0	0	0	0	0	3	0	0
6:30 AM	1	2	3	0	0	2	0	0	0	0	1	0	0	2	0	0
6:45 AM	1	1	2	0	0	1	0	0	0	0	0	0	0	5	0	0
7:00 AM	1	2	3	0	0	1	0	0	0	1	0	0	0	2	0	0
7:15 AM	2	2	6	0	0	3	0	0	0	0	0	0	0	2	0	0
7:30 AM	0	1	4	0	0	1	0	0	0	0	0	0	0	3	0	0
7:45 AM	0	3	6	0	0	3	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	2	7	0	0	2	1	0	0	0	0	0	0	2	0	0
8:15 AM	0	2	7	0	0	3	0	0	0	0	0	0	0	3	0	0
8:30 AM	0	1	6	0	0	2	1	0	0	0	0	0	0	2	0	0
8:45 AM	0	2	11	0	0	3	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	1	6	0	0	3	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	2	1	0	0	2	0	0	0	0	0	0	0	2	0	0
9:30 AM	0	1	6	0	0	3	1	0	0	0	0	0	0	1	0	0
9:45 AM	0	1	3	0	0	3	0	0	0	0	0	0	0	2	0	0
3:00 PM	1	1	1	0	0	3	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	2	3	0	1	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	2	3	0	0	1	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	3	4	0	0	3	0	0	0	0	0	0	0	2	0	0
4:00 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	2	4	0	0	3	0	0	0	0	0	0	0	2	0	0
4:30 PM	0	1	4	0	0	2	0	0	0	0	0	0	0	3	0	0
4:45 PM	0	3	5	0	0	3	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	1	2	0	0	2	0	0	0	0	0	0	0	3	0	0
5:15 PM	0	2	1	0	0	2	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	3	6	0	0	3	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	2	6	0	0	1	0	0	0	0	0	0	0	2	0	0
6:00 PM	0	2	4	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	2	5	0	0	3	0	0	0	0	0	0	0	3	0	0
6:30 PM	0	2	3	0	0	2	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	2	3	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
7:00 AM	1	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0
7:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0
8:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	2	0	0	0	0	1	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	4	0	0
8:45 AM	0	0	0	0	2	1	0	0	0	1	0	0	0	4	0	0
9:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	1	3	0	0
9:15 AM	0	0	0	0	0	1	1	0	1	1	0	0	0	5	0	0
9:30 AM	0	0	0	0	0	1	0	0	1	1	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	1	1	1	0	0	0	1	0	0	7	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	1	0
4:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
4:30 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
5:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	1	0	0	0	4	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	2	1	0	0	1	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	3	1	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	1	0	0	0	1	0	0	0	2	0	0	0	3	0	0
9:15 AM	0	0	0	0	0	3	0	0	0	1	0	0	0	2	0	0
9:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0
9:45 AM	0	1	0	0	0	3	0	0	0	2	0	0	0	1	1	0
3:00 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0
4:00 PM	0	0	0	0	0	3	0	0	1	0	0	0	0	0	0	0
4:15 PM	1	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:30 PM	0	2	0	0	0	3	0	0	0	1	0	0	0	1	0	0
4:45 PM	0	0	2	0	0	2	1	0	0	1	0	0	1	2	0	0
5:00 PM	1	2	0	0	0	5	0	0	0	0	0	0	0	8	1	0
5:15 PM	0	0	0	0	0	6	0	0	0	2	1	0	0	2	0	0
5:30 PM	0	0	0	0	0	3	0	0	0	1	1	0	0	3	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	4	1	0
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	4	0	0	2	0	0	0	0	5	0	0
6:30 PM	0	0	0	0	0	3	1	0	1	3	0	0	0	3	0	0
6:45 PM	0	0	0	0	0	4	2	0	0	0	0	0	0	1	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	3	0	0
7:00 AM	0	1	0	0	0	1	1	0	0	0	1	0	0	5	0	0
7:15 AM	0	1	0	0	0	2	0	0	1	0	1	0	0	3	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
7:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0
3:15 PM	1	2	0	0	0	1	0	0	2	0	1	0	0	2	0	0
3:30 PM	0	1	0	0	0	0	0	0	1	0	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	2	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	75TH ST Southbound		BROADWAY Westbound		75TH ST Northbound		BROADWAY Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	1	0	0	1	0	0
6:45 AM	1	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	0	1	0	0	0
8:45 AM	1	0	0	0	0	0	0	0
9:00 AM	0	0	0	1	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0
9:30 AM	0	0	0	0	1	1	1	0
9:45 AM	0	0	0	0	0	3	0	0
3:00 PM	0	2	0	0	0	0	0	0
3:15 PM	0	0	1	0	0	0	1	0
3:30 PM	0	1	0	0	1	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	1	0	2	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	1	0	0	1	0	0	0
5:00 PM	0	0	0	0	0	1	0	1
5:15 PM	0	0	0	0	1	0	0	0
5:30 PM	0	0	0	0	2	1	0	0
5:45 PM	0	0	0	0	1	1	0	1
6:00 PM	0	0	0	0	0	0	0	0
6:15 PM	0	0	1	0	1	1	0	1
6:30 PM	0	0	0	1	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	75TH ST Southbound		BROADWAY Westbound		75TH ST Northbound		BROADWAY Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	14	12	3	6	21	8	10	2
6:15 AM	25	16	3	15	20	11	7	3
6:30 AM	30	18	7	12	19	7	11	7
6:45 AM	29	24	6	11	25	6	5	8
7:00 AM	19	22	9	18	24	4	10	8
7:15 AM	58	26	8	25	30	14	23	10
7:30 AM	68	27	13	22	26	13	17	15
7:45 AM	60	40	16	24	25	12	13	17
8:00 AM	63	38	19	22	23	20	20	18
8:15 AM	57	53	13	21	23	15	22	17
8:30 AM	58	32	14	26	21	17	18	16
8:45 AM	49	25	14	29	14	16	12	15
9:00 AM	25	20	10	23	20	12	9	12
9:15 AM	46	20	15	25	20	19	11	14
9:30 AM	40	29	14	28	18	13	12	14
9:45 AM	60	24	18	23	31	24	13	18
3:00 PM	52	49	21	28	62	23	24	20
3:15 PM	43	42	22	37	49	34	36	24
3:30 PM	55	52	14	34	39	30	37	15
3:45 PM	60	42	15	35	37	27	31	14
4:00 PM	49	42	20	27	53	24	38	11
4:15 PM	55	36	17	29	46	19	41	17
4:30 PM	66	36	14	31	43	30	33	26
4:45 PM	55	39	22	47	44	18	36	19
5:00 PM	79	37	24	40	63	42	39	27
5:15 PM	61	56	21	45	49	28	39	20
5:30 PM	58	46	15	42	66	31	36	28
5:45 PM	56	64	14	54	33	41	24	25
6:00 PM	70	45	9	52	45	24	26	25
6:15 PM	57	55	20	49	59	27	42	37
6:30 PM	37	47	20	40	54	33	31	28
6:45 PM	40	40	15	25	64	29	33	23

Study Name 7-Broadway and 75th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	75TH ST Southbound				BROADWAY Westbound				75TH ST Northbound				BROADWAY Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	6	13	4	0	0	41	8	0	4	5	7	0	6	35	3	0
6:15 AM	6	5	3	0	0	39	1	0	7	6	2	0	8	41	1	0
6:30 AM	4	8	3	0	1	36	5	0	9	12	5	1	5	46	3	0
6:45 AM	9	7	5	0	2	48	8	0	4	5	12	0	4	86	1	0
7:00 AM	7	10	5	0	4	51	3	1	12	5	14	0	7	56	3	1
7:15 AM	11	9	9	0	1	50	10	0	7	6	12	1	3	67	3	0
7:30 AM	12	6	4	0	1	41	5	0	11	6	9	1	9	71	1	0
7:45 AM	7	7	6	0	1	39	4	0	10	16	7	0	1	71	1	0
8:00 AM	10	14	8	0	2	45	15	0	14	14	18	0	5	80	2	1
8:15 AM	13	17	7	0	0	48	11	0	7	14	18	1	6	73	4	0
8:30 AM	9	9	7	0	1	37	9	0	13	10	11	1	9	62	4	0
8:45 AM	9	16	15	0	3	43	9	0	10	18	12	0	5	66	0	0
9:00 AM	8	9	6	0	2	48	6	0	10	21	5	0	11	74	3	0
9:15 AM	8	14	1	0	0	47	11	0	9	12	9	0	4	80	6	0
9:30 AM	8	14	6	0	0	37	10	0	13	6	10	1	8	61	5	0
9:45 AM	7	9	5	0	5	54	16	0	13	14	12	0	6	76	4	0
3:00 PM	10	12	2	0	7	47	11	1	8	19	8	0	11	80	2	0
3:15 PM	11	14	4	0	3	50	11	0	12	24	19	1	7	66	5	0
3:30 PM	6	14	4	0	3	49	7	0	12	20	13	0	11	77	1	0
3:45 PM	10	14	5	0	0	53	14	0	11	15	23	0	5	84	3	0
4:00 PM	13	6	5	0	5	37	13	1	18	26	13	2	12	76	6	0
4:15 PM	13	15	6	0	1	37	10	0	10	10	21	0	10	72	4	3
4:30 PM	5	15	4	0	2	48	19	0	11	21	14	0	15	64	4	1
4:45 PM	9	15	8	0	0	56	11	0	10	16	13	1	13	60	1	0
5:00 PM	10	14	2	0	0	48	7	0	13	20	14	1	8	95	4	1
5:15 PM	10	13	3	0	2	54	8	0	12	26	21	0	14	73	2	1
5:30 PM	10	12	6	0	4	48	9	2	15	22	20	2	9	71	7	0
5:45 PM	10	11	9	0	1	33	8	0	11	19	14	0	9	83	6	1
6:00 PM	9	13	5	0	2	52	14	0	11	16	9	0	8	83	3	2
6:15 PM	10	12	7	0	0	41	7	0	14	19	13	1	8	86	6	0
6:30 PM	11	11	4	0	3	44	7	0	16	31	14	2	12	77	4	1
6:45 PM	5	14	3	0	0	42	12	0	14	22	19	1	13	93	4	3

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
7:00 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
8:00 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	2	0	0
8:15 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	1	0	0	7	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	3	0	0
9:00 AM	0	0	1	0	0	8	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
9:30 AM	1	1	1	0	0	1	0	0	0	0	0	0	1	2	0	0
9:45 AM	1	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:00 PM	0	0	0	0	1	6	0	0	0	0	1	0	0	3	0	0
3:15 PM	0	0	0	0	1	5	0	0	0	0	0	0	0	6	0	0
3:30 PM	0	0	0	0	1	5	0	0	0	0	0	0	0	5	0	0
3:45 PM	0	1	0	0	2	3	0	0	0	0	0	0	0	8	0	0
4:00 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	3	0	0
4:15 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	7	0	0
4:30 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
4:45 PM	1	2	0	0	0	8	0	0	0	0	0	0	0	9	0	0
5:00 PM	0	3	0	0	0	4	0	0	0	0	0	0	0	10	0	0
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	7	0	0
5:30 PM	1	2	0	0	0	8	0	0	0	0	0	0	0	6	0	0
5:45 PM	0	1	1	0	1	4	0	0	0	0	0	0	0	6	0	0
6:00 PM	0	1	1	0	0	5	0	0	0	0	0	0	0	5	1	0
6:15 PM	0	2	0	0	0	4	0	0	0	0	0	0	0	10	0	0
6:30 PM	0	3	0	0	1	9	0	0	0	0	0	0	1	3	0	0
6:45 PM	0	4	2	0	0	8	0	0	0	0	0	0	0	6	1	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	4	7	9	0	3	84	0	0	0	0	0	0	0	33	6	0
6:15 AM	3	8	5	0	4	76	0	0	0	0	0	0	0	23	2	1
6:30 AM	2	7	6	0	3	87	0	0	0	0	0	0	0	25	2	0
6:45 AM	3	16	12	0	3	89	0	0	0	0	0	0	0	25	1	0
7:00 AM	2	6	11	0	3	92	0	0	0	0	0	0	0	36	2	0
7:15 AM	3	27	9	0	9	93	0	0	0	0	0	0	0	20	6	0
7:30 AM	3	14	17	0	9	88	0	0	0	0	0	0	0	47	3	0
7:45 AM	5	14	14	0	14	88	0	0	0	0	0	0	0	37	4	0
8:00 AM	4	25	8	0	12	82	0	0	0	0	0	0	0	50	6	0
8:15 AM	7	29	16	0	23	88	0	0	0	0	0	0	0	36	3	0
8:30 AM	1	16	12	0	9	86	0	0	0	0	0	0	0	39	3	0
8:45 AM	6	32	20	0	10	83	0	0	0	0	0	0	0	32	4	0
9:00 AM	7	31	12	0	10	62	0	0	0	0	0	0	0	36	3	0
9:15 AM	7	27	12	0	6	72	0	0	0	0	0	0	1	31	4	0
9:30 AM	6	21	8	0	6	53	0	1	0	0	0	0	0	48	7	0
9:45 AM	5	25	10	0	5	47	0	0	0	0	0	0	0	47	5	0
3:00 PM	3	29	7	0	9	62	0	0	0	0	0	1	0	68	1	0
3:15 PM	7	32	10	0	10	35	0	0	0	0	0	0	0	64	9	0
3:30 PM	4	34	16	0	11	56	0	0	0	0	0	0	0	63	10	0
3:45 PM	6	19	12	0	6	48	0	0	0	0	0	0	0	60	5	1
4:00 PM	6	25	15	0	12	69	0	0	0	0	0	0	0	64	7	0
4:15 PM	2	40	10	0	7	57	0	0	0	0	0	0	0	73	1	0
4:30 PM	4	35	12	0	11	46	0	1	0	0	0	0	0	83	3	0
4:45 PM	5	38	16	0	12	48	0	0	0	0	0	0	0	76	4	0
5:00 PM	8	31	15	0	14	59	0	0	0	0	0	0	0	77	6	0
5:15 PM	10	33	18	0	12	66	0	0	0	0	0	0	0	66	5	1
5:30 PM	6	39	15	0	8	46	0	0	0	0	0	0	0	62	2	0
5:45 PM	8	37	7	0	10	63	0	0	0	0	0	0	0	72	4	0
6:00 PM	6	32	12	0	12	56	0	0	0	0	0	0	0	71	4	0
6:15 PM	4	34	10	0	12	57	0	0	0	0	0	0	0	58	5	0
6:30 PM	2	34	12	0	13	37	0	0	0	0	0	0	0	83	6	0
6:45 PM	3	27	9	0	5	52	0	0	0	0	0	0	0	66	4	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	1	0	0	2	11	0	0	0	0	0	0	0	1	0	0
6:15 AM	0	0	1	0	0	13	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	1	0	0	1	6	0	0	0	0	0	0	0	2	0	0
7:00 AM	2	3	2	0	0	7	0	0	0	0	0	0	0	5	0	0
7:15 AM	0	1	0	0	0	10	0	0	0	0	0	0	0	3	0	0
7:30 AM	0	0	1	0	1	13	0	0	0	0	0	0	0	3	0	0
7:45 AM	0	1	0	0	1	20	0	0	0	0	0	0	0	7	0	0
8:00 AM	0	1	1	0	0	7	0	0	0	0	0	0	0	4	2	0
8:15 AM	0	1	1	0	2	13	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	1	0	0	0	7	0	0	0	0	0	0	0	4	0	0
8:45 AM	0	0	1	0	1	8	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	1	13	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	1	0	0	0	7	0	0	0	0	0	0	0	5	0	0
9:30 AM	0	2	2	0	1	5	0	0	0	0	0	0	0	2	0	0
9:45 AM	0	1	1	0	0	4	0	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	1	0	1	5	0	0	0	0	0	0	0	5	0	0
3:15 PM	0	2	1	0	0	3	0	0	0	0	0	0	0	10	0	0
3:30 PM	0	4	0	0	1	4	0	0	0	0	0	0	0	3	0	0
3:45 PM	2	2	0	0	0	2	0	0	0	0	0	0	0	3	1	0
4:00 PM	1	1	0	0	1	6	0	0	0	0	0	0	0	7	0	0
4:15 PM	0	2	1	0	1	7	0	0	0	0	0	0	0	9	0	0
4:30 PM	1	3	0	0	2	5	0	0	0	0	0	0	0	10	0	0
4:45 PM	0	1	0	0	1	5	0	0	0	0	0	0	0	9	1	0
5:00 PM	1	4	0	0	2	1	0	0	0	0	0	0	0	7	1	0
5:15 PM	0	2	0	0	2	3	0	0	0	0	0	0	0	3	1	0
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0
5:45 PM	1	1	1	0	0	4	0	0	0	0	0	0	0	8	0	0
6:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0
6:15 PM	1	1	0	0	0	2	0	0	0	0	0	0	0	5	0	0
6:30 PM	1	0	0	0	1	3	0	0	0	0	0	0	0	3	0	0
6:45 PM	0	1	0	0	0	6	0	0	0	0	0	0	0	1	2	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
7:00 AM	0	3	0	0	1	4	0	0	0	0	0	0	0	3	0	0
7:15 AM	0	1	0	0	0	6	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	3	0	0
7:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
8:00 AM	0	2	0	0	0	3	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
9:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	1	0	0
9:30 AM	0	2	0	0	0	2	0	0	0	0	0	0	0	4	0	0
9:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
3:00 PM	1	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
3:45 PM	0	0	1	0	0	4	0	0	0	0	0	0	0	4	0	0
4:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
4:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
4:45 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
5:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	6	0	0
5:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
6:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	5	0	0
6:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	1	0	0	0	0	3	0	0	0	0	0	0	0	4	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
6:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
7:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	1	0
7:30 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	1	0
7:45 AM	0	1	1	0	0	5	0	0	0	0	0	0	0	4	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
8:15 AM	0	0	1	0	1	7	0	0	0	0	0	0	0	3	0	0
8:30 AM	1	1	0	0	0	5	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	1	0	0	3	0	0	0	0	0	0	0	1	2	0
9:00 AM	0	1	0	0	0	3	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	1	0
9:30 AM	0	1	0	0	0	2	0	0	0	0	0	0	0	2	0	0
9:45 AM	0	0	1	0	0	4	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	1	0	0	0	4	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	4	0	0
4:00 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	2	1	0
4:15 PM	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0
4:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0
5:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	1	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	13	0	0	0	0	0	0	0	2	0	0
6:15 AM	0	0	0	0	0	14	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	2	0	0	0	7	1	0	0	0	0	0	0	3	0	0
7:15 AM	0	0	2	0	0	10	0	0	0	0	0	0	1	5	0	0
7:30 AM	0	1	0	0	0	16	0	0	0	0	0	0	0	2	0	0
7:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	9	0	0
8:00 AM	0	0	4	0	0	10	0	0	0	0	0	0	0	4	1	0
8:15 AM	0	1	1	0	0	8	0	0	0	0	0	0	0	4	0	0
8:30 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	2	0	0
8:45 AM	0	0	1	0	0	11	0	0	0	0	0	0	0	3	0	0
9:00 AM	1	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
9:15 AM	0	4	2	0	1	15	0	0	0	1	0	0	0	2	0	0
9:30 AM	0	5	1	0	1	16	0	0	0	0	0	0	1	1	0	0
9:45 AM	0	1	2	0	1	8	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	0	10	0	0	0	0	0	0	2	12	0	0
3:15 PM	0	0	0	0	0	6	0	0	0	1	0	0	0	4	0	0
3:30 PM	0	2	0	0	0	7	1	0	0	0	0	0	0	5	0	0
3:45 PM	0	1	0	0	0	7	1	0	0	0	0	0	1	5	0	0
4:00 PM	0	1	0	0	0	10	1	0	0	1	0	0	0	12	0	0
4:15 PM	0	0	0	0	0	10	1	0	0	0	0	0	0	12	0	0
4:30 PM	0	0	0	0	0	6	1	0	0	0	0	0	0	11	0	0
4:45 PM	0	1	1	0	0	9	1	0	0	0	0	0	0	21	0	0
5:00 PM	1	0	0	0	0	1	1	0	0	0	0	0	0	12	0	0
5:15 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	8	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	11	0	0
6:00 PM	2	0	2	0	0	8	0	0	0	0	0	0	0	13	0	0
6:15 PM	0	1	2	0	1	6	0	0	0	0	0	0	0	14	0	0
6:30 PM	1	0	0	0	0	4	1	0	0	0	0	0	0	4	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	8	0	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	1	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	1	0	0	2	3	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	2	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	2	0	0	0	3	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	1	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
3:45 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0
4:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	76TH ST Southbound		Roosevelt Ave Westbound		76TH ST Northbound		Roosevelt Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	1	1	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	1	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	1	1	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	1	0	0
8:15 AM	4	0	0	0	0	0	0	0
8:30 AM	1	0	0	0	1	0	0	0
8:45 AM	1	0	1	0	0	0	0	0
9:00 AM	0	1	0	0	0	0	0	0
9:15 AM	0	0	0	0	1	1	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	2	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	1	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	1	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	1	1	0	0	0	0	0	0
4:15 PM	1	0	1	0	1	3	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0
5:00 PM	0	1	0	1	0	0	0	0
5:15 PM	1	1	3	0	0	0	0	0
5:30 PM	1	0	0	0	2	0	2	0
5:45 PM	0	2	0	0	0	0	0	0
6:00 PM	0	0	0	0	2	0	0	0
6:15 PM	1	1	0	0	0	0	0	0
6:30 PM	1	1	0	0	0	0	0	0
6:45 PM	0	1	0	1	0	0	0	2

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	76TH ST Southbound		Roosevelt Ave Westbound		76TH ST Northbound		Roosevelt Ave Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	18	4	2	3	22	45	6	5
6:15 AM	23	5	3	2	25	44	5	4
6:30 AM	22	13	7	9	21	41	2	7
6:45 AM	23	9	4	5	21	54	4	4
7:00 AM	33	10	6	7	16	66	5	4
7:15 AM	31	9	5	6	30	69	6	1
7:30 AM	42	12	6	11	29	69	9	7
7:45 AM	31	17	3	15	41	84	9	7
8:00 AM	40	19	9	3	52	72	18	9
8:15 AM	47	32	7	17	57	71	16	16
8:30 AM	37	22	13	16	68	86	13	7
8:45 AM	29	26	12	16	54	66	6	10
9:00 AM	31	31	4	11	34	65	12	11
9:15 AM	31	28	9	5	41	53	8	11
9:30 AM	40	24	7	12	57	65	8	5
9:45 AM	43	51	13	13	44	81	17	21
3:00 PM	98	106	20	9	128	94	21	26
3:15 PM	48	58	16	12	100	107	10	21
3:30 PM	60	92	18	12	109	100	26	17
3:45 PM	62	81	13	15	164	89	9	23
4:00 PM	76	106	16	13	126	88	16	15
4:15 PM	77	107	29	17	152	102	27	24
4:30 PM	70	96	17	12	152	82	18	34
4:45 PM	68	96	29	14	159	86	24	18
5:00 PM	66	112	18	14	161	97	12	20
5:15 PM	61	97	25	18	164	92	24	16
5:30 PM	82	130	23	15	195	81	21	26
5:45 PM	60	115	37	21	176	83	19	29
6:00 PM	81	81	20	19	159	117	16	29
6:15 PM	72	91	36	17	158	87	13	20
6:30 PM	77	100	28	4	161	84	32	28
6:45 PM	88	84	25	11	104	76	19	15

Study Name 8-Roosevelt Ave and 76th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	76TH ST Southbound				Roosevelt Ave Westbound				76TH ST Northbound				Roosevelt Ave Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	5	8	9	0	6	115	0	0	0	0	0	0	0	41	6	0
6:15 AM	3	8	6	0	5	111	0	0	0	0	0	0	0	27	2	1
6:30 AM	2	8	6	0	5	118	0	0	0	0	0	0	0	34	2	0
6:45 AM	3	17	12	0	4	117	0	0	0	0	0	0	0	37	1	0
7:00 AM	4	14	13	0	4	125	1	0	0	0	0	0	0	53	2	0
7:15 AM	3	29	12	0	9	134	0	0	0	0	0	0	1	33	7	0
7:30 AM	3	16	19	0	11	127	0	0	0	0	0	0	0	57	4	0
7:45 AM	6	16	15	0	15	129	0	0	0	0	0	0	0	64	4	0
8:00 AM	4	30	13	0	13	107	0	0	0	0	0	0	0	68	9	0
8:15 AM	7	32	19	0	27	127	0	0	0	0	0	0	0	50	3	0
8:30 AM	2	18	13	0	9	118	0	0	0	0	0	0	0	54	3	0
8:45 AM	6	32	23	0	11	122	0	0	0	0	0	0	0	43	6	0
9:00 AM	8	32	13	0	11	98	0	0	0	0	0	0	0	52	3	0
9:15 AM	8	32	15	0	7	103	0	0	0	1	0	0	1	44	5	0
9:30 AM	7	32	12	0	8	79	0	1	0	0	0	0	2	59	7	0
9:45 AM	6	27	14	0	6	72	0	0	0	0	0	0	0	59	5	0
3:00 PM	4	31	8	0	11	89	0	0	0	0	1	1	2	96	1	0
3:15 PM	7	35	11	0	11	57	0	0	0	1	0	0	0	88	9	0
3:30 PM	4	41	16	0	13	80	1	0	0	0	0	0	0	80	10	0
3:45 PM	8	24	14	0	8	68	1	0	0	0	0	0	1	85	6	1
4:00 PM	7	28	16	0	14	91	1	0	0	1	0	0	0	90	8	0
4:15 PM	3	44	12	0	9	79	1	0	0	0	0	0	0	105	1	0
4:30 PM	6	39	12	0	13	64	1	1	0	0	0	0	0	110	4	0
4:45 PM	6	42	18	0	13	76	1	0	0	0	0	0	0	119	5	0
5:00 PM	10	39	15	0	16	66	1	0	0	0	0	0	0	110	7	0
5:15 PM	10	37	19	0	14	75	0	0	0	0	0	0	0	92	6	1
5:30 PM	7	41	15	0	8	59	0	0	0	0	0	0	0	92	2	0
5:45 PM	9	39	9	0	11	74	0	0	0	0	0	0	2	100	4	0
6:00 PM	8	34	15	0	12	77	0	0	0	0	0	0	0	100	5	0
6:15 PM	5	38	12	0	13	72	0	0	0	0	0	0	0	93	5	0
6:30 PM	4	37	12	0	15	59	1	0	0	0	0	0	1	96	6	0
6:45 PM	3	32	11	0	5	69	0	0	0	0	0	0	0	84	7	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Motorcycles

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
6:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	7	0	0	0	1	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	4	0	0	0	0	1	0	0	0	0	0
7:30 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	2	0	0
7:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
8:30 AM	0	0	0	0	0	9	0	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0
9:30 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	3	0	0
9:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
3:00 PM	0	0	1	0	0	2	2	0	0	2	0	0	0	3	0	0
3:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
3:30 PM	0	0	0	0	0	1	1	0	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	1	1	0	0	1	1	0	0	6	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	1	0	0	0	5	0	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
4:30 PM	0	0	0	0	0	2	1	0	0	0	0	0	0	3	0	0
4:45 PM	1	0	0	0	0	4	0	0	0	0	1	0	0	11	0	0
5:00 PM	1	0	0	0	0	5	1	0	0	0	0	0	0	8	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	6	0	0
5:30 PM	0	0	0	0	0	8	0	0	0	0	0	0	1	2	0	0
5:45 PM	0	0	0	0	0	8	0	0	0	1	0	0	0	6	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	3	0	0	0	1	0	0	2	5	0	0
6:30 PM	0	0	0	0	0	8	1	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	4	0	0	0	2	0	0	0	7	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Cars

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	94	6	0	0	1	0	0	0	33	0	0
6:15 AM	0	0	0	0	0	96	2	0	0	1	1	0	0	24	0	0
6:30 AM	0	0	0	0	0	97	5	0	0	6	0	0	2	18	0	0
6:45 AM	0	0	0	0	0	104	4	0	0	1	1	0	1	27	0	0
7:00 AM	0	0	0	0	0	93	7	1	0	5	2	0	1	29	0	0
7:15 AM	0	0	0	0	0	106	6	0	0	2	0	0	3	30	0	0
7:30 AM	0	0	0	0	0	103	3	0	0	1	0	0	6	39	0	0
7:45 AM	0	0	0	0	0	104	6	0	0	5	1	0	4	32	0	0
8:00 AM	0	0	0	0	0	85	6	0	0	3	0	0	5	47	0	0
8:15 AM	0	0	0	0	0	81	7	0	0	3	0	0	2	39	0	0
8:30 AM	0	0	0	0	0	94	6	0	0	6	0	0	3	37	0	0
8:45 AM	0	0	0	0	0	96	11	0	0	6	0	0	2	40	0	0
9:00 AM	0	0	0	0	0	66	8	0	0	2	1	0	0	38	0	0
9:15 AM	0	0	0	0	0	78	10	0	0	3	0	0	3	34	0	0
9:30 AM	0	0	0	0	0	60	4	0	0	3	1	0	1	47	0	0
9:45 AM	0	0	0	0	0	56	4	0	0	3	1	0	5	47	0	0
3:00 PM	0	0	0	0	0	73	7	0	0	2	2	0	1	65	0	0
3:15 PM	0	0	0	0	0	55	7	0	0	4	2	0	5	67	0	0
3:30 PM	0	0	0	0	0	61	12	0	0	3	0	0	3	59	0	0
3:45 PM	0	0	0	0	0	58	7	0	0	3	1	0	7	65	0	0
4:00 PM	0	0	1	0	0	78	4	0	0	2	0	0	7	69	0	0
4:15 PM	0	0	0	0	0	56	2	1	0	1	0	0	0	79	0	0
4:30 PM	0	0	0	0	0	59	7	0	1	3	0	0	4	71	0	0
4:45 PM	0	0	0	0	0	58	3	0	0	1	1	0	3	70	0	0
5:00 PM	0	0	0	0	0	69	10	0	0	4	2	0	7	74	0	0
5:15 PM	0	0	0	0	0	65	9	0	0	4	1	0	7	56	0	0
5:30 PM	0	0	0	0	0	51	8	1	0	1	0	0	4	57	0	0
5:45 PM	0	0	0	0	0	57	6	0	0	4	1	0	8	75	0	0
6:00 PM	0	0	0	0	0	64	8	0	1	4	0	0	6	72	0	0
6:15 PM	0	0	0	0	0	58	5	0	0	2	2	0	5	61	0	0
6:30 PM	0	0	0	0	0	57	11	0	0	4	3	0	4	67	0	0
6:45 PM	0	0	0	0	0	66	4	0	0	4	1	0	7	67	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Light Goods Vehicles

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	1	0	0
6:15 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	8	0	0	0	1	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	7	1	0	0	0	0	0	0	3	0	0
7:00 AM	0	0	0	0	0	9	0	0	0	0	0	0	2	2	0	0
7:15 AM	0	0	0	0	0	7	1	0	0	0	0	0	0	5	0	0
7:30 AM	0	0	0	0	0	14	0	0	0	0	0	0	0	6	0	0
7:45 AM	0	0	0	0	0	17	0	0	0	0	0	0	0	3	0	0
8:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	3	0	0
8:15 AM	0	0	0	0	0	12	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	5	0	0
8:45 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	8	0	0	0	0	0	0	0	3	0	0
9:15 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	3	0	0
9:30 AM	0	0	0	0	0	3	1	0	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
3:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	7	0	0
3:30 PM	0	0	0	0	0	3	1	0	0	0	0	0	0	4	0	0
3:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
4:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	8	0	0
4:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	8	0	0
4:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	9	0	0
4:45 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	11	0	0
5:00 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	7	0	0
5:15 PM	0	0	0	0	0	4	0	0	0	0	0	0	1	3	0	0
5:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	8	0	0
5:45 PM	0	0	0	0	0	9	1	0	0	0	0	0	0	7	0	0
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	10	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	4	0	0
6:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	2	0	0
6:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Buses

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	2	1	0	0	5	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	1	2	0	0	5	0	0
6:45 AM	0	0	0	0	0	3	0	0	0	2	1	0	0	5	0	0
7:00 AM	0	0	0	0	0	1	0	0	0	1	2	0	0	6	0	0
7:15 AM	0	0	0	0	0	2	0	0	0	2	1	0	0	5	0	0
7:30 AM	0	0	0	0	0	3	0	0	0	3	2	0	0	5	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	3	2	0	0	5	0	0
8:00 AM	0	0	0	0	0	3	0	0	0	4	1	0	0	8	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	1	0	0	6	0	0
8:30 AM	0	0	0	0	0	2	0	0	0	4	2	0	0	8	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	5	1	0	0	6	0	0
9:00 AM	0	0	0	0	0	5	1	0	0	3	3	0	0	5	0	0
9:15 AM	0	0	0	0	0	2	0	0	0	1	1	0	0	5	0	0
9:30 AM	0	0	0	0	0	2	0	0	0	4	2	0	0	6	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	2	1	0	0	4	0	0
3:00 PM	0	0	0	0	0	1	0	0	0	2	2	0	0	4	0	0
3:15 PM	0	0	0	0	0	1	0	0	0	4	1	0	0	6	0	0
3:30 PM	0	0	0	0	0	2	0	0	0	1	1	0	0	10	0	0
3:45 PM	0	0	0	0	0	1	0	0	0	4	3	0	0	5	0	0
4:00 PM	0	0	0	0	0	4	0	0	0	4	2	0	0	5	0	0
4:15 PM	0	0	0	0	0	1	0	0	0	3	1	0	0	7	0	0
4:30 PM	0	0	0	0	0	1	0	0	0	3	2	0	0	7	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	5	3	0	0	6	0	0
5:00 PM	0	0	0	0	0	2	0	0	0	6	1	0	0	4	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	2	2	0	0	11	0	0
5:30 PM	0	0	0	0	0	2	0	0	0	4	1	0	0	10	0	0
5:45 PM	0	0	0	0	0	1	0	0	0	8	2	0	0	6	0	0
6:00 PM	0	0	0	0	0	1	0	0	0	5	0	0	0	6	0	0
6:15 PM	0	0	0	0	0	3	0	0	0	7	3	0	0	9	0	0
6:30 PM	0	0	0	0	0	2	0	0	0	1	3	0	0	6	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Single-Unit Trucks

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	1	2	0	0
6:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
7:15 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	2	0	0
7:30 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
7:45 AM	0	0	0	0	0	6	1	0	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0	0
8:15 AM	0	0	0	0	0	6	1	0	0	0	0	0	0	3	0	0
8:30 AM	0	0	0	0	0	6	1	0	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	3	1	0	0	0	0	0	0	2	0	0
9:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	4	0	0
9:15 AM	0	0	0	0	0	2	1	0	0	0	0	0	1	2	0	0
9:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
9:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	3	0	0
3:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0
3:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
3:30 PM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0
4:15 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
5:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
5:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0
5:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0
6:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Articulated Trucks

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Road

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	11	1	0	0	0	0	0	0	3	0	0
6:15 AM	0	0	1	0	0	12	1	0	0	0	0	0	0	2	0	0
6:30 AM	0	0	0	0	0	6	0	0	0	1	0	0	0	3	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	3	0	0	0	3	0	0
7:00 AM	0	0	0	0	0	7	0	0	0	0	0	0	0	2	0	0
7:15 AM	0	0	0	0	0	11	1	0	0	0	0	0	0	5	0	0
7:30 AM	0	0	0	0	0	11	0	0	0	2	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	8	0	0	0	1	0	0	0	10	0	0
8:00 AM	0	0	0	0	0	9	1	0	0	0	0	0	0	3	0	0
8:15 AM	0	0	0	0	0	16	1	0	0	0	0	0	0	2	0	0
8:30 AM	0	0	1	0	0	9	0	0	0	1	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	8	0	0	1	1	0	0	0	6	0	0
9:00 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0
9:15 AM	1	0	0	0	0	14	1	0	0	1	0	0	0	2	0	0
9:30 AM	0	0	0	0	0	11	0	0	0	1	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	12	0	0	0	1	0	0	0	2	0	0
3:00 PM	0	0	0	0	0	7	0	0	0	1	0	0	0	9	0	0
3:15 PM	0	1	0	0	0	7	1	0	0	0	0	0	0	5	0	0
3:30 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	5	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	1	0	0	0	4	0	0
4:00 PM	0	0	1	0	0	8	0	0	0	0	0	0	0	8	0	0
4:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	9	0	0
4:30 PM	0	0	0	0	0	3	0	0	0	1	0	0	0	11	0	0
4:45 PM	0	0	0	0	0	8	0	0	0	1	0	0	0	17	0	0
5:00 PM	0	0	0	0	0	4	2	0	0	3	2	0	1	8	0	0
5:15 PM	0	0	0	0	0	6	0	0	0	1	0	0	0	16	0	0
5:30 PM	0	0	0	0	0	7	2	0	0	0	0	0	0	11	0	0
5:45 PM	0	0	0	0	0	3	1	0	0	0	0	0	0	9	0	0
6:00 PM	1	0	0	0	0	8	1	0	0	1	1	0	0	11	0	0
6:15 PM	0	0	0	0	0	5	1	0	0	3	0	0	0	10	0	0
6:30 PM	0	0	1	0	0	6	0	0	0	2	1	0	0	12	0	0
6:45 PM	0	0	0	0	0	5	0	0	0	1	2	0	1	7	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

School Buses

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
6:30 AM	0	0	0	0	0	3	0	0	0	0	0	0	1	1	0	0
6:45 AM	0	0	0	0	0	5	0	0	0	0	0	0	0	3	0	0
7:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
3:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	2	0	0
3:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	1	1	0	0
3:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0
3:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Bicycles on Crosswalk

	74TH ST Southbound		ROOSEVELT AVE Westbound		74TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	0	0	1	0	1	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	1	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	1	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	1	0	0
7:30 AM	0	0	0	1	0	0	0	0
7:45 AM	1	0	0	1	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	0
8:30 AM	0	0	0	1	0	0	0	0
8:45 AM	1	1	0	1	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	1
9:30 AM	0	0	0	1	0	1	0	0
9:45 AM	0	0	0	1	0	0	0	0
3:00 PM	0	1	1	0	0	0	0	0
3:15 PM	0	0	0	1	1	0	0	0
3:30 PM	0	1	0	0	0	1	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	1	0	0	0
4:15 PM	0	1	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	1
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	2	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	1	0	0
6:00 PM	0	1	0	0	0	0	0	0
6:15 PM	0	2	0	0	1	0	0	1
6:30 PM	0	0	0	0	1	1	0	0
6:45 PM	0	0	1	0	2	1	0	0

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Pedestrians

	74TH ST Southbound		ROOSEVELT AVE Westbound		74TH ST Northbound		ROOSEVELT AVE Eastbound	
Start Time	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW	Peds CCW	Peds CW
6:00 AM	9	14	9	15	8	17	2	5
6:15 AM	15	13	8	13	11	17	1	4
6:30 AM	12	17	15	13	5	14	0	1
6:45 AM	17	19	15	24	17	13	1	2
7:00 AM	15	21	23	17	15	18	1	2
7:15 AM	18	16	23	21	13	16	0	1
7:30 AM	26	20	42	27	27	29	1	4
7:45 AM	32	34	38	36	17	15	0	2
8:00 AM	22	22	27	46	23	35	1	1
8:15 AM	22	32	31	37	30	24	0	2
8:30 AM	30	32	29	41	21	19	3	5
8:45 AM	29	40	29	36	28	31	4	2
9:00 AM	17	18	41	28	16	28	0	0
9:15 AM	22	38	37	35	20	23	1	2
9:30 AM	21	29	28	35	22	20	3	4
9:45 AM	41	34	65	26	39	34	4	5
3:00 PM	63	60	87	79	48	75	3	12
3:15 PM	56	52	74	90	54	51	6	9
3:30 PM	54	65	68	61	37	51	9	6
3:45 PM	40	52	68	64	47	44	5	9
4:00 PM	51	83	69	81	36	60	3	6
4:15 PM	52	68	103	89	50	39	7	10
4:30 PM	44	72	92	63	54	71	5	6
4:45 PM	46	63	93	92	62	61	2	3
5:00 PM	51	83	86	152	62	71	6	11
5:15 PM	21	75	88	65	44	43	4	1
5:30 PM	33	87	98	113	57	77	5	9
5:45 PM	32	73	143	117	50	100	4	5
6:00 PM	58	67	83	67	43	46	7	11
6:15 PM	67	76	96	69	41	68	2	1
6:30 PM	59	57	85	68	61	66	3	5
6:45 PM	81	88	113	88	45	55	3	5

Study Name 9-Roosevelt Ave and 74th St
Start Date 05-18-2022
Start Time 6:00 AM
Site Code

Totals

	74TH ST Southbound				ROOSEVELT AVE Westbound				74TH ST Northbound				ROOSEVELT AVE Eastbound			
Start Time	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn
6:00 AM	0	0	0	0	0	124	8	0	0	2	1	0	0	43	0	0
6:15 AM	0	0	1	0	0	124	3	0	0	4	2	0	0	34	0	0
6:30 AM	0	0	0	0	0	123	5	0	0	9	2	0	4	30	0	0
6:45 AM	0	0	0	0	0	129	5	0	0	6	2	0	1	44	0	0
7:00 AM	0	0	0	0	0	127	7	1	0	7	4	0	3	44	0	0
7:15 AM	0	0	0	0	0	137	8	0	0	4	2	0	4	48	0	0
7:30 AM	0	0	0	0	0	139	5	0	0	6	2	0	6	56	0	0
7:45 AM	0	0	0	0	0	141	7	0	0	9	3	0	4	54	0	0
8:00 AM	0	0	0	0	0	111	7	0	0	7	1	0	5	67	0	0
8:15 AM	0	0	0	0	0	122	9	0	0	3	1	0	2	55	0	0
8:30 AM	0	0	1	0	0	122	7	0	0	11	2	0	3	53	0	0
8:45 AM	0	0	0	0	0	130	12	0	1	12	1	0	2	58	0	0
9:00 AM	0	0	0	0	0	97	9	0	0	5	4	0	0	51	0	0
9:15 AM	1	0	0	0	0	106	12	0	0	5	2	0	4	47	0	0
9:30 AM	0	0	0	0	0	81	5	0	0	9	3	0	1	60	0	0
9:45 AM	0	0	0	0	0	82	4	0	0	6	2	0	5	63	0	0
3:00 PM	0	0	1	0	0	90	9	0	0	7	4	0	1	89	0	0
3:15 PM	0	1	0	0	0	80	8	0	0	8	3	0	6	92	0	0
3:30 PM	0	0	0	0	0	80	14	0	0	5	1	0	3	81	0	0
3:45 PM	0	0	0	0	0	68	8	0	0	9	5	0	7	85	0	0
4:00 PM	0	0	2	0	0	101	4	0	0	7	2	0	7	99	0	0
4:15 PM	0	0	0	0	0	74	2	1	0	4	1	0	0	106	0	0
4:30 PM	0	0	0	0	0	74	8	0	1	7	2	0	4	102	0	0
4:45 PM	1	0	0	0	0	77	3	0	0	8	5	0	3	117	0	0
5:00 PM	1	0	0	0	0	85	13	0	0	13	5	0	8	102	0	0
5:15 PM	0	0	0	0	0	78	9	0	0	7	3	0	8	94	0	0
5:30 PM	0	0	0	0	0	70	11	1	0	5	1	0	5	90	0	0
5:45 PM	0	0	0	0	0	80	8	0	0	13	3	0	8	105	0	0
6:00 PM	1	0	0	0	0	79	9	0	1	11	1	0	6	106	0	0
6:15 PM	0	0	0	0	0	71	6	0	0	14	5	0	8	89	0	0
6:30 PM	0	0	1	0	0	80	12	0	0	7	7	0	4	90	0	0
6:45 PM	0	0	0	0	0	78	4	0	0	11	3	0	8	90	0	0

Attachment B: Raw Automatic Traffic Recorder Data

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 68th and 69th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	148	148	253	**324**	242
01:00	*	*	*	*	163	163	204	221	196
02:00	*	*	*	*	167	167	195	226	196
03:00	*	*	*	*	118	118	170	194	161
04:00	*	*	*	*	136	136	200	222	186
05:00	*	*	*	*	169	169	202	151	174
06:00	*	*	*	*	192	192	159	141	164
07:00	*	*	*	*	226	226	178	137	180
08:00	*	*	*	*	268	268	208	159	212
09:00	*	*	*	*	287	287	298	245	277
10:00	*	*	*	*	297	297	301	283	294
11:00	*	*	*	*	**329**	**329**	**356**	318	**334**
12:00 PM	*	*	*	*	329	329	379	358	355
01:00	*	*	*	*	352	352	**406**	379	379
02:00	*	*	*	*	379	379	381	370	377
03:00	*	*	*	*	**432**	**432**	398	359	**396**
04:00	*	*	*	*	422	422	388	323	378
05:00	*	*	*	*	410	410	401	368	393
06:00	*	*	*	*	413	413	351	355	373
07:00	*	*	*	*	384	384	364	333	360
08:00	*	*	*	*	359	359	351	**388**	366
09:00	*	*	*	*	379	379	340	321	347
10:00	*	*	*	*	333	333	310	298	314
11:00	*	*	*	*	324	324	341	295	320
Day Total	0	0	0	0	7016	7016	7134	6768	6974
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	100.6%	100.6%	102.3%	97.0%	
AM Peak	-	-	-	-	11:00	11:00	11:00	00:00	11:00
Vol.	-	-	-	-	329	329	356	324	334
PM Peak	-	-	-	-	15:00	15:00	13:00	20:00	15:00
Vol.	-	-	-	-	432	432	406	388	396

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 68th and 69th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	231	158	202	173	189	191	274	338	224
01:00	171	159	172	159	153	163	198	225	177
02:00	142	104	114	133	138	126	197	206	148
03:00	138	81	119	110	112	112	230	233	146
04:00	142	118	103	93	123	116	210	197	141
05:00	116	168	122	123	174	141	197	164	152
06:00	161	191	199	162	183	179	140	149	169
07:00	228	206	225	214	224	219	216	157	210
08:00	290	272	**274**	271	251	272	205	162	246
09:00	270	302	267	255	289	277	279	219	269
10:00	312	267	256	246	**338**	284	297	268	283
11:00	**381**	**340**	232	**325**	320	**320**	**363**	**351**	**330**
12:00 PM	355	357	280	326	345	333	383	**1017**	438
01:00	381	362	354	340	323	352	383	338	354
02:00	400	399	355	397	342	379	389	326	373
03:00	**450**	370	450	450	475	439	414	376	426
04:00	419	**513**	**512**	420	**487**	**470**	399	351	**443**
05:00	420	504	488	**492**	355	452	**425**	402	441
06:00	316	391	480	445	351	397	383	319	384
07:00	365	390	385	371	341	370	379	321	365
08:00	295	346	323	356	359	336	398	351	347
09:00	291	356	362	319	382	342	359	325	342
10:00	274	277	274	260	320	281	311	299	288
11:00	248	224	266	255	335	266	324	319	282
Day Total	6796	6855	6814	6695	6909	6817	7353	7413	6978
% Avg. WkDay	99.7%	100.6%	100.0%	98.2%	101.3%				
% Avg. Week	97.4%	98.2%	97.6%	95.9%	99.0%	97.7%	105.4%	106.2%	
AM Peak	11:00	11:00	08:00	11:00	10:00	- 11:00	- 11:00	11:00	- 11:00 - -
Vol.	381	340	274	325	338	- 320	- 363	351	- 330 - -
PM Peak	15:00	16:00	16:00	17:00	16:00	- 16:00	- 17:00	12:00	- 16:00 - -
Vol.	450	513	512	492	487	- 470	- 425	1017	- 443 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 68th and 69th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	217	*	*	*	*	217	*	*	217
01:00	175	*	*	*	*	175	*	*	175
02:00	158	*	*	*	*	158	*	*	158
03:00	141	*	*	*	*	141	*	*	141
04:00	138	*	*	*	*	138	*	*	138
05:00	169	*	*	*	*	169	*	*	169
06:00	161	*	*	*	*	161	*	*	161
07:00	218	*	*	*	*	218	*	*	218
08:00	270	*	*	*	*	270	*	*	270
09:00	283	*	*	*	*	283	*	*	283
10:00	**285**	*	*	*	*	**285**	*	*	**285**
11:00	230	*	*	*	*	230	*	*	230
12:00 PM	376	*	*	*	*	376	*	*	376
01:00	374	*	*	*	*	374	*	*	374
02:00	394	*	*	*	*	394	*	*	394
03:00	441	*	*	*	*	441	*	*	441
04:00	**492**	*	*	*	*	**492**	*	*	**492**
05:00	486	*	*	*	*	486	*	*	486
06:00	438	*	*	*	*	438	*	*	438
07:00	330	*	*	*	*	330	*	*	330
08:00	313	*	*	*	*	313	*	*	313
09:00	286	*	*	*	*	286	*	*	286
10:00	288	*	*	*	*	288	*	*	288
11:00	249	*	*	*	*	249	*	*	249
Day Total	6912	0	0	0	0	6912	0	0	6912
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	10:00	-	-	-	-	10:00	-	-	10:00
Vol.	285	-	-	-	-	285	-	-	285
PM Peak	16:00	-	-	-	-	16:00	-	-	16:00
Vol.	492	-	-	-	-	492	-	-	492

Grand Total	13708	6855	6814	6695	13925	20745	14487	14181	20864

ADT	ADT 6,970	AADT 6,970

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET
bet 38th and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	92	92	112	153	119
01:00	*	*	*	*	51	51	104	116	90
02:00	*	*	*	*	44	44	63	74	60
03:00	*	*	*	*	37	37	74	85	65
04:00	*	*	*	*	55	55	79	74	69
05:00	*	*	*	*	82	82	66	71	73
06:00	*	*	*	*	156	156	83	64	101
07:00	*	*	*	*	241	241	132	82	152
08:00	*	*	*	*	**250**	**250**	191	113	185
09:00	*	*	*	*	194	194	198	129	174
10:00	*	*	*	*	230	230	**236**	186	**217**
11:00	*	*	*	*	207	207	212	**218**	212
12:00 PM	*	*	*	*	246	246	209	232	229
01:00	*	*	*	*	234	234	244	262	247
02:00	*	*	*	*	244	244	234	205	228
03:00	*	*	*	*	**290**	**290**	**266**	250	**269**
04:00	*	*	*	*	250	250	254	231	245
05:00	*	*	*	*	256	256	266	**264**	262
06:00	*	*	*	*	271	271	241	240	251
07:00	*	*	*	*	229	229	227	217	224
08:00	*	*	*	*	220	220	204	194	206
09:00	*	*	*	*	169	169	204	200	191
10:00	*	*	*	*	163	163	208	190	187
11:00	*	*	*	*	178	178	200	144	174
Day Total	0	0	0	0	4389	4389	4307	3994	4230
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	103.8%	103.8%	101.8%	94.4%	
AM Peak	-	-	-	-	08:00	- 08:00	- 10:00	11:00	- 10:00 - -
Vol.	-	-	-	-	250	- 250	- 236	218	- 217 - -
PM Peak	-	-	-	-	15:00	- 15:00	- 15:00	17:00	- 15:00 - -
Vol.	-	-	-	-	290	- 290	- 266	264	- 269 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET
bet 38th and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	113	89	96	89	62	90	114	196	108
01:00	74	52	56	70	69	64	85	147	79
02:00	50	36	42	38	51	43	60	128	58
03:00	56	33	34	37	47	41	59	83	50
04:00	65	31	52	47	72	53	70	92	61
05:00	62	70	82	57	80	70	54	56	66
06:00	181	154	176	194	171	175	89	95	151
07:00	198	**279**	257	270	269	255	142	119	219
08:00	**267**	265	**320**	**271**	**270**	**279**	192	129	**245**
09:00	208	211	263	233	207	224	216	206	221
10:00	215	245	228	229	210	225	240	179	221
11:00	215	194	192	242	182	205	**244**	**237**	215
12:00 PM	197	247	228	215	237	225	246	241	230
01:00	251	233	205	234	229	230	**281**	219	236
02:00	258	229	243	274	279	257	263	227	253
03:00	**292**	226	309	267	278	274	222	217	259
04:00	266	270	336	296	**289**	**291**	267	243	**281**
05:00	228	**292**	**343**	301	225	278	246	252	270
06:00	216	260	300	**304**	203	257	206	**267**	251
07:00	191	225	198	239	239	218	215	222	218
08:00	171	197	238	200	195	200	215	180	199
09:00	166	186	217	195	199	193	226	210	200
10:00	113	137	185	132	154	144	217	189	161
11:00	73	115	108	125	186	121	221	139	138
Day Total	4126	4276	4708	4559	4403	4412	4390	4273	4390
% Avg. WkDay	93.5%	96.9%	106.7%	103.3%	99.8%				
% Avg. Week	94.0%	97.4%	107.2%	103.8%	100.3%	100.5%	100.0%	97.3%	
AM Peak	08:00	07:00	08:00	08:00	08:00	- 08:00	- 11:00	11:00	- 08:00 - -
Vol.	267	279	320	271	270	- 279	- 244	237	- 245 - -
PM Peak	15:00	17:00	17:00	18:00	16:00	- 16:00	- 13:00	18:00	- 16:00 - -
Vol.	292	292	343	304	289	- 291	- 281	267	- 281 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET
bet 38th and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	108	*	*	*	*	108	*	*	108
01:00	74	*	*	*	*	74	*	*	74
02:00	48	*	*	*	*	48	*	*	48
03:00	37	*	*	*	*	37	*	*	37
04:00	64	*	*	*	*	64	*	*	64
05:00	69	*	*	*	*	69	*	*	69
06:00	158	*	*	*	*	158	*	*	158
07:00	**240**	*	*	*	*	**240**	*	*	**240**
08:00	233	*	*	*	*	233	*	*	233
09:00	235	*	*	*	*	235	*	*	235
10:00	214	*	*	*	*	214	*	*	214
11:00	219	*	*	*	*	219	*	*	219
12:00 PM	223	*	*	*	*	223	*	*	223
01:00	256	*	*	*	*	256	*	*	256
02:00	230	*	*	*	*	230	*	*	230
03:00	281	*	*	*	*	281	*	*	281
04:00	**284**	*	*	*	*	**284**	*	*	**284**
05:00	256	*	*	*	*	256	*	*	256
06:00	253	*	*	*	*	253	*	*	253
07:00	225	*	*	*	*	225	*	*	225
08:00	215	*	*	*	*	215	*	*	215
09:00	175	*	*	*	*	175	*	*	175
10:00	135	*	*	*	*	135	*	*	135
11:00	120	*	*	*	*	120	*	*	120
Day Total	4352	0	0	0	0	4352	0	0	4352
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	-	-	-	-	07:00	-	-	07:00
Vol.	240	-	-	-	-	240	-	-	240
PM Peak	16:00	-	-	-	-	16:00	-	-	16:00
Vol.	284	-	-	-	-	284	-	-	284

Grand Total	8478	4276	4708	4559	8792	13153	8697	8267	12972

ADT	ADT 4,343	AADT 4,343	

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET NB
bet 41st and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	114	114	113	145	124
01:00	*	*	*	*	73	73	114	87	91
02:00	*	*	*	*	81	81	76	84	80
03:00	*	*	*	*	60	60	89	92	80
04:00	*	*	*	*	41	41	99	104	81
05:00	*	*	*	*	87	87	96	97	93
06:00	*	*	*	*	120	120	82	102	101
07:00	*	*	*	*	175	175	115	89	126
08:00	*	*	*	*	**216**	**216**	143	112	157
09:00	*	*	*	*	188	188	199	195	194
10:00	*	*	*	*	156	156	**253**	201	203
11:00	*	*	*	*	169	169	234	**215**	**206**
12:00 PM	*	*	*	*	203	203	225	**280**	236
01:00	*	*	*	*	208	208	227	265	233
02:00	*	*	*	*	**271**	**271**	**289**	269	**276**
03:00	*	*	*	*	200	200	243	225	223
04:00	*	*	*	*	212	212	240	206	219
05:00	*	*	*	*	243	243	230	218	230
06:00	*	*	*	*	202	202	231	233	222
07:00	*	*	*	*	232	232	217	210	220
08:00	*	*	*	*	185	185	173	201	186
09:00	*	*	*	*	168	168	157	141	155
10:00	*	*	*	*	154	154	120	120	131
11:00	*	*	*	*	139	139	124	89	117
Day Total	0	0	0	0	3897	3897	4089	3980	3984
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	97.8%	97.8%	102.6%	99.9%	
AM Peak	-	-	-	-	08:00	- 08:00	- 10:00	11:00	- 11:00 - -
Vol.	-	-	-	-	216	- 216	- 253	215	- 206 - -
PM Peak	-	-	-	-	14:00	- 14:00	- 14:00	12:00	- 14:00 - -
Vol.	-	-	-	-	271	- 271	- 289	280	- 276 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET NB
bet 41st and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	94	49	102	67	96	82	97	132	91
01:00	98	70	65	64	63	72	87	128	82
02:00	92	52	49	49	50	58	62	97	64
03:00	53	40	57	45	52	49	84	94	61
04:00	57	62	42	47	64	54	91	125	70
05:00	60	75	68	53	82	68	88	68	71
06:00	119	110	118	113	129	118	109	67	109
07:00	144	165	164	131	177	156	116	67	138
08:00	176	178	142	158	186	168	173	98	159
09:00	200	171	157	**163**	170	172	155	162	168
10:00	159	185	155	151	147	159	**251**	214	180
11:00	**218**	**213**	**175**	159	**204**	**194**	222	**217**	**201**
12:00 PM	238	194	176	175	185	194	**265**	206	206
01:00	**247**	217	192	193	**196**	**209**	236	199	**211**
02:00	218	209	167	173	176	189	231	**256**	204
03:00	221	182	**200**	208	194	201	248	206	208
04:00	230	197	171	189	176	193	216	165	192
05:00	236	**234**	182	185	166	201	246	212	209
06:00	161	216	199	**217**	169	192	246	185	199
07:00	168	197	197	183	185	186	214	227	196
08:00	100	147	162	152	165	145	202	171	157
09:00	113	139	134	123	141	130	169	154	139
10:00	82	116	96	91	129	103	157	118	113
11:00	59	83	81	80	116	84	123	123	95
Day Total	3543	3501	3251	3169	3418	3377	4088	3691	3523
% Avg. WkDay	104.9%	103.7%	96.3%	93.8%	101.2%				
% Avg. Week	100.6%	99.4%	92.3%	90.0%	97.0%	95.9%	116.0%	104.8%	
AM Peak	11:00	11:00	11:00	09:00	11:00	- 11:00	- 10:00	11:00	- 11:00 - -
Vol.	218	213	175	163	204	- 194	- 251	217	- 201 - -
PM Peak	13:00	17:00	15:00	18:00	13:00	- 13:00	- 12:00	14:00	- 13:00 - -
Vol.	247	234	200	217	196	- 209	- 265	256	- 211 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
69th STREET NB
bet 41st and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	109	*	*	*	*	109	*	*	109
01:00	101	*	*	*	*	101	*	*	101
02:00	89	*	*	*	*	89	*	*	89
03:00	53	*	*	*	*	53	*	*	53
04:00	59	*	*	*	*	59	*	*	59
05:00	73	*	*	*	*	73	*	*	73
06:00	108	*	*	*	*	108	*	*	108
07:00	140	*	*	*	*	140	*	*	140
08:00	170	*	*	*	*	170	*	*	170
09:00	145	*	*	*	*	145	*	*	145
10:00	161	*	*	*	*	161	*	*	161
11:00	**220**	*	*	*	*	**220**	*	*	**220**
12:00 PM	206	*	*	*	*	206	*	*	206
01:00	217	*	*	*	*	217	*	*	217
02:00	211	*	*	*	*	211	*	*	211
03:00	203	*	*	*	*	203	*	*	203
04:00	233	*	*	*	*	233	*	*	233
05:00	**263**	*	*	*	*	**263**	*	*	**263**
06:00	219	*	*	*	*	219	*	*	219
07:00	163	*	*	*	*	163	*	*	163
08:00	144	*	*	*	*	144	*	*	144
09:00	150	*	*	*	*	150	*	*	150
10:00	105	*	*	*	*	105	*	*	105
11:00	95	*	*	*	*	95	*	*	95
Day Total	3637	0	0	0	0	3637	0	0	3637
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	11:00	-	-	-	-	11:00	-	-	11:00
Vol.	220	-	-	-	-	220	-	-	220
PM Peak	17:00	-	-	-	-	17:00	-	-	17:00
Vol.	263	-	-	-	-	263	-	-	263

Grand Total	7180	3501	3251	3169	7315	10911	8177	7671	11144

ADT ADT 3,660 AADT 3,660

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 72nd and 70th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	171	171	265	**327**	254
01:00	*	*	*	*	188	188	220	244	217
02:00	*	*	*	*	175	175	203	238	205
03:00	*	*	*	*	122	122	172	207	167
04:00	*	*	*	*	145	145	181	246	191
05:00	*	*	*	*	191	191	174	196	187
06:00	*	*	*	*	221	221	151	173	182
07:00	*	*	*	*	240	240	212	178	210
08:00	*	*	*	*	313	313	234	183	243
09:00	*	*	*	*	252	252	277	238	256
10:00	*	*	*	*	314	314	**332**	271	306
11:00	*	*	*	*	**331**	**331**	332	287	**317**
12:00 PM	*	*	*	*	336	336	342	338	339
01:00	*	*	*	*	325	325	391	317	344
02:00	*	*	*	*	366	366	346	339	350
03:00	*	*	*	*	**380**	**380**	346	315	347
04:00	*	*	*	*	363	363	359	319	347
05:00	*	*	*	*	322	322	368	316	335
06:00	*	*	*	*	372	372	**402**	345	**373**
07:00	*	*	*	*	335	335	358	**355**	349
08:00	*	*	*	*	355	355	359	347	354
09:00	*	*	*	*	372	372	356	335	354
10:00	*	*	*	*	322	322	337	307	322
11:00	*	*	*	*	348	348	332	285	322
Day Total	0	0	0	0	6859	6859	7049	6706	6871
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	99.8%	99.8%	102.6%	97.6%	
AM Peak	-	-	-	-	11:00	- 11:00	- 10:00	00:00	- 11:00 - -
Vol.	-	-	-	-	331	- 331	- 332	327	- 317 - -
PM Peak	-	-	-	-	15:00	- 15:00	- 18:00	19:00	- 18:00 - -
Vol.	-	-	-	-	380	- 380	- 402	355	- 373 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 72nd and 70th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	233	176	221	190	210	206	272	**332**	233
01:00	197	167	186	150	165	173	215	240	189
02:00	152	121	118	149	139	136	193	241	159
03:00	132	93	113	124	133	119	190	204	141
04:00	127	106	106	98	133	114	215	233	145
05:00	153	155	127	124	155	143	180	172	152
06:00	178	194	129	174	185	172	149	172	169
07:00	223	227	178	220	249	219	211	171	211
08:00	325	266	222	261	276	270	220	182	250
09:00	283	241	229	283	253	258	264	213	252
10:00	291	275	**252**	264	302	277	**335**	300	288
11:00	**338**	**305**	247	**295**	**304**	**298**	332	310	**304**
12:00 PM	349	358	299	310	344	332	334	362	337
01:00	336	313	335	330	314	326	393	321	335
02:00	365	374	**361**	325	355	356	347	340	352
03:00	**368**	**404**	344	**400**	**379**	**379**	317	318	**361**
04:00	338	396	353	366	379	366	359	320	359
05:00	326	372	358	353	344	351	338	306	342
06:00	294	338	334	358	363	337	**408**	345	349
07:00	306	366	354	290	326	328	349	**365**	337
08:00	309	332	346	316	321	325	358	354	334
09:00	294	324	351	323	330	324	378	348	335
10:00	263	295	276	291	310	287	334	314	298
11:00	216	249	276	282	298	264	348	275	278
Day Total	6396	6447	6115	6276	6567	6360	7039	6738	6510
% Avg. WkDay	100.6%	101.4%	96.1%	98.7%	103.3%				
% Avg. Week	98.2%	99.0%	93.9%	96.4%	100.9%	97.7%	108.1%	103.5%	
AM Peak	11:00	11:00	10:00	11:00	11:00	- 11:00	- 10:00	00:00	- 11:00 - -
Vol.	338	305	252	295	304	- 298	- 335	332	- 304 - -
PM Peak	15:00	15:00	14:00	15:00	15:00	- 15:00	- 18:00	19:00	- 15:00 - -
Vol.	368	404	361	400	379	- 379	- 408	365	- 361 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 72nd and 70th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	205	*	*	*	*	205	*	*	205
01:00	201	*	*	*	*	201	*	*	201
02:00	154	*	*	*	*	154	*	*	154
03:00	150	*	*	*	*	150	*	*	150
04:00	129	*	*	*	*	129	*	*	129
05:00	147	*	*	*	*	147	*	*	147
06:00	197	*	*	*	*	197	*	*	197
07:00	241	*	*	*	*	241	*	*	241
08:00	323	*	*	*	*	323	*	*	323
09:00	293	*	*	*	*	293	*	*	293
10:00	296	*	*	*	*	296	*	*	296
11:00	**344**	*	*	*	*	**344**	*	*	**344**
12:00 PM	378	*	*	*	*	378	*	*	378
01:00	**381**	*	*	*	*	**381**	*	*	**381**
02:00	352	*	*	*	*	352	*	*	352
03:00	352	*	*	*	*	352	*	*	352
04:00	331	*	*	*	*	331	*	*	331
05:00	332	*	*	*	*	332	*	*	332
06:00	298	*	*	*	*	298	*	*	298
07:00	297	*	*	*	*	297	*	*	297
08:00	310	*	*	*	*	310	*	*	310
09:00	295	*	*	*	*	295	*	*	295
10:00	252	*	*	*	*	252	*	*	252
11:00	195	*	*	*	*	195	*	*	195
Day Total	6453	0	0	0	0	6453	0	0	6453
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	11:00	-	-	-	-	11:00	-	-	11:00
Vol.	344	-	-	-	-	344	-	-	344
PM Peak	13:00	-	-	-	-	13:00	-	-	13:00
Vol.	381	-	-	-	-	381	-	-	381

Grand Total	12849	6447	6115	6276	13426	19672	14088	13444	19834

ADT ADT 6,604 AADT 6,604

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 70th and 72nd St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22		Average Day		Sat 14-May-22	Sun 15-May-22		Week Average		
12:00 AM	*	*	*	*	144		144		217	217		193		
01:00	*	*	*	*	113		113		157	160		143		
02:00	*	*	*	*	129		129		150	141		140		
03:00	*	*	*	*	91		91		142	131		121		
04:00	*	*	*	*	140		140		145	150		145		
05:00	*	*	*	*	266		266		184	187		212		
06:00	*	*	*	*	400		400		224	166		263		
07:00	*	*	*	*	**504**		**504**		295	206		335		
08:00	*	*	*	*	448		448		320	207		325		
09:00	*	*	*	*	318		318		306	266		297		
10:00	*	*	*	*	350		350		**402**	344		**365**		
11:00	*	*	*	*	329		329		361	**353**		348		
12:00 PM	*	*	*	*	324		324		339	331		331		
01:00	*	*	*	*	328		328		**379**	310		339		
02:00	*	*	*	*	**340**		**340**		355	327		**341**		
03:00	*	*	*	*	308		308		338	342		329		
04:00	*	*	*	*	302		302		314	311		309		
05:00	*	*	*	*	299		299		291	**353**		314		
06:00	*	*	*	*	318		318		282	317		306		
07:00	*	*	*	*	305		305		307	327		313		
08:00	*	*	*	*	318		318		318	341		326		
09:00	*	*	*	*	314		314		287	339		313		
10:00	*	*	*	*	289		289		303	255		282		
11:00	*	*	*	*	249		249		251	193		231		
Day Total	0	0	0	0	6926		6926		6667	6274		6621		
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%									
% Avg. Week	0.0%	0.0%	0.0%	0.0%	104.6%		104.6%		100.7%	94.8%				
AM Peak	-	-	-	-	07:00	-	07:00	-	10:00	11:00	-	10:00	-	-
Vol.	-	-	-	-	504	-	504	-	402	353	-	365	-	-
PM Peak	-	-	-	-	14:00	-	14:00	-	13:00	17:00	-	14:00	-	-
Vol.	-	-	-	-	340	-	340	-	379	353	-	341	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 70th and 72nd St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	165	136	136	138	122	139	216	198	159
01:00	121	108	115	104	115	113	167	188	131
02:00	112	98	88	110	112	104	156	136	116
03:00	97	86	104	102	101	98	144	109	106
04:00	106	102	116	97	111	106	147	153	119
05:00	246	250	242	200	235	235	189	199	223
06:00	402	429	412	370	418	406	207	158	342
07:00	**490**	**503**	**527**	463	**495**	**496**	281	206	**424**
08:00	402	457	477	**488**	446	454	330	215	402
09:00	305	337	360	372	335	342	302	283	328
10:00	357	326	320	364	347	343	**409**	341	352
11:00	308	338	301	366	344	331	351	**350**	337
12:00 PM	**331**	**333**	325	302	324	323	356	338	330
01:00	326	327	327	**341**	333	331	**393**	328	**339**
02:00	326	331	**356**	311	**339**	**333**	352	313	333
03:00	311	317	303	322	329	316	337	346	324
04:00	283	303	301	281	295	293	335	316	302
05:00	266	305	297	313	300	296	287	354	303
06:00	252	295	284	288	321	288	300	320	294
07:00	262	324	323	285	300	299	318	341	308
08:00	314	308	329	308	332	318	316	**356**	323
09:00	284	297	269	277	316	289	293	335	296
10:00	232	227	248	225	289	244	291	246	251
11:00	151	197	211	213	255	205	217	205	207
Day Total	6449	6734	6771	6640	6914	6702	6694	6334	6649
% Avg. WkDay	96.2%	100.5%	101.0%	99.1%	103.2%				
% Avg. Week	97.0%	101.3%	101.8%	99.9%	104.0%	100.8%	100.7%	95.3%	
AM Peak	07:00	07:00	07:00	08:00	07:00	- 07:00	- 10:00	11:00	- 07:00 - -
Vol.	490	503	527	488	495	- 496	- 409	350	- 424 - -
PM Peak	12:00	12:00	14:00	13:00	14:00	- 14:00	- 13:00	20:00	- 13:00 - -
Vol.	331	333	356	341	339	- 333	- 393	356	- 339 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 70th and 72nd St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	163	*	*	*	*	163	*	*	163
01:00	139	*	*	*	*	139	*	*	139
02:00	117	*	*	*	*	117	*	*	117
03:00	103	*	*	*	*	103	*	*	103
04:00	110	*	*	*	*	110	*	*	110
05:00	279	*	*	*	*	279	*	*	279
06:00	399	*	*	*	*	399	*	*	399
07:00	**508**	*	*	*	*	**508**	*	*	**508**
08:00	349	*	*	*	*	349	*	*	349
09:00	283	*	*	*	*	283	*	*	283
10:00	352	*	*	*	*	352	*	*	352
11:00	310	*	*	*	*	310	*	*	310
12:00 PM	**363**	*	*	*	*	**363**	*	*	**363**
01:00	313	*	*	*	*	313	*	*	313
02:00	324	*	*	*	*	324	*	*	324
03:00	325	*	*	*	*	325	*	*	325
04:00	273	*	*	*	*	273	*	*	273
05:00	262	*	*	*	*	262	*	*	262
06:00	255	*	*	*	*	255	*	*	255
07:00	254	*	*	*	*	254	*	*	254
08:00	343	*	*	*	*	343	*	*	343
09:00	283	*	*	*	*	283	*	*	283
10:00	208	*	*	*	*	208	*	*	208
11:00	160	*	*	*	*	160	*	*	160
Day Total	6475	0	0	0	0	6475	0	0	6475
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	-	-	-	-	07:00	-	-	07:00
Vol.	508	-	-	-	-	508	-	-	508
PM Peak	12:00	-	-	-	-	12:00	-	-	12:00
Vol.	363	-	-	-	-	363	-	-	363

Grand Total	12924	6734	6771	6640	13840	20103	13361	12608	19745

ADT	ADT 6,625	AADT 6,625

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
72nd STREET SB
bet Broadway and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	72	72	109	**142**	108
01:00	*	*	*	*	75	75	80	82	79
02:00	*	*	*	*	51	51	64	71	62
03:00	*	*	*	*	48	48	47	57	51
04:00	*	*	*	*	40	40	47	36	41
05:00	*	*	*	*	43	43	47	42	44
06:00	*	*	*	*	56	56	50	63	56
07:00	*	*	*	*	115	115	66	42	74
08:00	*	*	*	*	135	135	104	54	98
09:00	*	*	*	*	**154**	**154**	148	121	141
10:00	*	*	*	*	132	132	**162**	138	144
11:00	*	*	*	*	153	153	150	133	**145**
12:00 PM	*	*	*	*	168	168	180	180	176
01:00	*	*	*	*	130	130	148	194	157
02:00	*	*	*	*	170	170	205	159	178
03:00	*	*	*	*	175	175	187	141	168
04:00	*	*	*	*	216	216	208	135	186
05:00	*	*	*	*	**219**	**219**	**229**	168	**205**
06:00	*	*	*	*	191	191	168	165	175
07:00	*	*	*	*	202	202	169	**212**	194
08:00	*	*	*	*	189	189	149	192	177
09:00	*	*	*	*	149	149	147	148	148
10:00	*	*	*	*	154	154	135	123	137
11:00	*	*	*	*	150	150	131	118	133
Day Total	0	0	0	0	3187	3187	3130	2916	3077
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	103.6%	103.6%	101.7%	94.8%	
AM Peak	-	-	-	-	09:00	- 09:00	- 10:00	00:00	- 11:00 - -
Vol.	-	-	-	-	154	- 154	- 162	142	- 145 - -
PM Peak	-	-	-	-	17:00	- 17:00	- 17:00	19:00	- 17:00 - -
Vol.	-	-	-	-	219	- 219	- 229	212	- 205 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
72nd STREET SB
bet Broadway and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	79	76	77	84	69	77	114	**108**	87
01:00	74	57	80	57	68	67	66	77	68
02:00	54	40	58	45	55	50	53	60	52
03:00	32	36	27	30	39	33	41	54	37
04:00	49	24	27	33	19	30	48	37	34
05:00	32	32	25	28	28	29	37	34	31
06:00	64	74	52	47	39	55	44	28	50
07:00	102	133	120	99	84	108	52	37	90
08:00	143	**168**	**145**	**137**	126	**144**	95	38	**122**
09:00	122	112	105	96	**137**	114	**124**	69	109
10:00	**169**	113	142	109	119	130	122	74	121
11:00	135	139	113	110	96	119	122	81	114
12:00 PM	158	156	131	117	153	143	130	111	137
01:00	152	145	141	128	132	140	78	115	127
02:00	158	135	141	132	148	143	81	106	129
03:00	182	173	174	139	153	164	101	72	142
04:00	188	175	**246**	206	**219**	**207**	129	83	**178**
05:00	**201**	160	217	**259**	154	198	127	107	175
06:00	169	167	179	172	124	162	106	98	145
07:00	178	**188**	174	184	162	177	**132**	**131**	164
08:00	116	148	138	142	114	132	121	114	128
09:00	112	149	133	141	91	125	110	108	121
10:00	110	110	115	99	110	109	122	109	111
11:00	84	98	119	82	102	97	132	87	101
Day Total	2863	2808	2879	2676	2541	2753	2287	1938	2573
% Avg. WkDay	104.0%	102.0%	104.6%	97.2%	92.3%				
% Avg. Week	111.3%	109.1%	111.9%	104.0%	98.8%	107.0%	88.9%	75.3%	
AM Peak	10:00	08:00	08:00	08:00	09:00	- 08:00	- 09:00	00:00	- 08:00 - -
Vol.	169	168	145	137	137	- 144	- 124	108	- 122 - -
PM Peak	17:00	19:00	16:00	17:00	16:00	- 16:00	- 19:00	19:00	- 16:00 - -
Vol.	201	188	246	259	219	- 207	- 132	131	- 178 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
72nd STREET SB
bet Broadway and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	72	*	*	*	*	72	*	*	72
01:00	48	*	*	*	*	48	*	*	48
02:00	26	*	*	*	*	26	*	*	26
03:00	18	*	*	*	*	18	*	*	18
04:00	24	*	*	*	*	24	*	*	24
05:00	16	*	*	*	*	16	*	*	16
06:00	37	*	*	*	*	37	*	*	37
07:00	78	*	*	*	*	78	*	*	78
08:00	118	*	*	*	*	118	*	*	118
09:00	97	*	*	*	*	97	*	*	97
10:00	**120**	*	*	*	*	**120**	*	*	**120**
11:00	102	*	*	*	*	102	*	*	102
12:00 PM	88	*	*	*	*	88	*	*	88
01:00	69	*	*	*	*	69	*	*	69
02:00	119	*	*	*	*	119	*	*	119
03:00	79	*	*	*	*	79	*	*	79
04:00	114	*	*	*	*	114	*	*	114
05:00	115	*	*	*	*	115	*	*	115
06:00	93	*	*	*	*	93	*	*	93
07:00	**130**	*	*	*	*	**130**	*	*	**130**
08:00	75	*	*	*	*	75	*	*	75
09:00	70	*	*	*	*	70	*	*	70
10:00	65	*	*	*	*	65	*	*	65
11:00	46	*	*	*	*	46	*	*	46
Day Total	1819	0	0	0	0	1819	0	0	1819
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	10:00	-	-	-	-	10:00	-	-	10:00
Vol.	120	-	-	-	-	120	-	-	120
PM Peak	19:00	-	-	-	-	19:00	-	-	19:00
Vol.	130	-	-	-	-	130	-	-	130

Grand Total	4682	2808	2879	2676	5728	7759	5417	4854	7469

ADT ADT 2,640 AADT 2,640

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
73rd STREET NB
bet 41st St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	37	37	45	44	42
01:00	*	*	*	*	74	74	56	32	54
02:00	*	*	*	*	62	62	45	38	48
03:00	*	*	*	*	33	33	34	27	31
04:00	*	*	*	*	23	23	30	36	30
05:00	*	*	*	*	20	20	41	25	29
06:00	*	*	*	*	57	57	54	33	48
07:00	*	*	*	*	82	82	48	44	58
08:00	*	*	*	*	94	94	63	27	61
09:00	*	*	*	*	53	53	66	47	55
10:00	*	*	*	*	87	87	99	**62**	83
11:00	*	*	*	*	**104**	**104**	**102**	62	**89**
12:00 PM	*	*	*	*	107	107	**123**	84	105
01:00	*	*	*	*	86	86	120	**114**	107
02:00	*	*	*	*	**127**	**127**	112	103	**114**
03:00	*	*	*	*	110	110	107	81	99
04:00	*	*	*	*	112	112	109	79	100
05:00	*	*	*	*	72	72	85	75	77
06:00	*	*	*	*	114	114	78	66	86
07:00	*	*	*	*	105	105	56	85	82
08:00	*	*	*	*	82	82	56	66	68
09:00	*	*	*	*	67	67	45	60	57
10:00	*	*	*	*	52	52	43	43	46
11:00	*	*	*	*	65	65	38	56	53
Day Total	0	0	0	0	1825	1825	1655	1389	1622
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	112.5%	112.5%	102.0%	85.6%	
AM Peak	-	-	-	-	11:00	- 11:00	- 11:00	10:00	- 11:00	- -
Vol.	-	-	-	-	104	- 104	- 102	62	- 89	- -
PM Peak	-	-	-	-	14:00	- 14:00	- 12:00	13:00	- 14:00	- -
Vol.	-	-	-	-	127	- 127	- 123	114	- 114	- -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
73rd STREET NB
bet 41st St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	41	36	32	43	31	37	39	42	38
01:00	46	33	28	30	38	35	46	47	38
02:00	45	27	28	32	52	37	47	52	40
03:00	28	14	26	18	25	22	49	38	28
04:00	13	15	19	19	16	16	32	47	23
05:00	30	18	13	22	36	24	21	29	24
06:00	40	61	39	51	65	51	32	27	45
07:00	68	**98**	67	67	**75**	75	47	16	63
08:00	**96**	91	63	74	69	79	46	18	65
09:00	81	75	75	**90**	66	77	58	52	71
10:00	74	64	65	65	55	65	**93**	60	68
11:00	85	85	**87**	73	68	**80**	90	**67**	**79**
12:00 PM	**134**	110	102	80	70	99	107	70	96
01:00	93	111	101	65	88	92	101	84	92
02:00	121	122	**129**	62	82	103	129	82	104
03:00	107	111	102	69	97	97	**150**	79	102
04:00	101	129	111	71	86	100	129	94	103
05:00	96	**153**	112	**105**	112	**116**	126	**108**	**116**
06:00	94	107	122	83	66	94	133	71	97
07:00	67	73	65	79	**116**	80	101	74	82
08:00	42	80	73	62	60	63	66	55	63
09:00	54	63	67	60	47	58	58	65	59
10:00	50	55	81	30	43	52	61	62	55
11:00	39	33	64	46	58	48	55	68	52
Day Total	1645	1764	1671	1396	1521	1600	1816	1407	1603
% Avg. WkDay	102.8%	110.3%	104.4%	87.3%	95.1%				
% Avg. Week	102.6%	110.0%	104.2%	87.1%	94.9%	99.8%	113.3%	87.8%	
AM Peak	08:00	07:00	11:00	09:00	07:00	- 11:00	- 10:00	11:00	- 11:00 - -
Vol.	96	98	87	90	75	- 80	- 93	67	- 79 - -
PM Peak	12:00	17:00	14:00	17:00	19:00	- 17:00	- 15:00	17:00	- 17:00 - -
Vol.	134	153	129	105	116	- 116	- 150	108	- 116 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
73rd STREET NB
bet 41st St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	55	*	*	*	*	55	*	*	55
01:00	31	*	*	*	*	31	*	*	31
02:00	50	*	*	*	*	50	*	*	50
03:00	24	*	*	*	*	24	*	*	24
04:00	25	*	*	*	*	25	*	*	25
05:00	34	*	*	*	*	34	*	*	34
06:00	54	*	*	*	*	54	*	*	54
07:00	87	*	*	*	*	87	*	*	87
08:00	**108**	*	*	*	*	**108**	*	*	**108**
09:00	75	*	*	*	*	75	*	*	75
10:00	79	*	*	*	*	79	*	*	79
11:00	59	*	*	*	*	59	*	*	59
12:00 PM	93	*	*	*	*	93	*	*	93
01:00	109	*	*	*	*	109	*	*	109
02:00	108	*	*	*	*	108	*	*	108
03:00	**119**	*	*	*	*	**119**	*	*	**119**
04:00	108	*	*	*	*	108	*	*	108
05:00	113	*	*	*	*	113	*	*	113
06:00	107	*	*	*	*	107	*	*	107
07:00	98	*	*	*	*	98	*	*	98
08:00	60	*	*	*	*	60	*	*	60
09:00	56	*	*	*	*	56	*	*	56
10:00	47	*	*	*	*	47	*	*	47
11:00	35	*	*	*	*	35	*	*	35
Day Total	1734	0	0	0	0	1734	0	0	1734
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	-	-	-	-	08:00	-	-	08:00
Vol.	108	-	-	-	-	108	-	-	108
PM Peak	15:00	-	-	-	-	15:00	-	-	15:00
Vol.	119	-	-	-	-	119	-	-	119

Grand Total	3379	1764	1671	1396	3346	5159	3471	2796	4959

ADT ADT 1,620 AADT 1,620

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 73rd St and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	204	204	299	**395**	299
01:00	*	*	*	*	205	205	258	270	244
02:00	*	*	*	*	193	193	236	243	224
03:00	*	*	*	*	144	144	196	227	189
04:00	*	*	*	*	134	134	198	217	183
05:00	*	*	*	*	153	153	185	167	168
06:00	*	*	*	*	194	194	189	176	186
07:00	*	*	*	*	279	279	236	177	231
08:00	*	*	*	*	361	361	286	192	280
09:00	*	*	*	*	321	321	351	265	312
10:00	*	*	*	*	363	363	**413**	319	365
11:00	*	*	*	*	**373**	**373**	409	315	**366**
12:00 PM	*	*	*	*	395	395	432	418	415
01:00	*	*	*	*	413	413	455	**438**	435
02:00	*	*	*	*	454	454	**468**	438	**453**
03:00	*	*	*	*	441	441	461	390	431
04:00	*	*	*	*	429	429	436	368	411
05:00	*	*	*	*	413	413	430	412	418
06:00	*	*	*	*	**463**	**463**	438	413	438
07:00	*	*	*	*	430	430	442	405	426
08:00	*	*	*	*	433	433	425	411	423
09:00	*	*	*	*	439	439	391	398	409
10:00	*	*	*	*	388	388	394	323	368
11:00	*	*	*	*	411	411	396	294	367
Day Total	0	0	0	0	8033	8033	8424	7671	8041
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	99.9%	99.9%	104.8%	95.4%	
AM Peak	-	-	-	-	11:00	11:00	10:00	00:00	11:00
Vol.	-	-	-	-	373	373	413	395	366
PM Peak	-	-	-	-	18:00	18:00	14:00	13:00	14:00
Vol.	-	-	-	-	463	463	468	438	453

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 73rd St and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	267	181	253	231	245	235	315	354	264
01:00	207	174	222	178	208	198	254	275	217
02:00	162	115	142	163	170	150	237	256	178
03:00	147	109	114	122	155	129	209	228	155
04:00	145	109	105	92	125	115	214	225	145
05:00	138	115	104	117	141	123	161	181	137
06:00	180	196	176	182	196	186	170	169	181
07:00	257	269	245	246	285	260	250	173	246
08:00	360	333	300	334	336	333	298	195	308
09:00	331	305	302	348	350	327	342	242	317
10:00	367	352	**358**	339	389	361	365	313	355
11:00	**398**	**358**	324	**390**	**395**	**373**	**404**	**356**	**375**
12:00 PM	395	436	360	388	407	397	432	395	402
01:00	442	381	392	416	402	407	450	381	409
02:00	454	435	435	400	430	431	438	356	421
03:00	**469**	462	463	466	**484**	**469**	**469**	391	**458**
04:00	445	470	476	**475**	460	465	460	378	452
05:00	416	470	**486**	473	439	457	434	**419**	448
06:00	388	**474**	441	473	325	420	437	378	417
07:00	403	434	438	408	407	418	422	373	412
08:00	340	359	429	378	414	384	401	383	386
09:00	339	353	402	385	408	377	420	341	378
10:00	326	305	339	325	336	326	384	339	336
11:00	215	288	316	286	376	296	415	338	319
Day Total	7591	7483	7622	7615	7883	7637	8381	7439	7716
% Avg. WkDay	99.4%	98.0%	99.8%	99.7%	103.2%				
% Avg. Week	98.4%	97.0%	98.8%	98.7%	102.2%	99.0%	108.6%	96.4%	
AM Peak	11:00	11:00	10:00	11:00	11:00	- 11:00	- 11:00	11:00	- 11:00 - -
Vol.	398	358	358	390	395	- 373	- 404	356	- 375 - -
PM Peak	15:00	18:00	17:00	16:00	15:00	- 15:00	- 15:00	17:00	- 15:00 - -
Vol.	469	474	486	475	484	- 469	- 469	419	- 458 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE EB
bet 73rd St and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	257	*	*	*	*	257	*	*	257
01:00	193	*	*	*	*	193	*	*	193
02:00	177	*	*	*	*	177	*	*	177
03:00	143	*	*	*	*	143	*	*	143
04:00	145	*	*	*	*	145	*	*	145
05:00	147	*	*	*	*	147	*	*	147
06:00	194	*	*	*	*	194	*	*	194
07:00	250	*	*	*	*	250	*	*	250
08:00	338	*	*	*	*	338	*	*	338
09:00	330	*	*	*	*	330	*	*	330
10:00	**370**	*	*	*	*	**370**	*	*	**370**
11:00	334	*	*	*	*	334	*	*	334
12:00 PM	404	*	*	*	*	404	*	*	404
01:00	396	*	*	*	*	396	*	*	396
02:00	441	*	*	*	*	441	*	*	441
03:00	452	*	*	*	*	452	*	*	452
04:00	**471**	*	*	*	*	**471**	*	*	**471**
05:00	447	*	*	*	*	447	*	*	447
06:00	453	*	*	*	*	453	*	*	453
07:00	349	*	*	*	*	349	*	*	349
08:00	349	*	*	*	*	349	*	*	349
09:00	331	*	*	*	*	331	*	*	331
10:00	301	*	*	*	*	301	*	*	301
11:00	293	*	*	*	*	293	*	*	293
Day Total	7565	0	0	0	0	7565	0	0	7565
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	10:00	-	-	-	-	10:00	-	-	10:00
Vol.	370	-	-	-	-	370	-	-	370
PM Peak	16:00	-	-	-	-	16:00	-	-	16:00
Vol.	471	-	-	-	-	471	-	-	471

Grand Total	15156	7483	7622	7615	15916	23235	16805	15110	23322

ADT	ADT 7,792	AADT 7,792	

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 73rd St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	230	230	249	**285**	255
01:00	*	*	*	*	170	170	218	215	201
02:00	*	*	*	*	130	130	168	186	161
03:00	*	*	*	*	116	116	167	192	158
04:00	*	*	*	*	103	103	174	188	155
05:00	*	*	*	*	128	128	159	148	145
06:00	*	*	*	*	251	251	167	174	197
07:00	*	*	*	*	**307**	**307**	181	167	218
08:00	*	*	*	*	302	302	246	149	232
09:00	*	*	*	*	275	275	271	222	256
10:00	*	*	*	*	252	252	278	272	267
11:00	*	*	*	*	294	294	**303**	282	**293**
12:00 PM	*	*	*	*	426	426	293	278	332
01:00	*	*	*	*	**476**	**476**	275	**295**	**349**
02:00	*	*	*	*	277	277	250	255	261
03:00	*	*	*	*	284	284	250	264	266
04:00	*	*	*	*	270	270	264	265	266
05:00	*	*	*	*	267	267	250	246	254
06:00	*	*	*	*	287	287	251	257	265
07:00	*	*	*	*	258	258	293	250	267
08:00	*	*	*	*	261	261	274	282	272
09:00	*	*	*	*	261	261	279	293	278
10:00	*	*	*	*	275	275	**306**	280	287
11:00	*	*	*	*	292	292	220	266	259
Day Total	0	0	0	0	6192	6192	5786	5711	5894
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	105.1%	105.1%	98.2%	96.9%	
AM Peak	-	-	-	-	07:00	- 07:00	- 11:00	00:00	- 11:00	-	-
Vol.	-	-	-	-	307	- 307	- 303	285	- 293	-	-
PM Peak	-	-	-	-	13:00	- 13:00	- 22:00	13:00	- 13:00	-	-
Vol.	-	-	-	-	476	- 476	- 306	295	- 349	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 73rd St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	218	189	226	229	232	219	251	**291**	234
01:00	182	135	187	162	170	167	201	241	183
02:00	145	113	138	113	162	134	197	218	155
03:00	101	84	95	73	121	95	146	185	115
04:00	127	84	91	85	114	100	155	187	120
05:00	124	112	115	120	132	121	137	143	126
06:00	232	256	233	243	248	242	163	168	220
07:00	280	265	290	**293**	302	286	186	173	256
08:00	**299**	302	279	278	**322**	**296**	228	192	271
09:00	296	304	**313**	278	275	293	252	222	277
10:00	256	**318**	279	285	269	281	**286**	265	**280**
11:00	264	280	260	267	289	272	262	281	272
12:00 PM	262	281	**364**	273	278	292	282	269	287
01:00	273	279	270	270	276	274	248	249	266
02:00	**415**	263	282	290	291	**308**	249	260	**293**
03:00	280	281	305	273	300	288	233	267	277
04:00	254	235	308	297	304	280	257	276	276
05:00	225	263	309	**307**	301	281	247	263	274
06:00	256	271	324	303	300	291	259	261	282
07:00	262	273	277	281	257	270	268	285	272
08:00	242	239	248	268	247	249	260	**293**	257
09:00	233	269	265	263	255	257	283	284	265
10:00	243	**286**	288	294	**348**	292	278	286	289
11:00	216	249	273	287	267	258	**299**	281	267
Day Total	5685	5631	6019	5832	6060	5846	5627	5840	5814
% Avg. WkDay	97.2%	96.3%	103.0%	99.8%	103.7%				
% Avg. Week	97.8%	96.9%	103.5%	100.3%	104.2%	100.6%	96.8%	100.4%	
AM Peak	08:00	10:00	09:00	07:00	08:00	- 08:00	- 10:00	00:00	- 10:00 - -
Vol.	299	318	313	293	322	- 296	- 286	291	- 280 - -
PM Peak	14:00	22:00	12:00	17:00	22:00	- 14:00	- 23:00	20:00	- 14:00 - -
Vol.	415	286	364	307	348	- 308	- 299	293	- 293 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 73rd St and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	219	*	*	*	*	219	*	*	219
01:00	168	*	*	*	*	168	*	*	168
02:00	143	*	*	*	*	143	*	*	143
03:00	107	*	*	*	*	107	*	*	107
04:00	109	*	*	*	*	109	*	*	109
05:00	140	*	*	*	*	140	*	*	140
06:00	249	*	*	*	*	249	*	*	249
07:00	284	*	*	*	*	284	*	*	284
08:00	**308**	*	*	*	*	**308**	*	*	**308**
09:00	284	*	*	*	*	284	*	*	284
10:00	273	*	*	*	*	273	*	*	273
11:00	275	*	*	*	*	275	*	*	275
12:00 PM	282	*	*	*	*	282	*	*	282
01:00	**309**	*	*	*	*	**309**	*	*	**309**
02:00	246	*	*	*	*	246	*	*	246
03:00	278	*	*	*	*	278	*	*	278
04:00	256	*	*	*	*	256	*	*	256
05:00	288	*	*	*	*	288	*	*	288
06:00	269	*	*	*	*	269	*	*	269
07:00	251	*	*	*	*	251	*	*	251
08:00	248	*	*	*	*	248	*	*	248
09:00	275	*	*	*	*	275	*	*	275
10:00	263	*	*	*	*	263	*	*	263
11:00	279	*	*	*	*	279	*	*	279
Day Total	5803	0	0	0	0	5803	0	0	5803
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	-	-	-	-	08:00	-	-	08:00
Vol.	308	-	-	-	-	308	-	-	308
PM Peak	13:00	-	-	-	-	13:00	-	-	13:00
Vol.	309	-	-	-	-	309	-	-	309

Grand Total	11488	5631	6019	5832	12252	17841	11413	11551	17511

ADT	ADT 5,835	AADT 5,835	

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY NB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	95	95	135	138	123
01:00	*	*	*	*	77	77	114	95	95
02:00	*	*	*	*	67	67	88	82	79
03:00	*	*	*	*	55	55	69	87	70
04:00	*	*	*	*	89	89	75	64	76
05:00	*	*	*	*	123	123	82	71	92
06:00	*	*	*	*	193	193	109	104	135
07:00	*	*	*	*	**240**	**240**	184	151	192
08:00	*	*	*	*	233	233	230	152	205
09:00	*	*	*	*	222	222	209	149	193
10:00	*	*	*	*	204	204	**242**	197	214
11:00	*	*	*	*	237	237	230	**231**	**233**
12:00 PM	*	*	*	*	198	198	242	223	221
01:00	*	*	*	*	186	186	**250**	**226**	221
02:00	*	*	*	*	233	233	238	201	224
03:00	*	*	*	*	236	236	241	207	**228**
04:00	*	*	*	*	**262**	**262**	220	190	224
05:00	*	*	*	*	208	208	209	211	209
06:00	*	*	*	*	249	249	200	189	213
07:00	*	*	*	*	226	226	215	194	212
08:00	*	*	*	*	214	214	175	195	195
09:00	*	*	*	*	189	189	178	181	183
10:00	*	*	*	*	183	183	172	166	174
11:00	*	*	*	*	171	171	157	130	153
Day Total	0	0	0	0	4390	4390	4264	3834	4164
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	105.4%	105.4%	102.4%	92.1%	
AM Peak	-	-	-	-	07:00	- 07:00	- 10:00	11:00	- 11:00 - -
Vol.	-	-	-	-	240	- 240	- 242	231	- 233 - -
PM Peak	-	-	-	-	16:00	- 16:00	- 13:00	13:00	- 15:00 - -
Vol.	-	-	-	-	262	- 262	- 250	226	- 228 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY NB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	118	79	114	118	126	111	118	148	117
01:00	88	67	160	70	78	93	75	116	93
02:00	52	66	91	66	62	67	85	102	75
03:00	60	48	90	62	102	72	64	74	71
04:00	67	80	65	54	76	68	76	72	70
05:00	105	103	122	154	96	116	93	76	107
06:00	189	178	186	186	181	184	124	89	162
07:00	234	239	224	244	**244**	237	174	159	217
08:00	256	**244**	**263**	**251**	207	**244**	209	130	223
09:00	270	219	243	218	238	238	210	160	223
10:00	223	196	222	223	239	221	225	211	220
11:00	**291**	231	245	195	202	233	**246**	**219**	**233**
12:00 PM	229	243	**330**	221	221	**249**	238	207	**241**
01:00	235	222	238	214	226	227	256	**221**	230
02:00	231	244	261	226	**233**	239	**272**	211	240
03:00	**237**	**254**	238	234	231	239	256	220	239
04:00	213	247	248	210	222	228	253	218	230
05:00	189	231	244	**253**	219	227	234	215	226
06:00	190	208	253	198	211	212	249	187	214
07:00	181	197	212	204	208	200	212	183	200
08:00	171	186	167	190	180	179	197	203	185
09:00	175	162	187	168	180	174	162	190	175
10:00	124	173	171	156	178	160	160	214	168
11:00	121	146	121	147	176	142	157	129	142
Day Total	4249	4263	4695	4262	4336	4360	4345	3954	4301
% Avg. WkDay	97.5%	97.8%	107.7%	97.8%	99.4%				
% Avg. Week	98.8%	99.1%	109.2%	99.1%	100.8%	101.4%	101.0%	91.9%	
AM Peak	11:00	08:00	08:00	08:00	07:00	- 08:00	- 11:00	11:00	- 11:00 - -
Vol.	291	244	263	251	244	- 244	- 246	219	- 233 - -
PM Peak	15:00	15:00	12:00	17:00	14:00	- 12:00	- 14:00	13:00	- 12:00 - -
Vol.	237	254	330	253	233	- 249	- 272	221	- 241 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY NB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	113	*	*	*	*	113	*	*	113
01:00	69	*	*	*	*	69	*	*	69
02:00	63	*	*	*	*	63	*	*	63
03:00	53	*	*	*	*	53	*	*	53
04:00	71	*	*	*	*	71	*	*	71
05:00	90	*	*	*	*	90	*	*	90
06:00	198	*	*	*	*	198	*	*	198
07:00	181	*	*	*	*	181	*	*	181
08:00	**238**	*	*	*	*	**238**	*	*	**238**
09:00	213	*	*	*	*	213	*	*	213
10:00	212	*	*	*	*	212	*	*	212
11:00	212	*	*	*	*	212	*	*	212
12:00 PM	214	*	*	*	*	214	*	*	214
01:00	178	*	*	*	*	178	*	*	178
02:00	222	*	*	*	*	222	*	*	222
03:00	**243**	*	*	*	*	**243**	*	*	**243**
04:00	220	*	*	*	*	220	*	*	220
05:00	223	*	*	*	*	223	*	*	223
06:00	208	*	*	*	*	208	*	*	208
07:00	176	*	*	*	*	176	*	*	176
08:00	200	*	*	*	*	200	*	*	200
09:00	185	*	*	*	*	185	*	*	185
10:00	160	*	*	*	*	160	*	*	160
11:00	148	*	*	*	*	148	*	*	148
Day Total	4090	0	0	0	0	4090	0	0	4090
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	-	-	-	-	08:00	-	-	08:00
Vol.	238	-	-	-	-	238	-	-	238
PM Peak	15:00	-	-	-	-	15:00	-	-	15:00
Vol.	243	-	-	-	-	243	-	-	243

Grand Total	8339	4263	4695	4262	8726	12840	8609	7788	12555	
ADT		ADT 4,240		AADT 4,240						

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY EB
bet 74th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	242	242	260	308	270
01:00	*	*	*	*	182	182	234	270	229
02:00	*	*	*	*	132	132	145	182	153
03:00	*	*	*	*	129	129	181	177	162
04:00	*	*	*	*	99	99	164	184	149
05:00	*	*	*	*	135	135	168	154	152
06:00	*	*	*	*	245	245	203	208	219
07:00	*	*	*	*	310	310	207	171	229
08:00	*	*	*	*	**334**	**334**	287	172	264
09:00	*	*	*	*	315	315	332	232	293
10:00	*	*	*	*	308	308	344	287	313
11:00	*	*	*	*	328	328	**384**	**330**	**347**
12:00 PM	*	*	*	*	334	334	**381**	345	353
01:00	*	*	*	*	318	318	377	370	355
02:00	*	*	*	*	354	354	370	342	355
03:00	*	*	*	*	370	370	376	**374**	373
04:00	*	*	*	*	350	350	354	354	353
05:00	*	*	*	*	388	388	346	369	368
06:00	*	*	*	*	**419**	**419**	372	373	**388**
07:00	*	*	*	*	355	355	375	314	348
08:00	*	*	*	*	337	337	330	345	337
09:00	*	*	*	*	346	346	343	336	342
10:00	*	*	*	*	307	307	325	328	320
11:00	*	*	*	*	320	320	278	300	299
Day Total	0	0	0	0	6957	6957	7136	6825	6971
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	99.8%	99.8%	102.4%	97.9%	
AM Peak	-	-	-	-	08:00	- 08:00	- 11:00	11:00	- 11:00	-	-
Vol.	-	-	-	-	334	- 334	- 384	330	- 347	-	-
PM Peak	-	-	-	-	18:00	- 18:00	- 12:00	15:00	- 18:00	-	-
Vol.	-	-	-	-	419	- 419	- 381	374	- 388	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY EB
bet 74th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	243	188	254	243	245	235	291	**319**	255
01:00	172	154	174	191	158	170	225	275	193
02:00	141	106	138	133	163	136	207	202	156
03:00	102	97	102	66	128	99	156	157	115
04:00	125	94	78	87	130	103	181	171	124
05:00	140	113	115	103	136	121	140	150	128
06:00	240	274	252	256	236	252	171	196	232
07:00	316	315	322	309	333	319	189	172	279
08:00	**419**	344	331	**334**	336	**353**	243	155	309
09:00	280	373	**354**	310	316	327	256	225	302
10:00	343	**388**	332	314	319	339	332	300	**333**
11:00	332	364	324	294	**341**	331	**338**	317	330
12:00 PM	400	**412**	344	321	348	365	342	320	355
01:00	340	320	312	339	325	327	347	**349**	333
02:00	**408**	333	344	316	374	355	346	305	347
03:00	378	370	371	367	**403**	**378**	342	340	**367**
04:00	380	379	347	372	344	364	350	343	359
05:00	330	386	390	346	309	352	331	342	348
06:00	345	404	**399**	**379**	321	370	322	336	358
07:00	346	347	371	354	318	347	**363**	327	347
08:00	304	314	339	326	300	317	330	334	321
09:00	275	311	336	297	313	306	339	318	313
10:00	273	276	272	296	291	282	321	329	294
11:00	234	274	279	286	296	274	349	302	289
Day Total	6866	6936	6880	6639	6783	6822	6811	6584	6787
% Avg. WkDay	100.6%	101.7%	100.9%	97.3%	99.4%				
% Avg. Week	101.2%	102.2%	101.4%	97.8%	99.9%	100.5%	100.4%	97.0%	
AM Peak	08:00	10:00	09:00	08:00	11:00	- 08:00	- 11:00	00:00	- 10:00 - -
Vol.	419	388	354	334	341	- 353	- 338	319	- 333 - -
PM Peak	14:00	12:00	18:00	18:00	15:00	- 15:00	- 19:00	13:00	- 15:00 - -
Vol.	408	412	399	379	403	- 378	- 363	349	- 367 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY EB
bet 74th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	237	*	*	*	*	237	*	*	237
01:00	184	*	*	*	*	184	*	*	184
02:00	139	*	*	*	*	139	*	*	139
03:00	103	*	*	*	*	103	*	*	103
04:00	117	*	*	*	*	117	*	*	117
05:00	133	*	*	*	*	133	*	*	133
06:00	261	*	*	*	*	261	*	*	261
07:00	324	*	*	*	*	324	*	*	324
08:00	**358**	*	*	*	*	**358**	*	*	**358**
09:00	322	*	*	*	*	322	*	*	322
10:00	321	*	*	*	*	321	*	*	321
11:00	312	*	*	*	*	312	*	*	312
12:00 PM	330	*	*	*	*	330	*	*	330
01:00	342	*	*	*	*	342	*	*	342
02:00	378	*	*	*	*	378	*	*	378
03:00	383	*	*	*	*	383	*	*	383
04:00	367	*	*	*	*	367	*	*	367
05:00	401	*	*	*	*	401	*	*	401
06:00	**418**	*	*	*	*	**418**	*	*	**418**
07:00	337	*	*	*	*	337	*	*	337
08:00	323	*	*	*	*	323	*	*	323
09:00	295	*	*	*	*	295	*	*	295
10:00	280	*	*	*	*	280	*	*	280
11:00	235	*	*	*	*	235	*	*	235
Day Total	6900	0	0	0	0	6900	0	0	6900
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	-	-	-	-	08:00	-	-	08:00
Vol.	358	-	-	-	-	358	-	-	358
PM Peak	18:00	-	-	-	-	18:00	-	-	18:00
Vol.	418	-	-	-	-	418	-	-	418

Grand Total	13766	6936	6880	6639	13740	20679	13947	13409	20658

ADT ADT 6,847 AADT 6,847

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22		Average Day		Sat 14-May-22	Sun 15-May-22		Week Average		
12:00 AM	*	*	*	*	174		174		244	252		223		
01:00	*	*	*	*	152		152		163	201		172		
02:00	*	*	*	*	144		144		147	138		143		
03:00	*	*	*	*	129		129		166	167		154		
04:00	*	*	*	*	169		169		171	198		179		
05:00	*	*	*	*	283		283		235	214		244		
06:00	*	*	*	*	423		423		261	208		297		
07:00	*	*	*	*	**497**		**497**		377	241		372		
08:00	*	*	*	*	450		450		329	276		352		
09:00	*	*	*	*	320		320		361	279		320		
10:00	*	*	*	*	398		398		**402**	**414**		**405**		
11:00	*	*	*	*	338		338		347	386		357		
12:00 PM	*	*	*	*	**368**		**368**		**379**	331		**359**		
01:00	*	*	*	*	334		334		350	339		341		
02:00	*	*	*	*	346		346		358	**347**		350		
03:00	*	*	*	*	341		341		285	343		323		
04:00	*	*	*	*	359		359		345	285		330		
05:00	*	*	*	*	306		306		289	314		303		
06:00	*	*	*	*	323		323		261	315		300		
07:00	*	*	*	*	308		308		313	316		312		
08:00	*	*	*	*	299		299		312	328		313		
09:00	*	*	*	*	303		303		315	341		320		
10:00	*	*	*	*	281		281		307	287		292		
11:00	*	*	*	*	282		282		255	242		260		
Day Total	0	0	0	0	7327		7327		6972	6762		7021		
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%									
% Avg. Week	0.0%	0.0%	0.0%	0.0%	104.4%		104.4%		99.3%	96.3%				
AM Peak	-	-	-	-	07:00	-	07:00	-	10:00	10:00	-	10:00	-	-
Vol.	-	-	-	-	497	-	497	-	402	414	-	405	-	-
PM Peak	-	-	-	-	12:00	-	12:00	-	12:00	14:00	-	12:00	-	-
Vol.	-	-	-	-	368	-	368	-	379	347	-	359	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	194	166	195	174	156	177	219	253	194
01:00	165	152	156	169	141	157	206	212	172
02:00	137	122	153	136	123	134	174	192	148
03:00	141	117	131	118	138	129	195	174	145
04:00	139	138	146	131	153	141	183	168	151
05:00	312	311	292	252	294	292	227	204	270
06:00	421	**517**	467	403	413	444	237	214	382
07:00	**551**	512	**519**	502	466	**510**	331	231	445
08:00	475	498	477	**519**	**484**	491	370	305	**447**
09:00	339	380	349	381	329	356	394	309	354
10:00	369	369	333	396	351	364	400	**382**	371
11:00	334	356	340	383	305	344	**406**	337	352
12:00 PM	349	**390**	312	321	337	342	**396**	336	349
01:00	331	345	278	340	330	325	345	**381**	336
02:00	359	355	**383**	347	**356**	**360**	358	358	**359**
03:00	350	354	345	339	327	343	362	362	348
04:00	**378**	338	309	312	325	332	319	335	331
05:00	344	323	331	**353**	317	334	290	305	323
06:00	317	329	318	296	282	308	322	344	315
07:00	300	302	298	293	348	308	307	316	309
08:00	342	337	338	331	327	335	364	366	344
09:00	293	326	283	270	230	280	336	292	290
10:00	243	271	263	248	260	257	305	251	263
11:00	172	231	237	248	239	225	276	267	239
Day Total	7355	7539	7253	7262	7031	7288	7322	6894	7237
% Avg. WkDay	100.9%	103.4%	99.5%	99.6%	96.5%				
% Avg. Week	101.6%	104.2%	100.2%	100.3%	97.2%	100.7%	101.2%	95.3%	
AM Peak	07:00	06:00	07:00	08:00	08:00	- 07:00	- 11:00	10:00	- 08:00 - -
Vol.	551	517	519	519	484	- 510	- 406	382	- 447 - -
PM Peak	16:00	12:00	14:00	17:00	14:00	- 14:00	- 12:00	13:00	- 14:00 - -
Vol.	378	390	383	353	356	- 360	- 396	381	- 359 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 75th and 74th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	193	*	*	*	*	193	*	*	193
01:00	152	*	*	*	*	152	*	*	152
02:00	144	*	*	*	*	144	*	*	144
03:00	138	*	*	*	*	138	*	*	138
04:00	134	*	*	*	*	134	*	*	134
05:00	270	*	*	*	*	270	*	*	270
06:00	398	*	*	*	*	398	*	*	398
07:00	**462**	*	*	*	*	**462**	*	*	**462**
08:00	433	*	*	*	*	433	*	*	433
09:00	352	*	*	*	*	352	*	*	352
10:00	358	*	*	*	*	358	*	*	358
11:00	348	*	*	*	*	348	*	*	348
12:00 PM	366	*	*	*	*	366	*	*	366
01:00	353	*	*	*	*	353	*	*	353
02:00	348	*	*	*	*	348	*	*	348
03:00	327	*	*	*	*	327	*	*	327
04:00	357	*	*	*	*	357	*	*	357
05:00	**383**	*	*	*	*	**383**	*	*	**383**
06:00	272	*	*	*	*	272	*	*	272
07:00	286	*	*	*	*	286	*	*	286
08:00	290	*	*	*	*	290	*	*	290
09:00	274	*	*	*	*	274	*	*	274
10:00	229	*	*	*	*	229	*	*	229
11:00	193	*	*	*	*	193	*	*	193
Day Total	7060	0	0	0	0	7060	0	0	7060
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	07:00	-	-	-	-	07:00	-	-	07:00
Vol.	462	-	-	-	-	462	-	-	462
PM Peak	17:00	-	-	-	-	17:00	-	-	17:00
Vol.	383	-	-	-	-	383	-	-	383

Grand Total	14415	7539	7253	7262	14358	21675	14294	13656	21318	
ADT		ADT 7,162		AADT 7,162						

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22		Average Day		Sat 14-May-22	Sun 15-May-22		Week Average		
12:00 AM	*	*	*	*	51		51		64	71		62		
01:00	*	*	*	*	39		39		60	59		53		
02:00	*	*	*	*	43		43		39	30		37		
03:00	*	*	*	*	28		28		41	32		34		
04:00	*	*	*	*	35		35		46	34		38		
05:00	*	*	*	*	58		58		50	28		45		
06:00	*	*	*	*	104		104		43	54		67		
07:00	*	*	*	*	144		144		72	43		86		
08:00	*	*	*	*	**153**		**153**		92	53		99		
09:00	*	*	*	*	124		124		83	79		95		
10:00	*	*	*	*	140		140		**114**	**108**		**121**		
11:00	*	*	*	*	115		115		104	103		107		
12:00 PM	*	*	*	*	127		127		126	113		122		
01:00	*	*	*	*	125		125		108	117		117		
02:00	*	*	*	*	134		134		116	125		125		
03:00	*	*	*	*	115		115		122	108		115		
04:00	*	*	*	*	**152**		**152**		104	103		120		
05:00	*	*	*	*	123		123		100	104		109		
06:00	*	*	*	*	124		124		124	110		119		
07:00	*	*	*	*	149		149		101	118		123		
08:00	*	*	*	*	118		118		**142**	**139**		**133**		
09:00	*	*	*	*	100		100		122	96		106		
10:00	*	*	*	*	107		107		119	99		108		
11:00	*	*	*	*	82		82		67	61		70		
Day Total	0	0	0	0	2490		2490		2159	1987		2211		
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%									
% Avg. Week	0.0%	0.0%	0.0%	0.0%	112.6%		112.6%		97.6%	89.9%				
AM Peak	-	-	-	-	08:00	-	08:00	-	10:00	10:00	-	10:00	-	-
Vol.	-	-	-	-	153	-	153	-	114	108	-	121	-	-
PM Peak	-	-	-	-	16:00	-	16:00	-	20:00	20:00	-	20:00	-	-
Vol.	-	-	-	-	152	-	152	-	142	139	-	133	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	49	40	60	46	54	50	61	70	54
01:00	44	39	51	42	44	44	57	56	48
02:00	46	27	32	36	21	32	45	50	37
03:00	28	26	17	24	30	25	25	29	26
04:00	28	32	33	30	42	33	43	45	36
05:00	59	38	42	45	44	46	34	37	43
06:00	91	92	86	85	95	90	52	40	77
07:00	136	103	140	**131**	115	125	64	43	105
08:00	**141**	**129**	**142**	110	**118**	**128**	85	47	**110**
09:00	82	87	114	115	114	102	104	69	98
10:00	112	91	89	116	112	104	88	**101**	101
11:00	89	87	98	102	110	97	**105**	98	98
12:00 PM	115	111	113	108	109	111	99	81	105
01:00	**157**	**113**	115	87	121	119	**108**	62	109
02:00	115	104	93	101	116	106	99	88	102
03:00	110	104	141	107	131	119	96	90	111
04:00	132	113	127	**136**	136	**129**	104	94	**120**
05:00	137	112	146	121	113	126	94	**108**	119
06:00	109	111	**150**	114	**142**	125	96	88	116
07:00	119	90	103	125	119	111	89	79	103
08:00	115	101	90	111	110	105	108	79	102
09:00	105	98	86	93	92	95	86	79	91
10:00	64	71	50	73	94	70	88	81	74
11:00	44	54	58	61	72	58	76	73	63
Day Total	2227	1973	2176	2119	2254	2150	1906	1687	2048
% Avg. WkDay	103.6%	91.8%	101.2%	98.6%	104.8%				
% Avg. Week	108.7%	96.3%	106.3%	103.5%	110.1%	105.0%	93.1%	82.4%	
AM Peak	08:00	08:00	08:00	07:00	08:00	- 08:00	- 11:00	10:00	- 08:00 - -
Vol.	141	129	142	131	118	- 128	- 105	101	- 110 - -
PM Peak	13:00	13:00	18:00	16:00	18:00	- 16:00	- 13:00	17:00	- 16:00 - -
Vol.	157	113	150	136	142	- 129	- 108	108	- 120 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	62	*	*	*	*	62	*	*	62
01:00	44	*	*	*	*	44	*	*	44
02:00	44	*	*	*	*	44	*	*	44
03:00	22	*	*	*	*	22	*	*	22
04:00	51	*	*	*	*	51	*	*	51
05:00	54	*	*	*	*	54	*	*	54
06:00	105	*	*	*	*	105	*	*	105
07:00	87	*	*	*	*	87	*	*	87
08:00	**124**	*	*	*	*	**124**	*	*	**124**
09:00	94	*	*	*	*	94	*	*	94
10:00	106	*	*	*	*	106	*	*	106
11:00	111	*	*	*	*	111	*	*	111
12:00 PM	103	*	*	*	*	103	*	*	103
01:00	101	*	*	*	*	101	*	*	101
02:00	102	*	*	*	*	102	*	*	102
03:00	**122**	*	*	*	*	**122**	*	*	**122**
04:00	90	*	*	*	*	90	*	*	90
05:00	119	*	*	*	*	119	*	*	119
06:00	120	*	*	*	*	120	*	*	120
07:00	86	*	*	*	*	86	*	*	86
08:00	107	*	*	*	*	107	*	*	107
09:00	92	*	*	*	*	92	*	*	92
10:00	61	*	*	*	*	61	*	*	61
11:00	46	*	*	*	*	46	*	*	46
Day Total	2053	0	0	0	0	2053	0	0	2053
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	08:00	-	-	-	-	08:00	-	-	08:00
Vol.	124	-	-	-	-	124	-	-	124
PM Peak	15:00	-	-	-	-	15:00	-	-	15:00
Vol.	122	-	-	-	-	122	-	-	122

Grand Total	4280	1973	2176	2119	4744	6693	4065	3674	6312

ADT	ADT 2,094	AADT 2,094

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 77th and 76th St
Latitude: 0' 0.0000 Undefined

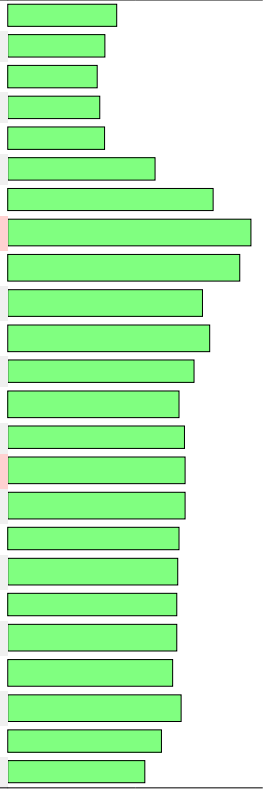
Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22		Average Day		Sat 14-May-22	Sun 15-May-22		Week Average		
12:00 AM	*	*	*	*	184		184		241	243		223		
01:00	*	*	*	*	169		169		192	167		176		
02:00	*	*	*	*	142		142		191	183		172		
03:00	*	*	*	*	167		167		173	184		175		
04:00	*	*	*	*	199		199		182	202		194		
05:00	*	*	*	*	283		283		263	237		261		
06:00	*	*	*	*	419		419		269	184		291		
07:00	*	*	*	*	**454**		**454**		370	246		357		
08:00	*	*	*	*	446		446		343	261		350		
09:00	*	*	*	*	320		320		352	275		316		
10:00	*	*	*	*	367		367		**387**	**376**		**377**		
11:00	*	*	*	*	331		331		343	327		334		
12:00 PM	*	*	*	*	274		274		329	284		296		
01:00	*	*	*	*	312		312		**330**	291		**311**		
02:00	*	*	*	*	316		316		330	286		311		
03:00	*	*	*	*	321		321		309	289		306		
04:00	*	*	*	*	295		295		302	282		293		
05:00	*	*	*	*	**324**		**324**		275	**324**		308		
06:00	*	*	*	*	304		304		281	265		283		
07:00	*	*	*	*	276		276		269	275		273		
08:00	*	*	*	*	272		272		305	279		285		
09:00	*	*	*	*	303		303		296	257		285		
10:00	*	*	*	*	268		268		275	281		275		
11:00	*	*	*	*	272		272		250	240		254		
Day Total	0	0	0	0	7018		7018		6857	6238		6706		
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%									
% Avg. Week	0.0%	0.0%	0.0%	0.0%	104.7%		104.7%		102.3%	93.0%				
AM Peak	-	-	-	-	07:00	-	07:00	-	10:00	10:00	-	10:00	-	-
Vol.	-	-	-	-	454	-	454	-	387	376	-	377	-	-
PM Peak	-	-	-	-	17:00	-	17:00	-	13:00	17:00	-	13:00	-	-
Vol.	-	-	-	-	324	-	324	-	330	324	-	311	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 77th and 76th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22		Average Day		Sat 21-May-22	Sun 22-May-22		Week Average		
12:00 AM	156	164	188	184	188		176		222	264		195		
01:00	164	146	178	166	164		164		196	204		174		
02:00	130	127	149	147	137		138		206	223		160		
03:00	143	166	164	154	167		159		186	172		165		
04:00	148	161	175	152	214		170		186	173		173		
05:00	274	260	278	266	290		274		251	223		263		
06:00	386	403	444	432	419		417		271	213		367		
07:00	**511**	**481**	**485**	**461**	468		**481**		364	266		**434**		
08:00	432	425	463	442	**483**		449		349	305		414		
09:00	332	376	350	366	292		343		**413**	305		348		
10:00	349	366	333	373	364		357		385	**356**		361		
11:00	299	347	306	333	356		328		363	325		333		
12:00 PM	341	255	303	284	278		292		**372**	309		306		
01:00	328	298	324	299	314		313		326	326		316		
02:00	317	321	325	316	306		317		331	304		**317**		
03:00	340	**322**	312	**317**	321		**322**		287	318		317		
04:00	333	307	336	294	316		317		288	267		306		
05:00	338	277	328	277	**331**		310		298	276		304		
06:00	310	301	309	285	295		300		294	318		302		
07:00	**359**	285	286	286	279		299		309	310		302		
08:00	278	289	277	297	268		282		322	**336**		295		
09:00	330	308	**355**	300	302		319		309	266		310		
10:00	305	255	306	261	271		280		299	231		275		
11:00	227	215	219	250	271		236		281	254		245		
Day Total	7130	6855	7193	6942	7094		7043		7108	6544		6982		
% Avg. WkDay	101.2%	97.3%	102.1%	98.6%	100.7%									
% Avg. Week	102.1%	98.2%	103.0%	99.4%	101.6%		100.9%		101.8%	93.7%				
AM Peak	07:00	07:00	07:00	07:00	08:00	-	07:00	-	09:00	10:00	-	07:00	-	-
Vol.	511	481	485	461	483	-	481	-	413	356	-	434	-	-
PM Peak	19:00	15:00	21:00	15:00	17:00	-	15:00	-	12:00	20:00	-	14:00	-	-
Vol.	359	322	355	317	331	-	322	-	372	336	-	317	-	-



TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
ROOSEVELT AVE WB
bet 77th and 76th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	181	*	*	*	*	181	*	*	181
01:00	170	*	*	*	*	170	*	*	170
02:00	160	*	*	*	*	160	*	*	160
03:00	156	*	*	*	*	156	*	*	156
04:00	157	*	*	*	*	157	*	*	157
05:00	281	*	*	*	*	281	*	*	281
06:00	**454**	*	*	*	*	**454**	*	*	**454**
07:00	438	*	*	*	*	438	*	*	438
08:00	396	*	*	*	*	396	*	*	396
09:00	368	*	*	*	*	368	*	*	368
10:00	369	*	*	*	*	369	*	*	369
11:00	323	*	*	*	*	323	*	*	323
12:00 PM	319	*	*	*	*	319	*	*	319
01:00	329	*	*	*	*	329	*	*	329
02:00	306	*	*	*	*	306	*	*	306
03:00	**348**	*	*	*	*	**348**	*	*	**348**
04:00	326	*	*	*	*	326	*	*	326
05:00	345	*	*	*	*	345	*	*	345
06:00	315	*	*	*	*	315	*	*	315
07:00	344	*	*	*	*	344	*	*	344
08:00	280	*	*	*	*	280	*	*	280
09:00	330	*	*	*	*	330	*	*	330
10:00	313	*	*	*	*	313	*	*	313
11:00	219	*	*	*	*	219	*	*	219
Day Total	7227	0	0	0	0	7227	0	0	7227
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	06:00	-	-	-	-	06:00	-	-	06:00
Vol.	454	-	-	-	-	454	-	-	454
PM Peak	15:00	-	-	-	-	15:00	-	-	15:00
Vol.	348	-	-	-	-	348	-	-	348

Grand Total	14357	6855	7193	6942	14112	21288	13965	12782	20915

ADT	ADT 6,928	AADT 6,928

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY WB
bet 76th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	115	115	141	149	135
01:00	*	*	*	*	98	98	113	127	113
02:00	*	*	*	*	65	65	88	83	79
03:00	*	*	*	*	63	63	83	84	77
04:00	*	*	*	*	82	82	96	77	85
05:00	*	*	*	*	114	114	94	64	91
06:00	*	*	*	*	218	218	152	127	166
07:00	*	*	*	*	**255**	**255**	207	158	207
08:00	*	*	*	*	243	243	235	164	214
09:00	*	*	*	*	254	254	206	189	216
10:00	*	*	*	*	246	246	**257**	227	**243**
11:00	*	*	*	*	251	251	233	**242**	242
12:00 PM	*	*	*	*	216	216	**298**	279	**264**
01:00	*	*	*	*	209	209	228	**285**	241
02:00	*	*	*	*	219	219	287	219	242
03:00	*	*	*	*	**262**	**262**	260	248	257
04:00	*	*	*	*	248	248	245	215	236
05:00	*	*	*	*	245	245	239	235	240
06:00	*	*	*	*	254	254	247	231	244
07:00	*	*	*	*	226	226	244	258	243
08:00	*	*	*	*	194	194	197	201	197
09:00	*	*	*	*	208	208	202	227	212
10:00	*	*	*	*	201	201	169	188	186
11:00	*	*	*	*	200	200	159	152	170
Day Total	0	0	0	0	4686	4686	4680	4429	4600
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	101.9%	101.9%	101.7%	96.3%	
AM Peak	-	-	-	-	07:00	07:00	10:00	11:00	10:00
Vol.	-	-	-	-	255	255	257	242	243
PM Peak	-	-	-	-	15:00	15:00	12:00	13:00	12:00
Vol.	-	-	-	-	262	262	298	285	264

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY WB
bet 76th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	115	85	112	108	118	108	139	160	120
01:00	85	71	125	92	80	91	76	155	98
02:00	74	62	82	64	92	75	86	108	81
03:00	69	59	63	52	77	64	65	92	68
04:00	78	63	61	52	65	64	65	80	66
05:00	125	93	104	113	97	106	84	75	99
06:00	198	187	185	177	194	188	130	94	166
07:00	255	**246**	230	252	219	240	189	168	223
08:00	**282**	238	**257**	**283**	223	**257**	221	135	234
09:00	244	231	245	250	**265**	247	237	175	235
10:00	237	210	256	243	259	241	242	**250**	**242**
11:00	220	219	213	237	245	227	**268**	221	232
12:00 PM	260	249	249	**271**	247	**255**	275	240	**256**
01:00	**263**	218	227	256	241	241	277	257	248
02:00	243	230	231	243	**250**	239	284	256	248
03:00	222	**264**	244	262	232	245	288	243	251
04:00	237	252	**251**	225	151	223	**300**	**260**	239
05:00	201	242	215	245	219	224	253	225	229
06:00	190	215	224	211	244	217	286	254	232
07:00	195	203	197	217	191	201	231	216	207
08:00	166	179	176	205	219	189	211	193	193
09:00	158	163	208	162	185	175	178	195	178
10:00	143	163	186	183	187	172	179	173	173
11:00	132	136	122	143	166	140	182	141	146
Day Total	4392	4278	4463	4546	4466	4429	4746	4366	4464
% Avg. WkDay	99.2%	96.6%	100.8%	102.6%	100.8%				
% Avg. Week	98.4%	95.8%	100.0%	101.8%	100.0%	99.2%	106.3%	97.8%	
AM Peak	08:00	07:00	08:00	08:00	09:00	- 08:00	- 11:00	10:00	- 10:00 - -
Vol.	282	246	257	283	265	- 257	- 268	250	- 242 - -
PM Peak	13:00	15:00	16:00	12:00	14:00	- 12:00	- 16:00	16:00	- 12:00 - -
Vol.	263	264	251	271	250	- 255	- 300	260	- 256 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
BROADWAY WB
bet 76th and 75th St
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	110	*	*	*	*	110	*	*	110
01:00	80	*	*	*	*	80	*	*	80
02:00	86	*	*	*	*	86	*	*	86
03:00	52	*	*	*	*	52	*	*	52
04:00	76	*	*	*	*	76	*	*	76
05:00	93	*	*	*	*	93	*	*	93
06:00	182	*	*	*	*	182	*	*	182
07:00	234	*	*	*	*	234	*	*	234
08:00	235	*	*	*	*	235	*	*	235
09:00	212	*	*	*	*	212	*	*	212
10:00	**256**	*	*	*	*	**256**	*	*	**256**
11:00	188	*	*	*	*	188	*	*	188
12:00 PM	236	*	*	*	*	236	*	*	236
01:00	196	*	*	*	*	196	*	*	196
02:00	212	*	*	*	*	212	*	*	212
03:00	245	*	*	*	*	245	*	*	245
04:00	258	*	*	*	*	258	*	*	258
05:00	231	*	*	*	*	231	*	*	231
06:00	**269**	*	*	*	*	**269**	*	*	**269**
07:00	223	*	*	*	*	223	*	*	223
08:00	181	*	*	*	*	181	*	*	181
09:00	174	*	*	*	*	174	*	*	174
10:00	155	*	*	*	*	155	*	*	155
11:00	131	*	*	*	*	131	*	*	131
Day Total	4315	0	0	0	0	4315	0	0	4315
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	10:00	-	-	-	-	10:00	-	-	10:00
Vol.	256	-	-	-	-	256	-	-	256
PM Peak	18:00	-	-	-	-	18:00	-	-	18:00
Vol.	269	-	-	-	-	269	-	-	269

Grand Total	8707	4278	4463	4546	9152	13430	9426	8795	13379

ADT	ADT 4,488	AADT 4,488

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
75th STREET NB
bet 41st Ave and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22		Average Day		Sat 14-May-22	Sun 15-May-22		Week Average		
12:00 AM	*	*	*	*	39		39		49	57		48		
01:00	*	*	*	*	39		39		40	57		45		
02:00	*	*	*	*	32		32		31	33		32		
03:00	*	*	*	*	23		23		35	30		29		
04:00	*	*	*	*	27		27		31	43		34		
05:00	*	*	*	*	32		32		45	45		41		
06:00	*	*	*	*	50		50		56	43		50		
07:00	*	*	*	*	102		102		67	38		69		
08:00	*	*	*	*	**123**		**123**		86	54		88		
09:00	*	*	*	*	123		123		105	71		100		
10:00	*	*	*	*	123		123		**142**	95		120		
11:00	*	*	*	*	117		117		126	**120**		**121**		
12:00 PM	*	*	*	*	97		97		163	114		125		
01:00	*	*	*	*	90		90		206	**138**		145		
02:00	*	*	*	*	134		134		**230**	131		**165**		
03:00	*	*	*	*	112		112		178	95		128		
04:00	*	*	*	*	172		172		152	111		145		
05:00	*	*	*	*	**175**		**175**		131	106		137		
06:00	*	*	*	*	156		156		144	110		137		
07:00	*	*	*	*	119		119		144	131		131		
08:00	*	*	*	*	122		122		117	105		115		
09:00	*	*	*	*	97		97		101	68		89		
10:00	*	*	*	*	66		66		77	61		68		
11:00	*	*	*	*	76		76		61	60		66		
Day Total	0	0	0	0	2246		2246		2517	1916		2228		
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%									
% Avg. Week	0.0%	0.0%	0.0%	0.0%	100.8%		100.8%		113.0%	86.0%				
AM Peak	-	-	-	-	08:00	-	08:00	-	10:00	11:00	-	11:00	-	-
Vol.	-	-	-	-	123	-	123	-	142	120	-	121	-	-
PM Peak	-	-	-	-	17:00	-	17:00	-	14:00	13:00	-	14:00	-	-
Vol.	-	-	-	-	175	-	175	-	230	138	-	165	-	-

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
75th STREET NB
bet 41st Ave and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	60	37	37	45	56	47	47	58	49
01:00	32	38	48	44	39	40	46	54	43
02:00	26	30	35	37	43	34	48	52	39
03:00	18	14	18	24	36	22	31	34	25
04:00	30	29	24	20	30	27	40	39	30
05:00	36	36	41	55	40	42	42	49	43
06:00	68	70	77	55	54	65	43	32	57
07:00	100	98	108	77	110	99	61	26	83
08:00	112	118	**144**	**150**	**152**	**135**	79	39	113
09:00	115	**127**	134	120	111	121	98	75	111
10:00	117	127	111	121	90	113	**119**	**116**	114
11:00	**126**	122	117	138	114	123	105	107	**118**
12:00 PM	128	131	115	132	119	125	189	94	130
01:00	137	117	127	132	117	126	213	123	138
02:00	133	146	133	110	117	128	220	**127**	141
03:00	167	**148**	162	128	137	148	**234**	108	155
04:00	**172**	137	174	159	154	159	213	113	160
05:00	148	139	**208**	**176**	172	**169**	234	93	**167**
06:00	141	133	176	176	**202**	166	205	122	165
07:00	132	105	136	114	134	124	158	93	125
08:00	108	100	94	95	104	100	105	102	101
09:00	96	84	72	97	94	89	93	95	90
10:00	65	57	65	88	81	71	78	77	73
11:00	60	51	59	51	85	61	68	62	62
Day Total	2327	2194	2415	2344	2391	2334	2769	1890	2332
% Avg. WkDay	99.7%	94.0%	103.5%	100.4%	102.4%				
% Avg. Week	99.8%	94.1%	103.6%	100.5%	102.5%	100.1%	118.7%	81.0%	
AM Peak	11:00	09:00	08:00	08:00	08:00	- 08:00	- 10:00	10:00	- 11:00 - -
Vol.	126	127	144	150	152	- 135	- 119	116	- 118 - -
PM Peak	16:00	15:00	17:00	17:00	18:00	- 17:00	- 15:00	14:00	- 17:00 - -
Vol.	172	148	208	176	202	- 169	- 234	127	- 167 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
75th STREET NB
bet 41st Ave and Broadway
Latitude: 0' 0.0000 Undefined

Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	46	*	*	*	*	46	*	*	46
01:00	41	*	*	*	*	41	*	*	41
02:00	27	*	*	*	*	27	*	*	27
03:00	30	*	*	*	*	30	*	*	30
04:00	26	*	*	*	*	26	*	*	26
05:00	38	*	*	*	*	38	*	*	38
06:00	67	*	*	*	*	67	*	*	67
07:00	106	*	*	*	*	106	*	*	106
08:00	130	*	*	*	*	130	*	*	130
09:00	**135**	*	*	*	*	**135**	*	*	**135**
10:00	101	*	*	*	*	101	*	*	101
11:00	126	*	*	*	*	126	*	*	126
12:00 PM	141	*	*	*	*	141	*	*	141
01:00	137	*	*	*	*	137	*	*	137
02:00	142	*	*	*	*	142	*	*	142
03:00	152	*	*	*	*	152	*	*	152
04:00	133	*	*	*	*	133	*	*	133
05:00	151	*	*	*	*	151	*	*	151
06:00	**153**	*	*	*	*	**153**	*	*	**153**
07:00	116	*	*	*	*	116	*	*	116
08:00	101	*	*	*	*	101	*	*	101
09:00	93	*	*	*	*	93	*	*	93
10:00	68	*	*	*	*	68	*	*	68
11:00	64	*	*	*	*	64	*	*	64
Day Total	2324	0	0	0	0	2324	0	0	2324
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	09:00	-	-	-	-	09:00	-	-	09:00
Vol.	135	-	-	-	-	135	-	-	135
PM Peak	18:00	-	-	-	-	18:00	-	-	18:00
Vol.	153	-	-	-	-	153	-	-	153

Grand Total	4651	2194	2415	2344	4637	6904	5286	3806	6884

ADT	ADT 2,303	AADT 2,303

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
76th STREET SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 09-May-22	Tue 10-May-22	Wed 11-May-22	Thu 12-May-22	Fri 13-May-22	Average Day	Sat 14-May-22	Sun 15-May-22	Week Average
12:00 AM	*	*	*	*	47	47	75	100	74
01:00	*	*	*	*	53	53	64	69	62
02:00	*	*	*	*	42	42	69	62	58
03:00	*	*	*	*	49	49	63	62	58
04:00	*	*	*	*	51	51	48	63	54
05:00	*	*	*	*	46	46	42	45	44
06:00	*	*	*	*	82	82	56	53	64
07:00	*	*	*	*	130	130	65	42	79
08:00	*	*	*	*	**160**	**160**	107	58	108
09:00	*	*	*	*	148	148	140	89	126
10:00	*	*	*	*	147	147	153	133	144
11:00	*	*	*	*	160	160	**162**	**141**	**154**
12:00 PM	*	*	*	*	182	182	176	131	163
01:00	*	*	*	*	159	159	203	**177**	180
02:00	*	*	*	*	160	160	161	156	159
03:00	*	*	*	*	203	203	215	158	192
04:00	*	*	*	*	206	206	215	146	189
05:00	*	*	*	*	212	212	**234**	164	**203**
06:00	*	*	*	*	**235**	**235**	192	153	193
07:00	*	*	*	*	170	170	159	171	167
08:00	*	*	*	*	170	170	127	140	146
09:00	*	*	*	*	147	147	123	141	137
10:00	*	*	*	*	116	116	100	94	103
11:00	*	*	*	*	85	85	92	81	86
Day Total	0	0	0	0	3160	3160	3041	2629	2943
% Avg. WkDay	0.0%	0.0%	0.0%	0.0%	100.0%				
% Avg. Week	0.0%	0.0%	0.0%	0.0%	107.4%	107.4%	103.3%	89.3%	
AM Peak	-	-	-	-	08:00	08:00	11:00	11:00	11:00
Vol.	-	-	-	-	160	160	162	141	154
PM Peak	-	-	-	-	18:00	18:00	17:00	13:00	17:00
Vol.	-	-	-	-	235	235	234	177	203

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
76th STREET SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

Start Time	Mon 16-May-22	Tue 17-May-22	Wed 18-May-22	Thu 19-May-22	Fri 20-May-22	Average Day	Sat 21-May-22	Sun 22-May-22	Week Average
12:00 AM	61	41	52	46	76	55	62	112	64
01:00	56	37	34	37	60	45	68	74	52
02:00	33	30	33	35	55	37	64	66	45
03:00	45	23	30	34	64	39	55	67	45
04:00	44	31	32	41	51	40	50	75	46
05:00	49	51	45	40	61	49	38	52	48
06:00	82	86	77	72	98	83	59	62	77
07:00	114	151	157	137	132	138	81	46	117
08:00	**164**	**187**	212	**245**	**198**	**201**	98	64	**167**
09:00	147	137	**219**	176	167	169	140	92	154
10:00	128	120	150	140	129	133	150	112	133
11:00	129	117	160	137	92	127	**151**	**146**	133
12:00 PM	136	124	188	131	99	136	159	133	139
01:00	185	146	174	134	141	156	193	**183**	165
02:00	167	153	159	154	145	156	180	136	156
03:00	185	169	207	168	161	178	201	144	176
04:00	**194**	181	217	178	191	192	206	136	186
05:00	184	168	**257**	240	**229**	**216**	**211**	161	**207**
06:00	173	**186**	204	**250**	210	205	182	154	194
07:00	171	145	151	148	199	163	126	172	159
08:00	136	131	133	131	116	129	101	150	128
09:00	109	94	112	81	117	103	97	144	108
10:00	83	63	81	66	132	85	76	84	84
11:00	52	60	61	55	72	60	72	77	64
Day Total	2827	2631	3145	2876	2995	2895	2820	2642	2847
% Avg. WkDay	97.7%	90.9%	108.6%	99.3%	103.5%				
% Avg. Week	99.3%	92.4%	110.5%	101.0%	105.2%	101.7%	99.1%	92.8%	
AM Peak	08:00	08:00	09:00	08:00	08:00	- 08:00	- 11:00	11:00	- 08:00 - -
Vol.	164	187	219	245	198	- 201	- 151	146	- 167 - -
PM Peak	16:00	18:00	17:00	18:00	17:00	- 17:00	- 17:00	13:00	- 17:00 - -
Vol.	194	186	257	250	229	- 216	- 211	183	- 207 - -

TRAFFIC DATABANK LLC

716 SOUTH SIXTH AVE
MT VERNON,NY,10550

Site Code:
Station ID:
76th STREET SB
bet 37th Rd and Roosevelt Ave
Latitude: 0' 0.0000 Undefined

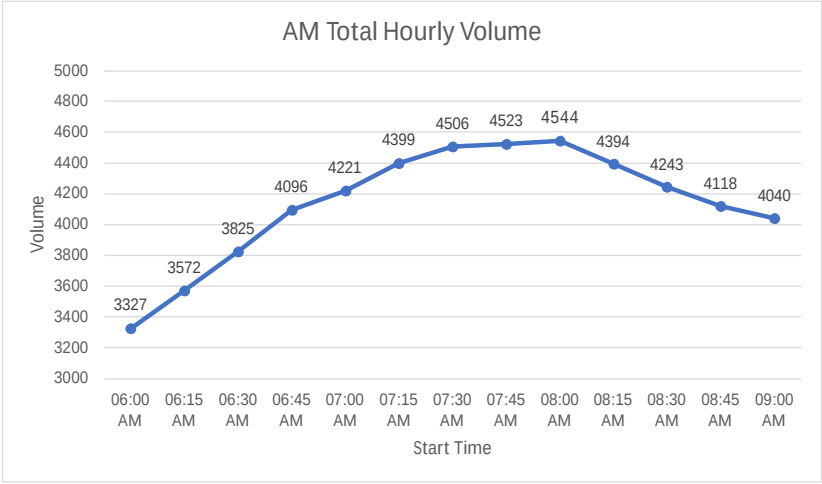
Start Time	Mon 23-May-22	Tue 24-May-22	Wed 25-May-22	Thu 26-May-22	Fri 27-May-22	Average Day	Sat 28-May-22	Sun 29-May-22	Week Average
12:00 AM	59	*	*	*	*	59	*	*	59
01:00	61	*	*	*	*	61	*	*	61
02:00	32	*	*	*	*	32	*	*	32
03:00	42	*	*	*	*	42	*	*	42
04:00	43	*	*	*	*	43	*	*	43
05:00	57	*	*	*	*	57	*	*	57
06:00	75	*	*	*	*	75	*	*	75
07:00	88	*	*	*	*	88	*	*	88
08:00	136	*	*	*	*	136	*	*	136
09:00	**137**	*	*	*	*	**137**	*	*	**137**
10:00	114	*	*	*	*	114	*	*	114
11:00	120	*	*	*	*	120	*	*	120
12:00 PM	136	*	*	*	*	136	*	*	136
01:00	**200**	*	*	*	*	**200**	*	*	**200**
02:00	165	*	*	*	*	165	*	*	165
03:00	195	*	*	*	*	195	*	*	195
04:00	191	*	*	*	*	191	*	*	191
05:00	186	*	*	*	*	186	*	*	186
06:00	159	*	*	*	*	159	*	*	159
07:00	163	*	*	*	*	163	*	*	163
08:00	127	*	*	*	*	127	*	*	127
09:00	109	*	*	*	*	109	*	*	109
10:00	73	*	*	*	*	73	*	*	73
11:00	45	*	*	*	*	45	*	*	45
Day Total	2713	0	0	0	0	2713	0	0	2713
% Avg. WkDay	100.0%	0.0%	0.0%	0.0%	0.0%				
% Avg. Week	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	09:00	-	-	-	-	09:00	-	-	09:00
Vol.	137	-	-	-	-	137	-	-	137
PM Peak	13:00	-	-	-	-	13:00	-	-	13:00
Vol.	200	-	-	-	-	200	-	-	200

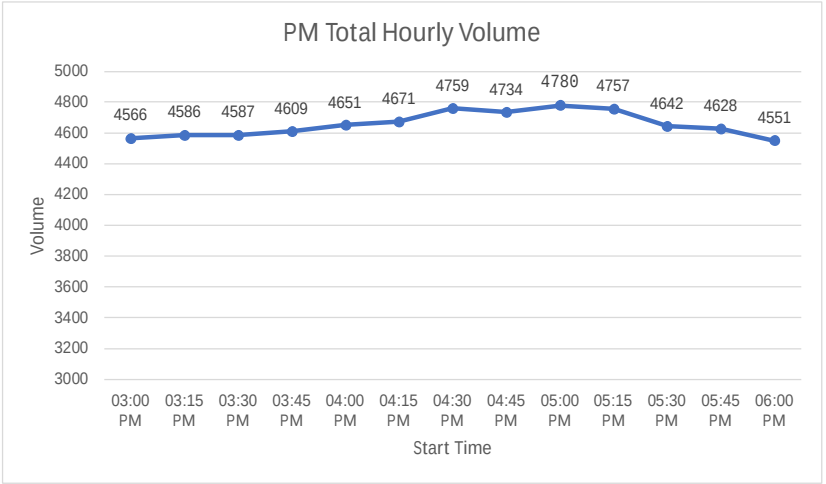
Grand Total	5540	2631	3145	2876	6155	8768	5861	5271	8503

ADT ADT 2,862 AADT 2,862

Attachment C: Turning Movement Counts and Automatic Traffic Recorder Summary

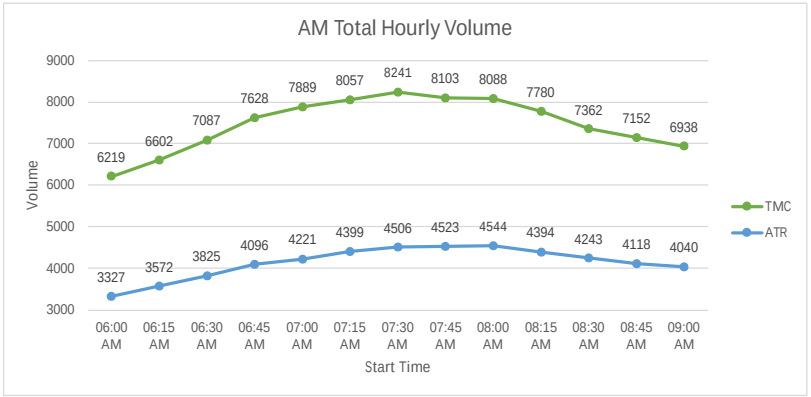
	ATR1	ATR2	ATR3	ATR4	ATR5	ATR6	ATR7	ATR8	ATR9	ATR10	ATR11	ATR12	ATR13	ATR14	ATR15	ATR16	ATR17	Total
06:00 AM - 07:00 AM	184	175	114	166	404	58	50	185	244	183	261	462	88	426	183	67	78	3327
06:15 AM - 07:15 AM	193	203	126	167	431	75	58	195	252	194	280	485	94	449	200	76	91	3572
06:30 AM - 07:30 AM	200	226	131	173	453	93	66	210	274	209	309	493	117	466	220	80	105	3825
06:45 AM - 07:45 AM	215	244	147	199	469	100	72	246	290	228	326	518	122	468	240	88	124	4096
07:00 AM - 08:00 AM	215	269	153	208	498	117	77	253	283	236	315	511	125	476	243	94	148	4221
07:15 AM - 08:15 AM	232	272	166	230	512	120	79	282	292	242	333	513	131	471	245	109	169	4399
07:30 AM - 08:30 AM	253	273	174	247	506	126	83	304	298	247	339	515	121	459	254	119	189	4506
07:45 AM - 08:45 AM	265	280	164	248	494	138	81	312	292	245	336	502	124	457	245	135	205	4523
08:00 AM - 09:00 AM	272	285	159	250	474	150	76	322	286	253	336	498	127	443	259	137	215	4544
08:15 AM - 09:15 AM	264	282	146	236	441	143	76	310	287	242	339	470	120	431	253	136	219	4394
08:30 AM - 09:30 AM	259	272	146	239	412	133	71	309	282	231	341	439	110	413	240	134	214	4243
08:45 AM - 09:45 AM	262	252	154	238	383	128	76	310	287	232	341	399	108	380	248	124	197	4118
09:00 AM - 10:00 AM	275	236	164	251	356	104	80	318	298	227	346	370	105	364	242	127	177	4040
03:00 PM - 04:00 PM	423	267	197	383	314	162	94	464	286	242	369	346	117	317	257	146	181	4566
03:15 PM - 04:15 PM	436	266	192	381	311	175	94	469	295	239	380	334	122	313	251	146	183	4586
03:30 PM - 04:30 PM	451	261	189	379	296	188	95	474	294	237	379	330	129	314	243	144	183	4587
03:45 PM - 04:45 PM	478	274	193	377	299	195	94	474	287	232	366	331	130	308	236	147	191	4609
04:00 PM - 05:00 PM	482	301	186	372	295	209	104	474	280	235	366	320	125	312	243	157	192	4651
04:15 PM - 05:15 PM	475	303	204	365	291	212	115	476	279	237	368	318	121	307	235	164	201	4671
04:30 PM - 05:30 PM	491	309	201	365	309	212	114	476	284	244	362	328	127	312	242	175	208	4759
04:45 PM - 05:45 PM	481	305	203	355	298	216	118	476	284	247	368	323	118	299	245	180	216	4734
05:00 PM - 06:00 PM	495	312	200	361	305	212	123	476	293	243	374	336	126	294	234	174	222	4780
05:15 PM - 06:15 PM	493	304	192	362	313	202	114	472	293	241	371	338	129	304	238	171	219	4757
05:30 PM - 06:30 PM	465	298	196	354	294	188	113	466	289	232	381	330	123	295	234	164	220	4642
05:45 PM - 06:45 PM	448	294	206	354	300	173	114	466	299	228	390	331	128	295	223	159	218	4628
06:00 PM - 7:00 PM	439	288	211	343	289	173	104	463	299	220	394	314	125	298	217	162	213	4551

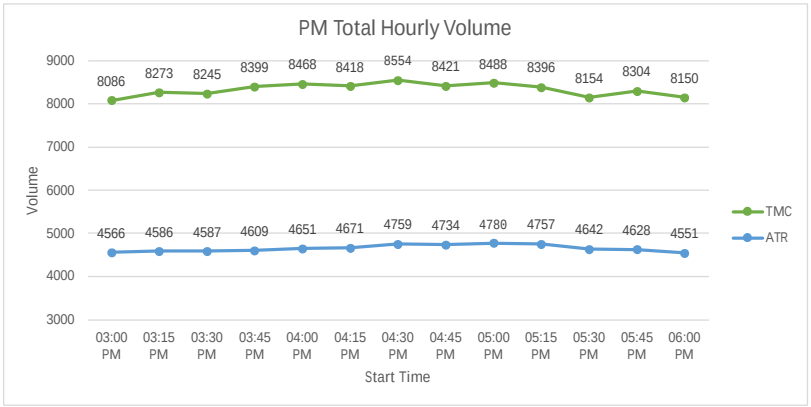




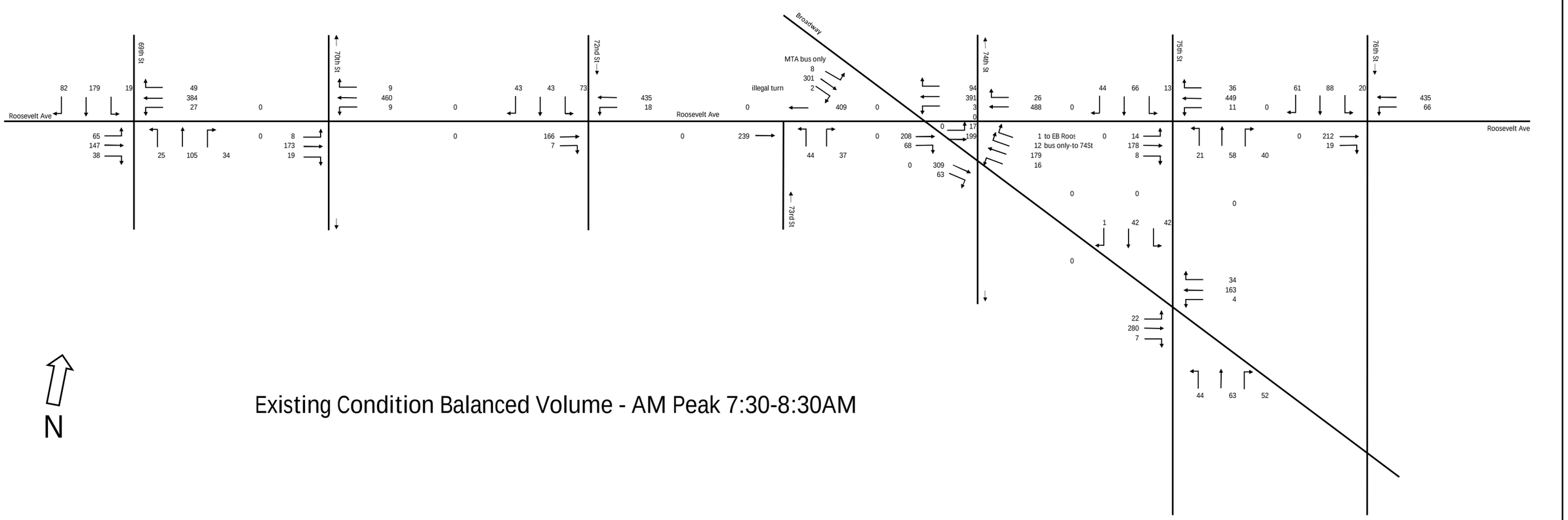
TMC	TMC1	TMC2	TMC3	TMC4	TMC5	TMC6	TMC7	TMC8	TMC9	total
06:00 AM - 07:00 AM	850	546	564	555	1052	763	563	672	654	6219
06:15 AM - 07:15 AM	937	584	607	585	1107	796	611	700	675	6602
06:30 AM - 07:30 AM	1010	613	647	621	1194	845	687	761	709	7087
06:45 AM - 07:45 AM	1093	664	711	684	1284	902	730	813	747	7628
07:00 AM - 08:00 AM	1160	685	761	710	1281	947	712	863	770	7889
07:15 AM - 08:15 AM	1165	697	785	732	1307	954	761	885	771	8057
07:30 AM - 08:30 AM	1194	702	813	757	1321	984	786	926	758	8241
07:45 AM - 08:45 AM	1167	688	792	736	1286	985	791	914	744	8103
08:00 AM - 09:00 AM	1152	676	781	720	1278	1001	825	910	745	8088
08:15 AM - 09:15 AM	1118	640	727	682	1242	970	795	890	716	7780
08:30 AM - 09:30 AM	1039	604	665	629	1193	925	776	830	701	7362
08:45 AM - 09:45 AM	1020	596	642	606	1164	885	772	806	661	7152
09:00 AM - ########	1011	588	615	597	1154	832	781	752	608	6938
03:00 PM - 04:00 PM	1170	678	781	724	1320	952	887	859	715	8086
03:15 PM - 04:15 PM	1193	694	816	747	1341	974	902	870	736	8273
03:30 PM - 04:30 PM	1205	681	848	744	1311	956	881	893	726	8245
03:45 PM - 04:45 PM	1252	698	882	760	1325	967	883	895	737	8399
04:00 PM - 05:00 PM	1252	718	893	770	1296	995	853	941	750	8468
04:15 PM - 05:15 PM	1241	702	869	766	1290	995	844	959	752	8418
04:30 PM - 05:30 PM	1256	722	857	773	1316	1037	868	971	754	8554
04:45 PM - 05:45 PM	1239	708	835	765	1297	1011	881	951	734	8421
05:00 PM - 06:00 PM	1282	733	852	766	1291	991	884	939	750	8488
05:15 PM - 06:15 PM	1274	740	850	764	1258	976	884	916	734	8396
05:30 PM - 06:30 PM	1239	717	803	748	1218	941	869	887	732	8154
05:45 PM - 06:45 PM	1257	740	825	773	1240	959	866	896	748	8304
06:00 PM - 7:00 PM	1209	714	796	756	1250	945	897	861	722	8150

ATR			Total
06:00 AM	-	07:00 AM	3327
06:15 AM	-	07:15 AM	3572
06:30 AM	-	07:30 AM	3825
06:45 AM	-	07:45 AM	4096
07:00 AM	-	08:00 AM	4221
07:15 AM	-	08:15 AM	4399
07:30 AM	-	08:30 AM	4506
07:45 AM	-	08:45 AM	4523
08:00 AM	-	09:00 AM	4544
08:15 AM	-	09:15 AM	4394
08:30 AM	-	09:30 AM	4243
08:45 AM	-	09:45 AM	4118
09:00 AM	-	10:00 AM	4040
03:00 PM	-	04:00 PM	4566
03:15 PM	-	04:15 PM	4586
03:30 PM	-	04:30 PM	4587
03:45 PM	-	04:45 PM	4609
04:00 PM	-	05:00 PM	4651
04:15 PM	-	05:15 PM	4671
04:30 PM	-	05:30 PM	4759
04:45 PM	-	05:45 PM	4734
05:00 PM	-	06:00 PM	4780
05:15 PM	-	06:15 PM	4757
05:30 PM	-	06:30 PM	4642
05:45 PM	-	06:45 PM	4628
06:00 PM	-	7:00 PM	4551



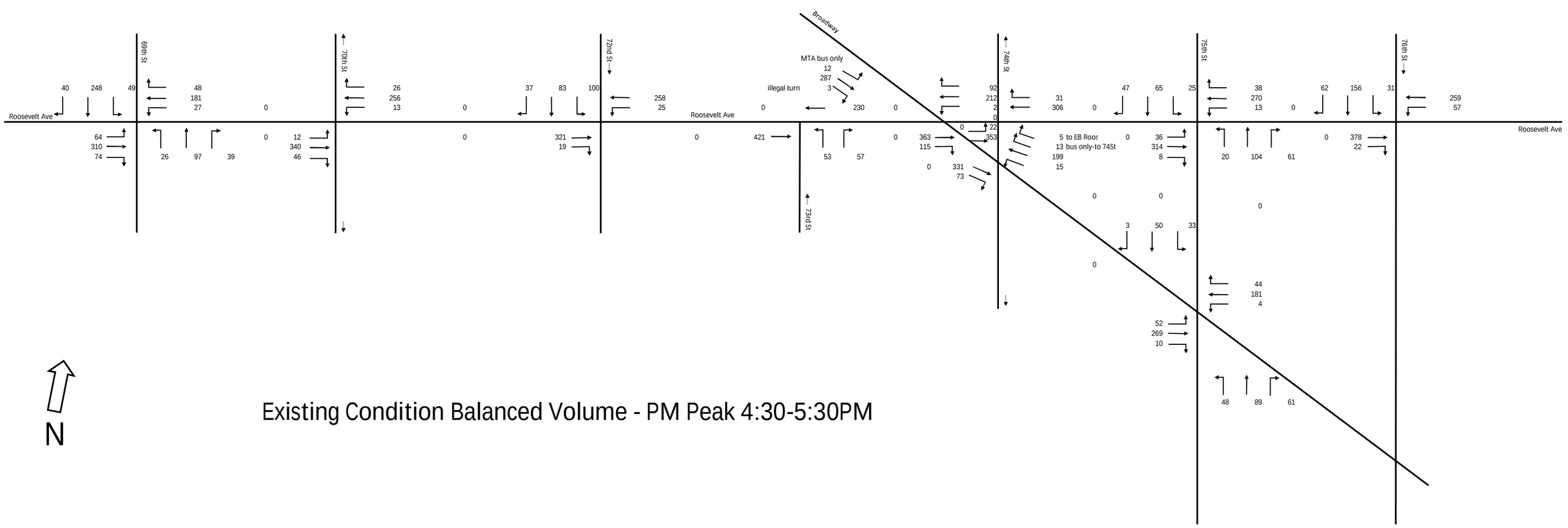


Attachment D: Existing Conditions Volume Diagrams



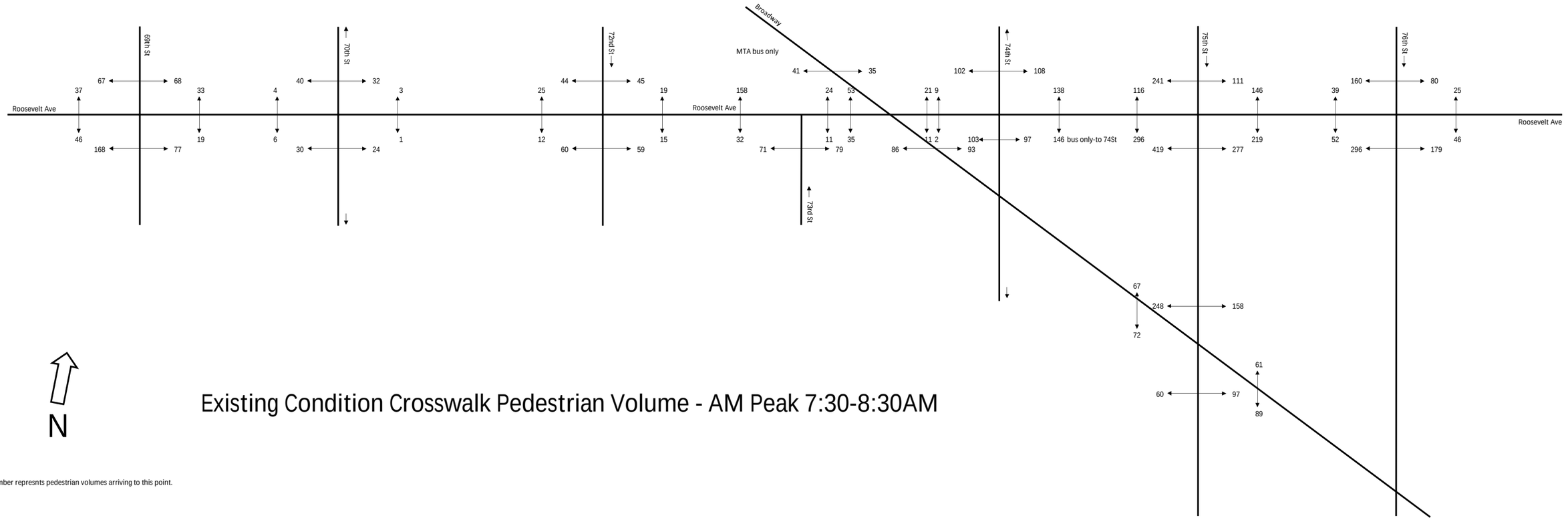
N

Existing Condition Balanced Volume - AM Peak 7:30-8:30AM



N

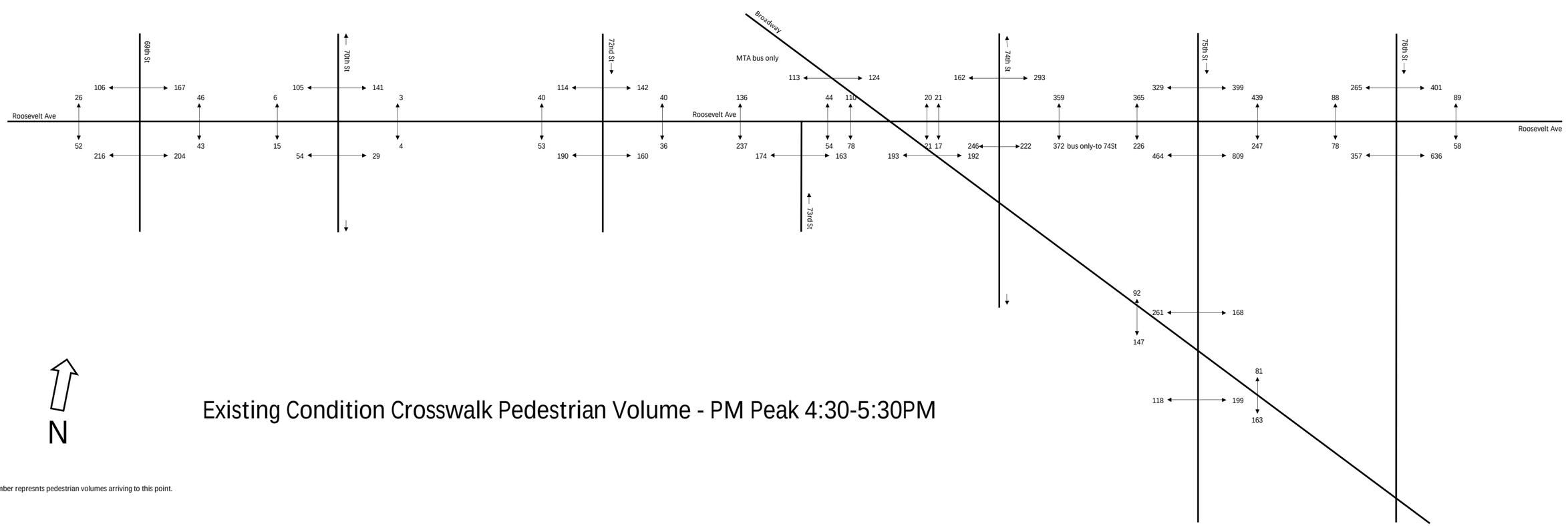
Existing Condition Balanced Volume - PM Peak 4:30-5:30PM



N

Existing Condition Crosswalk Pedestrian Volume - AM Peak 7:30-8:30AM

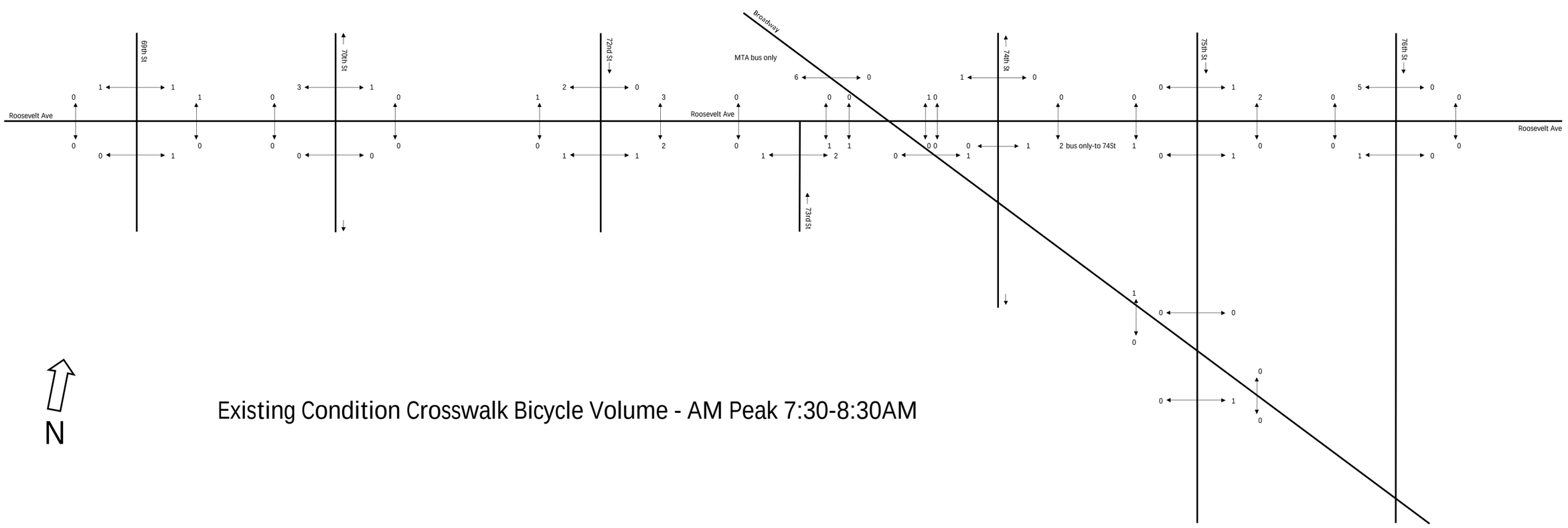
Notes:
The number represnts pedestrian volumes arriving to this point.



N

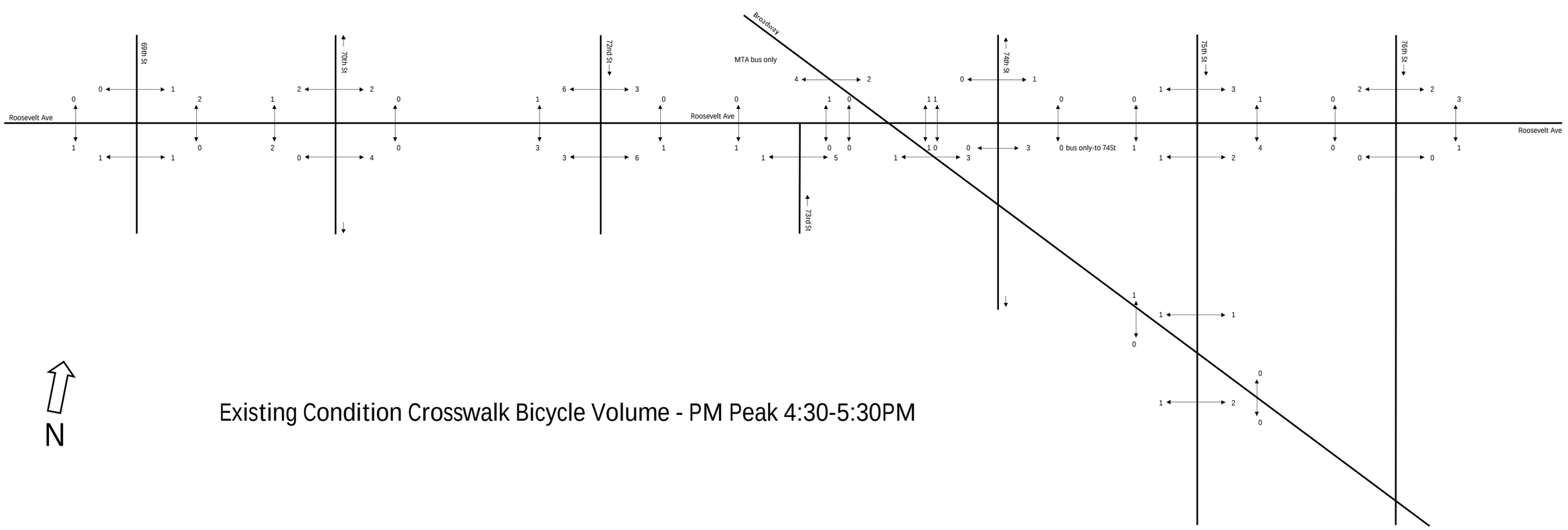
Existing Condition Crosswalk Pedestrian Volume - PM Peak 4:30-5:30PM

Notes:
The number represnts pedestrian volumes arriving to this point.



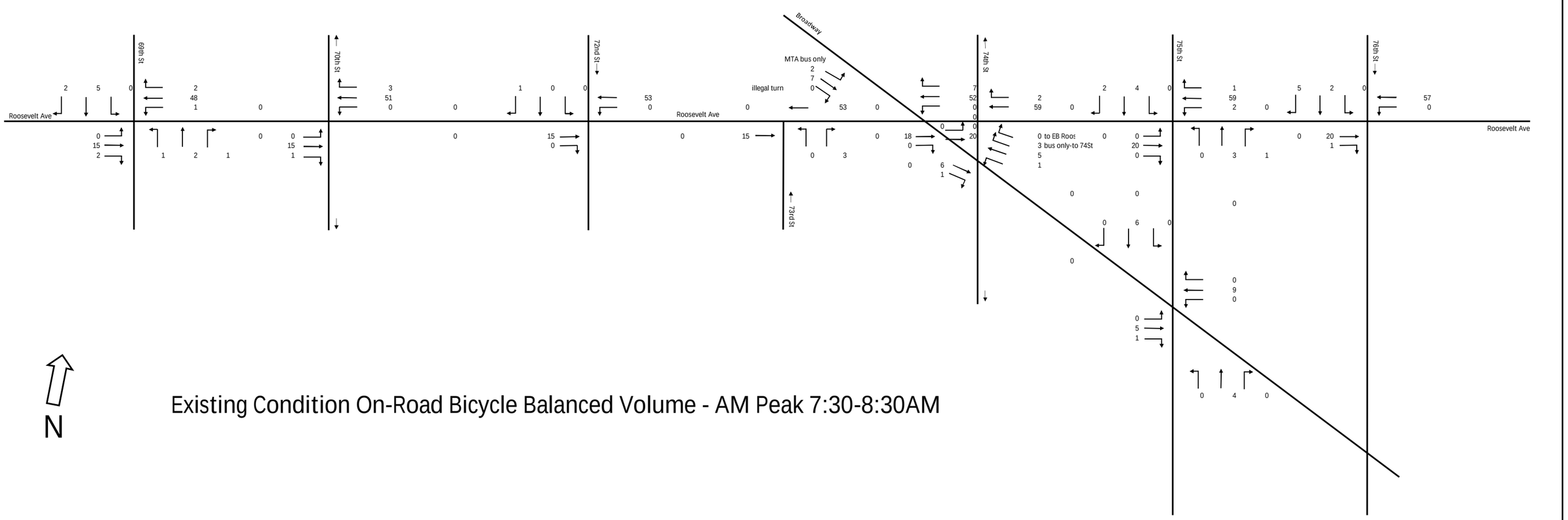
N

Existing Condition Crosswalk Bicycle Volume - AM Peak 7:30-8:30AM



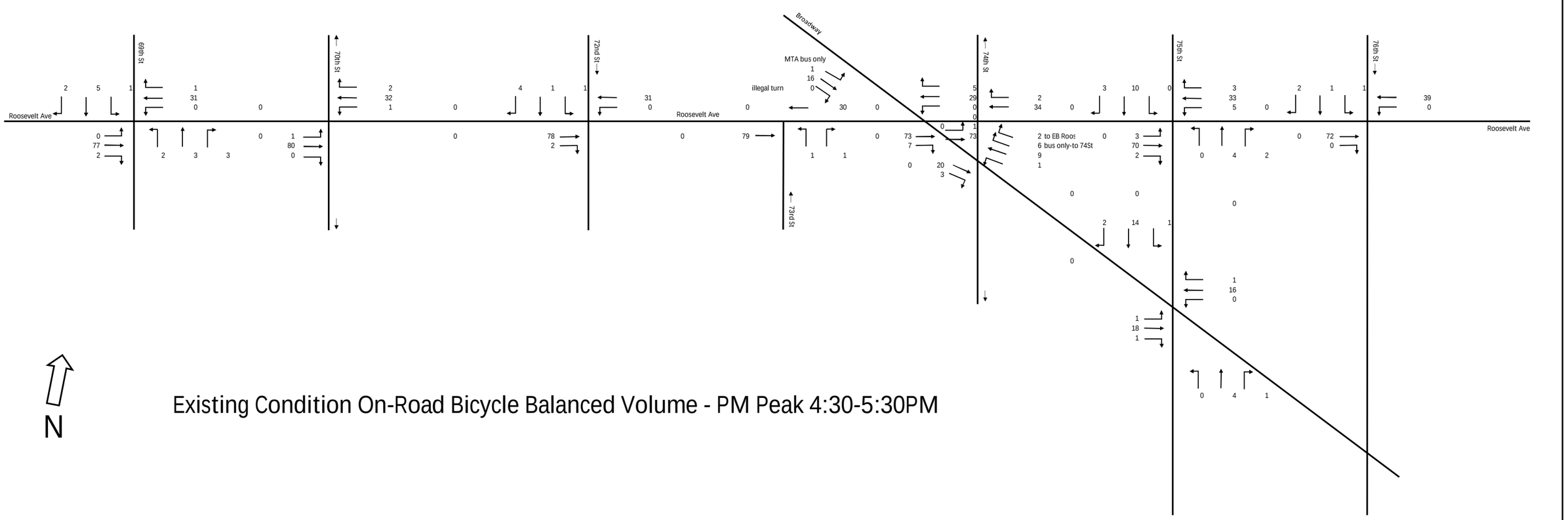
N

Existing Condition Crosswalk Bicycle Volume - PM Peak 4:30-5:30PM



N

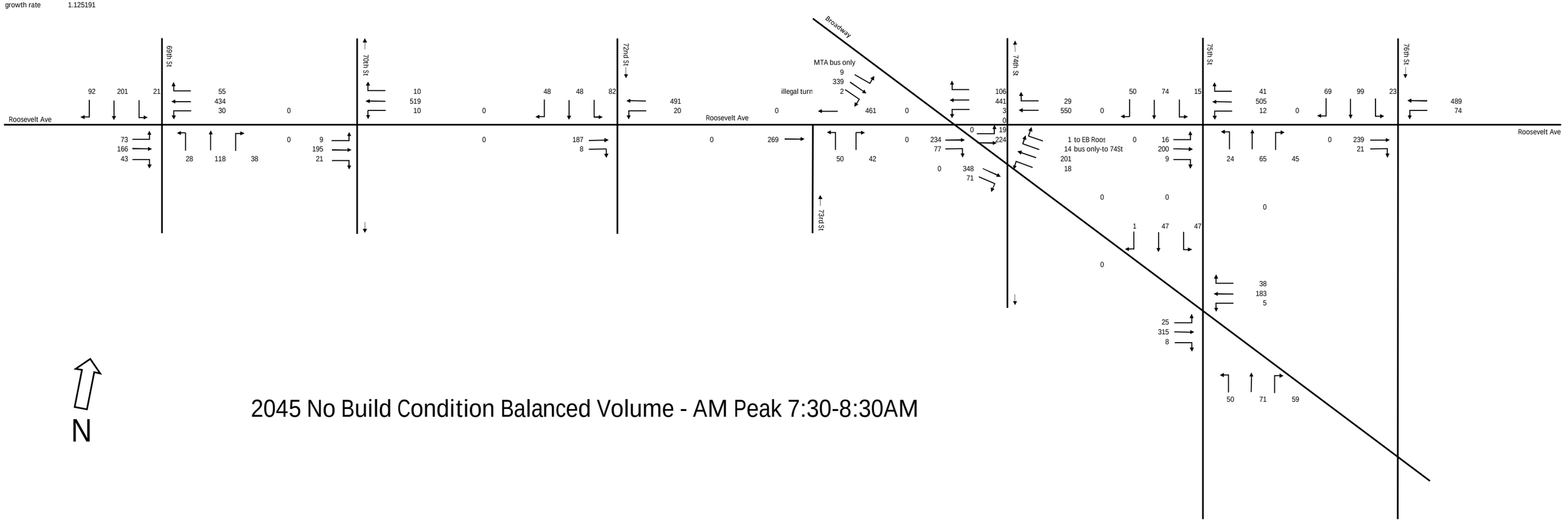
Existing Condition On-Road Bicycle Balanced Volume - AM Peak 7:30-8:30AM



N

Existing Condition On-Road Bicycle Balanced Volume - PM Peak 4:30-5:30PM

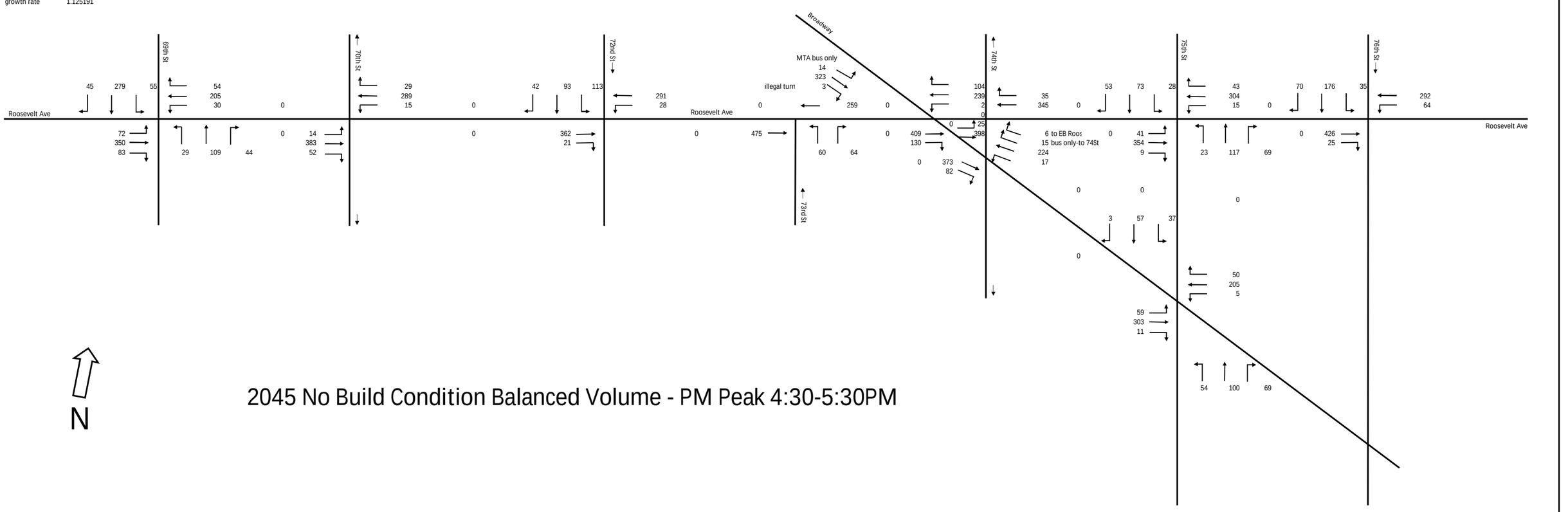
annual growth rate 0.514%
growth rate 1.125191



N

2045 No Build Condition Balanced Volume - AM Peak 7:30-8:30AM

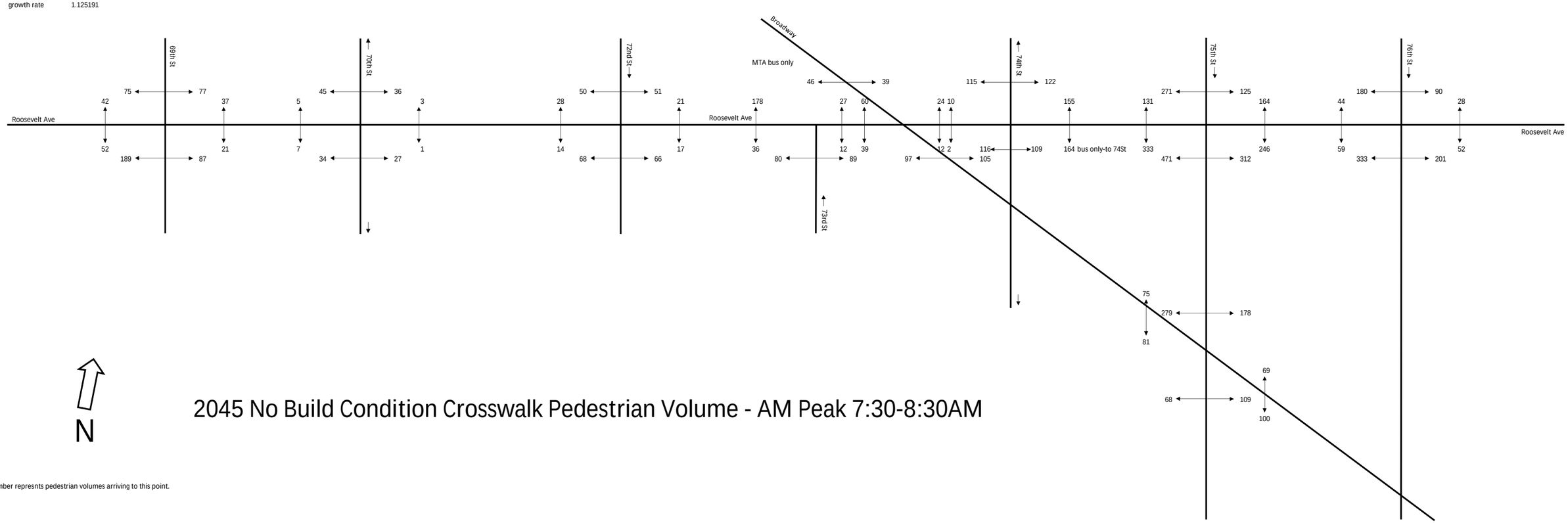
annual growth rate 0.514%
growth rate 1.125191



N

2045 No Build Condition Balanced Volume - PM Peak 4:30-5:30PM

annual growth rate 0.514%
growth rate 1.125191

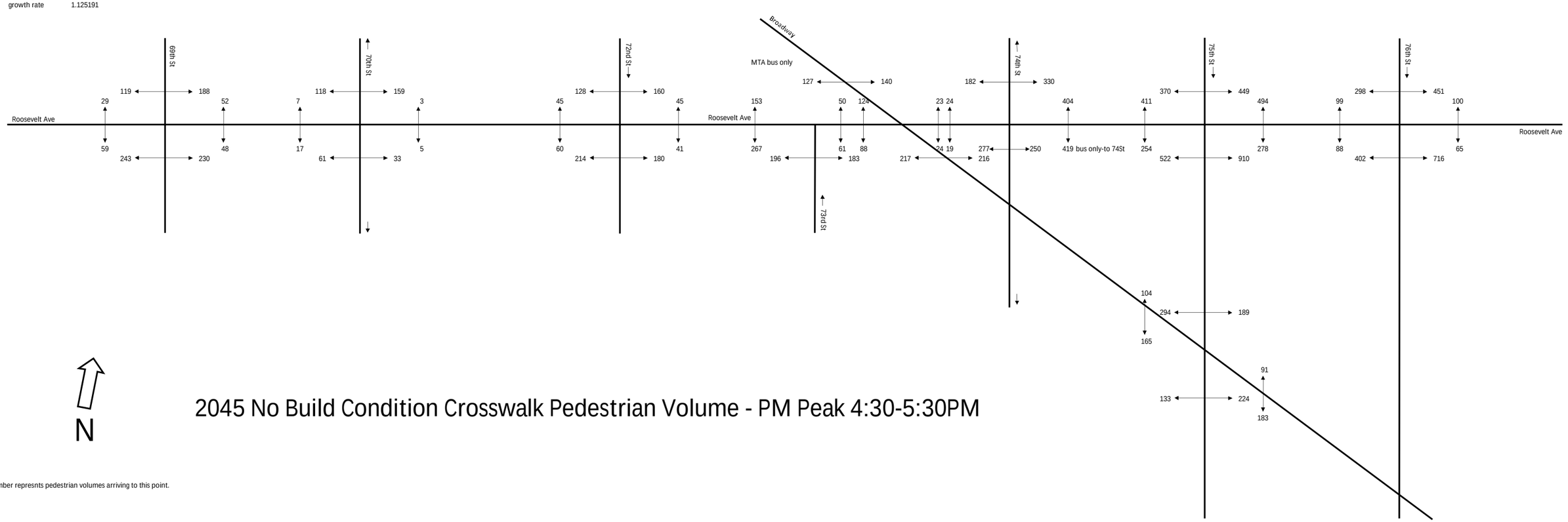


N

2045 No Build Condition Crosswalk Pedestrian Volume - AM Peak 7:30-8:30AM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual growth rate 0.514%
growth rate 1.125191

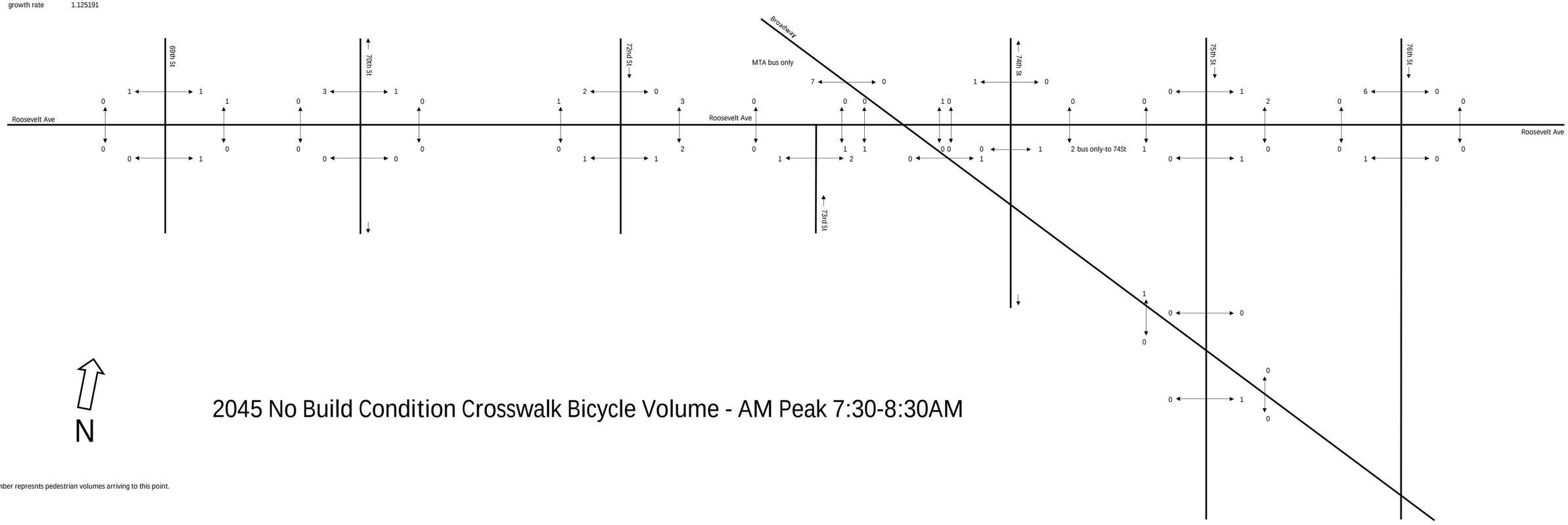


N

2045 No Build Condition Crosswalk Pedestrian Volume - PM Peak 4:30-5:30PM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual growth rate 0.514%
growth rate 1.125191

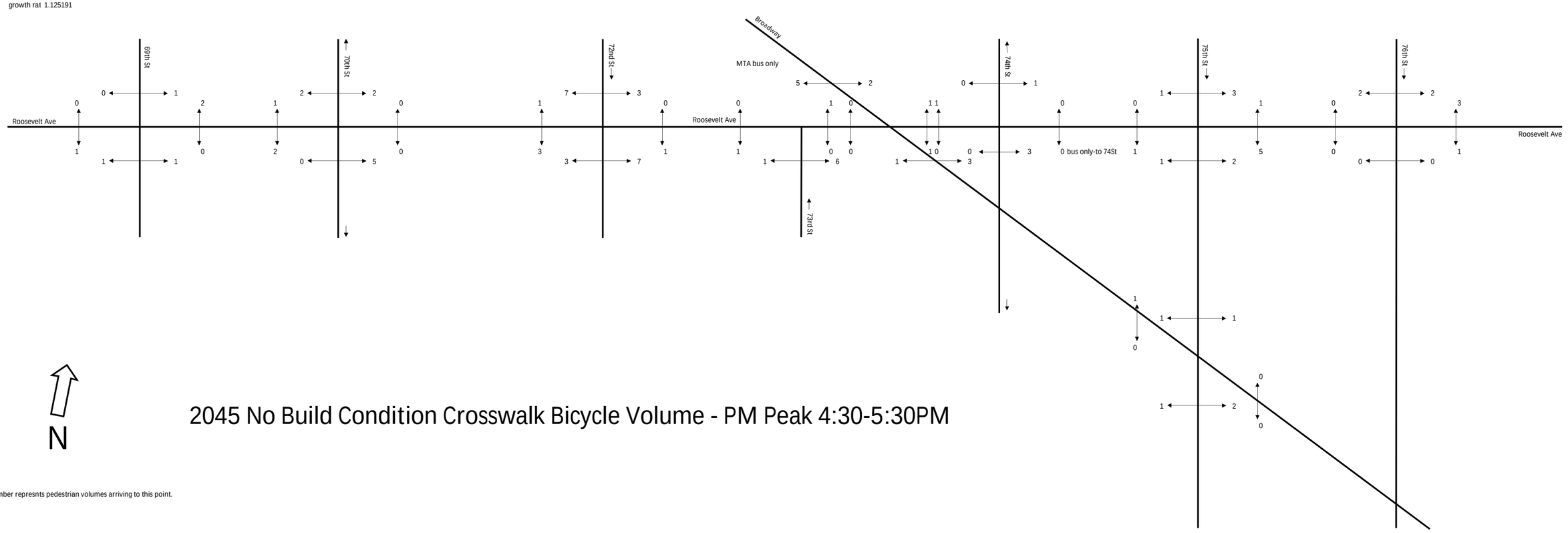


N

2045 No Build Condition Crosswalk Bicycle Volume - AM Peak 7:30-8:30AM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual grc 0.514%
growth rat 1.125191

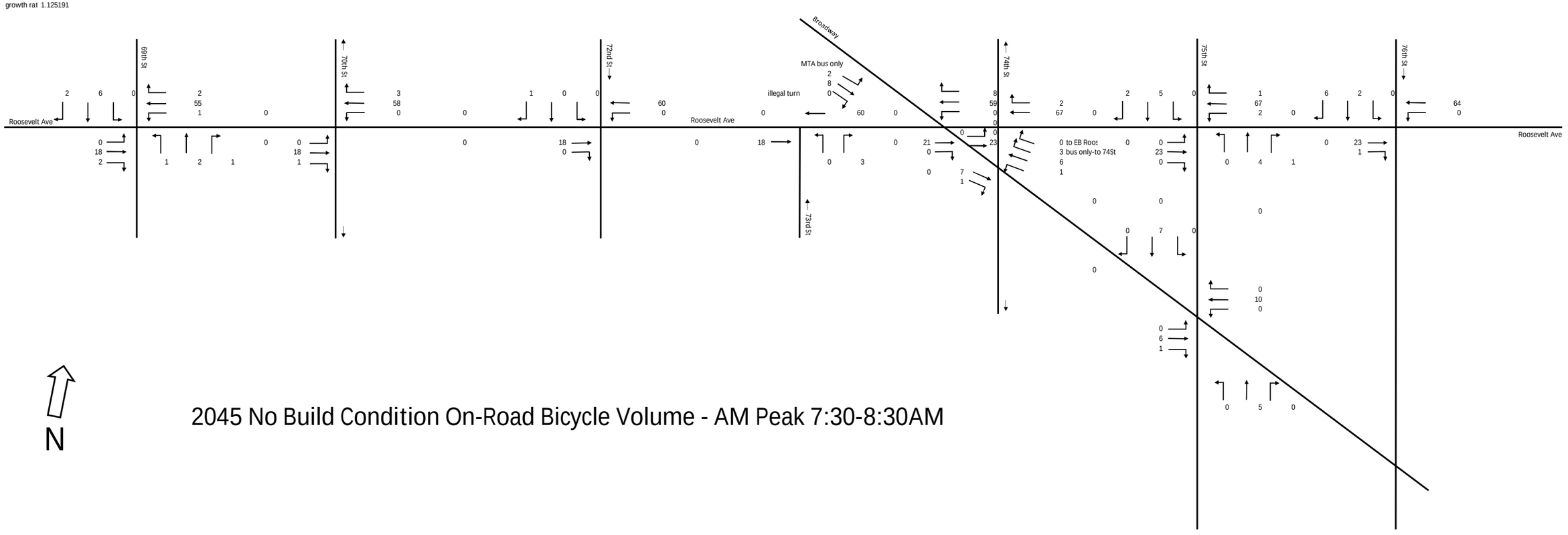


N

2045 No Build Condition Crosswalk Bicycle Volume - PM Peak 4:30-5:30PM

Notes:
The number represnts pedestrian volumes arriving to this point.

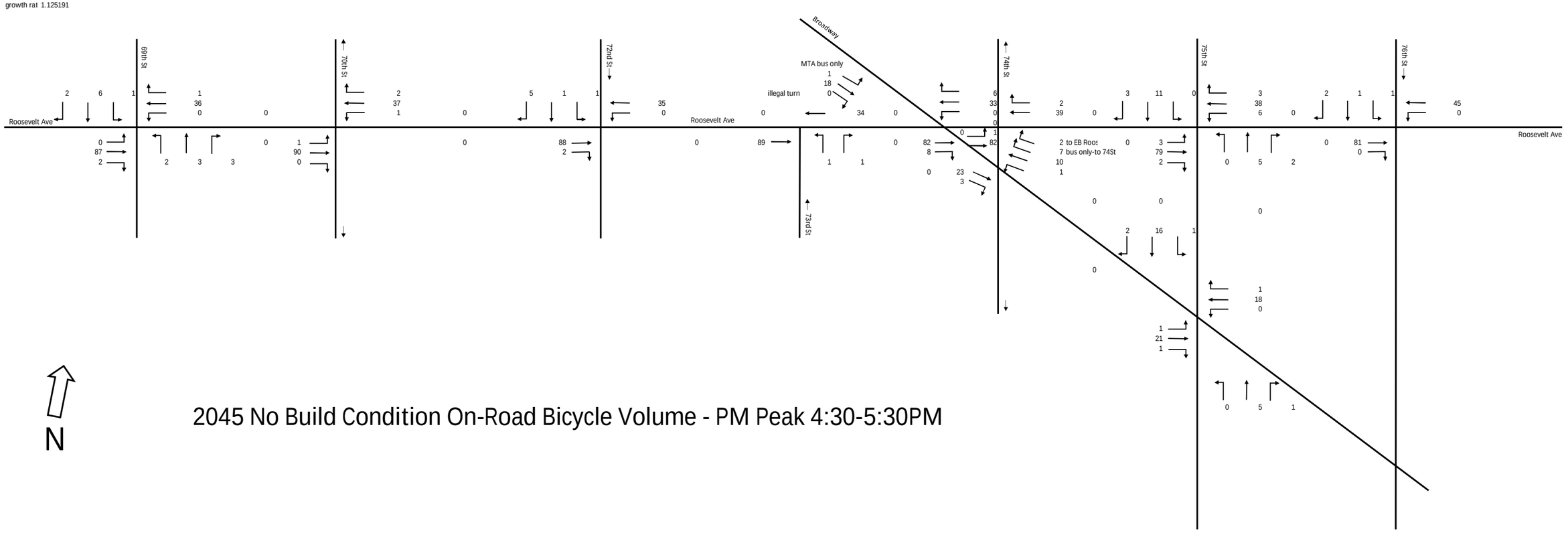
annual grc 0.514%
growth rat 1.125191



N

2045 No Build Condition On-Road Bicycle Volume - AM Peak 7:30-8:30AM

annual grc 0.514%
growth rat 1.125191



N

2045 No Build Condition On-Road Bicycle Volume - PM Peak 4:30-5:30PM

Attachment E: MTA Bus Schedules

Q32

Bus Timetable
New York City Transit

Jackson Heights - Penn Station via Roosevelt Av / Queens Blvd / Fifth Av / Madison Av

Local Service

Effective January 2, 2022

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511

We are introducing a new style to our timetables. These read better on mobile devices and print better on home printers. This is a work in progress — the design will evolve over the coming months. Soon, we'll also have an online timetable viewer with more ways to view timetables. Let us know your thoughts, questions, or suggestions about the new timetables at new.mta.info/timetables-feedback.

Q32 Weekday — To Jackson Heights, Queens

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
4:46	4:53	4:56	5:00	5:14	5:18	5:24
5:16	5:24	5:28	5:32	5:46	5:50	5:56
5:46	5:54	5:58	6:02	6:18	6:22	6:28
6:16	6:27	6:32	6:36	6:53	6:57	7:04
6:45	6:58	7:03	7:07	7:27	7:31	7:39
7:00	7:15	7:22	7:26	7:46	7:52	8:00
7:12	7:27	7:34	7:38	8:00	8:06	8:14
7:24	7:39	7:45	7:49	8:11	8:17	8:25
7:36	7:54	8:00	8:05	8:26	8:32	8:40
7:48	8:06	8:13	8:18	8:39	8:45	8:53
8:00	8:20	8:27	8:32	8:53	8:59	9:07
8:12	8:32	8:39	8:44	9:05	9:13	9:22
8:24	8:44	8:51	8:56	9:17	9:25	9:34
8:36	8:56	9:03	9:07	9:27	9:35	9:44
8:48	9:08	9:15	9:19	9:39	9:47	9:56
9:00	9:21	9:28	9:32	9:52	10:00	10:09
9:12	9:33	9:40	9:44	10:04	10:12	10:21
9:24	9:45	9:52	9:56	10:16	10:24	10:33
9:36	9:57	10:04	10:08	10:28	10:36	10:45
9:48	10:09	10:16	10:20	10:40	10:48	10:57
10:00	10:21	10:28	10:32	10:52	11:00	11:09
10:12	10:33	10:40	10:44	11:04	11:12	11:21
10:24	10:45	10:52	10:56	11:16	11:24	11:33
10:36	10:57	11:04	11:08	11:28	11:36	11:45
10:48	11:09	11:16	11:20	11:40	11:48	11:57
11:00	11:21	11:28	11:32	11:52	**12:00**	**12:11**
11:12	11:33	11:40	11:44	**12:04**	**12:12**	**12:23**
11:24	11:45	11:52	11:56	**12:16**	**12:24**	**12:35**
11:36	11:57	**12:04**	**12:08**	**12:28**	**12:36**	**12:47**
11:48	**12:09**	**12:17**	**12:21**	**12:41**	**12:49**	**1:00**
12:00	**12:21**	**12:29**	**12:33**	**12:53**	**1:01**	**1:12**
12:12	**12:33**	**12:41**	**12:45**	**1:05**	**1:13**	**1:24**
12:24	**12:45**	**12:53**	**12:57**	**1:17**	**1:25**	**1:36**
12:36	**12:57**	**1:05**	**1:09**	**1:29**	**1:37**	**1:48**

Bold times denote PM hours.

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
12:48	**1:09**	**1:17**	**1:21**	**1:41**	**1:49**	**2:00**
1:00	**1:21**	**1:29**	**1:33**	**1:53**	**2:01**	**2:13**
1:12	**1:33**	**1:41**	**1:45**	**2:05**	**2:13**	**2:25**
1:24	**1:45**	**1:53**	**1:57**	**2:17**	**2:25**	**2:37**
1:36	**1:57**	**2:05**	**2:09**	**2:30**	**2:38**	**2:50**
1:48	**2:09**	**2:18**	**2:22**	**2:43**	**2:51**	**3:03**
2:00	**2:20**	**2:29**	**2:33**	**2:54**	**3:02**	**3:14**
2:12	**2:32**	**2:41**	**2:45**	**3:06**	**3:14**	**3:26**
2:24	**2:44**	**2:53**	**2:57**	**3:18**	**3:26**	**3:38**
2:36	**2:56**	**3:05**	**3:10**	**3:33**	**3:41**	**3:53**
2:48	**3:08**	**3:16**	**3:21**	**3:44**	**3:52**	**4:04**
2:58	**3:18**	**3:26**	**3:31**	**3:54**	**4:02**	**4:14**
3:08	**3:29**	**3:37**	**3:42**	**4:05**	**4:15**	**4:27**
3:18	**3:39**	**3:47**	**3:52**	**4:15**	**4:25**	**4:37**
3:28	**3:49**	**3:57**	**4:02**	**4:24**	**4:34**	**4:46**
3:38	**3:59**	**4:07**	**4:14**	**4:36**	**4:46**	**4:58**
3:48	**4:09**	**4:17**	**4:24**	**4:46**	**4:56**	**5:08**
3:58	**4:19**	**4:27**	**4:34**	**4:56**	**5:06**	**5:18**
4:08	**4:29**	**4:37**	**4:44**	**5:06**	**5:16**	**5:28**
4:18	**4:39**	**4:47**	**4:54**	**5:16**	**5:26**	**5:38**
4:28	**4:49**	**4:57**	**5:04**	**5:26**	**5:36**	**5:48**
4:38	**4:59**	**5:07**	**5:14**	**5:36**	**5:46**	**5:58**
4:48	**5:09**	**5:17**	**5:24**	**5:46**	**5:56**	**6:08**
4:58	**5:19**	**5:27**	**5:34**	**5:56**	**6:06**	**6:17**
5:08	**5:29**	**5:37**	**5:44**	**6:06**	**6:15**	**6:26**
5:18	**5:39**	**5:47**	**5:54**	**6:16**	**6:25**	**6:36**
5:28	**5:49**	**5:57**	**6:04**	**6:22**	**6:31**	**6:42**
5:37	**5:58**	**6:06**	**6:10**	**6:28**	**6:37**	**6:48**
5:46	**6:07**	**6:13**	**6:17**	**6:35**	**6:44**	**6:55**
5:55	**6:16**	**6:22**	**6:26**	**6:44**	**6:53**	**7:04**
6:04	**6:23**	**6:29**	**6:33**	**6:51**	**7:00**	**7:10**
6:12	**6:31**	**6:37**	**6:41**	**6:59**	**7:08**	**7:18**
6:20	**6:39**	**6:45**	**6:49**	**7:07**	**7:13**	**7:23**
6:28	**6:47**	**6:53**	**6:57**	**7:15**	**7:21**	**7:31**
6:36	**6:55**	**7:01**	**7:05**	**7:23**	**7:29**	**7:39**
6:45	**7:04**	**7:10**	**7:14**	**7:32**	**7:38**	**7:48**
6:54	**7:13**	**7:19**	**7:23**	**7:41**	**7:47**	**7:57**
7:03	**7:19**	**7:25**	**7:29**	**7:47**	**7:53**	**8:03**
7:12	**7:28**	**7:34**	**7:38**	**7:56**	**8:02**	**8:12**
7:21	**7:37**	**7:43**	**7:47**	**8:05**	**8:11**	**8:21**
7:30	**7:46**	**7:52**	**7:56**	**8:14**	**8:20**	**8:30**
7:40	**7:56**	**8:02**	**8:06**	**8:24**	**8:30**	**8:39**
7:50	**8:06**	**8:12**	**8:16**	**8:34**	**8:39**	**8:48**
8:00	**8:16**	**8:22**	**8:26**	**8:44**	**8:49**	**8:58**
8:10	**8:26**	**8:32**	**8:36**	**8:53**	**8:58**	**9:07**
8:20	**8:36**	**8:42**	**8:46**	**9:03**	**9:08**	**9:17**
8:30	**8:45**	**8:51**	**8:55**	**9:12**	**9:17**	**9:26**
8:40	**8:55**	**9:01**	**9:05**	**9:22**	**9:27**	**9:36**
8:50	**9:05**	**9:11**	**9:15**	**9:32**	**9:37**	**9:46**

Bold times denote PM hours.

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
9:00	**9:15**	**9:21**	**9:25**	**9:42**	**9:47**	**9:56**
9:10	**9:25**	**9:31**	**9:35**	**9:52**	**9:57**	**10:06**
9:20	**9:35**	**9:41**	**9:45**	**10:02**	**10:07**	**10:15**
9:35	**9:50**	**9:56**	**10:00**	**10:16**	**10:21**	**10:29**
9:50	**10:05**	**10:10**	**10:14**	**10:30**	**10:35**	**10:43**
10:05	**10:20**	**10:25**	**10:29**	**10:45**	**10:50**	**10:58**
10:20	**10:35**	**10:40**	**10:44**	**11:00**	**11:05**	**11:13**
10:40	**10:55**	**11:00**	**11:04**	**11:20**	**11:25**	**11:33**
11:00	**11:15**	**11:20**	**11:24**	**11:40**	**11:45**	**11:53**
11:20	**11:35**	**11:40**	**11:44**	12:00	12:04	12:12
11:40	**11:55**	12:00	12:04	12:19	12:23	12:31
12:00	12:12	12:16	12:20	12:35	12:39	12:47
12:20	12:32	12:36	12:40	12:55	12:59	1:07
12:40	12:52	12:56	1:00	1:15	1:19	1:27
1:00	1:12	1:16	1:20	1:35	1:39	1:47

Bold times denote PM hours.

Q32 Weekday				To Penn Station, Manhattan
Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
5:38	5:45	5:48	6:14	6:32
5:50	5:57	6:00	6:26	6:44
6:02	6:09	6:12	6:38	6:56
6:12	6:19	6:22	6:48	7:06
6:21	6:28	6:31	6:41	6:59
6:30	6:39	6:43	6:53	7:11
6:39	6:48	6:52	7:02	7:22
6:47	6:56	7:00	7:31	7:55
6:56	7:05	7:10	7:43	8:07
7:06	7:17	7:22	7:55	8:19
7:16	7:27	7:32	8:08	8:32
7:26	7:37	7:41	8:17	8:41
7:36	7:49	7:53	8:29	8:53
7:46	7:59	8:03	8:39	9:07
7:56	8:09	8:13	8:52	9:20
8:06	8:19	8:23	9:02	9:30
8:16	8:29	8:33	9:14	9:42
8:26	8:39	8:43	9:24	9:52
8:36	8:47	8:51	9:32	10:01
8:48	8:59	9:03	9:44	10:13
9:00	9:11	9:15	9:56	10:25
9:12	9:23	9:27	10:08	10:37
9:24	9:35	9:40	10:23	10:52
9:36	9:48	9:53	10:36	11:09
9:48	10:00	10:05	10:43	11:16
10:00	10:12	10:17	10:55	11:28
10:12	10:24	10:29	11:07	11:40
10:24	10:36	10:41	11:15	11:48
10:36	10:49	10:54	11:28	**12:01**
10:48	11:01	11:06	11:40	**12:13**
11:00	11:13	11:18	11:52	**12:25**
11:12	11:25	11:30	**12:04**	**12:37**
11:24	11:37	11:42	**12:16**	**12:49**
11:36	11:49	11:54	**12:28**	**1:01**
11:48	**12:01**	**12:06**	**12:40**	**1:13**
12:00	**12:13**	**12:18**	**12:52**	**1:25**
12:12	**12:25**	**12:30**	**1:04**	**1:37**
12:24	**12:37**	**12:42**	**1:16**	**1:49**
12:36	**12:49**	**12:54**	**1:28**	**2:01**
12:48	**1:01**	**1:06**	**1:40**	**2:13**
1:00	**1:13**	**1:18**	**1:52**	**2:25**
1:12	**1:25**	**1:30**	**2:04**	**2:37**
1:24	**1:37**	**1:42**	**2:16**	**2:49**
1:36	**1:49**	**1:54**	**2:28**	**3:01**
1:48	**2:01**	**2:06**	**2:40**	**3:09**
1:58	**2:11**	**2:16**	**2:50**	**3:19**
2:08	**2:21**	**2:26**	**3:00**	**3:29**
2:18	**2:31**	**2:36**	**3:11**	**3:40**

Bold times denote PM hours.

Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
2:28	**2:41**	**2:46**	**3:21**	**3:50**
2:38	**2:52**	**2:57**	**3:32**	**4:01**
2:48	**3:02**	**3:07**	**3:42**	**4:11**
2:58	**3:12**	**3:17**	**3:52**	**4:21**
3:08	**3:22**	**3:27**	**4:02**	**4:31**
3:18	**3:32**	**3:37**	**4:12**	**4:41**
3:26	**3:40**	**3:45**	**4:20**	**4:49**
3:34	**3:48**	**3:53**	**4:28**	**4:57**
3:42	**3:56**	**4:01**	**4:36**	**5:08**
3:50	**4:04**	**4:09**	**4:45**	**5:17**
3:58	**4:12**	**4:17**	**4:53**	**5:25**
4:06	**4:20**	**4:25**	**5:01**	**5:33**
4:14	**4:28**	**4:33**	**5:12**	**5:44**
4:22	**4:36**	**4:41**	**5:20**	**5:52**
4:30	**4:43**	**4:48**	**5:27**	**5:59**
4:38	**4:51**	**4:56**	**5:35**	**6:07**
4:48	**5:01**	**5:06**	**5:45**	**6:17**
4:58	**5:11**	**5:16**	**5:55**	**6:27**
5:08	**5:21**	**5:26**	**6:05**	**6:39**
5:18	**5:31**	**5:36**	**6:14**	**6:48**
5:28	**5:41**	**5:46**	**6:24**	**6:58**
5:38	**5:51**	**5:56**	**6:34**	**7:02**
5:48	**6:01**	**6:06**	**6:40**	**7:08**
5:58	**6:11**	**6:16**	**6:50**	**7:18**
6:10	**6:23**	**6:28**	**7:02**	**7:30**
6:22	**6:35**	**6:40**	**7:10**	**7:38**
6:34	**6:46**	**6:51**	**7:21**	**7:49**
6:46	**6:58**	**7:03**	**7:33**	**7:57**
6:58	**7:10**	**7:15**	**7:43**	**8:07**
7:10	**7:22**	**7:27**	**7:55**	**8:19**
7:25	**7:37**	**7:41**	**8:06**	**8:28**
7:40	**7:51**	**7:55**	**8:20**	**8:42**
7:55	**8:06**	**8:10**	**8:33**	**8:55**
8:10	**8:20**	**8:24**	**8:47**	**9:09**
8:25	**8:35**	**8:39**	**9:02**	**9:21**
8:40	**8:50**	**8:54**	**9:17**	**9:36**
8:55	**9:05**	**9:09**	**9:31**	**9:50**
9:15	**9:23**	**9:27**	**9:49**	**10:08**
9:35	**9:43**	**9:47**	**10:09**	**10:28**
9:55	**10:03**	**10:07**	**10:29**	**10:48**
10:15	**10:23**	**10:27**	**10:50**	**11:08**
10:35	**10:41**	**10:44**	**11:05**	**11:23**
10:55	**11:01**	**11:04**	**11:25**	**11:43**
11:15	**11:21**	**11:24**	**11:44**	12:00
11:35	**11:41**	**11:44**	12:03	12:18
11:55	12:01	12:05	12:24	12:39
12:15	12:21	12:25	12:44	12:59
12:35	12:41	12:45	1:04	1:19
12:55	1:01	1:05	1:24	1:39
1:25	1:31	1:35	1:54	2:09

Bold times denote PM hours.

Q32 Saturday — To Jackson Heights, Queens

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
5:25	5:36	5:40	5:44	6:00	6:04	6:11
5:55	6:07	6:11	6:15	6:31	6:35	6:42
6:25	6:37	6:41	6:45	7:01	7:05	7:12
6:55	7:07	7:11	7:15	7:31	7:36	7:43
7:15	7:27	7:31	7:35	7:52	7:57	8:04
7:35	7:48	7:52	7:56	8:13	8:18	8:25
7:50	8:03	8:07	8:11	8:28	8:33	8:40
8:05	8:18	8:22	8:26	8:43	8:48	8:55
8:20	8:33	8:37	8:41	8:58	9:03	9:10
8:35	8:48	8:52	8:56	9:13	9:18	9:25
8:50	9:03	9:07	9:11	9:28	9:33	9:42
9:05	9:18	9:22	9:26	9:43	9:49	9:58
9:20	9:33	9:38	9:42	10:01	10:07	10:16
9:35	9:51	9:56	10:00	10:19	10:25	10:34
9:50	10:06	10:11	10:15	10:34	10:40	10:49
10:05	10:21	10:26	10:30	10:49	10:55	11:04
10:17	10:33	10:38	10:42	11:01	11:07	11:19
10:29	10:45	10:50	10:54	11:13	11:19	11:31
10:41	10:57	11:02	11:06	11:25	11:31	11:43
10:53	11:09	11:14	11:18	11:37	11:44	11:56
11:05	11:21	11:26	11:30	11:50	11:57	**12:09**
11:17	11:33	11:39	11:44	**12:04**	**12:11**	**12:23**
11:29	11:45	11:51	11:56	**12:16**	**12:23**	**12:35**
11:41	11:59	**12:05**	**12:10**	**12:30**	**12:37**	**12:49**
11:53	**12:11**	**12:17**	**12:22**	**12:42**	**12:49**	**1:01**
12:05	**12:23**	**12:29**	**12:34**	**12:54**	**1:01**	**1:13**
12:17	**12:35**	**12:41**	**12:46**	**1:06**	**1:13**	**1:25**
12:29	**12:47**	**12:53**	**12:58**	**1:18**	**1:25**	**1:37**
12:41	**12:59**	**1:05**	**1:10**	**1:30**	**1:37**	**1:49**
12:53	**1:11**	**1:17**	**1:22**	**1:42**	**1:49**	**2:01**
1:05	**1:23**	**1:29**	**1:34**	**1:54**	**2:01**	**2:13**
1:17	**1:35**	**1:41**	**1:46**	**2:06**	**2:13**	**2:25**
1:29	**1:47**	**1:53**	**1:58**	**2:18**	**2:25**	**2:37**
1:41	**1:59**	**2:05**	**2:10**	**2:30**	**2:37**	**2:49**
1:53	**2:11**	**2:17**	**2:22**	**2:42**	**2:49**	**3:01**
2:05	**2:23**	**2:29**	**2:34**	**2:54**	**3:01**	**3:15**
2:15	**2:33**	**2:39**	**2:44**	**3:04**	**3:12**	**3:26**
2:25	**2:43**	**2:49**	**2:54**	**3:14**	**3:22**	**3:36**
2:35	**2:53**	**2:59**	**3:04**	**3:24**	**3:32**	**3:46**
2:45	**3:03**	**3:10**	**3:18**	**3:38**	**3:46**	**4:00**
2:55	**3:13**	**3:20**	**3:28**	**3:48**	**3:56**	**4:10**
3:05	**3:23**	**3:30**	**3:38**	**3:58**	**4:06**	**4:20**
3:15	**3:33**	**3:40**	**3:48**	**4:08**	**4:16**	**4:30**
3:25	**3:43**	**3:50**	**3:58**	**4:18**	**4:26**	**4:40**
3:35	**3:53**	**4:00**	**4:08**	**4:28**	**4:36**	**4:48**
3:45	**4:03**	**4:10**	**4:18**	**4:38**	**4:47**	**4:59**
3:55	**4:13**	**4:20**	**4:28**	**4:48**	**4:57**	**5:09**
4:05	**4:23**	**4:30**	**4:41**	**5:00**	**5:09**	**5:21**

Bold times denote PM hours.

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
4:15	**4:33**	**4:43**	**4:54**	**5:13**	**5:22**	**5:34**
4:25	**4:43**	**4:53**	**5:04**	**5:23**	**5:32**	**5:44**
4:35	**4:53**	**5:03**	**5:14**	**5:33**	**5:40**	**5:52**
4:45	**5:03**	**5:13**	**5:24**	**5:43**	**5:50**	**6:02**
4:55	**5:13**	**5:23**	**5:34**	**5:53**	**6:00**	**6:12**
5:05	**5:23**	**5:33**	**5:41**	**6:00**	**6:07**	**6:19**
5:15	**5:33**	**5:39**	**5:47**	**6:06**	**6:13**	**6:25**
5:25	**5:43**	**5:49**	**5:57**	**6:16**	**6:23**	**6:35**
5:35	**5:52**	**5:58**	**6:06**	**6:25**	**6:32**	**6:43**
5:45	**6:02**	**6:08**	**6:16**	**6:35**	**6:42**	**6:53**
5:55	**6:12**	**6:18**	**6:26**	**6:45**	**6:52**	**7:03**
6:05	**6:22**	**6:28**	**6:36**	**6:53**	**7:00**	**7:11**
6:15	**6:32**	**6:37**	**6:42**	**6:59**	**7:06**	**7:17**
6:25	**6:42**	**6:47**	**6:52**	**7:09**	**7:16**	**7:27**
6:35	**6:52**	**6:57**	**7:02**	**7:19**	**7:26**	**7:37**
6:45	**7:02**	**7:07**	**7:12**	**7:29**	**7:36**	**7:46**
6:55	**7:12**	**7:17**	**7:22**	**7:39**	**7:45**	**7:55**
7:05	**7:22**	**7:27**	**7:32**	**7:50**	**7:56**	**8:06**
7:15	**7:32**	**7:37**	**7:41**	**7:59**	**8:05**	**8:15**
7:25	**7:42**	**7:47**	**7:51**	**8:09**	**8:15**	**8:25**
7:35	**7:52**	**7:57**	**8:01**	**8:19**	**8:25**	**8:35**
7:45	**8:02**	**8:07**	**8:11**	**8:29**	**8:35**	**8:44**
7:55	**8:12**	**8:17**	**8:21**	**8:39**	**8:44**	**8:53**
8:05	**8:22**	**8:27**	**8:31**	**8:48**	**8:53**	**9:02**
8:15	**8:32**	**8:38**	**8:42**	**8:59**	**9:04**	**9:13**
8:25	**8:42**	**8:48**	**8:52**	**9:09**	**9:14**	**9:23**
8:40	**8:56**	**9:02**	**9:06**	**9:22**	**9:27**	**9:36**
8:55	**9:11**	**9:17**	**9:21**	**9:37**	**9:42**	**9:51**
9:10	**9:24**	**9:30**	**9:34**	**9:50**	**9:55**	**10:04**
9:25	**9:39**	**9:45**	**9:49**	**10:05**	**10:10**	**10:19**
9:40	**9:54**	**10:00**	**10:04**	**10:20**	**10:25**	**10:34**
9:55	**10:09**	**10:15**	**10:19**	**10:35**	**10:40**	**10:49**
10:10	**10:24**	**10:30**	**10:34**	**10:50**	**10:55**	**11:04**
10:25	**10:39**	**10:45**	**10:49**	**11:05**	**11:10**	**11:19**
10:40	**10:54**	**11:00**	**11:04**	**11:20**	**11:25**	**11:34**
10:55	**11:09**	**11:15**	**11:19**	**11:35**	**11:40**	**11:49**
11:10	**11:24**	**11:30**	**11:34**	**11:50**	**11:55**	12:04
11:25	**11:39**	**11:45**	**11:49**	12:05	12:11	12:18
11:40	**11:54**	12:00	12:05	12:20	12:26	12:33
12:00	12:11	12:16	12:21	12:36	12:42	12:49
12:20	12:31	12:36	12:41	12:56	1:02	1:09
12:40	12:51	12:56	1:01	1:16	1:22	1:29
1:00	1:11	1:16	1:21	1:36	1:42	1:49

Bold times denote PM hours.

Q32 Saturday				To Penn Station, Manhattan
Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
6:00	6:07	6:12	6:31	6:45
6:30	6:38	6:43	7:06	7:20
6:48	6:56	7:01	7:24	7:38
7:03	7:11	7:16	7:39	7:53
7:18	7:26	7:31	7:54	8:08
7:32	7:40	7:45	8:08	8:26
7:44	7:52	7:57	8:20	8:38
7:56	8:04	8:08	8:35	8:53
8:08	8:17	8:21	8:48	9:06
8:20	8:29	8:33	9:00	9:18
8:32	8:41	8:45	9:12	9:30
8:44	8:53	8:57	9:24	9:42
8:56	9:05	9:09	9:36	9:54
9:08	9:17	9:21	9:48	10:06
9:20	9:29	9:33	10:00	10:22
9:32	9:41	9:45	10:12	10:34
9:44	9:53	9:57	10:24	10:46
9:56	10:05	10:09	10:35	10:59
10:08	10:18	10:22	10:48	11:12
10:20	10:30	10:34	11:00	11:24
10:32	10:44	10:48	11:14	11:38
10:44	10:56	11:00	11:26	11:50
10:56	11:08	11:12	11:37	**12:04**
11:08	11:20	11:24	11:49	**12:16**
11:20	11:32	11:37	**12:03**	**12:30**
11:30	11:45	11:50	**12:16**	**12:43**
11:40	11:55	**12:00**	**12:26**	**12:53**
11:50	**12:05**	**12:10**	**12:36**	**1:03**
12:00	**12:15**	**12:20**	**12:46**	**1:13**
12:10	**12:25**	**12:30**	**12:56**	**1:23**
12:20	**12:35**	**12:40**	**1:06**	**1:33**
12:30	**12:45**	**12:50**	**1:16**	**1:43**
12:40	**12:55**	**1:00**	**1:26**	**1:53**
12:50	**1:05**	**1:10**	**1:38**	**2:05**
1:00	**1:15**	**1:20**	**1:48**	**2:15**
1:10	**1:25**	**1:30**	**1:58**	**2:25**
1:20	**1:35**	**1:41**	**2:09**	**2:36**
1:30	**1:46**	**1:52**	**2:20**	**2:47**
1:40	**1:56**	**2:02**	**2:30**	**2:57**
1:50	**2:06**	**2:12**	**2:40**	**3:07**
2:00	**2:16**	**2:22**	**2:50**	**3:17**
2:10	**2:26**	**2:32**	**3:00**	**3:27**
2:20	**2:36**	**2:42**	**3:10**	**3:37**
2:30	**2:46**	**2:52**	**3:20**	**3:47**
2:40	**2:56**	**3:02**	**3:30**	**3:57**
2:50	**3:06**	**3:12**	**3:40**	**4:07**
3:00	**3:16**	**3:22**	**3:50**	**4:17**
3:10	**3:26**	**3:32**	**4:00**	**4:27**

Bold times denote PM hours.

Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
3:20	**3:36**	**3:42**	**4:10**	**4:37**
3:30	**3:46**	**3:52**	**4:20**	**4:47**
3:40	**3:56**	**4:02**	**4:30**	**4:57**
3:50	**4:06**	**4:12**	**4:40**	**5:07**
4:00	**4:16**	**4:22**	**4:50**	**5:17**
4:10	**4:26**	**4:32**	**5:00**	**5:27**
4:20	**4:36**	**4:42**	**5:10**	**5:37**
4:30	**4:46**	**4:52**	**5:20**	**5:47**
4:40	**4:56**	**5:02**	**5:30**	**5:57**
4:50	**5:06**	**5:12**	**5:40**	**6:07**
5:01	**5:17**	**5:23**	**5:51**	**6:18**
5:13	**5:29**	**5:35**	**6:03**	**6:27**
5:25	**5:41**	**5:47**	**6:16**	**6:40**
5:37	**5:53**	**5:59**	**6:28**	**6:52**
5:49	**6:05**	**6:10**	**6:38**	**7:03**
6:01	**6:14**	**6:19**	**6:47**	**7:12**
6:13	**6:26**	**6:31**	**6:55**	**7:20**
6:25	**6:38**	**6:43**	**7:07**	**7:32**
6:37	**6:50**	**6:55**	**7:19**	**7:44**
6:49	**7:02**	**7:07**	**7:31**	**7:54**
7:01	**7:14**	**7:19**	**7:41**	**8:04**
7:13	**7:26**	**7:31**	**7:54**	**8:17**
7:28	**7:41**	**7:46**	**8:09**	**8:32**
7:43	**7:55**	**8:00**	**8:23**	**8:46**
7:58	**8:10**	**8:15**	**8:38**	**8:57**
8:13	**8:25**	**8:30**	**8:54**	**9:13**
8:28	**8:40**	**8:44**	**9:08**	**9:27**
8:43	**8:53**	**8:57**	**9:21**	**9:40**
8:58	**9:08**	**9:12**	**9:35**	**9:53**
9:13	**9:21**	**9:25**	**9:48**	**10:06**
9:28	**9:36**	**9:40**	**10:02**	**10:20**
9:43	**9:51**	**9:55**	**10:17**	**10:35**
10:00	**10:08**	**10:12**	**10:34**	**10:52**
10:20	**10:28**	**10:32**	**10:54**	**11:12**
10:40	**10:48**	**10:52**	**11:14**	**11:32**
11:00	**11:08**	**11:12**	**11:34**	**11:51**
11:20	**11:28**	**11:32**	**11:51**	12:08
11:40	**11:47**	**11:50**	12:10	12:23
12:00	12:08	12:14	12:32	12:45
12:30	12:38	12:44	1:02	1:15
1:00	1:08	1:14	1:32	1:45

Bold times denote PM hours.

Q32 Sunday — To Jackson Heights, Queens

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
6:15	6:26	6:30	6:34	6:48	6:52	6:57
6:45	6:56	7:00	7:04	7:18	7:22	7:27
7:15	7:26	7:30	7:34	7:48	7:52	7:57
7:45	7:57	8:02	8:06	8:20	8:24	8:29
8:05	8:17	8:22	8:26	8:40	8:45	8:51
8:25	8:37	8:42	8:46	9:02	9:07	9:13
8:45	8:57	9:02	9:06	9:22	9:27	9:33
9:05	9:17	9:22	9:26	9:42	9:47	9:54
9:25	9:37	9:42	9:46	10:03	10:08	10:15
9:40	9:53	9:58	10:02	10:19	10:24	10:31
9:55	10:08	10:13	10:17	10:34	10:39	10:46
10:10	10:23	10:28	10:32	10:49	10:54	11:01
10:25	10:38	10:43	10:47	11:04	11:10	11:18
10:40	10:53	10:58	11:02	11:19	11:25	11:33
10:55	11:08	11:13	11:17	11:34	11:40	11:48
11:07	11:21	11:26	11:30	11:48	11:54	**12:02**
11:19	11:33	11:38	11:43	**12:01**	**12:07**	**12:15**
11:31	11:47	11:52	11:57	**12:15**	**12:21**	**12:29**
11:43	11:59	**12:04**	**12:09**	**12:27**	**12:33**	**12:42**
11:55	**12:11**	**12:16**	**12:21**	**12:39**	**12:46**	**12:55**
12:07	**12:23**	**12:28**	**12:33**	**12:51**	**12:58**	**1:07**
12:19	**12:35**	**12:42**	**12:47**	**1:05**	**1:12**	**1:21**
12:30	**12:46**	**12:53**	**12:58**	**1:16**	**1:23**	**1:32**
12:40	**12:56**	**1:03**	**1:08**	**1:26**	**1:33**	**1:42**
12:50	**1:06**	**1:13**	**1:18**	**1:36**	**1:43**	**1:52**
1:00	**1:16**	**1:23**	**1:28**	**1:46**	**1:53**	**2:02**
1:10	**1:26**	**1:33**	**1:38**	**1:56**	**2:03**	**2:13**
1:20	**1:36**	**1:43**	**1:48**	**2:06**	**2:13**	**2:23**
1:30	**1:46**	**1:53**	**1:58**	**2:16**	**2:23**	**2:33**
1:40	**1:56**	**2:03**	**2:08**	**2:26**	**2:33**	**2:43**
1:50	**2:06**	**2:14**	**2:19**	**2:37**	**2:44**	**2:54**
2:00	**2:16**	**2:24**	**2:29**	**2:47**	**2:54**	**3:04**
2:10	**2:26**	**2:34**	**2:39**	**2:57**	**3:04**	**3:14**
2:20	**2:36**	**2:44**	**2:49**	**3:07**	**3:14**	**3:24**
2:29	**2:45**	**2:53**	**2:58**	**3:16**	**3:23**	**3:33**
2:39	**2:55**	**3:03**	**3:08**	**3:26**	**3:33**	**3:43**
2:48	**3:04**	**3:12**	**3:17**	**3:35**	**3:42**	**3:52**
2:58	**3:14**	**3:22**	**3:27**	**3:45**	**3:52**	**4:02**
3:07	**3:23**	**3:31**	**3:36**	**3:54**	**4:01**	**4:12**
3:17	**3:33**	**3:41**	**3:46**	**4:04**	**4:11**	**4:22**
3:26	**3:42**	**3:50**	**3:55**	**4:13**	**4:20**	**4:31**
3:36	**3:52**	**4:00**	**4:05**	**4:25**	**4:32**	**4:43**
3:45	**4:01**	**4:10**	**4:15**	**4:35**	**4:42**	**4:53**
3:55	**4:11**	**4:20**	**4:25**	**4:45**	**4:52**	**5:03**
4:04	**4:20**	**4:29**	**4:34**	**4:54**	**5:01**	**5:12**
4:14	**4:30**	**4:39**	**4:44**	**5:04**	**5:11**	**5:22**
4:23	**4:39**	**4:48**	**4:53**	**5:13**	**5:20**	**5:31**
4:33	**4:49**	**4:58**	**5:03**	**5:22**	**5:29**	**5:40**

Bold times denote PM hours.

Penn Station **W 32 St / 7 Av**	Midtown **Madison Av / E 57 St**	E Midtown **E 59 St / 2 Av**	Long Island City **Queens Plaza S / 28 St**	Woodside **Roosevelt Av / 61 St**	Jackson Hts **Roosevelt Av / 74 St**	Jackson Hts **81 St / Northern Bl**
4:42	**4:58**	**5:07**	**5:12**	**5:31**	**5:38**	**5:48**
4:52	**5:08**	**5:17**	**5:22**	**5:41**	**5:48**	**5:58**
5:01	**5:16**	**5:25**	**5:30**	**5:47**	**5:54**	**6:04**
5:11	**5:26**	**5:35**	**5:40**	**5:57**	**6:04**	**6:14**
5:20	**5:35**	**5:43**	**5:48**	**6:05**	**6:12**	**6:22**
5:30	**5:45**	**5:53**	**5:58**	**6:15**	**6:22**	**6:32**
5:40	**5:55**	**6:03**	**6:08**	**6:25**	**6:32**	**6:40**
5:50	**6:05**	**6:13**	**6:18**	**6:35**	**6:42**	**6:50**
6:00	**6:15**	**6:23**	**6:28**	**6:45**	**6:52**	**7:00**
6:10	**6:25**	**6:33**	**6:37**	**6:54**	**7:01**	**7:09**
6:20	**6:35**	**6:43**	**6:47**	**7:04**	**7:11**	**7:19**
6:30	**6:44**	**6:52**	**6:56**	**7:13**	**7:20**	**7:28**
6:40	**6:54**	**7:02**	**7:06**	**7:23**	**7:30**	**7:38**
6:50	**7:04**	**7:12**	**7:16**	**7:33**	**7:40**	**7:48**
7:00	**7:14**	**7:22**	**7:26**	**7:43**	**7:50**	**7:58**
7:10	**7:24**	**7:32**	**7:36**	**7:53**	**8:00**	**8:07**
7:20	**7:34**	**7:40**	**7:44**	**8:01**	**8:06**	**8:13**
7:35	**7:48**	**7:54**	**7:58**	**8:15**	**8:20**	**8:27**
7:50	**8:03**	**8:08**	**8:12**	**8:28**	**8:33**	**8:40**
8:05	**8:18**	**8:23**	**8:27**	**8:43**	**8:48**	**8:55**
8:20	**8:33**	**8:38**	**8:42**	**8:58**	**9:03**	**9:10**
8:35	**8:48**	**8:53**	**8:57**	**9:13**	**9:17**	**9:24**
8:50	**9:03**	**9:08**	**9:12**	**9:27**	**9:31**	**9:38**
9:05	**9:17**	**9:22**	**9:26**	**9:41**	**9:45**	**9:52**
9:20	**9:32**	**9:37**	**9:41**	**9:56**	**10:00**	**10:07**
9:40	**9:52**	**9:57**	**10:01**	**10:16**	**10:20**	**10:27**
10:00	**10:12**	**10:17**	**10:21**	**10:36**	**10:40**	**10:46**
10:20	**10:32**	**10:37**	**10:41**	**10:56**	**11:00**	**11:06**
10:40	**10:50**	**10:55**	**10:59**	**11:14**	**11:18**	**11:24**
11:00	**11:10**	**11:15**	**11:19**	**11:34**	**11:38**	**11:44**

Bold times denote PM hours.

Q32 Sunday — To Penn Station, Manhattan

Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
7:00	7:08	7:13	7:35	7:49
7:20	7:28	7:33	7:55	8:09
7:40	7:48	7:53	8:15	8:29
8:00	8:08	8:13	8:35	8:51
8:15	8:23	8:28	8:51	9:07
8:30	8:40	8:46	9:09	9:25
8:45	8:55	9:01	9:24	9:40
9:00	9:10	9:16	9:39	9:57
9:15	9:25	9:31	9:55	10:13
9:30	9:40	9:46	10:10	10:28
9:42	9:52	9:58	10:22	10:40
9:54	10:04	10:10	10:34	10:52
10:06	10:16	10:22	10:46	11:04
10:18	10:28	10:34	10:58	11:16
10:28	10:38	10:44	11:09	11:30
10:38	10:48	10:54	11:19	11:40
10:48	10:58	11:04	11:29	11:50
10:58	11:08	11:15	11:40	**12:01**
11:08	11:20	11:27	11:52	**12:13**
11:18	11:30	11:37	**12:02**	**12:23**
11:28	11:40	11:47	**12:12**	**12:33**
11:38	11:50	11:57	**12:22**	**12:43**
11:48	**12:00**	**12:07**	**12:32**	**12:55**
11:58	**12:10**	**12:17**	**12:42**	**1:05**
12:08	**12:20**	**12:27**	**12:52**	**1:15**
12:17	**12:29**	**12:36**	**1:02**	**1:25**
12:26	**12:38**	**12:45**	**1:11**	**1:34**
12:35	**12:49**	**12:56**	**1:22**	**1:45**
12:44	**12:58**	**1:05**	**1:31**	**1:56**
12:53	**1:07**	**1:14**	**1:40**	**2:05**
1:02	**1:16**	**1:23**	**1:49**	**2:14**
1:11	**1:25**	**1:32**	**1:58**	**2:23**
1:20	**1:34**	**1:41**	**2:07**	**2:30**
1:29	**1:43**	**1:50**	**2:18**	**2:41**
1:38	**1:52**	**1:59**	**2:27**	**2:50**
1:47	**2:01**	**2:08**	**2:36**	**2:59**
1:56	**2:10**	**2:17**	**2:45**	**3:08**
2:05	**2:21**	**2:28**	**2:56**	**3:19**
2:15	**2:31**	**2:38**	**3:06**	**3:29**
2:24	**2:40**	**2:47**	**3:15**	**3:38**
2:34	**2:50**	**2:57**	**3:25**	**3:48**
2:43	**2:59**	**3:06**	**3:34**	**3:57**
2:53	**3:09**	**3:16**	**3:44**	**4:07**
3:02	**3:18**	**3:25**	**3:53**	**4:16**
3:12	**3:28**	**3:35**	**4:03**	**4:26**
3:22	**3:38**	**3:45**	**4:13**	**4:36**
3:32	**3:48**	**3:55**	**4:23**	**4:46**
3:42	**3:58**	**4:05**	**4:33**	**4:55**

Bold times denote PM hours.

Jackson Hts **82 St / Northern Bl**	Jackson Hts **Roosevelt Av / 74 St**	Woodside **Roosevelt Av / 61 St**	E Midtown **E 60 St / 2 Av**	Penn Station **W 32 St / 7 Av**
3:52	**4:08**	**4:15**	**4:43**	**5:05**
4:02	**4:18**	**4:25**	**4:53**	**5:15**
4:12	**4:28**	**4:35**	**5:02**	**5:23**
4:22	**4:38**	**4:45**	**5:11**	**5:32**
4:32	**4:47**	**4:54**	**5:20**	**5:41**
4:42	**4:57**	**5:04**	**5:30**	**5:51**
4:54	**5:09**	**5:16**	**5:42**	**6:03**
5:06	**5:20**	**5:27**	**5:53**	**6:14**
5:18	**5:32**	**5:39**	**6:05**	**6:22**
5:30	**5:44**	**5:51**	**6:17**	**6:34**
5:42	**5:56**	**6:03**	**6:29**	**6:46**
5:55	**6:09**	**6:15**	**6:39**	**6:55**
6:10	**6:23**	**6:29**	**6:53**	**7:09**
6:25	**6:38**	**6:44**	**7:08**	**7:24**
6:40	**6:53**	**6:59**	**7:23**	**7:39**
6:55	**7:08**	**7:14**	**7:37**	**7:52**
7:10	**7:23**	**7:29**	**7:52**	**8:07**
7:25	**7:38**	**7:44**	**8:05**	**8:20**
7:40	**7:50**	**7:56**	**8:17**	**8:32**
7:55	**8:05**	**8:11**	**8:32**	**8:47**
8:15	**8:25**	**8:31**	**8:50**	**9:05**
8:35	**8:44**	**8:50**	**9:09**	**9:24**
8:55	**9:04**	**9:10**	**9:29**	**9:44**
9:15	**9:24**	**9:30**	**9:49**	**10:03**
9:35	**9:43**	**9:47**	**10:06**	**10:20**
9:55	**10:03**	**10:07**	**10:26**	**10:40**
10:15	**10:23**	**10:27**	**10:46**	**11:00**
10:45	**10:53**	**10:57**	**11:16**	**11:29**
11:15	**11:22**	**11:26**	**11:45**	**11:58**

Bold times denote PM hours.

Q32

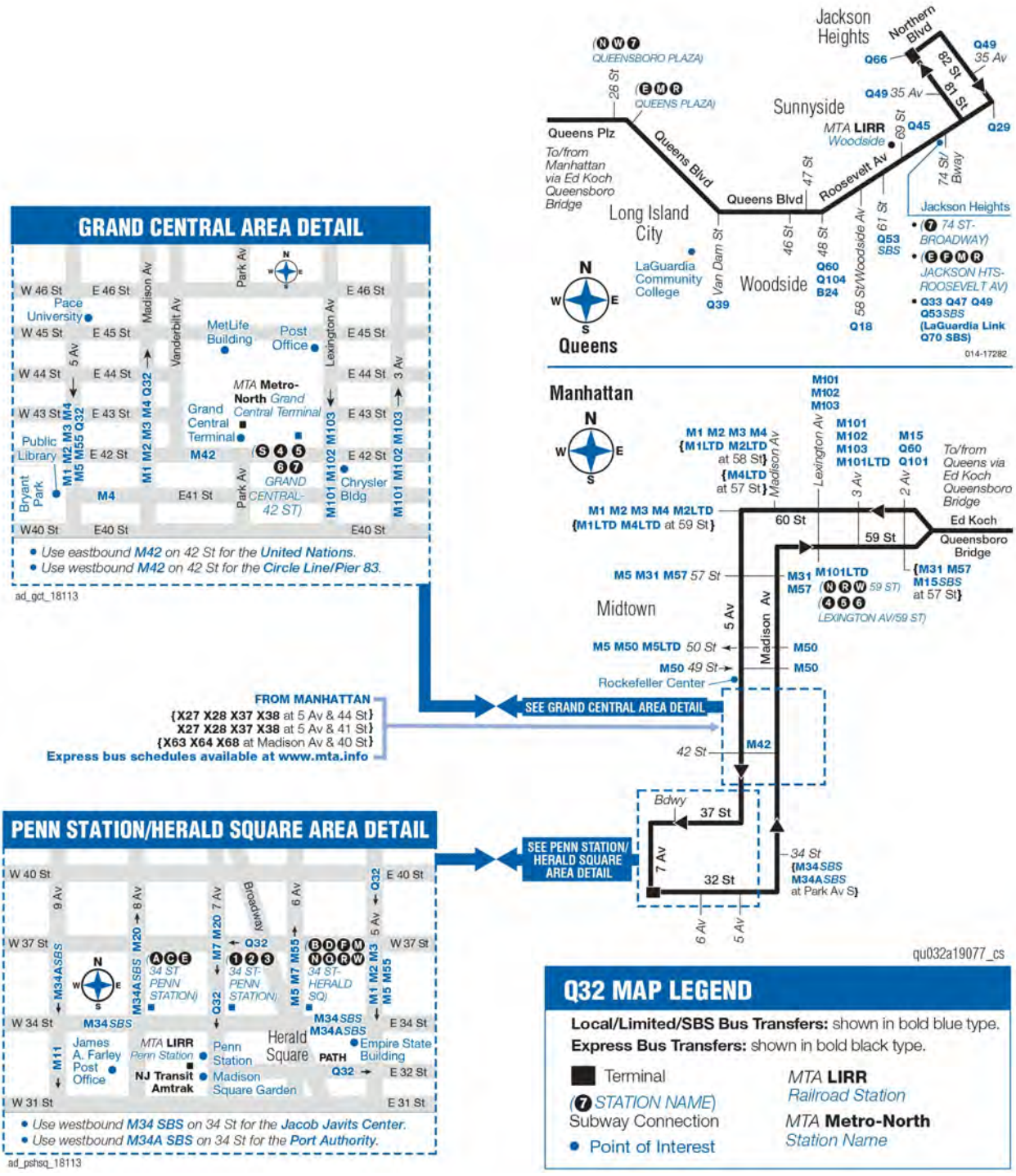
Bus Timetable
New York City Transit

Jackson Heights - Penn Station via Roosevelt Av / Queens Blvd / Fifth Av / Madison Av

Local Service

Effective January 2, 2022

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511



Fares – MetroCard® is accepted for all MTA New York City trains (including Staten Island Railway - SIR), and, local, Limited-Stop and +SelectBusService buses (at MetroCard fare collection machines). Express buses only accept 7-Day Express Bus Plus MetroCard or Pay-Per-Ride MetroCard. All of our buses and +SelectBusService Coin Fare Collector machines accept exact fare in coins. Dollar bills, pennies, and half-dollar coins are not accepted. OMNY is the MTA's new fare payment system. Use your contactless card or smart device to pay the fare on buses and subways. Visit omny.info for details of the rollout.

Free Transfers – Unlimited Ride MetroCard permits free transfers to all but our express buses (between subway and local bus, local bus and local bus etc.) Pay-Per-Ride MetroCard allows one free transfer of equal or lesser value if you complete your transfer within two hours of the time you pay your full fare with the same MetroCard. If you pay your local bus fare with coins, ask for a free electronic paper transfer to use on another local bus.

Reduced-Fare Benefits – You are eligible for reduced-fare benefits if you are at least 65 years of age or have a qualifying disability. Benefits are available (except on peak-hour express buses) with proper identification, including Reduced-Fare MetroCard or Medicare card.

Children – The subway, SIR, local, Limited-Stop, and +SelectBusService buses permit up to three children, 44 inches tall and under to ride free when accompanied by an adult paying full fare.

Terms and Conditions – Fares and MetroCard use are subject to applicable tariffs and conditions of use.

Bus Operator Apple Award

If you think your bus operator deserves an Apple Award--our special recognition for this service, courtesy and professionalism-- go to mta.info/customer-feedback or call 511 and give us the badge or bus number.

Holiday Service 2022

Reduced weekday service operates on: Martin Luther King Day*, Day After Thanksgiving*.

Saturday service operates on: Presidents Day*, Independence Day, Dec 26.

Sunday service operates on: Memorial Day, Labor Day, Thanksgiving Day, Christmas Day+, New Years Day+.

** Special schedules for these days will be available at mta.info for express routes only.*
+ Service information for the day preceding this holiday or holiday weekend will be provided on mta.info, and on service notices posted on buses.
Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Travel Help and Information

511 **One MTA One Number.** Call 511 and say MTA.

TTY/TDD users only..... 711
Online: www.mta.info

IF YOU SEE SOMETHING, SAY SOMETHING.

Be suspicious of anything unattended. Tell a cop, an MTA employee or call 1-888-692-7233 (1-888-NYC-SAFE).

Filing a Title VI Complaint – MTA New York City Transit ("NYC Transit") and MTA Bus Company are committed to providing non-discriminatory service to ensure that no person is excluded from participation in, or denied the benefits of, or subjected to discrimination in the receipt of its services on the basis of race, color or national origin as protected by Title VI of the Civil Rights Act of 1964 ("Title VI").

To request more information about Title VI or to submit a written complaint if you believe that you have been subjected to discrimination, you may contact NYC Transit's Office of Equal Employment Opportunity, 130 Livingston Street, 3rd Floor, Brooklyn, NY 11201.

In addition to your right to file a complaint with NYC Transit and MTA Bus Company, you have the right to file a Title VI complaint with the U.S. Department of Transportation, Federal Transit Administration, Office of Civil Rights, Attention: Complaint Team, East Building 5th Floor – TCR, 1200 New Jersey Avenue SE, Washington, DC 20590.

We’re serious about safety

your safety

We are committed to providing you with the safest service possible. Please take a moment to read this list and consider what can happen if you’re not careful:

- **Don’t run for the bus** — that’s when most accidents happen. Slips, trips, and falls are the most common causes of injuries.
- **Stand behind the white line** if you are in the front of the bus. A sudden stop could propel you forward into the dashboard, window, or stairwell.
- **Avoid standing in the stairwell** of the rear door, and don’t lean on the rear door.
- **Allow the bus operator to secure your chair** if you are in a wheelchair.
- **Keep your head and arms inside** bus windows.
- **Hold the handrail** when you exit, particularly in wintry weather when the steps get slippery from snow.
- **Signal the bus operator** two blocks before you want to get off so that there’s sufficient time to stop.
- **Watch for cars** as you leave the bus. This becomes even more important when the bus operator is unable to pull completely into the bus stop. Make it a point to not cross in front of the bus after you get off.

Q33

Bus Timetable
MTA Bus Company

82 St/83 St - 95 St & Ditmars Blvd Via Roosevelt Av / 82Nd & 83Rd St

Local Service

Effective April 4, 2021

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511

We are introducing a new style to our timetables. These read better on mobile devices and print better on home printers. This is a work in progress — the design will evolve over the coming months. Soon, we'll also have an online timetable viewer with more ways to view timetables. Let us know your thoughts, questions, or suggestions about the new timetables at new.mta.info/timetables-feedback.

Q33 Weekday — To East Elmhurst

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
12:00	12:03	12:08	12:12	12:17
12:30	12:33	12:38	12:42	12:47
1:00	1:03	1:08	1:12	1:17
1:30	1:32	1:37	1:41	1:45
2:00	2:02	2:07	2:11	2:15
2:30	2:32	2:37	2:41	2:45
3:00	3:02	3:07	3:11	3:15
3:30	3:32	3:37	3:41	3:45
4:00	4:02	4:07	4:11	4:15
4:30	4:32	4:37	4:41	4:45
5:00	5:02	5:07	5:11	5:15
5:30	5:32	5:37	5:41	5:45
5:45	5:47	5:52	5:56	6:00
5:57	5:59	6:04	6:08	6:12
6:09	6:11	6:16	6:20	6:24
6:20	6:22	6:27	6:31	6:35
6:30	6:33	6:39	6:43	6:47
6:40	6:43	6:49	6:53	6:57
6:50	6:53	6:59	7:03	7:07
7:00	7:03	7:09	7:13	7:17
7:10	7:13	7:19	7:23	7:27
7:20	7:23	7:29	7:33	7:37
7:30	7:33	7:39	7:43	7:47
7:40	7:43	7:49	7:53	7:57
7:50	7:53	7:59	8:03	8:07
8:00	8:03	8:09	8:13	8:17
8:10	8:13	8:19	8:23	8:27
8:20	8:23	8:29	8:33	8:37
8:30	8:33	8:39	8:43	8:47
8:40	8:43	8:49	8:53	8:57
8:50	8:53	8:59	9:03	9:07
9:00	9:03	9:09	9:13	9:17
9:10	9:13	9:19	9:23	9:27

Bold times denote PM hours.

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
9:20	9:23	9:29	9:33	9:37
9:30	9:33	9:39	9:43	9:47
9:40	9:43	9:49	9:53	9:57
9:50	9:53	9:59	10:03	10:07
10:00	10:03	10:09	10:13	10:17
10:10	10:13	10:19	10:23	10:27
10:20	10:23	10:29	10:33	10:37
10:30	10:33	10:39	10:43	10:47
10:40	10:43	10:49	10:53	10:57
10:50	10:53	10:59	11:03	11:07
11:00	11:03	11:09	11:13	11:17
11:10	11:13	11:19	11:23	11:27
11:20	11:23	11:29	11:33	11:37
11:30	11:33	11:39	11:43	11:47
11:40	11:43	11:49	11:53	11:57
11:50	11:53	11:59	**12:03**	**12:07**
12:00	**12:03**	**12:10**	**12:14**	**12:19**
12:10	**12:13**	**12:20**	**12:24**	**12:29**
12:20	**12:23**	**12:30**	**12:34**	**12:39**
12:30	**12:33**	**12:40**	**12:44**	**12:49**
12:40	**12:43**	**12:50**	**12:54**	**12:59**
12:50	**12:53**	**1:00**	**1:04**	**1:09**
1:00	**1:03**	**1:10**	**1:14**	**1:19**
1:10	**1:13**	**1:20**	**1:24**	**1:29**
1:20	**1:23**	**1:30**	**1:34**	**1:39**
1:30	**1:33**	**1:40**	**1:44**	**1:49**
1:40	**1:43**	**1:50**	**1:54**	**1:59**
1:50	**1:53**	**2:00**	**2:04**	**2:09**
2:00	**2:03**	**2:10**	**2:14**	**2:19**
2:10	**2:13**	**2:20**	**2:24**	**2:29**
2:20	**2:23**	**2:30**	**2:34**	**2:39**
2:30	**2:33**	**2:40**	**2:44**	**2:49**
2:40	**2:43**	**2:50**	**2:54**	**2:59**
2:50	**2:53**	**3:00**	**3:05**	**3:10**
3:00	**3:04**	**3:12**	**3:17**	**3:22**
3:10	**3:14**	**3:22**	**3:27**	**3:32**
3:20	**3:24**	**3:32**	**3:37**	**3:42**
3:30	**3:34**	**3:42**	**3:47**	**3:52**
3:38	**3:42**	**3:50**	**3:55**	**4:00**
3:45	**3:49**	**3:57**	**4:02**	**4:07**
3:53	**3:57**	**4:05**	**4:10**	**4:15**
4:00	**4:04**	**4:12**	**4:17**	**4:22**
4:08	**4:12**	**4:20**	**4:25**	**4:30**
4:15	**4:19**	**4:27**	**4:32**	**4:37**
4:23	**4:27**	**4:35**	**4:40**	**4:45**
4:30	**4:34**	**4:42**	**4:47**	**4:52**
4:38	**4:42**	**4:50**	**4:55**	**5:00**
4:45	**4:49**	**4:57**	**5:02**	**5:07**

Bold times denote PM hours.

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
4:53	**4:57**	**5:05**	**5:10**	**5:15**
5:00	**5:04**	**5:12**	**5:17**	**5:22**
5:08	**5:12**	**5:20**	**5:25**	**5:30**
5:15	**5:19**	**5:27**	**5:32**	**5:37**
5:23	**5:27**	**5:35**	**5:40**	**5:45**
5:30	**5:34**	**5:42**	**5:47**	**5:52**
5:38	**5:42**	**5:50**	**5:55**	**6:00**
5:45	**5:49**	**5:57**	**6:02**	**6:07**
5:53	**5:57**	**6:05**	**6:10**	**6:15**
6:00	**6:04**	**6:12**	**6:17**	**6:22**
6:08	**6:12**	**6:20**	**6:25**	**6:30**
6:15	**6:19**	**6:27**	**6:32**	**6:37**
6:23	**6:27**	**6:35**	**6:40**	**6:45**
6:30	**6:34**	**6:42**	**6:47**	**6:52**
6:38	**6:42**	**6:50**	**6:55**	**7:00**
6:45	**6:49**	**6:57**	**7:02**	**7:07**
6:53	**6:57**	**7:05**	**7:09**	**7:14**
7:00	**7:03**	**7:10**	**7:14**	**7:19**
7:08	**7:11**	**7:18**	**7:22**	**7:27**
7:16	**7:19**	**7:26**	**7:30**	**7:35**
7:24	**7:27**	**7:34**	**7:38**	**7:43**
7:32	**7:35**	**7:42**	**7:46**	**7:51**
7:40	**7:43**	**7:50**	**7:54**	**7:59**
7:48	**7:51**	**7:58**	**8:02**	**8:07**
7:56	**7:59**	**8:06**	**8:10**	**8:15**
8:04	**8:07**	**8:14**	**8:18**	**8:23**
8:12	**8:15**	**8:22**	**8:26**	**8:31**
8:20	**8:23**	**8:30**	**8:34**	**8:39**
8:28	**8:31**	**8:38**	**8:42**	**8:47**
8:36	**8:39**	**8:46**	**8:50**	**8:55**
8:44	**8:47**	**8:54**	**8:58**	**9:03**
8:52	**8:55**	**9:02**	**9:06**	**9:11**
9:00	**9:03**	**9:08**	**9:12**	**9:17**
9:08	**9:11**	**9:16**	**9:20**	**9:25**
9:16	**9:19**	**9:24**	**9:28**	**9:33**
9:24	**9:27**	**9:32**	**9:36**	**9:41**
9:32	**9:35**	**9:40**	**9:44**	**9:49**
9:40	**9:43**	**9:48**	**9:52**	**9:57**
9:50	**9:53**	**9:58**	**10:02**	**10:07**
10:00	**10:03**	**10:08**	**10:12**	**10:17**
10:15	**10:18**	**10:23**	**10:27**	**10:32**
10:30	**10:33**	**10:38**	**10:42**	**10:47**
10:45	**10:48**	**10:53**	**10:57**	**11:02**
11:00	**11:03**	**11:08**	**11:12**	**11:17**
11:30	**11:33**	**11:38**	**11:42**	**11:47**

Bold times denote PM hours.

Q33 Weekday — To Jackson Heights

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
12:00	12:02	12:08	12:11	12:14
12:30	12:32	12:38	12:41	12:44
1:00	1:02	1:08	1:11	1:14
1:30	1:32	1:38	1:41	1:44
2:00	2:02	2:08	2:11	2:14
2:30	2:32	2:38	2:41	2:44
3:00	3:02	3:08	3:11	3:14
3:30	3:32	3:38	3:41	3:44
4:00	4:03	4:11	4:15	4:18
4:30	4:33	4:41	4:45	4:48
5:00	5:03	5:11	5:15	5:18
5:20	5:23	5:31	5:35	5:38
5:30	5:33	5:41	5:45	5:48
5:40	5:43	5:51	5:55	5:58
5:50	5:53	6:01	6:05	6:08
6:00	6:03	6:11	6:15	6:18
6:08	6:11	6:19	6:23	6:26
6:16	6:19	6:27	6:31	6:34
6:24	6:27	6:35	6:41	6:45
6:32	6:35	6:44	6:50	6:54
6:38	6:41	6:50	6:56	7:00
6:44	6:47	6:56	7:02	7:06
6:50	6:53	7:02	7:08	7:12
6:55	6:58	7:07	7:13	7:17
7:00	7:03	7:12	7:18	7:22
7:05	7:08	7:17	7:23	7:27
7:10	7:13	7:22	7:28	7:32
7:15	7:18	7:27	7:33	7:37
7:21	7:24	7:33	7:39	7:43
7:27	7:30	7:39	7:45	7:49
7:33	7:36	7:45	7:51	7:55
7:39	7:42	7:51	7:57	8:01
7:45	7:48	7:57	8:03	8:07
7:51	7:54	8:03	8:09	8:13
7:57	8:00	8:09	8:15	8:19
8:03	8:06	8:15	8:21	8:25
8:09	8:12	8:21	8:27	8:31
8:15	8:18	8:27	8:33	8:37
8:21	8:24	8:33	8:39	8:43
8:27	8:30	8:39	8:45	8:49
8:33	8:36	8:45	8:51	8:55
8:39	8:42	8:51	8:57	9:01
8:45	8:48	8:57	9:03	9:07
8:51	8:54	9:03	9:09	9:13
8:59	9:02	9:11	9:17	9:21
9:07	9:10	9:19	9:25	9:29
9:15	9:18	9:27	9:33	9:37

Bold times denote PM hours.

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
9:25	9:28	9:37	9:43	9:47
9:35	9:38	9:47	9:53	9:57
9:45	9:48	9:57	10:03	10:07
9:55	9:58	10:07	10:13	10:17
10:05	10:08	10:17	10:23	10:27
10:15	10:18	10:27	10:33	10:37
10:25	10:28	10:37	10:43	10:47
10:35	10:38	10:47	10:53	10:57
10:45	10:48	10:57	11:03	11:07
10:55	10:58	11:07	11:13	11:17
11:05	11:08	11:17	11:23	11:27
11:15	11:18	11:27	11:33	11:37
11:25	11:28	11:37	11:43	11:47
11:35	11:38	11:47	11:53	11:57
11:45	11:48	11:57	**12:03**	**12:07**
11:55	11:58	**12:07**	**12:13**	**12:17**
12:05	**12:08**	**12:17**	**12:23**	**12:27**
12:15	**12:18**	**12:27**	**12:33**	**12:37**
12:25	**12:28**	**12:37**	**12:43**	**12:47**
12:35	**12:38**	**12:47**	**12:53**	**12:57**
12:45	**12:48**	**12:57**	**1:03**	**1:07**
12:55	**12:58**	**1:07**	**1:13**	**1:17**
1:05	**1:08**	**1:17**	**1:23**	**1:27**
1:15	**1:18**	**1:27**	**1:33**	**1:37**
1:25	**1:28**	**1:37**	**1:43**	**1:47**
1:35	**1:38**	**1:47**	**1:53**	**1:57**
1:45	**1:48**	**1:57**	**2:03**	**2:07**
1:55	**1:58**	**2:07**	**2:13**	**2:17**
2:05	**2:08**	**2:17**	**2:23**	**2:27**
2:15	**2:18**	**2:27**	**2:33**	**2:37**
2:25	**2:28**	**2:37**	**2:43**	**2:47**
2:35	**2:38**	**2:47**	**2:53**	**2:57**
2:45	**2:48**	**2:57**	**3:03**	**3:07**
2:55	**2:58**	**3:07**	**3:13**	**3:17**
3:05	**3:08**	**3:17**	**3:23**	**3:27**
3:15	**3:18**	**3:27**	**3:33**	**3:37**
3:25	**3:28**	**3:37**	**3:43**	**3:47**
3:35	**3:38**	**3:47**	**3:53**	**3:57**
3:43	**3:46**	**3:55**	**4:01**	**4:05**
3:50	**3:53**	**4:02**	**4:08**	**4:12**
3:58	**4:01**	**4:10**	**4:16**	**4:20**
4:05	**4:08**	**4:17**	**4:23**	**4:27**
4:13	**4:16**	**4:25**	**4:31**	**4:35**
4:20	**4:23**	**4:32**	**4:38**	**4:42**
4:28	**4:31**	**4:40**	**4:46**	**4:50**
4:35	**4:38**	**4:47**	**4:53**	**4:57**
4:43	**4:46**	**4:55**	**5:01**	**5:05**
4:50	**4:53**	**5:02**	**5:08**	**5:12**

Bold times denote PM hours.

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
4:58	**5:01**	**5:10**	**5:16**	**5:20**
5:08	**5:11**	**5:20**	**5:26**	**5:30**
5:20	**5:23**	**5:32**	**5:38**	**5:42**
5:35	**5:38**	**5:47**	**5:53**	**5:57**
5:50	**5:53**	**6:02**	**6:08**	**6:12**
6:05	**6:08**	**6:17**	**6:23**	**6:27**
6:20	**6:23**	**6:32**	**6:38**	**6:42**
6:35	**6:38**	**6:47**	**6:53**	**6:57**
6:50	**6:53**	**7:02**	**7:08**	**7:12**
7:05	**7:08**	**7:17**	**7:23**	**7:27**
7:20	**7:23**	**7:32**	**7:36**	**7:39**
7:35	**7:38**	**7:45**	**7:49**	**7:52**
7:50	**7:53**	**8:00**	**8:04**	**8:07**
8:05	**8:08**	**8:15**	**8:19**	**8:22**
8:20	**8:23**	**8:30**	**8:34**	**8:37**
8:35	**8:38**	**8:45**	**8:49**	**8:52**
8:50	**8:53**	**9:00**	**9:04**	**9:07**
9:05	**9:08**	**9:15**	**9:19**	**9:22**
9:20	**9:23**	**9:30**	**9:34**	**9:37**
9:35	**9:38**	**9:45**	**9:49**	**9:52**
9:50	**9:53**	**10:00**	**10:04**	**10:07**
10:05	**10:08**	**10:15**	**10:19**	**10:22**
10:20	**10:23**	**10:30**	**10:34**	**10:37**
10:35	**10:38**	**10:45**	**10:49**	**10:52**
10:50	**10:53**	**11:00**	**11:03**	**11:06**
11:10	**11:12**	**11:18**	**11:21**	**11:24**
11:30	**11:32**	**11:38**	**11:41**	**11:44**

Bold times denote PM hours.

Q33 Saturday — To East Elmhurst

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
12:00	12:05	12:10	12:14	12:18
12:30	12:35	12:40	12:44	12:48
1:00	1:05	1:10	1:14	1:18
1:30	1:35	1:40	1:44	1:48
2:00	2:05	2:10	2:14	2:18
2:30	2:35	2:40	2:44	2:48
3:00	3:05	3:10	3:14	3:18
3:30	3:35	3:40	3:44	3:48
4:00	4:05	4:10	4:14	4:18
4:30	4:35	4:40	4:44	4:48
5:00	5:05	5:10	5:14	5:18
5:30	5:35	5:40	5:44	5:48
6:00	6:05	6:10	6:14	6:18
6:20	6:25	6:30	6:34	6:38
6:40	6:45	6:50	6:54	6:58
7:00	7:05	7:10	7:14	7:18
7:15	7:20	7:25	7:29	7:33
7:30	7:35	7:40	7:44	7:48
7:45	7:50	7:55	7:59	8:03
8:00	8:05	8:10	8:14	8:18
8:15	8:20	8:25	8:29	8:33
8:30	8:35	8:40	8:44	8:48
8:45	8:50	8:55	8:59	9:03
9:00	9:05	9:10	9:14	9:18
9:12	9:17	9:22	9:26	9:30
9:24	9:29	9:34	9:38	9:42
9:36	9:41	9:46	9:50	9:54
9:48	9:53	9:58	10:02	10:06
10:00	10:06	10:13	10:18	10:24
10:12	10:18	10:25	10:30	10:36
10:24	10:30	10:37	10:42	10:48
10:36	10:42	10:49	10:54	11:00
10:48	10:54	11:01	11:06	11:12
11:00	11:06	11:13	11:18	11:24
11:12	11:18	11:25	11:30	11:36
11:24	11:30	11:37	11:42	11:48
11:36	11:42	11:49	11:54	**12:00**
11:48	11:54	**12:01**	**12:06**	**12:12**
12:00	**12:06**	**12:13**	**12:18**	**12:24**
12:12	**12:18**	**12:25**	**12:30**	**12:36**
12:24	**12:30**	**12:37**	**12:42**	**12:48**
12:36	**12:42**	**12:49**	**12:54**	**1:00**
12:48	**12:54**	**1:01**	**1:06**	**1:12**
1:00	**1:06**	**1:13**	**1:18**	**1:24**
1:12	**1:18**	**1:25**	**1:30**	**1:36**
1:24	**1:30**	**1:37**	**1:42**	**1:48**
1:36	**1:42**	**1:49**	**1:54**	**2:00**

Bold times denote PM hours.

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
1:48	**1:54**	**2:01**	**2:06**	**2:12**
2:00	**2:06**	**2:13**	**2:18**	**2:24**
2:12	**2:18**	**2:25**	**2:30**	**2:36**
2:24	**2:30**	**2:37**	**2:42**	**2:48**
2:36	**2:42**	**2:49**	**2:54**	**3:00**
2:48	**2:54**	**3:01**	**3:06**	**3:12**
3:00	**3:06**	**3:13**	**3:18**	**3:24**
3:12	**3:18**	**3:25**	**3:30**	**3:36**
3:24	**3:30**	**3:37**	**3:42**	**3:48**
3:36	**3:42**	**3:49**	**3:54**	**4:00**
3:48	**3:54**	**4:01**	**4:06**	**4:12**
4:00	**4:06**	**4:13**	**4:18**	**4:24**
4:12	**4:18**	**4:25**	**4:30**	**4:36**
4:24	**4:30**	**4:37**	**4:42**	**4:48**
4:36	**4:42**	**4:49**	**4:54**	**5:00**
4:48	**4:54**	**5:01**	**5:06**	**5:12**
5:00	**5:06**	**5:13**	**5:18**	**5:24**
5:12	**5:18**	**5:25**	**5:30**	**5:36**
5:24	**5:30**	**5:37**	**5:42**	**5:48**
5:36	**5:42**	**5:49**	**5:54**	**6:00**
5:48	**5:54**	**6:01**	**6:06**	**6:12**
6:00	**6:06**	**6:13**	**6:18**	**6:24**
6:12	**6:18**	**6:25**	**6:30**	**6:36**
6:24	**6:30**	**6:37**	**6:42**	**6:48**
6:36	**6:42**	**6:49**	**6:54**	**7:00**
6:48	**6:54**	**7:01**	**7:06**	**7:12**
7:00	**7:06**	**7:13**	**7:18**	**7:24**
7:15	**7:21**	**7:28**	**7:33**	**7:39**
7:30	**7:36**	**7:43**	**7:48**	**7:54**
7:45	**7:51**	**7:58**	**8:03**	**8:09**
8:00	**8:06**	**8:13**	**8:18**	**8:24**
8:15	**8:21**	**8:28**	**8:33**	**8:39**
8:30	**8:36**	**8:43**	**8:48**	**8:54**
8:45	**8:51**	**8:58**	**9:03**	**9:09**
9:00	**9:06**	**9:13**	**9:18**	**9:24**
9:15	**9:21**	**9:28**	**9:33**	**9:39**
9:30	**9:36**	**9:43**	**9:48**	**9:54**
9:45	**9:51**	**9:58**	**10:03**	**10:09**
10:00	**10:06**	**10:13**	**10:18**	**10:24**
10:20	**10:25**	**10:30**	**10:34**	**10:39**
10:40	**10:45**	**10:50**	**10:54**	**10:59**
11:00	**11:05**	**11:10**	**11:14**	**11:19**
11:30	**11:35**	**11:40**	**11:44**	**11:49**

Bold times denote PM hours.

Q33 Saturday — To Jackson Heights

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
12:00	12:02	12:07	12:13	12:17
12:30	12:32	12:37	12:43	12:47
1:00	1:02	1:07	1:13	1:17
1:30	1:32	1:37	1:43	1:47
2:00	2:02	2:07	2:13	2:17
2:30	2:32	2:37	2:43	2:47
3:00	3:02	3:07	3:13	3:17
3:30	3:32	3:37	3:43	3:47
4:00	4:02	4:07	4:13	4:17
4:30	4:32	4:37	4:43	4:47
5:00	5:02	5:07	5:13	5:17
5:30	5:32	5:37	5:43	5:47
6:00	6:02	6:07	6:13	6:17
6:30	6:32	6:37	6:43	6:47
6:50	6:52	6:57	7:03	7:07
7:10	7:12	7:17	7:23	7:27
7:30	7:32	7:37	7:43	7:47
7:45	7:47	7:52	7:58	8:02
8:00	8:02	8:07	8:13	8:17
8:15	8:17	8:22	8:28	8:32
8:30	8:32	8:37	8:43	8:47
8:45	8:47	8:52	8:58	9:02
9:00	9:02	9:07	9:13	9:17
9:15	9:17	9:22	9:28	9:32
9:30	9:32	9:37	9:43	9:47
9:42	9:44	9:49	9:55	9:59
9:54	9:56	10:01	10:08	10:14
10:06	10:09	10:15	10:22	10:28
10:18	10:21	10:27	10:34	10:40
10:30	10:33	10:39	10:46	10:52
10:42	10:45	10:51	10:58	11:04
10:54	10:57	11:03	11:10	11:16
11:06	11:09	11:15	11:22	11:28
11:18	11:21	11:27	11:34	11:40
11:30	11:33	11:39	11:46	11:52
11:42	11:45	11:51	11:58	**12:04**
11:54	11:57	**12:03**	**12:10**	**12:16**
12:06	**12:09**	**12:15**	**12:22**	**12:28**
12:18	**12:21**	**12:27**	**12:34**	**12:40**
12:30	**12:33**	**12:39**	**12:46**	**12:52**
12:42	**12:45**	**12:51**	**12:58**	**1:04**
12:54	**12:57**	**1:03**	**1:10**	**1:16**
1:06	**1:09**	**1:15**	**1:22**	**1:28**
1:18	**1:21**	**1:27**	**1:34**	**1:40**
1:30	**1:33**	**1:39**	**1:46**	**1:52**
1:42	**1:45**	**1:51**	**1:58**	**2:04**
1:54	**1:57**	**2:03**	**2:10**	**2:16**

Bold times denote PM hours.

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
2:06	**2:09**	**2:15**	**2:22**	**2:28**
2:18	**2:21**	**2:27**	**2:34**	**2:40**
2:30	**2:33**	**2:39**	**2:46**	**2:52**
2:42	**2:45**	**2:51**	**2:58**	**3:04**
2:54	**2:57**	**3:03**	**3:10**	**3:16**
3:06	**3:09**	**3:15**	**3:22**	**3:28**
3:18	**3:21**	**3:27**	**3:34**	**3:40**
3:30	**3:33**	**3:39**	**3:46**	**3:52**
3:42	**3:45**	**3:51**	**3:58**	**4:04**
3:54	**3:57**	**4:03**	**4:10**	**4:16**
4:06	**4:09**	**4:15**	**4:22**	**4:28**
4:18	**4:21**	**4:27**	**4:34**	**4:40**
4:30	**4:33**	**4:39**	**4:46**	**4:52**
4:42	**4:45**	**4:51**	**4:58**	**5:04**
4:54	**4:57**	**5:03**	**5:10**	**5:16**
5:06	**5:09**	**5:15**	**5:22**	**5:28**
5:18	**5:21**	**5:27**	**5:34**	**5:40**
5:30	**5:33**	**5:39**	**5:46**	**5:52**
5:42	**5:45**	**5:51**	**5:58**	**6:04**
5:54	**5:57**	**6:03**	**6:10**	**6:16**
6:06	**6:09**	**6:15**	**6:22**	**6:28**
6:18	**6:21**	**6:27**	**6:34**	**6:40**
6:30	**6:33**	**6:39**	**6:46**	**6:52**
6:42	**6:45**	**6:51**	**6:58**	**7:04**
6:54	**6:57**	**7:03**	**7:10**	**7:16**
7:06	**7:09**	**7:15**	**7:22**	**7:28**
7:20	**7:23**	**7:29**	**7:36**	**7:42**
7:35	**7:38**	**7:44**	**7:51**	**7:57**
7:50	**7:53**	**7:59**	**8:06**	**8:12**
8:05	**8:08**	**8:14**	**8:21**	**8:27**
8:20	**8:23**	**8:29**	**8:36**	**8:42**
8:35	**8:38**	**8:44**	**8:51**	**8:57**
8:50	**8:53**	**8:59**	**9:06**	**9:12**
9:05	**9:08**	**9:14**	**9:21**	**9:27**
9:20	**9:23**	**9:29**	**9:36**	**9:42**
9:35	**9:38**	**9:44**	**9:51**	**9:57**
9:50	**9:53**	**9:59**	**10:06**	**10:12**
10:05	**10:07**	**10:12**	**10:16**	**10:20**
10:20	**10:22**	**10:27**	**10:31**	**10:35**
10:35	**10:37**	**10:42**	**10:46**	**10:50**
10:50	**10:52**	**10:57**	**11:01**	**11:05**
11:10	**11:12**	**11:17**	**11:21**	**11:25**
11:30	**11:32**	**11:37**	**11:41**	**11:45**

Bold times denote PM hours.

Q33 Sunday — To East Elmhurst

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
12:00	12:05	12:10	12:14	12:18
12:30	12:35	12:40	12:44	12:48
1:00	1:05	1:10	1:14	1:18
1:30	1:35	1:40	1:44	1:48
2:00	2:05	2:10	2:14	2:18
2:30	2:35	2:40	2:44	2:48
3:00	3:05	3:10	3:14	3:18
3:30	3:35	3:40	3:44	3:48
4:00	4:05	4:10	4:14	4:18
4:30	4:35	4:40	4:44	4:48
5:00	5:05	5:10	5:14	5:18
5:30	5:35	5:40	5:44	5:48
6:00	6:05	6:10	6:14	6:18
6:30	6:35	6:40	6:44	6:48
7:00	7:05	7:10	7:14	7:18
7:30	7:35	7:40	7:44	7:48
7:50	7:55	8:00	8:04	8:08
8:10	8:15	8:20	8:24	8:28
8:30	8:35	8:40	8:44	8:48
8:45	8:50	8:55	8:59	9:03
9:00	9:05	9:10	9:14	9:18
9:15	9:20	9:25	9:29	9:33
9:30	9:35	9:40	9:44	9:48
9:45	9:50	9:55	9:59	10:03
10:00	10:06	10:13	10:18	10:24
10:15	10:21	10:28	10:33	10:39
10:30	10:36	10:43	10:48	10:54
10:45	10:51	10:58	11:03	11:09
11:00	11:06	11:13	11:18	11:24
11:15	11:21	11:28	11:33	11:39
11:30	11:36	11:43	11:48	11:54
11:45	11:51	11:58	**12:03**	**12:09**
12:00	**12:06**	**12:13**	**12:18**	**12:24**
12:15	**12:21**	**12:28**	**12:33**	**12:39**
12:30	**12:36**	**12:43**	**12:48**	**12:54**
12:45	**12:51**	**12:58**	**1:03**	**1:09**
1:00	**1:06**	**1:13**	**1:18**	**1:24**
1:15	**1:21**	**1:28**	**1:33**	**1:39**
1:30	**1:36**	**1:43**	**1:48**	**1:54**
1:45	**1:51**	**1:58**	**2:03**	**2:09**
2:00	**2:06**	**2:13**	**2:18**	**2:24**
2:15	**2:21**	**2:28**	**2:33**	**2:39**
2:30	**2:36**	**2:43**	**2:48**	**2:54**
2:45	**2:51**	**2:58**	**3:03**	**3:09**
3:00	**3:06**	**3:13**	**3:18**	**3:24**
3:15	**3:21**	**3:28**	**3:33**	**3:39**
3:30	**3:36**	**3:43**	**3:48**	**3:54**

Bold times denote PM hours.

Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **83 St / Northern Bl**	East Elmhurst **85 St / 24 Av**	East Elmhurst **95 St / Ditmars Bl**
3:45	**3:51**	**3:58**	**4:03**	**4:09**
4:00	**4:06**	**4:13**	**4:18**	**4:24**
4:15	**4:21**	**4:28**	**4:33**	**4:39**
4:30	**4:36**	**4:43**	**4:48**	**4:54**
4:45	**4:51**	**4:58**	**5:03**	**5:09**
5:00	**5:06**	**5:13**	**5:18**	**5:24**
5:15	**5:21**	**5:28**	**5:33**	**5:39**
5:30	**5:36**	**5:43**	**5:48**	**5:54**
5:45	**5:51**	**5:58**	**6:03**	**6:09**
6:00	**6:06**	**6:13**	**6:18**	**6:24**
6:15	**6:21**	**6:28**	**6:33**	**6:39**
6:30	**6:36**	**6:43**	**6:48**	**6:54**
6:45	**6:51**	**6:58**	**7:03**	**7:09**
7:00	**7:06**	**7:13**	**7:18**	**7:24**
7:15	**7:21**	**7:28**	**7:33**	**7:39**
7:30	**7:36**	**7:43**	**7:48**	**7:54**
7:45	**7:51**	**7:58**	**8:03**	**8:09**
8:00	**8:06**	**8:13**	**8:18**	**8:24**
8:15	**8:21**	**8:28**	**8:33**	**8:39**
8:30	**8:36**	**8:43**	**8:48**	**8:54**
8:45	**8:51**	**8:58**	**9:03**	**9:09**
9:00	**9:06**	**9:13**	**9:18**	**9:24**
9:15	**9:21**	**9:28**	**9:33**	**9:39**
9:30	**9:36**	**9:43**	**9:48**	**9:54**
9:45	**9:51**	**9:58**	**10:03**	**10:09**
10:00	**10:06**	**10:13**	**10:18**	**10:24**
10:20	**10:25**	**10:30**	**10:34**	**10:39**
10:40	**10:45**	**10:50**	**10:54**	**10:59**
11:00	**11:05**	**11:10**	**11:14**	**11:19**
11:30	**11:35**	**11:40**	**11:44**	**11:49**

Bold times denote PM hours.

Q33 Sunday — To Jackson Heights

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
12:00	12:02	12:07	12:13	12:17
12:30	12:32	12:37	12:43	12:47
1:00	1:02	1:07	1:13	1:17
1:30	1:32	1:37	1:43	1:47
2:00	2:02	2:07	2:13	2:17
2:30	2:32	2:37	2:43	2:47
3:00	3:02	3:07	3:13	3:17
3:30	3:32	3:37	3:43	3:47
4:00	4:02	4:07	4:13	4:17
4:30	4:32	4:37	4:43	4:47
5:00	5:02	5:07	5:13	5:17
5:30	5:32	5:37	5:43	5:47
6:00	6:02	6:07	6:13	6:17
6:30	6:32	6:37	6:43	6:47
7:00	7:02	7:07	7:13	7:17
7:30	7:32	7:37	7:43	7:47
8:00	8:02	8:07	8:13	8:17
8:20	8:22	8:27	8:33	8:37
8:40	8:42	8:47	8:53	8:57
9:00	9:02	9:07	9:13	9:17
9:15	9:17	9:22	9:28	9:32
9:30	9:32	9:37	9:43	9:47
9:45	9:47	9:52	9:58	10:02
10:00	10:03	10:09	10:16	10:22
10:15	10:18	10:24	10:31	10:37
10:30	10:33	10:39	10:46	10:52
10:45	10:48	10:54	11:01	11:07
11:00	11:03	11:09	11:16	11:22
11:15	11:18	11:24	11:31	11:37
11:30	11:33	11:39	11:46	11:52
11:45	11:48	11:54	**12:01**	**12:07**
12:00	**12:03**	**12:09**	**12:16**	**12:22**
12:15	**12:18**	**12:24**	**12:31**	**12:37**
12:30	**12:33**	**12:39**	**12:46**	**12:52**
12:45	**12:48**	**12:54**	**1:01**	**1:07**
1:00	**1:03**	**1:09**	**1:16**	**1:22**
1:15	**1:18**	**1:24**	**1:31**	**1:37**
1:30	**1:33**	**1:39**	**1:46**	**1:52**
1:45	**1:48**	**1:54**	**2:01**	**2:07**
2:00	**2:03**	**2:09**	**2:16**	**2:22**
2:15	**2:18**	**2:24**	**2:31**	**2:37**
2:30	**2:33**	**2:39**	**2:46**	**2:52**
2:45	**2:48**	**2:54**	**3:01**	**3:07**
3:00	**3:03**	**3:09**	**3:16**	**3:22**
3:15	**3:18**	**3:24**	**3:31**	**3:37**
3:30	**3:33**	**3:39**	**3:46**	**3:52**
3:45	**3:48**	**3:54**	**4:01**	**4:07**

Bold times denote PM hours.

East Elmhurst **95 St / Ditmars Bl**	Jackson Hts **23 Av / 85 St**	Jackson Hts **82 St / Northern Blvd**	Jackson Hts **Roosevelt Av / 82 St**	Jackson Hts **74 St - Roosevelt Av Term / Q33 Stop**
4:00	**4:03**	**4:09**	**4:16**	**4:22**
4:15	**4:18**	**4:24**	**4:31**	**4:37**
4:30	**4:33**	**4:39**	**4:46**	**4:52**
4:45	**4:48**	**4:54**	**5:01**	**5:07**
5:00	**5:03**	**5:09**	**5:16**	**5:22**
5:15	**5:18**	**5:24**	**5:31**	**5:37**
5:30	**5:33**	**5:39**	**5:46**	**5:52**
5:45	**5:48**	**5:54**	**6:01**	**6:07**
6:00	**6:03**	**6:09**	**6:16**	**6:22**
6:15	**6:18**	**6:24**	**6:31**	**6:37**
6:30	**6:33**	**6:39**	**6:46**	**6:52**
6:45	**6:48**	**6:54**	**7:01**	**7:07**
7:00	**7:03**	**7:09**	**7:16**	**7:22**
7:15	**7:18**	**7:24**	**7:31**	**7:37**
7:30	**7:33**	**7:39**	**7:46**	**7:52**
7:45	**7:48**	**7:54**	**8:01**	**8:07**
8:00	**8:03**	**8:09**	**8:16**	**8:22**
8:15	**8:18**	**8:24**	**8:31**	**8:37**
8:30	**8:33**	**8:39**	**8:46**	**8:52**
8:45	**8:48**	**8:54**	**9:01**	**9:07**
9:00	**9:03**	**9:09**	**9:16**	**9:22**
9:15	**9:18**	**9:24**	**9:31**	**9:37**
9:30	**9:33**	**9:39**	**9:46**	**9:52**
9:45	**9:48**	**9:54**	**10:01**	**10:07**
10:00	**10:02**	**10:07**	**10:11**	**10:15**
10:15	**10:17**	**10:22**	**10:26**	**10:30**
10:30	**10:32**	**10:37**	**10:41**	**10:45**
10:50	**10:52**	**10:57**	**11:01**	**11:05**
11:10	**11:12**	**11:17**	**11:21**	**11:25**
11:30	**11:32**	**11:37**	**11:41**	**11:45**

Bold times denote PM hours.

Q33

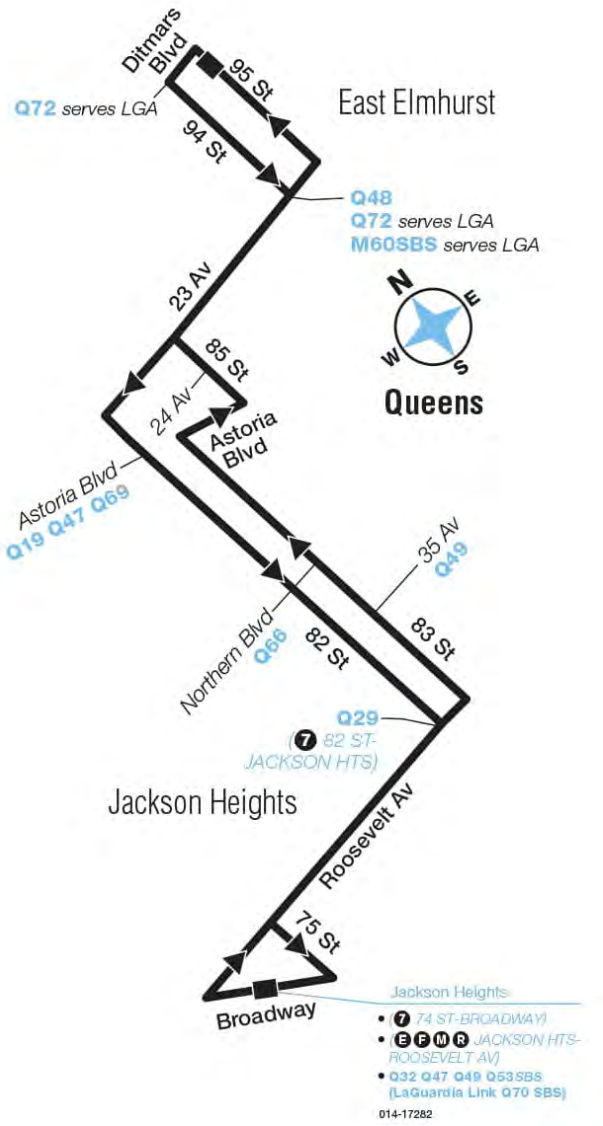
Bus Timetable
MTA Bus Company

82 St/83 St - 95 St & Ditmars Blvd Via Roosevelt Av / 82Nd & 83Rd St

Local Service

Effective April 4, 2021

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511



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Q33 MAP LEGEND

Local/Limited/SBS Bus Transfers: shown in bold blue type.

■ Terminal

(E STATION NAME)
Subway Connection

Fares – MetroCard® is accepted for all MTA New York City trains (including Staten Island Railway - SIR), and, local, Limited-Stop and +SelectBusService buses (at MetroCard fare collection machines). Express buses only accept 7-Day Express Bus Plus MetroCard or Pay-Per-Ride MetroCard. All of our buses and +SelectBusService Coin Fare Collector machines accept exact fare in coins. Dollar bills, pennies, and half-dollar coins are not accepted. OMNY is the MTA's new fare payment system. Use your contactless card or smart device to pay the fare on buses and subways. Visit omny.info for details of the rollout.

Free Transfers – Unlimited Ride MetroCard permits free transfers to all but our express buses (between subway and local bus, local bus and local bus etc.) Pay-Per-Ride MetroCard allows one free transfer of equal or lesser value if you complete your transfer within two hours of the time you pay your full fare with the same MetroCard. If you pay your local bus fare with coins, ask for a free electronic paper transfer to use on another local bus.

Reduced-Fare Benefits – You are eligible for reduced-fare benefits if you are at least 65 years of age or have a qualifying disability. Benefits are available (except on peak-hour express buses) with proper identification, including Reduced-Fare MetroCard or Medicare card.

Children – The subway, SIR, local, Limited-Stop, and +SelectBusService buses permit up to three children, 44 inches tall and under to ride free when accompanied by an adult paying full fare.

Terms and Conditions – Fares and MetroCard use are subject to applicable tariffs and conditions of use.

Bus Operator Apple Award

If you think your bus operator deserves an Apple Award--our special recognition for this service, courtesy and professionalism-- go to mta.info/customer-feedback or call 511 and give us the badge or bus number.

Holiday Service 2022

Reduced weekday service operates on: Martin Luther King Day*, Day After Thanksgiving*.

Saturday service operates on: Presidents Day*, Independence Day, Dec 26.

Sunday service operates on: Memorial Day, Labor Day, Thanksgiving Day, Christmas Day+, New Years Day+.

** Special schedules for these days will be available at mta.info for express routes only.*
+ Service information for the day preceding this holiday or holiday weekend will be provided on mta.info, and on service notices posted on buses.
Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Travel Help and Information

511 **One MTA One Number.** Call 511 and say MTA.

TTY/TDD users only..... 711
Online: www.mta.info

IF YOU SEE SOMETHING, SAY SOMETHING.

Be suspicious of anything unattended. Tell a cop, an MTA employee or call 1-888-692-7233 (1-888-NYC-SAFE).

Filing a Title VI Complaint – MTA New York City Transit ("NYC Transit") and MTA Bus Company are committed to providing non-discriminatory service to ensure that no person is excluded from participation in, or denied the benefits of, or subjected to discrimination in the receipt of its services on the basis of race, color or national origin as protected by Title VI of the Civil Rights Act of 1964 ("Title VI").

To request more information about Title VI or to submit a written complaint if you believe that you have been subjected to discrimination, you may contact NYC Transit's Office of Equal Employment Opportunity, 130 Livingston Street, 3rd Floor, Brooklyn, NY 11201.

In addition to your right to file a complaint with NYC Transit and MTA Bus Company, you have the right to file a Title VI complaint with the U.S. Department of Transportation, Federal Transit Administration, Office of Civil Rights, Attention: Complaint Team, East Building 5th Floor – TCR, 1200 New Jersey Avenue SE, Washington, DC 20590.

We’re serious about safety

your safety

We are committed to providing you with the safest service possible. Please take a moment to read this list and consider what can happen if you’re not careful:

- **Don’t run for the bus** — that’s when most accidents happen. Slips, trips, and falls are the most common causes of injuries.
- **Stand behind the white line** if you are in the front of the bus. A sudden stop could propel you forward into the dashboard, window, or stairwell.
- **Avoid standing in the stairwell** of the rear door, and don’t lean on the rear door.
- **Allow the bus operator to secure your chair** if you are in a wheelchair.
- **Keep your head and arms inside** bus windows.
- **Hold the handrail** when you exit, particularly in wintry weather when the steps get slippery from snow.
- **Signal the bus operator** two blocks before you want to get off so that there’s sufficient time to stop.
- **Watch for cars** as you leave the bus. This becomes even more important when the bus operator is unable to pull completely into the bus stop. Make it a point to not cross in front of the bus after you get off.

Q47

Local Service

Effective January 3, 2021

Bus Timetable

MTA Bus Company

For accessible subway stations, travel directions and other information:
Call 511 or visit www.mta.info

Q47 Weekday — To Marine Air Terminal

Cooper Av / 81 St (C)	80 St / Grand Av (8)	69 St / 49 Av (6)	Roosevelt Av / 74 St (R)	Bulova Corporate Ce / Bulova Corporate Ct (B)	82 St / Astoria Bl (8)	LGA / Marine Air Terminal (Terminal A) (L)
5:00 AM	5:09 AM	5:16 AM	5:24 AM	-	5:35 AM	5:40 AM
5:20 AM	5:29 AM	5:36 AM	5:44 AM	5:55 AM	5:59 AM	6:04 AM
5:35 AM	5:44 AM	5:51 AM	5:59 AM	6:10 AM	6:14 AM	6:19 AM
5:47 AM	5:56 AM	6:03 AM	6:11 AM	6:22 AM	6:26 AM	6:31 AM
5:59 AM	6:08 AM	6:15 AM	6:23 AM	6:34 AM	6:39 AM	6:44 AM
6:11 AM	6:20 AM	6:27 AM	6:35 AM	6:47 AM	6:52 AM	6:57 AM
6:23 AM	6:32 AM	6:42 AM	6:50 AM	7:02 AM	7:07 AM	7:12 AM
6:35 AM	6:46 AM	6:56 AM	7:04 AM	7:17 AM	7:22 AM	7:27 AM
6:45 AM	6:56 AM	7:06 AM	7:16 AM	7:29 AM	7:34 AM	7:39 AM
6:55 AM	7:06 AM	7:18 AM	7:28 AM	7:41 AM	7:47 AM	7:52 AM
7:05 AM	7:17 AM	7:29 AM	7:39 AM	7:52 AM	7:58 AM	8:03 AM
7:13 AM	7:25 AM	7:37 AM	7:48 AM	8:01 AM	8:06 AM	8:11 AM
7:20 AM	7:32 AM	7:44 AM	7:55 AM	8:08 AM	8:13 AM	8:18 AM
7:28 AM	7:40 AM	7:52 AM	8:03 AM	8:16 AM	8:21 AM	8:26 AM
7:35 AM	7:47 AM	7:59 AM	8:10 AM	8:23 AM	8:28 AM	8:33 AM
7:41 AM	7:53 AM	8:05 AM	8:14 AM	8:27 AM	8:32 AM	8:37 AM
7:48 AM	8:00 AM	8:11 AM	8:20 AM	8:33 AM	8:38 AM	8:43 AM
7:54 AM	8:06 AM	8:17 AM	8:26 AM	8:39 AM	8:44 AM	8:49 AM
8:01 AM	8:12 AM	8:23 AM	8:32 AM	8:45 AM	8:50 AM	8:55 AM
8:07 AM	8:18 AM	8:29 AM	8:38 AM	8:51 AM	8:56 AM	9:01 AM
8:14 AM	8:25 AM	8:36 AM	8:45 AM	8:58 AM	9:03 AM	9:08 AM
8:22 AM	8:33 AM	8:41 AM	8:50 AM	9:03 AM	9:08 AM	9:13 AM
8:30 AM	8:40 AM	8:48 AM	8:57 AM	9:10 AM	9:15 AM	9:20 AM
8:38 AM	8:48 AM	8:56 AM	9:05 AM	9:18 AM	9:23 AM	9:28 AM
8:48 AM	8:58 AM	9:06 AM	9:15 AM	9:28 AM	9:33 AM	9:38 AM
8:58 AM	9:08 AM	9:16 AM	9:25 AM	9:38 AM	9:43 AM	9:48 AM
9:08 AM	9:18 AM	9:26 AM	9:35 AM	9:48 AM	9:53 AM	9:58 AM

Cooper Av / 81 St (C)	80 St / Grand Av (8)	69 St / 49 Av (6)	Roosevelt Av / 74 St (R)	Bulova Corporate Ce / Bulova Corporate Ct (B)	82 St / Astoria Bl (8)	LGA / Marine Air Terminal (Terminal A) (L)
9:18 AM	9:28 AM	9:36 AM	9:45 AM	9:58 AM	10:03 AM	10:08 AM
9:30 AM	9:40 AM	9:48 AM	9:57 AM	10:10 AM	10:15 AM	10:20 AM
9:50 AM	10:00 AM	10:08 AM	10:17 AM	10:30 AM	10:35 AM	10:40 AM
10:10 AM	10:20 AM	10:28 AM	10:37 AM	10:50 AM	10:55 AM	11:00 AM
10:30 AM	10:40 AM	10:48 AM	10:57 AM	11:10 AM	11:15 AM	11:20 AM
10:50 AM	11:00 AM	11:08 AM	11:17 AM	11:30 AM	11:36 AM	11:41 AM
11:10 AM	11:20 AM	11:28 AM	11:37 AM	11:52 AM	11:58 AM	12:03 PM
11:30 AM	11:40 AM	11:48 AM	11:57 AM	12:12 PM	12:18 PM	12:23 PM
11:50 AM	12:00 PM	12:08 PM	12:17 PM	12:32 PM	12:38 PM	12:43 PM
12:10 PM	12:20 PM	12:28 PM	12:37 PM	12:52 PM	12:58 PM	1:03 PM
12:30 PM	12:40 PM	12:48 PM	12:57 PM	1:12 PM	1:18 PM	1:23 PM
12:50 PM	1:00 PM	1:08 PM	1:17 PM	1:32 PM	1:38 PM	1:43 PM
1:10 PM	1:20 PM	1:28 PM	1:37 PM	1:52 PM	1:58 PM	2:03 PM
1:30 PM	1:40 PM	1:48 PM	1:57 PM	2:12 PM	2:19 PM	2:24 PM
1:50 PM	2:00 PM	2:08 PM	2:20 PM	2:36 PM	2:43 PM	2:48 PM
2:10 PM	2:20 PM	2:28 PM	2:40 PM	2:56 PM	3:03 PM	3:08 PM
2:30 PM	2:40 PM	2:48 PM	3:00 PM	-	3:19 PM	3:24 PM
2:45 PM	2:55 PM	3:03 PM	3:15 PM	-	3:34 PM	3:39 PM
2:57 PM	3:07 PM	3:15 PM	3:27 PM	-	3:46 PM	3:51 PM
3:09 PM	3:19 PM	3:27 PM	3:39 PM	-	3:58 PM	4:03 PM
3:21 PM	3:31 PM	3:39 PM	3:51 PM	-	4:10 PM	4:15 PM
3:33 PM	3:43 PM	3:51 PM	4:03 PM	-	4:22 PM	4:27 PM
3:45 PM	3:55 PM	4:03 PM	4:15 PM	-	4:34 PM	4:39 PM
3:55 PM	4:05 PM	4:13 PM	4:25 PM	-	4:44 PM	4:49 PM
4:05 PM	4:15 PM	4:23 PM	4:35 PM	-	4:54 PM	4:59 PM
4:15 PM	4:25 PM	4:33 PM	4:45 PM	-	5:04 PM	5:09 PM
4:25 PM	4:35 PM	4:43 PM	4:55 PM	-	5:14 PM	5:19 PM
4:35 PM	4:45 PM	4:53 PM	5:05 PM	-	5:24 PM	5:29 PM
4:43 PM	4:53 PM	5:01 PM	5:13 PM	-	5:32 PM	5:37 PM
4:51 PM	5:01 PM	5:09 PM	5:21 PM	-	5:40 PM	5:45 PM
4:59 PM	5:09 PM	5:17 PM	5:29 PM	-	5:48 PM	5:53 PM
5:07 PM	5:17 PM	5:25 PM	5:37 PM	-	5:56 PM	6:01 PM
5:15 PM	5:25 PM	5:33 PM	5:45 PM	-	6:04 PM	6:09 PM
5:23 PM	5:33 PM	5:41 PM	5:53 PM	-	6:12 PM	6:17 PM
5:31 PM	5:41 PM	5:49 PM	6:01 PM	-	6:20 PM	6:25 PM
5:39 PM	5:49 PM	5:57 PM	6:09 PM	-	6:28 PM	6:33 PM

Cooper Av / 81 St (C)	80 St / Grand Av (8)	69 St / 49 Av (6)	Roosevelt Av / 74 St (R)	Bulova Corporate Ce / Bulova Corporate Ct (B)	82 St / Astoria Bl (8)	LGA / Marine Air Terminal (Terminal A) (L)
5:47 PM	5:57 PM	6:05 PM	6:17 PM	-	6:36 PM	6:41 PM
5:55 PM	6:05 PM	6:13 PM	6:25 PM	-	6:44 PM	6:49 PM
6:04 PM	6:14 PM	6:22 PM	6:34 PM	-	6:53 PM	6:58 PM
6:12 PM	6:22 PM	6:30 PM	6:42 PM	-	7:01 PM	7:06 PM
6:21 PM	6:31 PM	6:39 PM	6:51 PM	-	7:10 PM	7:15 PM
6:29 PM	6:39 PM	6:47 PM	6:59 PM	-	7:18 PM	7:23 PM
6:38 PM	6:48 PM	6:56 PM	7:08 PM	-	7:26 PM	7:31 PM
6:46 PM	6:56 PM	7:04 PM	7:13 PM	-	7:31 PM	7:36 PM
6:55 PM	7:05 PM	7:12 PM	7:21 PM	-	7:39 PM	7:44 PM
7:03 PM	7:12 PM	7:19 PM	7:28 PM	-	7:46 PM	7:51 PM
7:12 PM	7:21 PM	7:28 PM	7:37 PM	-	7:55 PM	8:00 PM
7:20 PM	7:29 PM	7:36 PM	7:45 PM	-	8:03 PM	8:08 PM
7:29 PM	7:38 PM	7:45 PM	7:54 PM	-	8:12 PM	8:17 PM
7:39 PM	7:48 PM	7:55 PM	8:04 PM	-	8:22 PM	8:27 PM
7:49 PM	7:58 PM	8:05 PM	8:14 PM	-	8:32 PM	8:37 PM
7:59 PM	8:08 PM	8:15 PM	8:24 PM	-	8:42 PM	8:47 PM
8:11 PM	8:20 PM	8:27 PM	8:36 PM	-	8:51 PM	8:56 PM
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8:35 PM	8:43 PM	8:49 PM	8:54 PM	-	9:09 PM	9:14 PM
8:50 PM	8:58 PM	9:04 PM	9:09 PM	-	9:24 PM	9:29 PM
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9:20 PM	9:28 PM	9:34 PM	9:39 PM	-	9:54 PM	9:59 PM
9:40 PM	9:48 PM	9:54 PM	9:59 PM	-	10:14 PM	10:19 PM
10:00 PM	10:08 PM	10:14 PM	10:19 PM	-	10:34 PM	10:39 PM
10:30 PM	10:38 PM	10:44 PM	10:49 PM	-	11:04 PM	11:09 PM
11:00 PM	11:08 PM	11:14 PM	11:19 PM	-	11:34 PM	11:38 PM
11:30 PM	11:37 PM	11:42 PM	11:49 PM	-	12:03 AM	12:07 AM
12:00 AM	12:07 AM	12:12 AM	12:19 AM	-	12:33 AM	12:37 AM
12:30 AM	12:37 AM	12:42 AM	12:49 AM	-	1:03 AM	1:07 AM

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5:20 AM	5:24 AM	-	5:32 AM	5:42 AM	5:55 AM	6:03 AM
5:40 AM	5:44 AM	-	5:52 AM	6:02 AM	6:15 AM	6:23 AM
5:55 AM	5:59 AM	-	6:07 AM	6:17 AM	6:30 AM	6:39 AM
6:10 AM	6:14 AM	-	6:22 AM	6:32 AM	6:49 AM	6:58 AM
6:25 AM	6:29 AM	-	6:37 AM	6:47 AM	7:04 AM	7:14 AM
6:40 AM	6:44 AM	-	6:52 AM	7:02 AM	7:20 AM	7:30 AM
-	6:52 AM	-	7:00 AM	7:12 AM	7:30 AM	7:41 AM
6:55 AM	6:59 AM	-	7:07 AM	7:19 AM	7:37 AM	7:48 AM
-	7:06 AM	-	7:13 AM	7:25 AM	7:43 AM	7:54 AM
7:07 AM	7:12 AM	-	7:19 AM	7:31 AM	7:51 AM	8:02 AM
-	7:18 AM	-	7:25 AM	7:37 AM	7:57 AM	8:08 AM
7:19 AM	7:24 AM	-	7:31 AM	7:44 AM	8:04 AM	8:13 AM
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7:43 AM	7:48 AM	-	7:55 AM	8:08 AM	8:25 AM	8:34 AM
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7:55 AM	8:00 AM	-	8:08 AM	8:20 AM	8:37 AM	8:46 AM
-	8:06 AM	-	8:14 AM	8:26 AM	8:43 AM	8:52 AM
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8:19 AM	8:24 AM	-	8:32 AM	8:44 AM	9:01 AM	9:10 AM
8:31 AM	8:36 AM	-	8:44 AM	8:56 AM	9:13 AM	9:22 AM
8:43 AM	8:48 AM	-	8:56 AM	9:08 AM	9:22 AM	9:31 AM
8:55 AM	9:00 AM	-	9:08 AM	9:19 AM	9:33 AM	9:42 AM
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9:20 AM	9:24 AM	-	9:32 AM	9:43 AM	9:57 AM	10:06 AM
9:35 AM	9:39 AM	-	9:47 AM	9:58 AM	10:12 AM	10:21 AM
9:50 AM	9:54 AM	9:59 AM	10:06 AM	10:17 AM	10:31 AM	10:40 AM
10:10 AM	10:14 AM	10:19 AM	10:26 AM	10:37 AM	10:51 AM	11:00 AM
10:30 AM	10:34 AM	10:39 AM	10:46 AM	10:57 AM	11:11 AM	11:20 AM
10:50 AM	10:54 AM	10:59 AM	11:06 AM	11:17 AM	11:31 AM	11:40 AM
11:10 AM	11:14 AM	11:19 AM	11:26 AM	11:37 AM	11:51 AM	12:00 PM
11:30 AM	11:34 AM	11:39 AM	11:46 AM	11:57 AM	12:11 PM	12:20 PM

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11:50 AM	11:54 AM	11:59 AM	12:06 PM	12:17 PM	12:31 PM	12:40 PM
12:10 PM	12:14 PM	12:19 PM	12:26 PM	12:37 PM	12:51 PM	1:00 PM
12:30 PM	12:34 PM	12:39 PM	12:46 PM	12:57 PM	1:11 PM	1:21 PM
12:50 PM	12:54 PM	12:59 PM	1:06 PM	1:18 PM	1:34 PM	1:44 PM
1:10 PM	1:14 PM	1:19 PM	1:26 PM	1:38 PM	1:54 PM	2:04 PM
1:25 PM	1:29 PM	1:34 PM	1:41 PM	1:53 PM	2:09 PM	2:21 PM
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6:20 PM	6:25 PM	6:30 PM	6:37 PM	6:50 PM	7:08 PM	7:18 PM
6:30 PM	6:35 PM	6:40 PM	6:47 PM	7:00 PM	7:18 PM	7:28 PM
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6:50 PM	6:55 PM	7:00 PM	7:07 PM	7:20 PM	7:38 PM	7:48 PM

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7:00 PM	7:05 PM	-	7:12 PM	7:25 PM	7:43 PM	7:53 PM
7:10 PM	7:15 PM	-	7:22 PM	7:35 PM	7:50 PM	8:00 PM
7:20 PM	7:25 PM	-	7:32 PM	7:44 PM	7:59 PM	8:09 PM
7:30 PM	7:34 PM	-	7:40 PM	7:52 PM	8:07 PM	8:17 PM
7:45 PM	7:49 PM	-	7:55 PM	8:07 PM	8:22 PM	8:32 PM
8:00 PM	8:04 PM	-	8:10 PM	8:22 PM	8:37 PM	8:47 PM
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11:00 PM	11:04 PM	-	11:10 PM	11:20 PM	11:35 PM	11:44 PM
11:30 PM	11:34 PM	-	11:40 PM	11:50 PM	12:05 AM	12:14 AM
12:00 AM	12:04 AM	-	12:10 AM	12:20 AM	12:35 AM	12:44 AM
12:30 AM	12:34 AM	-	12:40 AM	12:50 AM	1:05 AM	1:14 AM

Q47 Saturday				To Marine Air Terminal	
Cooper Av / 81 St (C)	**80 St / Grand Av (8)**	**69 St / 49 Av (6)**	**Roosevelt Av / 74 St (R)**	**82 St / Astoria Bl (8)**	**LGA / Marine Air Terminal (Terminal A) (L)**
-	-	-	5:55 AM	6:10 AM	6:15 AM
6:30 AM	6:40 AM	6:46 AM	6:55 AM	7:10 AM	7:15 AM
6:50 AM	7:00 AM	7:06 AM	7:15 AM	7:30 AM	7:35 AM
7:10 AM	7:20 AM	7:26 AM	7:35 AM	7:50 AM	7:55 AM
7:30 AM	7:40 AM	7:46 AM	7:55 AM	8:10 AM	8:15 AM
7:50 AM	8:00 AM	8:06 AM	8:15 AM	8:30 AM	8:35 AM
8:10 AM	8:20 AM	8:26 AM	8:35 AM	8:50 AM	8:55 AM
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8:20 PM	8:30 PM	8:36 PM	8:45 PM	9:00 PM	9:05 PM
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11:30 PM	11:40 PM	11:46 PM	11:55 PM	12:10 AM	12:15 AM
12:00 AM	12:10 AM	12:16 AM	12:25 AM	12:40 AM	12:45 AM

Q47 Saturday — To Glendale

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6:30 AM	6:36 AM	6:41 AM	6:52 AM	7:06 AM	7:16 AM
7:00 AM	7:06 AM	7:11 AM	7:22 AM	7:36 AM	7:46 AM
7:30 AM	7:36 AM	7:41 AM	7:52 AM	8:06 AM	8:16 AM
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10:00 AM	10:06 AM	10:11 AM	10:21 AM	10:35 AM	10:45 AM
10:30 AM	10:36 AM	10:41 AM	10:51 AM	11:05 AM	11:15 AM
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12:00 PM	12:06 PM	12:11 PM	12:21 PM	12:35 PM	12:45 PM
12:30 PM	12:36 PM	12:41 PM	12:51 PM	1:05 PM	1:15 PM
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7:15 PM	7:21 PM	7:26 PM	7:36 PM	7:50 PM	8:00 PM
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8:10 PM	8:16 PM	8:21 PM	8:31 PM	8:45 PM	8:55 PM

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10:30 PM	10:36 PM	10:41 PM	10:51 PM	11:05 PM	11:15 PM
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12:30 AM	12:36 AM	12:41 AM	12:51 AM	-	-

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8:30 AM	8:40 AM	8:46 AM	8:55 AM	9:10 AM	9:15 AM
9:00 AM	9:10 AM	9:16 AM	9:25 AM	9:40 AM	9:45 AM
9:30 AM	9:40 AM	9:46 AM	9:55 AM	10:10 AM	10:15 AM
10:00 AM	10:10 AM	10:16 AM	10:25 AM	10:40 AM	10:45 AM
10:30 AM	10:40 AM	10:46 AM	10:55 AM	11:10 AM	11:15 AM
11:00 AM	11:10 AM	11:16 AM	11:25 AM	11:40 AM	11:45 AM
11:30 AM	11:40 AM	11:46 AM	11:55 AM	12:10 PM	12:15 PM
12:00 PM	12:10 PM	12:16 PM	12:25 PM	12:40 PM	12:45 PM
12:30 PM	12:40 PM	12:46 PM	12:55 PM	1:10 PM	1:15 PM
1:00 PM	1:10 PM	1:16 PM	1:25 PM	1:40 PM	1:45 PM
1:30 PM	1:40 PM	1:46 PM	1:55 PM	2:10 PM	2:15 PM
2:00 PM	2:10 PM	2:16 PM	2:25 PM	2:40 PM	2:45 PM
2:30 PM	2:40 PM	2:46 PM	2:55 PM	3:10 PM	3:15 PM
3:00 PM	3:10 PM	3:16 PM	3:25 PM	3:40 PM	3:45 PM
3:30 PM	3:40 PM	3:46 PM	3:55 PM	4:10 PM	4:15 PM
4:00 PM	4:10 PM	4:16 PM	4:25 PM	4:40 PM	4:45 PM
4:30 PM	4:40 PM	4:46 PM	4:55 PM	5:10 PM	5:15 PM
5:00 PM	5:10 PM	5:16 PM	5:25 PM	5:40 PM	5:45 PM
5:30 PM	5:40 PM	5:46 PM	5:55 PM	6:10 PM	6:15 PM
6:00 PM	6:10 PM	6:16 PM	6:25 PM	6:40 PM	6:45 PM
6:30 PM	6:40 PM	6:46 PM	6:55 PM	7:10 PM	7:15 PM
7:00 PM	7:10 PM	7:16 PM	7:25 PM	7:40 PM	7:45 PM
7:30 PM	7:40 PM	7:46 PM	7:55 PM	8:10 PM	8:15 PM
8:00 PM	8:10 PM	8:16 PM	8:25 PM	8:40 PM	8:45 PM
8:30 PM	8:40 PM	8:46 PM	8:55 PM	9:10 PM	9:15 PM
9:00 PM	9:10 PM	9:16 PM	9:25 PM	9:40 PM	9:45 PM
9:30 PM	9:40 PM	9:46 PM	9:55 PM	10:10 PM	10:15 PM
10:00 PM	10:10 PM	10:16 PM	10:25 PM	10:40 PM	10:45 PM
10:30 PM	10:40 PM	10:46 PM	10:55 PM	11:10 PM	11:15 PM
11:00 PM	11:10 PM	11:16 PM	11:25 PM	11:40 PM	11:45 PM
11:30 PM	11:40 PM	11:46 PM	11:55 PM	12:10 AM	12:15 AM
12:00 AM	12:10 AM	12:16 AM	12:25 AM	12:40 AM	12:45 AM

Q47 Sunday					To Marine Air Terminal
LGA / Marine Air Terminal (Terminal A) (L)	82 St / Astoria Bl (8)	73 St / 31 Av (7)	Broadway / Roosevelt Av (B)	80 St / Grand Av (8)	Cooper Av / 81 St (C)
6:30 AM	6:36 AM	6:41 AM	6:52 AM	7:06 AM	7:16 AM
7:00 AM	7:06 AM	7:11 AM	7:22 AM	7:36 AM	7:46 AM
7:30 AM	7:36 AM	7:41 AM	7:52 AM	8:06 AM	8:16 AM
8:00 AM	8:06 AM	8:11 AM	8:22 AM	8:36 AM	8:46 AM
8:30 AM	8:36 AM	8:41 AM	8:52 AM	9:06 AM	9:16 AM
9:00 AM	9:06 AM	9:11 AM	9:21 AM	9:35 AM	9:45 AM
9:30 AM	9:36 AM	9:41 AM	9:51 AM	10:05 AM	10:15 AM
10:00 AM	10:06 AM	10:11 AM	10:21 AM	10:35 AM	10:45 AM
10:30 AM	10:36 AM	10:41 AM	10:51 AM	11:05 AM	11:15 AM
11:00 AM	11:06 AM	11:11 AM	11:21 AM	11:35 AM	11:45 AM
11:30 AM	11:36 AM	11:41 AM	11:51 AM	12:05 PM	12:15 PM
12:00 PM	12:06 PM	12:11 PM	12:21 PM	12:35 PM	12:45 PM
12:30 PM	12:36 PM	12:41 PM	12:51 PM	1:05 PM	1:15 PM
1:00 PM	1:06 PM	1:11 PM	1:21 PM	1:35 PM	1:45 PM
1:30 PM	1:36 PM	1:41 PM	1:51 PM	2:05 PM	2:15 PM
2:00 PM	2:06 PM	2:11 PM	2:21 PM	2:35 PM	2:45 PM
2:30 PM	2:36 PM	2:41 PM	2:51 PM	3:05 PM	3:15 PM
3:00 PM	3:06 PM	3:11 PM	3:22 PM	3:36 PM	3:46 PM
3:30 PM	3:36 PM	3:41 PM	3:52 PM	4:06 PM	4:16 PM
4:00 PM	4:06 PM	4:11 PM	4:22 PM	4:36 PM	4:46 PM
4:30 PM	4:36 PM	4:41 PM	4:52 PM	5:06 PM	5:16 PM
5:00 PM	5:06 PM	5:11 PM	5:22 PM	5:36 PM	5:46 PM
5:30 PM	5:36 PM	5:41 PM	5:52 PM	6:06 PM	6:16 PM
6:00 PM	6:06 PM	6:11 PM	6:22 PM	6:36 PM	6:46 PM
6:30 PM	6:36 PM	6:41 PM	6:52 PM	7:06 PM	7:16 PM
7:00 PM	7:06 PM	7:11 PM	7:21 PM	7:35 PM	7:45 PM
7:30 PM	7:36 PM	7:41 PM	7:51 PM	8:05 PM	8:15 PM
8:00 PM	8:06 PM	8:11 PM	8:21 PM	8:35 PM	8:45 PM
8:30 PM	8:36 PM	8:41 PM	8:51 PM	9:05 PM	9:15 PM
9:00 PM	9:06 PM	9:11 PM	9:21 PM	9:35 PM	9:45 PM
9:30 PM	9:36 PM	9:41 PM	9:51 PM	10:05 PM	10:15 PM
10:00 PM	10:06 PM	10:11 PM	10:21 PM	10:35 PM	10:45 PM
10:30 PM	10:36 PM	10:41 PM	10:51 PM	11:05 PM	11:15 PM
11:00 PM	11:06 PM	11:11 PM	11:21 PM	11:35 PM	11:45 PM
11:30 PM	11:36 PM	11:41 PM	11:51 PM	12:05 AM	12:15 AM

LGA / Marine Air Terminal (Terminal A) (L)	82 St / Astoria Bl (8)	73 St / 31 Av (7)	Broadway / Roosevelt Av (B)	80 St / Grand Av (8)	Cooper Av / 81 St (C)
12:00 AM	12:06 AM	12:11 AM	12:21 AM	12:35 AM	12:45 AM
12:30 AM	12:36 AM	12:41 AM	12:51 AM	-	-

Q47

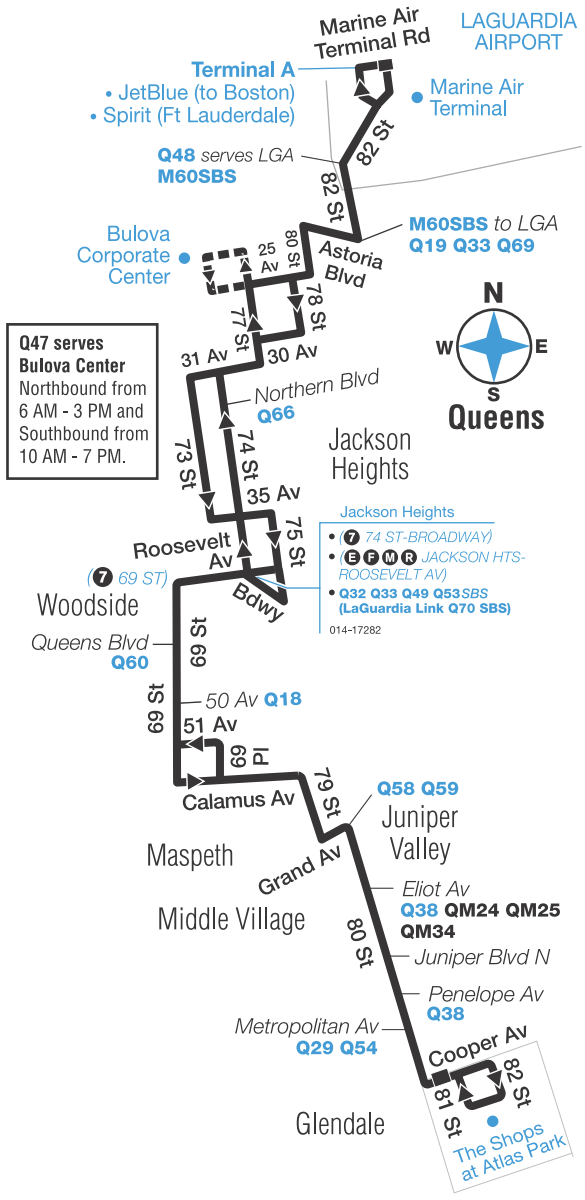
Local Service

Effective January 3, 2021

Bus Timetable

MTA Bus Company

For accessible subway stations, travel directions and other information:
Call 511 or visit www.mta.info



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Q47 MAP LEGEND

Local/Limited/SBS Bus Transfers: shown in bold blue type.
Express Bus Transfers: shown in bold black type.

- Terminal
- Point of Interest
- (E STATION NAME) Subway Connection
- Part-time Service

Fares – MetroCard® is accepted for all MTA New York City trains (including Staten Island Railway - SIR), and, local, Limited-Stop and +SelectBusService buses (at MetroCard fare collection machines). Express buses only accept 7-Day Express Bus Plus MetroCard or Pay-Per-Ride MetroCard. All of our buses and +SelectBusService Coin Fare Collector machines accept exact fare in coins. Dollar bills, pennies, and half-dollar coins are not accepted. OMNY is the MTA's new fare payment system. Use your contactless card or smart device to pay the fare on buses and subways. Visit omny.info for details of the rollout.

Free Transfers – Unlimited Ride MetroCard permits free transfers to all but our express buses (between subway and local bus, local bus and local bus etc.) Pay-Per-Ride MetroCard allows one free transfer of equal or lesser value if you complete your transfer within two hours of the time you pay your full fare with the same MetroCard. If you pay your local bus fare with coins, ask for a free electronic paper transfer to use on another local bus.

Reduced-Fare Benefits – You are eligible for reduced-fare benefits if you are at least 65 years of age or have a qualifying disability. Benefits are available (except on peak-hour express buses) with proper identification, including Reduced-Fare MetroCard or Medicare card.

Children – The subway, SIR, local, Limited-Stop, and +SelectBusService buses permit up to three children, 44 inches tall and under to ride free when accompanied by an adult paying full fare.

Terms and Conditions – Fares and MetroCard use are subject to applicable tariffs and conditions of use.

Bus Operator Apple Award

If you think your bus operator deserves an Apple Award--our special recognition for this service, courtesy and professionalism-- go to mta.info/customer-feedback or call 511 and give us the badge or bus number.

Holiday Service 2022

Reduced weekday service operates on: Martin Luther King Day*, Day After Thanksgiving*.

Saturday service operates on: Presidents Day*, Independence Day, Dec 26.

Sunday service operates on: Memorial Day, Labor Day, Thanksgiving Day, Christmas Day+, New Years Day+.

** Special schedules for these days will be available at mta.info for express routes only.*
+ Service information for the day preceding this holiday or holiday weekend will be provided on mta.info, and on service notices posted on buses.
Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Travel Help and Information

511 **One MTA One Number.** Call 511 and say MTA.

TTY/TDD users only..... 711
Online: www.mta.info

IF YOU SEE SOMETHING, SAY SOMETHING.

Be suspicious of anything unattended. Tell a cop, an MTA employee or call 1-888-692-7233 (1-888-NYC-SAFE).

Filing a Title VI Complaint – MTA New York City Transit ("NYC Transit") and MTA Bus Company are committed to providing non-discriminatory service to ensure that no person is excluded from participation in, or denied the benefits of, or subjected to discrimination in the receipt of its services on the basis of race, color or national origin as protected by Title VI of the Civil Rights Act of 1964 ("Title VI").

To request more information about Title VI or to submit a written complaint if you believe that you have been subjected to discrimination, you may contact NYC Transit's Office of Equal Employment Opportunity, 130 Livingston Street, 3rd Floor, Brooklyn, NY 11201.

In addition to your right to file a complaint with NYC Transit and MTA Bus Company, you have the right to file a Title VI complaint with the U.S. Department of Transportation, Federal Transit Administration, Office of Civil Rights, Attention: Complaint Team, East Building 5th Floor – TCR, 1200 New Jersey Avenue SE, Washington, DC 20590.

We’re serious about safety

your safety

We are committed to providing you with the safest service possible. Please take a moment to read this list and consider what can happen if you’re not careful:

- **Don’t run for the bus** — that’s when most accidents happen. Slips, trips, and falls are the most common causes of injuries.
- **Stand behind the white line** if you are in the front of the bus. A sudden stop could propel you forward into the dashboard, window, or stairwell.
- **Avoid standing in the stairwell** of the rear door, and don’t lean on the rear door.
- **Allow the bus operator to secure your chair** if you are in a wheelchair.
- **Keep your head and arms inside** bus windows.

- **Hold the handrail** when you exit, particularly in wintry weather when the steps get slippery Borough from snow.
- **Signal the bus operator** two blocks before you want to get off so that there’s sufficient time to stop.
- **Watch for cars** as you leave the bus. This becomes even more important when the bus operator is unable to pull completely into the bus stop. Make it a point to not cross in front of the bus after you get off.

Q53/Q52-SBS

Bus Timetable
MTA Bus Company

Elmhurst/Woodside - Averne/Rockaway Park Via Broadway / Queens Blvd / Woodhaven Blvd / Cross Bay Blvd

+**select**bus**service**

Effective June 27, 2021

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511

We are introducing a new style to our timetables. These read better on mobile devices and print better on home printers. This is a work in progress — the design will evolve over the coming months. Soon, we'll also have an online timetable viewer with more ways to view timetables. Let us know your thoughts, questions, or suggestions about the new timetables at new.mta.info/timetables-feedback.

Q53/Q52-SBS Weekday — To Elmhurst/Woodside

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	1:00	-	1:10	1:45	1:59
	2:00	-	2:10	2:45	2:59
	3:00	-	3:10	3:45	3:59
	4:00	-	4:10	4:45	4:59
	4:30	-	4:40	5:15	5:29
	5:00	-	5:10	5:45	5:59
Q52	-	5:00	5:15	5:50	-
	5:15	-	5:25	6:00	6:19
Q52	-	5:20	5:35	6:10	-
	5:30	-	5:40	6:15	6:34
Q52	-	5:35	5:50	6:25	-
	5:42	-	5:52	6:27	6:46
	5:54	-	6:04	6:45	7:04
Q52	-	5:50	6:05	6:46	-
	6:06	-	6:17	6:58	7:17
Q52	-	6:05	6:22	7:03	-
	6:18	-	6:29	7:10	7:29
Q52	-	6:20	6:37	7:18	-
	6:28	-	6:39	7:20	7:39
	6:36	-	6:47	7:28	7:47
Q52	-	6:35	6:52	7:33	-
	6:42	-	6:53	7:34	7:53
	6:48	-	6:59	7:40	7:59
	6:54	-	7:05	7:46	8:05
Q52	-	6:50	7:07	7:48	-
	7:01	-	7:12	7:53	8:12
	7:09	-	7:20	8:01	8:20
Q52	-	7:05	7:22	8:03	-
	7:16	-	7:27	8:08	8:27
	7:24	-	7:35	8:16	8:35
Q52	-	7:20	7:37	8:18	-
	7:32	-	7:43	8:24	8:43
	7:40	-	7:51	8:32	8:51
Q52	-	7:35	7:52	8:33	-
	7:48	-	7:59	8:40	8:59
	7:56	-	8:07	8:48	9:07
Q52	-	7:50	8:07	8:48	-

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	8:04	-	8:15	8:56	9:15
Q52	-	8:05	8:22	9:03	-
	8:12	-	8:23	9:04	9:23
	8:20	-	8:31	9:06	9:25
Q52	-	8:20	8:37	9:12	-
	8:28	-	8:39	9:14	9:33
	8:35	-	8:46	9:21	9:40
Q52	-	8:35	8:52	9:27	-
	8:43	-	8:54	9:29	9:48
	8:50	-	9:01	9:36	9:55
	8:58	-	9:09	9:44	10:03
Q52	-	8:55	9:12	9:47	-
	9:05	-	9:16	9:51	10:10
	9:13	-	9:24	9:59	10:18
	9:21	-	9:32	10:07	10:26
Q52	-	9:15	9:32	10:07	-
	9:29	-	9:40	10:15	10:34
	9:37	-	9:48	10:23	10:42
Q52	-	9:35	9:52	10:27	-
	9:45	-	9:56	10:31	10:50
	9:53	-	10:04	10:43	11:02
	10:01	-	10:12	10:51	11:10
Q52	-	9:55	10:12	10:51	-
	10:11	-	10:22	11:01	11:23
	10:21	-	10:32	11:11	11:33
Q52	-	10:15	10:32	11:11	-
	10:33	-	10:44	11:23	11:45
Q52	-	10:35	10:52	11:31	-
	10:45	-	10:56	11:35	11:57
	10:57	-	11:08	11:47	**12:09**
Q52	-	10:56	11:13	11:52	-
	11:09	-	11:20	11:59	**12:21**
	11:21	-	11:32	**12:11**	**12:33**
Q52	-	11:15	11:32	**12:11**	-
	11:33	-	11:44	**12:23**	**12:45**
Q52	-	11:35	11:52	**12:31**	-
	11:45	-	11:56	**12:35**	**12:57**
	11:57	-	**12:08**	**12:50**	**1:12**
Q52	-	11:55	**12:12**	**12:54**	-
	12:09	-	**12:20**	**1:02**	**1:24**
	12:21	-	**12:32**	**1:14**	**1:36**
Q52	-	**12:15**	**12:32**	**1:14**	-
	12:33	-	**12:44**	**1:26**	**1:48**
Q52	-	**12:35**	**12:52**	**1:34**	-
	12:45	-	**12:56**	**1:38**	**2:00**
	12:57	-	**1:08**	**1:50**	**2:12**
Q52	-	**12:55**	**1:12**	**1:54**	-
	1:09	-	**1:20**	**2:02**	**2:24**
	1:19	-	**1:30**	**2:15**	**2:37**
Q52	-	**1:15**	**1:32**	**2:17**	-
	1:29	-	**1:40**	**2:25**	**2:47**
	1:39	-	**1:50**	**2:35**	**2:57**

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
Q52	-	1:35	1:53	2:38	-
	1:49	-	2:00	2:45	3:07
	1:59	-	2:10	2:55	3:17
Q52	-	1:55	2:13	2:58	-
	2:09	-	2:20	3:05	3:27
	2:19	-	2:30	3:15	3:37
Q52	-	2:15	2:33	3:18	-
	2:29	-	2:40	3:25	3:47
Q52	-	2:30	2:48	3:33	-
	2:39	-	2:50	3:35	3:57
	2:49	-	3:00	3:45	4:07
Q52	-	2:45	3:03	3:48	-
	2:59	-	3:10	3:55	4:17
Q52	-	3:00	3:18	4:03	-
	3:09	-	3:20	4:05	4:27
	3:19	-	3:30	4:15	4:37
Q52	-	3:15	3:33	4:18	-
	3:29	-	3:40	4:25	4:47
Q52	-	3:30	3:48	4:33	-
	3:39	-	3:50	4:35	4:57
	3:49	-	4:00	4:45	5:07
Q52	-	3:45	4:03	4:48	-
	3:59	-	4:10	4:55	5:17
Q52	-	4:00	4:19	5:04	-
	4:09	-	4:20	5:05	5:27
	4:19	-	4:30	5:15	5:37
Q52	-	4:15	4:34	5:19	-
	4:29	-	4:40	5:25	5:47
Q52	-	4:30	4:49	5:34	-
	4:39	-	4:50	5:35	5:57
	4:49	-	5:00	5:45	6:07
Q52	-	4:45	5:04	5:49	-
	4:59	-	5:10	5:55	6:17
Q52	-	5:00	5:19	6:04	-
	5:09	-	5:20	6:05	6:27
	5:19	-	5:30	6:15	6:37
Q52	-	5:15	5:34	6:19	-
	5:29	-	5:40	6:25	6:47
Q52	-	5:30	5:49	6:34	-
	5:39	-	5:50	6:35	6:57
	5:49	-	6:00	6:41	7:03
Q52	-	5:45	6:04	6:45	-
	5:59	-	6:10	6:51	7:13
Q52	-	6:00	6:18	6:59	-
	6:09	-	6:20	7:01	7:23
	6:19	-	6:30	7:11	7:33
Q52	-	6:15	6:33	7:14	-
	6:29	-	6:40	7:21	7:43
Q52	-	6:30	6:48	7:29	-
	6:39	-	6:50	7:31	7:53
	6:51	-	7:02	7:43	8:05
Q52	-	6:45	7:03	7:44	-

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	7:03	-	**7:14**	**7:55**	**8:17**
Q52	-	**7:00**	**7:18**	**7:59**	-
	7:15	-	**7:26**	**8:07**	**8:29**
	7:27	-	**7:38**	**8:19**	**8:41**
Q52	-	**7:20**	**7:38**	**8:19**	-
	7:39	-	**7:50**	**8:31**	**8:53**
Q52	-	**7:40**	**7:58**	**8:39**	-
	7:51	-	**8:02**	**8:39**	**9:01**
	8:03	-	**8:14**	**8:51**	**9:13**
Q52	-	**8:00**	**8:17**	**8:54**	-
	8:15	-	**8:26**	**9:03**	**9:25**
	8:27	-	**8:38**	**9:15**	**9:37**
Q52	-	**8:30**	**8:47**	**9:24**	-
	8:39	-	**8:50**	**9:27**	**9:49**
	8:51	-	**9:02**	**9:39**	**9:56**
	9:05	-	**9:16**	**9:53**	**10:10**
Q52	-	**9:00**	**9:17**	**9:54**	-
	9:20	-	**9:31**	**10:08**	**10:25**
	9:35	-	**9:46**	**10:23**	**10:40**
Q52	-	**9:30**	**9:47**	**10:24**	-
	9:50	-	**10:01**	**10:38**	**10:55**
Q52	-	**10:00**	**10:15**	**10:52**	-
	10:10	-	**10:21**	**10:58**	**11:15**
	10:30	-	**10:41**	**11:18**	**11:35**
Q52	-	**10:30**	**10:45**	**11:22**	-
	11:00	-	**11:11**	**11:48**	12:05
Q52	-	**11:00**	**11:15**	**11:52**	-
	11:30	-	**11:41**	12:18	12:35
Q52	-	**11:30**	**11:43**	12:20	-
	12:00	-	12:10	12:45	1:02
	12:30	-	12:40	1:15	1:32

Bold times denote PM hours.

Q53/Q52-SBS Weekday — To Arverne/Rockaway Park

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	12:00	12:13	12:51	12:59	-
	1:00	1:13	1:51	1:59	-
	2:00	2:13	2:45	2:53	-
	3:00	3:13	3:45	3:53	-
	4:00	4:13	4:45	4:53	-
	5:00	5:13	5:51	5:59	-
	5:20	5:33	6:11	6:19	-
	5:40	5:53	6:31	6:42	-
	5:50	6:03	6:41	6:52	-
Q52	-	6:10	6:48	-	7:02
	5:58	6:11	6:49	7:00	-
	6:06	6:19	6:57	7:08	-
	6:14	6:27	7:05	7:16	-
Q52	-	6:30	7:14	-	7:28
	6:21	6:34	7:18	7:29	-
	6:29	6:42	7:26	7:37	-
Q52	-	6:50	7:34	-	7:49
	6:36	6:54	7:38	7:49	-
	6:44	7:02	7:46	7:57	-
Q52	-	7:05	7:49	-	8:04
	6:51	7:09	7:53	8:04	-
	6:59	7:17	8:01	8:12	-
Q52	-	7:20	8:04	-	8:19
	7:06	7:24	8:08	8:19	-
	7:14	7:32	8:16	8:27	-
Q52	-	7:35	8:19	-	8:34
	7:21	7:39	8:23	8:34	-
	7:29	7:47	8:31	8:42	-
Q52	-	7:50	8:34	-	8:49
	7:39	7:57	8:41	8:52	-
Q52	-	8:05	8:49	-	9:04
	7:49	8:07	8:51	9:02	-
	7:59	8:17	9:01	9:12	-
Q52	-	8:20	9:04	-	9:19
	8:09	8:27	9:11	9:22	-
Q52	-	8:35	9:15	-	9:30
	8:19	8:37	9:17	9:28	-
	8:31	8:49	9:29	9:40	-
Q52	-	8:50	9:30	-	9:45
	8:43	9:01	9:41	9:52	-
Q52	-	9:05	9:45	-	10:00
	8:55	9:13	9:53	10:04	-
Q52	-	9:20	10:00	-	10:15
	9:07	9:25	10:05	10:16	-
Q52	-	9:35	10:15	-	10:30
	9:19	9:37	10:17	10:28	-
	9:31	9:49	10:29	10:40	-
Q52	-	9:50	10:30	-	10:45
	9:43	10:01	10:41	10:52	-
Q52	-	10:10	10:50	-	11:05

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	9:55	10:13	10:53	11:04	-
	10:07	10:25	11:05	11:16	-
Q52	-	10:30	11:10	-	11:25
	10:19	10:37	11:17	11:28	-
	10:31	10:49	11:29	11:40	-
Q52	-	10:50	11:30	-	11:45
	10:43	11:01	11:41	11:52	-
Q52	-	11:10	11:50	-	**12:05**
	10:55	11:13	11:53	**12:04**	-
	11:07	11:25	**12:05**	**12:16**	-
Q52	-	11:30	**12:10**	-	**12:25**
	11:19	11:37	**12:17**	**12:28**	-
Q52	-	11:50	**12:30**	-	**12:45**
	11:31	11:52	**12:32**	**12:43**	-
	11:43	**12:04**	**12:44**	**12:55**	-
Q52	-	**12:10**	**12:50**	-	**1:05**
	11:55	**12:16**	**12:56**	**1:07**	-
	12:07	**12:28**	**1:08**	**1:19**	-
Q52	-	**12:30**	**1:10**	-	**1:25**
	12:19	**12:40**	**1:20**	**1:31**	-
Q52	-	**12:50**	**1:30**	-	**1:45**
	12:31	**12:52**	**1:32**	**1:43**	-
	12:43	**1:04**	**1:44**	**1:55**	-
Q52	-	**1:10**	**1:50**	-	**2:05**
	12:55	**1:16**	**1:56**	**2:07**	-
	1:07	**1:28**	**2:08**	**2:19**	-
Q52	-	**1:30**	**2:10**	-	**2:27**
	1:19	**1:40**	**2:20**	**2:31**	-
Q52	-	**1:50**	**2:30**	-	**2:47**
	1:31	**1:52**	**2:32**	**2:43**	-
	1:43	**2:04**	**2:48**	**2:59**	-
Q52	-	**2:10**	**2:54**	-	**3:11**
	1:55	**2:16**	**3:00**	**3:11**	-
	2:07	**2:28**	**3:12**	**3:23**	-
Q52	-	**2:30**	**3:14**	-	**3:32**
	2:17	**2:38**	**3:22**	**3:33**	-
	2:27	**2:48**	**3:32**	**3:43**	-
Q52	-	**2:50**	**3:34**	-	**3:52**
	2:37	**2:58**	**3:42**	**3:53**	-
	2:47	**3:08**	**3:56**	**4:07**	-
Q52	-	**3:10**	**3:58**	-	**4:16**
	2:57	**3:18**	**4:06**	**4:17**	-
	3:07	**3:28**	**4:16**	**4:27**	-
Q52	-	**3:30**	**4:18**	-	**4:36**
	3:17	**3:38**	**4:26**	**4:37**	-
Q52	-	**3:45**	**4:33**	-	**4:50**
	3:27	**3:48**	**4:36**	**4:47**	-
	3:37	**3:58**	**4:46**	**4:57**	-
Q52	-	**4:00**	**4:48**	-	**5:05**
	3:47	**4:08**	**4:56**	**5:07**	-
Q52	-	**4:15**	**5:03**	-	**5:20**
	3:55	**4:16**	**5:04**	**5:15**	-

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
Q52	-	4:30	5:15	-	5:32
	4:02	4:28	5:16	5:27	-
	4:10	4:36	5:21	5:32	-
	4:17	4:43	5:28	5:39	-
Q52	-	4:45	5:30	-	5:47
	4:25	4:51	5:36	5:47	-
	4:32	4:58	5:43	5:54	-
Q52	-	5:00	5:45	-	6:02
	4:40	5:06	5:51	6:02	-
	4:47	5:13	5:58	6:09	-
Q52	-	5:15	6:00	-	6:17
	4:55	5:21	6:06	6:17	-
	5:02	5:28	6:13	6:24	-
Q52	-	5:30	6:15	-	6:32
	5:10	5:36	6:21	6:32	-
	5:17	5:43	6:28	6:39	-
Q52	-	5:45	6:30	-	6:46
	5:25	5:51	6:36	6:47	-
	5:32	5:58	6:43	6:54	-
Q52	-	6:00	6:45	-	7:01
	5:40	6:06	6:51	7:02	-
	5:49	6:15	7:00	7:11	-
Q52	-	6:15	7:00	-	7:16
	5:59	6:25	7:10	7:21	-
Q52	-	6:30	7:11	-	7:27
	6:09	6:35	7:16	7:27	-
	6:19	6:45	7:26	7:37	-
Q52	-	6:45	7:26	-	7:42
	6:29	6:55	7:36	7:47	-
	6:39	7:00	7:41	7:52	-
Q52	-	7:00	7:41	-	7:57
	6:49	7:10	7:51	8:02	-
Q52	-	7:15	7:56	-	8:12
	6:59	7:20	8:01	8:12	-
	7:09	7:30	8:11	8:22	-
Q52	-	7:30	8:11	-	8:27
	7:19	7:40	8:21	8:32	-
Q52	-	7:45	8:26	-	8:42
	7:29	7:50	8:31	8:42	-
	7:39	8:00	8:41	8:52	-
Q52	-	8:00	8:41	-	8:57
	7:51	8:12	8:53	9:04	-
Q52	-	8:15	8:56	-	9:12
	8:03	8:24	9:05	9:16	-
Q52	-	8:30	9:11	-	9:25
	8:15	8:36	9:17	9:28	-
Q52	-	8:50	9:31	-	9:45
	8:30	8:51	9:32	9:43	-
	8:45	9:06	9:44	9:55	-
Q52	-	9:10	9:48	-	10:02
	9:00	9:17	9:55	10:06	-
Q52	-	9:30	10:08	-	10:22

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	9:15	**9:32**	**10:10**	**10:21**	-
	9:30	**9:47**	**10:25**	**10:36**	-
Q52	-	**10:00**	**10:38**	-	**10:52**
	9:50	**10:07**	**10:45**	**10:56**	-
	10:10	**10:27**	**11:05**	**11:16**	-
Q52	-	**10:30**	**11:08**	-	**11:22**
	10:30	**10:47**	**11:25**	**11:36**	-
Q52	-	**11:00**	**11:38**	-	**11:52**
	11:00	**11:17**	**11:55**	12:06	-
Q52	-	**11:30**	12:08	-	12:22
	11:30	**11:47**	12:25	12:33	-
Q52	-	12:00	12:38	-	12:52
Q52	-	12:30	1:08	-	1:22

Bold times denote PM hours.

Q53/Q52-SBS Saturday — To Elmhurst/Woodside

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	1:00	-	1:10	1:46	2:03
	2:00	-	2:10	2:46	3:03
	3:00	-	3:10	3:46	4:03
	4:00	-	4:10	4:46	5:03
	5:00	-	5:10	5:46	6:03
Q52	-	5:30	5:44	6:24	-
	6:00	-	6:10	6:50	7:09
Q52	-	6:00	6:14	6:54	-
	6:30	-	6:40	7:20	7:39
Q52	-	6:30	6:44	7:24	-
	6:45	-	6:55	7:35	7:54
	7:00	-	7:10	7:50	8:09
Q52	-	7:00	7:16	7:56	-
	7:15	-	7:25	8:05	8:24
	7:30	-	7:40	8:20	8:39
Q52	-	7:30	7:46	8:26	-
	7:42	-	7:52	8:32	8:51
	7:54	-	8:04	8:47	9:06
	8:06	-	8:16	8:59	9:18
Q52	-	8:00	8:18	9:01	-
	8:18	-	8:28	9:11	9:30
Q52	-	8:20	8:38	9:21	-
	8:30	-	8:40	9:23	9:42
	8:42	-	8:52	9:35	9:58
Q52	-	8:40	8:58	9:41	-
	8:54	-	9:04	9:47	10:10
	9:06	-	9:16	9:59	10:22
Q52	-	9:00	9:18	10:01	-
	9:18	-	9:28	10:11	10:34
Q52	-	9:20	9:38	10:21	-
	9:30	-	9:42	10:25	10:48
	9:42	-	9:54	10:37	11:00
Q52	-	9:40	9:58	10:41	-
	9:54	-	10:06	10:55	11:18
	10:06	-	10:18	11:07	11:30
Q52	-	10:00	10:19	11:08	-
	10:18	-	10:30	11:19	11:42
Q52	-	10:20	10:39	11:28	-
	10:28	-	10:40	11:29	11:52
	10:38	-	10:50	11:39	**12:02**
Q52	-	10:40	10:59	11:48	-
	10:48	-	11:00	11:49	**12:12**
	10:58	-	11:10	11:59	**12:22**
Q52	-	11:00	11:19	**12:08**	-
	11:08	-	11:20	**12:09**	**12:38**
	11:16	-	11:28	**12:17**	**12:46**
	11:24	-	11:36	**12:25**	**12:54**
Q52	-	11:20	11:39	**12:28**	-
	11:32	-	11:44	**12:33**	**1:02**
	11:40	-	11:52	**12:41**	**1:10**

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
Q52	-	11:40	11:59	**12:48**	-
	11:48	-	**12:00**	**12:49**	**1:18**
	11:56	-	**12:08**	**12:57**	**1:26**
	12:03	-	**12:15**	**1:04**	**1:33**
Q52	-	**12:00**	**12:19**	**1:08**	-
	12:11	-	**12:23**	**1:12**	**1:41**
	12:18	-	**12:30**	**1:19**	**1:48**
	12:26	-	**12:38**	**1:27**	**1:56**
Q52	-	**12:20**	**12:39**	**1:28**	-
	12:33	-	**12:45**	**1:34**	**2:03**
	12:41	-	**12:53**	**1:42**	**2:11**
Q52	-	**12:40**	**12:59**	**1:48**	-
	12:48	-	**1:00**	**1:49**	**2:18**
	12:56	-	**1:08**	**1:57**	**2:26**
	1:03	-	**1:15**	**2:04**	**2:33**
Q52	-	**1:00**	**1:19**	**2:08**	-
	1:11	-	**1:23**	**2:12**	**2:41**
	1:18	-	**1:30**	**2:19**	**2:48**
	1:26	-	**1:38**	**2:27**	**2:56**
Q52	-	**1:20**	**1:39**	**2:28**	-
	1:33	-	**1:45**	**2:34**	**3:03**
	1:41	-	**1:53**	**2:42**	**3:11**
Q52	-	**1:40**	**1:59**	**2:48**	-
	1:48	-	**2:00**	**2:49**	**3:18**
	1:56	-	**2:08**	**2:57**	**3:26**
	2:03	-	**2:15**	**3:04**	**3:33**
Q52	-	**2:00**	**2:19**	**3:08**	-
	2:11	-	**2:23**	**3:12**	**3:41**
	2:18	-	**2:30**	**3:15**	**3:44**
	2:24	-	**2:36**	**3:21**	**3:50**
Q52	-	**2:20**	**2:39**	**3:24**	-
	2:30	-	**2:42**	**3:27**	**3:56**
	2:36	-	**2:48**	**3:33**	**4:02**
	2:42	-	**2:54**	**3:39**	**4:08**
Q52	-	**2:40**	**2:59**	**3:44**	-
	2:48	-	**3:00**	**3:45**	**4:14**
	2:56	-	**3:08**	**3:53**	**4:22**
	3:04	-	**3:16**	**4:01**	**4:30**
Q52	-	**3:00**	**3:19**	**4:04**	-
	3:14	-	**3:26**	**4:11**	**4:40**
	3:24	-	**3:36**	**4:21**	**4:50**
Q52	-	**3:20**	**3:39**	**4:24**	-
	3:36	-	**3:48**	**4:33**	**5:02**
Q52	-	**3:40**	**3:59**	**4:44**	-
	3:48	-	**4:00**	**4:45**	**5:14**
	4:00	-	**4:12**	**4:57**	**5:26**
Q52	-	**4:00**	**4:19**	**5:04**	-
	4:12	-	**4:24**	**5:09**	**5:38**
	4:24	-	**4:36**	**5:21**	**5:50**
Q52	-	**4:20**	**4:39**	**5:24**	-
	4:36	-	**4:48**	**5:33**	**6:02**
Q52	-	**4:40**	**4:59**	**5:44**	-

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	4:48	-	**5:00**	**5:45**	**6:14**
	5:00	-	**5:12**	**5:57**	**6:26**
Q52	-	**5:00**	**5:19**	**6:04**	-
	5:12	-	**5:24**	**6:09**	**6:38**
	5:24	-	**5:36**	**6:21**	**6:50**
Q52	-	**5:20**	**5:39**	**6:24**	-
	5:36	-	**5:48**	**6:33**	**7:02**
Q52	-	**5:40**	**5:59**	**6:44**	-
	5:48	-	**6:00**	**6:38**	**7:07**
	6:00	-	**6:12**	**6:50**	**7:19**
Q52	-	**6:00**	**6:17**	**6:55**	-
	6:12	-	**6:24**	**7:02**	**7:31**
	6:24	-	**6:36**	**7:14**	**7:43**
Q52	-	**6:20**	**6:37**	**7:15**	-
	6:36	-	**6:48**	**7:26**	**7:55**
Q52	-	**6:40**	**6:57**	**7:35**	-
	6:48	-	**7:00**	**7:38**	**8:02**
	7:00	-	**7:12**	**7:50**	**8:14**
Q52	-	**7:00**	**7:17**	**7:55**	-
	7:12	-	**7:24**	**8:02**	**8:26**
	7:24	-	**7:36**	**8:14**	**8:38**
	7:36	-	**7:46**	**8:24**	**8:48**
Q52	-	**7:30**	**7:47**	**8:25**	-
	7:48	-	**7:58**	**8:36**	**9:00**
	8:00	-	**8:10**	**8:48**	**9:12**
Q52	-	**8:00**	**8:17**	**8:55**	-
	8:12	-	**8:22**	**9:00**	**9:24**
	8:24	-	**8:34**	**9:12**	**9:36**
	8:36	-	**8:46**	**9:24**	**9:48**
Q52	-	**8:30**	**8:47**	**9:25**	-
	8:48	-	**8:58**	**9:36**	**9:55**
	9:00	-	**9:10**	**9:48**	**10:07**
Q52	-	**9:00**	**9:17**	**9:55**	-
	9:12	-	**9:22**	**10:00**	**10:19**
	9:24	-	**9:34**	**10:12**	**10:31**
	9:36	-	**9:46**	**10:24**	**10:43**
Q52	-	**9:30**	**9:47**	**10:25**	-
	9:48	-	**9:58**	**10:36**	**10:55**
	10:00	-	**10:10**	**10:48**	**11:07**
Q52	-	**10:00**	**10:17**	**10:55**	-
	10:15	-	**10:25**	**11:03**	**11:22**
	10:30	-	**10:40**	**11:18**	**11:37**
Q52	-	**10:30**	**10:47**	**11:25**	-
	10:45	-	**10:55**	**11:33**	**11:52**
	11:00	-	**11:10**	**11:48**	12:07
Q52	-	**11:00**	**11:17**	**11:55**	-
	11:15	-	**11:25**	12:03	12:20
	11:30	-	**11:40**	12:18	12:35
Q52	-	**11:30**	**11:44**	12:22	-
	11:50	-	12:00	12:36	12:53
	12:10	-	12:20	12:56	1:13
	12:30	-	12:40	1:16	1:33

Bold times denote PM hours.

Q53/Q52-SBS Saturday — To Arverne/Rockaway Park

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	12:00	12:14	12:51	1:01	-
	1:00	1:14	1:51	2:01	-
	2:00	2:14	2:51	3:01	-
	3:00	3:14	3:51	4:01	-
	4:00	4:14	4:51	5:01	-
	5:00	5:14	5:51	6:01	-
	5:30	5:44	6:21	6:31	-
	6:00	6:14	6:51	7:01	-
Q52	-	6:25	7:02	-	7:17
	6:15	6:29	7:06	7:16	-
	6:30	6:44	7:21	7:31	-
Q52	-	6:55	7:32	-	7:48
	6:45	6:59	7:36	7:46	-
	7:00	7:14	7:51	8:01	-
Q52	-	7:25	8:02	-	8:18
	7:12	7:26	8:03	8:13	-
	7:24	7:38	8:15	8:25	-
	7:36	7:50	8:27	8:37	-
Q52	-	7:55	8:32	-	8:48
	7:48	8:02	8:39	8:49	-
	8:00	8:17	8:54	9:04	-
Q52	-	8:25	9:02	-	9:18
	8:12	8:29	9:06	9:16	-
	8:24	8:41	9:18	9:28	-
	8:36	8:53	9:30	9:40	-
Q52	-	8:55	9:32	-	9:48
	8:48	9:05	9:42	9:52	-
Q52	-	9:15	9:52	-	10:08
	9:00	9:17	9:54	10:04	-
	9:12	9:29	10:06	10:16	-
Q52	-	9:35	10:12	-	10:28
	9:24	9:41	10:18	10:28	-
	9:36	9:53	10:30	10:40	-
Q52	-	9:55	10:32	-	10:48
	9:48	10:05	10:42	10:52	-
Q52	-	10:15	10:52	-	11:08
	10:00	10:17	10:54	11:04	-
	10:12	10:29	11:06	11:16	-
Q52	-	10:35	11:16	-	11:32
	10:24	10:41	11:22	11:32	-
Q52	-	10:55	11:36	-	11:52
	10:36	10:57	11:38	11:48	-
	10:48	11:09	11:50	**12:00**	-
Q52	-	11:15	11:56	-	**12:12**
	11:00	11:21	**12:02**	**12:12**	-
	11:12	11:33	**12:14**	**12:24**	-
Q52	-	11:35	**12:16**	-	**12:32**
	11:24	11:45	**12:26**	**12:36**	-
Q52	-	11:55	**12:36**	-	**12:52**
	11:36	**12:00**	**12:41**	**12:51**	-

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	11:48	**12:12**	**12:53**	**1:03**	-
Q52	-	**12:15**	**12:56**	-	**1:12**
	12:00	**12:24**	**1:05**	**1:15**	-
Q52	-	**12:35**	**1:16**	-	**1:32**
	12:12	**12:36**	**1:17**	**1:27**	-
	12:24	**12:48**	**1:29**	**1:39**	-
Q52	-	**12:55**	**1:36**	-	**1:52**
	12:36	**1:00**	**1:41**	**1:52**	-
	12:48	**1:12**	**1:53**	**2:04**	-
Q52	-	**1:15**	**1:56**	-	**2:12**
	1:00	**1:24**	**2:05**	**2:16**	-
	1:10	**1:34**	**2:15**	**2:26**	-
Q52	-	**1:35**	**2:16**	-	**2:32**
	1:20	**1:44**	**2:25**	**2:36**	-
Q52	-	**1:55**	**2:36**	-	**2:52**
	1:30	**1:57**	**2:38**	**2:49**	-
	1:40	**2:07**	**2:48**	**2:59**	-
Q52	-	**2:15**	**2:56**	-	**3:12**
	1:50	**2:17**	**2:58**	**3:09**	-
	2:00	**2:27**	**3:08**	**3:19**	-
Q52	-	**2:35**	**3:21**	-	**3:37**
	2:10	**2:37**	**3:23**	**3:34**	-
	2:20	**2:47**	**3:33**	**3:44**	-
Q52	-	**2:55**	**3:41**	-	**3:57**
	2:30	**2:57**	**3:43**	**3:54**	-
	2:40	**3:07**	**3:53**	**4:04**	-
Q52	-	**3:15**	**4:01**	-	**4:17**
	2:50	**3:17**	**4:03**	**4:14**	-
	3:00	**3:27**	**4:13**	**4:24**	-
Q52	-	**3:35**	**4:21**	-	**4:37**
	3:10	**3:37**	**4:23**	**4:34**	-
	3:20	**3:47**	**4:33**	**4:44**	-
Q52	-	**3:55**	**4:41**	-	**4:57**
	3:30	**3:57**	**4:43**	**4:54**	-
	3:40	**4:07**	**4:53**	**5:04**	-
	3:48	**4:15**	**5:01**	**5:12**	-
Q52	-	**4:15**	**5:01**	-	**5:17**
	3:56	**4:23**	**5:09**	**5:20**	-
	4:04	**4:31**	**5:17**	**5:28**	-
Q52	-	**4:35**	**5:21**	-	**5:37**
	4:12	**4:39**	**5:25**	**5:36**	-
	4:20	**4:47**	**5:33**	**5:44**	-
	4:28	**4:55**	**5:41**	**5:52**	-
Q52	-	**4:55**	**5:41**	-	**5:57**
	4:36	**5:03**	**5:49**	**6:00**	-
	4:44	**5:11**	**5:57**	**6:08**	-
Q52	-	**5:15**	**6:01**	-	**6:17**
	4:52	**5:19**	**6:05**	**6:16**	-
	4:58	**5:25**	**6:11**	**6:22**	-
	5:04	**5:31**	**6:17**	**6:28**	-
Q52	-	**5:35**	**6:21**	-	**6:37**
	5:10	**5:37**	**6:23**	**6:34**	-

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	5:16	**5:43**	**6:29**	**6:40**	-
	5:24	**5:51**	**6:37**	**6:48**	-
Q52	-	**5:55**	**6:41**	-	**6:57**
	5:32	**5:59**	**6:45**	**6:56**	-
	5:40	**6:07**	**6:53**	**7:04**	-
	5:48	**6:15**	**7:01**	**7:12**	-
Q52	-	**6:15**	**7:01**	-	**7:16**
	5:56	**6:23**	**7:09**	**7:20**	-
	6:04	**6:31**	**7:17**	**7:28**	-
Q52	-	**6:35**	**7:21**	-	**7:36**
	6:12	**6:39**	**7:25**	**7:36**	-
	6:20	**6:47**	**7:33**	**7:44**	-
	6:28	**6:55**	**7:41**	**7:52**	-
Q52	-	**6:55**	**7:41**	-	**7:56**
	6:36	**7:03**	**7:45**	**7:56**	-
	6:44	**7:11**	**7:53**	**8:04**	-
Q52	-	**7:15**	**7:57**	-	**8:12**
	6:52	**7:19**	**8:01**	**8:12**	-
	7:00	**7:24**	**8:06**	**8:17**	-
	7:08	**7:32**	**8:14**	**8:25**	-
Q52	-	**7:35**	**8:17**	-	**8:32**
	7:16	**7:40**	**8:22**	**8:33**	-
	7:24	**7:48**	**8:30**	**8:41**	-
	7:32	**7:56**	**8:38**	**8:49**	-
Q52	-	**8:00**	**8:42**	-	**8:57**
	7:40	**8:04**	**8:46**	**8:57**	-
	7:50	**8:14**	**8:56**	**9:07**	-
	8:00	**8:24**	**9:06**	**9:17**	-
Q52	-	**8:30**	**9:12**	-	**9:27**
	8:10	**8:34**	**9:16**	**9:27**	-
	8:20	**8:44**	**9:26**	**9:37**	-
	8:32	**8:51**	**9:33**	**9:44**	-
Q52	-	**9:00**	**9:42**	-	**9:57**
	8:44	**9:03**	**9:45**	**9:56**	-
	8:56	**9:15**	**9:57**	**10:08**	-
	9:08	**9:27**	**10:09**	**10:20**	-
Q52	-	**9:30**	**10:12**	-	**10:27**
	9:20	**9:39**	**10:21**	**10:32**	-
	9:35	**9:54**	**10:36**	**10:47**	-
Q52	-	**10:00**	**10:42**	-	**10:57**
	9:50	**10:09**	**10:51**	**11:02**	-
	10:05	**10:24**	**11:06**	**11:17**	-
Q52	-	**10:30**	**11:12**	-	**11:26**
	10:20	**10:39**	**11:21**	**11:32**	-
	10:40	**10:59**	**11:41**	**11:52**	-
Q52	-	**11:00**	**11:42**	-	**11:56**
	11:00	**11:19**	12:01	12:11	-
Q52	-	**11:30**	12:12	-	12:26
	11:30	**11:49**	12:31	12:41	-
Q52	-	12:00	12:37	-	12:51
Q52	-	12:30	1:07	-	1:21

Bold times denote PM hours.

Q53/Q52-SBS Sunday — To Elmhurst/Woodside

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	1:00	-	1:11	1:45	2:01
	2:00	-	2:11	2:45	3:01
	3:00	-	3:11	3:45	3:58
	4:00	-	4:11	4:45	4:58
	5:00	-	5:11	5:45	5:58
	6:00	-	6:11	6:45	7:02
Q52	-	6:00	6:17	6:54	-
	6:30	-	6:41	7:18	7:35
Q52	-	6:30	6:47	7:24	-
	6:45	-	6:56	7:33	7:50
	7:00	-	7:11	7:48	8:05
Q52	-	7:00	7:17	7:54	-
	7:15	-	7:26	8:03	8:20
	7:30	-	7:41	8:18	8:35
Q52	-	7:30	7:47	8:24	-
	7:42	-	7:53	8:30	8:47
	7:54	-	8:05	8:47	9:04
	8:06	-	8:17	8:59	9:16
Q52	-	8:00	8:17	8:59	-
	8:18	-	8:29	9:11	9:28
Q52	-	8:20	8:37	9:19	-
	8:30	-	8:41	9:23	9:40
	8:42	-	8:53	9:35	9:52
Q52	-	8:40	8:57	9:39	-
	8:54	-	9:05	9:47	10:04
	9:06	-	9:17	9:59	10:16
Q52	-	9:00	9:17	9:59	-
	9:18	-	9:29	10:11	10:28
Q52	-	9:20	9:37	10:19	-
	9:30	-	9:41	10:23	10:40
	9:42	-	9:53	10:35	10:52
Q52	-	9:40	9:57	10:39	-
	9:54	-	10:05	10:47	11:04
	10:06	-	10:17	10:59	11:16
Q52	-	10:00	10:17	10:59	-
	10:18	-	10:29	11:11	11:35
Q52	-	10:20	10:37	11:19	-
	10:28	-	10:39	11:21	11:45
	10:38	-	10:49	11:31	11:55
Q52	-	10:40	10:57	11:39	-
	10:48	-	10:59	11:41	**12:05**
	10:58	-	11:09	11:51	**12:15**
Q52	-	11:00	11:17	11:59	-
	11:08	-	11:19	**12:01**	**12:25**
	11:16	-	11:27	**12:09**	**12:33**
	11:24	-	11:35	**12:17**	**12:41**
Q52	-	11:20	11:37	**12:19**	-
	11:32	-	11:43	**12:25**	**12:49**
	11:40	-	11:51	**12:33**	**12:57**
Q52	-	11:40	11:57	**12:39**	-

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	11:48	-	11:59	**12:41**	**1:05**
	11:56	-	**12:07**	**12:54**	**1:18**
	12:03	-	**12:14**	**1:01**	**1:28**
Q52	-	**12:00**	**12:19**	**1:06**	-
	12:11	-	**12:22**	**1:09**	**1:36**
	12:18	-	**12:29**	**1:16**	**1:43**
	12:26	-	**12:37**	**1:24**	**1:51**
Q52	-	**12:20**	**12:39**	**1:26**	-
	12:33	-	**12:44**	**1:31**	**1:58**
	12:41	-	**12:52**	**1:39**	**2:06**
	12:48	-	**12:59**	**1:46**	**2:13**
Q52	-	**12:40**	**12:59**	**1:46**	-
	12:56	-	**1:07**	**1:54**	**2:21**
	1:03	-	**1:14**	**2:01**	**2:28**
Q52	-	**1:00**	**1:19**	**2:06**	-
	1:11	-	**1:22**	**2:09**	**2:36**
	1:18	-	**1:29**	**2:16**	**2:43**
	1:26	-	**1:37**	**2:24**	**2:51**
Q52	-	**1:20**	**1:39**	**2:26**	-
	1:33	-	**1:44**	**2:31**	**2:58**
	1:41	-	**1:52**	**2:39**	**3:06**
	1:48	-	**1:59**	**2:46**	**3:13**
Q52	-	**1:40**	**1:59**	**2:46**	-
	1:56	-	**2:07**	**2:54**	**3:21**
	2:03	-	**2:14**	**3:01**	**3:24**
Q52	-	**2:00**	**2:19**	**3:06**	-
	2:11	-	**2:22**	**3:09**	**3:32**
	2:18	-	**2:29**	**3:16**	**3:39**
	2:24	-	**2:35**	**3:18**	**3:41**
Q52	-	**2:20**	**2:39**	**3:22**	-
	2:30	-	**2:41**	**3:24**	**3:47**
	2:36	-	**2:47**	**3:30**	**3:53**
	2:42	-	**2:53**	**3:36**	**3:59**
Q52	-	**2:40**	**2:58**	**3:41**	-
	2:48	-	**2:59**	**3:42**	**4:05**
	2:56	-	**3:07**	**3:50**	**4:13**
	3:04	-	**3:15**	**3:58**	**4:21**
Q52	-	**3:00**	**3:18**	**4:01**	-
	3:14	-	**3:25**	**4:08**	**4:31**
	3:24	-	**3:35**	**4:18**	**4:41**
Q52	-	**3:20**	**3:38**	**4:21**	-
	3:36	-	**3:47**	**4:30**	**4:53**
Q52	-	**3:40**	**3:58**	**4:41**	-
	3:48	-	**3:59**	**4:42**	**5:05**
	4:00	-	**4:11**	**4:54**	**5:17**
Q52	-	**4:00**	**4:18**	**5:01**	-
	4:12	-	**4:23**	**5:06**	**5:29**
	4:24	-	**4:35**	**5:18**	**5:41**
Q52	-	**4:20**	**4:38**	**5:21**	-
	4:36	-	**4:47**	**5:30**	**5:53**
Q52	-	**4:40**	**4:58**	**5:41**	-
	4:48	-	**4:59**	**5:42**	**6:05**

Bold times denote PM hours.

	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach Channel Dr / Beach 54 St**	Broad Channel **Cross Bay Bl / E 16 Rd**	Elmhurst **Queens Bl / 59 Av**	Woodside **61 St / Roosevelt Av**
	5:00	-	**5:11**	**5:49**	**6:12**
Q52	-	**5:00**	**5:17**	**5:55**	-
	5:12	-	**5:23**	**6:01**	**6:24**
	5:24	-	**5:35**	**6:13**	**6:36**
Q52	-	**5:20**	**5:37**	**6:15**	-
	5:36	-	**5:47**	**6:25**	**6:48**
Q52	-	**5:40**	**5:57**	**6:35**	-
	5:48	-	**5:59**	**6:37**	**7:00**
	6:00	-	**6:11**	**6:49**	**7:12**
Q52	-	**6:00**	**6:17**	**6:55**	-
	6:12	-	**6:23**	**7:01**	**7:24**
	6:24	-	**6:35**	**7:13**	**7:36**
	6:36	-	**6:47**	**7:25**	**7:48**
Q52	-	**6:30**	**6:47**	**7:25**	-
	6:48	-	**6:59**	**7:37**	**8:00**
	7:00	-	**7:11**	**7:49**	**8:12**
Q52	-	**7:00**	**7:17**	**7:55**	-
	7:12	-	**7:23**	**8:01**	**8:24**
	7:24	-	**7:35**	**8:10**	**8:33**
	7:36	-	**7:47**	**8:22**	**8:45**
Q52	-	**7:30**	**7:47**	**8:22**	-
	7:48	-	**7:59**	**8:34**	**8:53**
	8:00	-	**8:11**	**8:46**	**9:05**
Q52	-	**8:00**	**8:17**	**8:52**	-
	8:12	-	**8:23**	**8:58**	**9:17**
	8:24	-	**8:35**	**9:10**	**9:29**
	8:36	-	**8:47**	**9:22**	**9:41**
Q52	-	**8:30**	**8:47**	**9:22**	-
	8:48	-	**8:59**	**9:34**	**9:53**
	9:00	-	**9:11**	**9:46**	**10:05**
Q52	-	**9:00**	**9:17**	**9:52**	-
	9:12	-	**9:23**	**9:58**	**10:17**
	9:24	-	**9:35**	**10:10**	**10:29**
	9:36	-	**9:47**	**10:22**	**10:41**
Q52	-	**9:30**	**9:47**	**10:22**	-
	9:48	-	**9:59**	**10:34**	**10:53**
	10:00	-	**10:11**	**10:46**	**11:05**
Q52	-	**10:00**	**10:15**	**10:50**	-
	10:15	-	**10:26**	**11:01**	**11:20**
	10:30	-	**10:41**	**11:16**	**11:35**
Q52	-	**10:30**	**10:45**	**11:20**	-
	10:45	-	**10:56**	**11:31**	**11:50**
	11:00	-	**11:11**	**11:46**	12:05
Q52	-	**11:00**	**11:15**	**11:50**	-
	11:15	-	**11:26**	12:01	12:17
	11:30	-	**11:41**	12:16	12:32
Q52	-	**11:30**	**11:45**	12:20	-
	11:50	-	12:01	12:35	12:51
	12:10	-	12:21	12:55	1:11
	12:30	-	12:41	1:15	1:31

Q53/Q52-SBS Sunday — To Arverne/Rockaway Park

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	12:00	12:14	12:50	1:01	-
	1:00	1:14	1:50	2:01	-
	2:00	2:14	2:50	3:01	-
	3:00	3:14	3:50	4:01	-
	4:00	4:14	4:50	4:59	-
	5:00	5:14	5:50	5:59	-
	5:30	5:44	6:20	6:29	-
	6:00	6:14	6:50	6:59	-
	6:15	6:29	7:05	7:14	-
	6:30	6:44	7:20	7:29	-
Q52	-	6:55	7:31	-	7:45
	6:45	6:59	7:35	7:44	-
	7:00	7:14	7:50	7:59	-
Q52	-	7:25	8:01	-	8:15
	7:12	7:26	8:02	8:11	-
	7:24	7:38	8:11	8:20	-
	7:36	7:50	8:23	8:32	-
Q52	-	7:55	8:28	-	8:42
	7:48	8:02	8:35	8:44	-
	8:00	8:14	8:47	8:56	-
Q52	-	8:25	8:58	-	9:12
	8:12	8:26	8:59	9:08	-
	8:24	8:38	9:11	9:20	-
	8:36	8:50	9:23	9:32	-
Q52	-	8:55	9:28	-	9:43
	8:48	9:02	9:35	9:44	-
Q52	-	9:15	9:48	-	10:03
	9:00	9:18	9:51	10:00	-
	9:12	9:30	10:03	10:14	-
Q52	-	9:35	10:08	-	10:23
	9:24	9:42	10:15	10:26	-
	9:36	9:54	10:27	10:38	-
Q52	-	9:55	10:28	-	10:43
	9:48	10:06	10:39	10:50	-
Q52	-	10:15	10:48	-	11:03
	10:00	10:18	10:51	11:02	-
	10:12	10:30	11:03	11:14	-
Q52	-	10:35	11:08	-	11:26
	10:24	10:42	11:15	11:26	-
	10:36	10:54	11:27	11:38	-
Q52	-	10:55	11:28	-	11:46
	10:48	11:06	11:39	11:50	-
Q52	-	11:15	11:48	-	**12:06**
	11:00	11:18	11:51	**12:02**	-
	11:12	11:30	**12:03**	**12:14**	-
Q52	-	11:35	**12:08**	-	**12:23**
	11:24	11:42	**12:15**	**12:26**	-
Q52	-	11:55	**12:28**	-	**12:43**
	11:36	11:59	**12:32**	**12:43**	-
	11:48	**12:11**	**12:50**	**1:01**	-

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
Q52	-	12:15	12:54	-	1:09
	12:00	12:23	1:02	1:13	-
	12:12	12:35	1:14	1:25	-
Q52	-	12:35	1:14	-	1:29
	12:24	12:47	1:26	1:37	-
Q52	-	12:55	1:34	-	1:49
	12:36	12:59	1:38	1:49	-
	12:48	1:11	1:50	2:01	-
Q52	-	1:15	1:54	-	2:09
	1:00	1:23	2:02	2:13	-
	1:10	1:33	2:12	2:23	-
Q52	-	1:35	2:14	-	2:29
	1:20	1:43	2:22	2:33	-
	1:30	1:53	2:32	2:43	-
Q52	-	1:55	2:34	-	2:49
	1:40	2:03	2:42	2:53	-
	1:50	2:13	2:52	3:03	-
Q52	-	2:15	2:54	-	3:09
	2:00	2:23	3:02	3:13	-
	2:10	2:33	3:17	3:28	-
Q52	-	2:35	3:19	-	3:34
	2:20	2:43	3:27	3:38	-
	2:30	2:53	3:37	3:48	-
Q52	-	2:55	3:39	-	3:54
	2:40	3:03	3:47	3:58	-
	2:50	3:13	3:57	4:08	-
Q52	-	3:15	3:59	-	4:14
	3:00	3:23	4:07	4:18	-
	3:10	3:33	4:17	4:28	-
Q52	-	3:35	4:19	-	4:34
	3:20	3:43	4:27	4:38	-
	3:30	3:53	4:37	4:48	-
Q52	-	3:55	4:39	-	4:54
	3:40	4:03	4:47	4:58	-
	3:48	4:11	4:55	5:06	-
Q52	-	4:15	4:59	-	5:14
	3:56	4:19	5:03	5:14	-
	4:04	4:27	5:11	5:22	-
	4:12	4:35	5:19	5:30	-
Q52	-	4:35	5:19	-	5:34
	4:20	4:43	5:27	5:38	-
	4:28	4:51	5:35	5:46	-
Q52	-	4:55	5:39	-	5:54
	4:36	4:59	5:43	5:54	-
	4:44	5:07	5:51	6:02	-
	4:52	5:15	5:59	6:10	-
Q52	-	5:15	5:59	-	6:14
	4:58	5:21	6:05	6:16	-
	5:04	5:27	6:11	6:22	-
	5:10	5:33	6:17	6:28	-
Q52	-	5:35	6:19	-	6:34
	5:16	5:39	6:23	6:34	-

Bold times denote PM hours.

	Woodside **Roosevelt Av / 61 St**	Elmhurst **Hoffman Dr / Woodhaven Bl**	Broad Channel **Cross Bay Bl / W 17 Rd**	Rockaway Park **Beach 116 St / Rockaway Beach Bl**	Arverne **Beach 54 St / Beach Channel Dr**
	5:24	**5:47**	**6:31**	**6:42**	-
	5:32	**5:55**	**6:39**	**6:50**	-
Q52	-	**5:55**	**6:39**	-	**6:54**
	5:40	**6:03**	**6:47**	**6:58**	-
	5:48	**6:11**	**6:55**	**7:06**	-
Q52	-	**6:15**	**6:59**	-	**7:14**
	5:56	**6:19**	**7:03**	**7:14**	-
	6:04	**6:27**	**7:11**	**7:22**	-
	6:12	**6:35**	**7:19**	**7:30**	-
Q52	-	**6:35**	**7:19**	-	**7:34**
	6:20	**6:43**	**7:27**	**7:38**	-
	6:28	**6:51**	**7:35**	**7:46**	-
Q52	-	**7:00**	**7:41**	-	**7:56**
	6:36	**6:59**	**7:43**	**7:54**	-
	6:44	**7:07**	**7:48**	**7:59**	-
	6:52	**7:15**	**7:56**	**8:07**	-
	7:00	**7:23**	**8:04**	**8:15**	-
Q52	-	**7:30**	**8:11**	-	**8:26**
	7:08	**7:31**	**8:12**	**8:23**	-
	7:16	**7:39**	**8:20**	**8:31**	-
	7:24	**7:47**	**8:28**	**8:39**	-
	7:32	**7:55**	**8:36**	**8:47**	-
Q52	-	**8:00**	**8:41**	-	**8:56**
	7:40	**8:03**	**8:44**	**8:55**	-
	7:50	**8:13**	**8:54**	**9:05**	-
	8:00	**8:23**	**9:04**	**9:15**	-
Q52	-	**8:30**	**9:11**	-	**9:26**
	8:10	**8:33**	**9:14**	**9:25**	-
	8:20	**8:43**	**9:24**	**9:35**	-
	8:32	**8:55**	**9:36**	**9:47**	-
Q52	-	**9:00**	**9:41**	-	**9:56**
	8:44	**9:07**	**9:48**	**9:59**	-
	8:56	**9:19**	**10:00**	**10:11**	-
Q52	-	**9:30**	**10:11**	-	**10:26**
	9:08	**9:31**	**10:12**	**10:23**	-
	9:20	**9:43**	**10:24**	**10:35**	-
	9:35	**9:51**	**10:32**	**10:43**	-
Q52	-	**10:00**	**10:41**	-	**10:55**
	9:50	**10:06**	**10:47**	**10:58**	-
	10:05	**10:21**	**11:02**	**11:13**	-
Q52	-	**10:30**	**11:11**	-	**11:25**
	10:20	**10:36**	**11:17**	**11:28**	-
	10:40	**10:56**	**11:37**	**11:48**	-
Q52	-	**11:00**	**11:41**	-	**11:55**
	11:00	**11:16**	**11:57**	12:08	-
Q52	-	**11:30**	12:11	-	12:25
	11:30	**11:46**	12:27	12:38	-
Q52	-	12:00	12:36	-	12:50
Q52	-	12:30	1:06	-	1:20

Bold times denote PM hours.

Q53/Q52-SBS

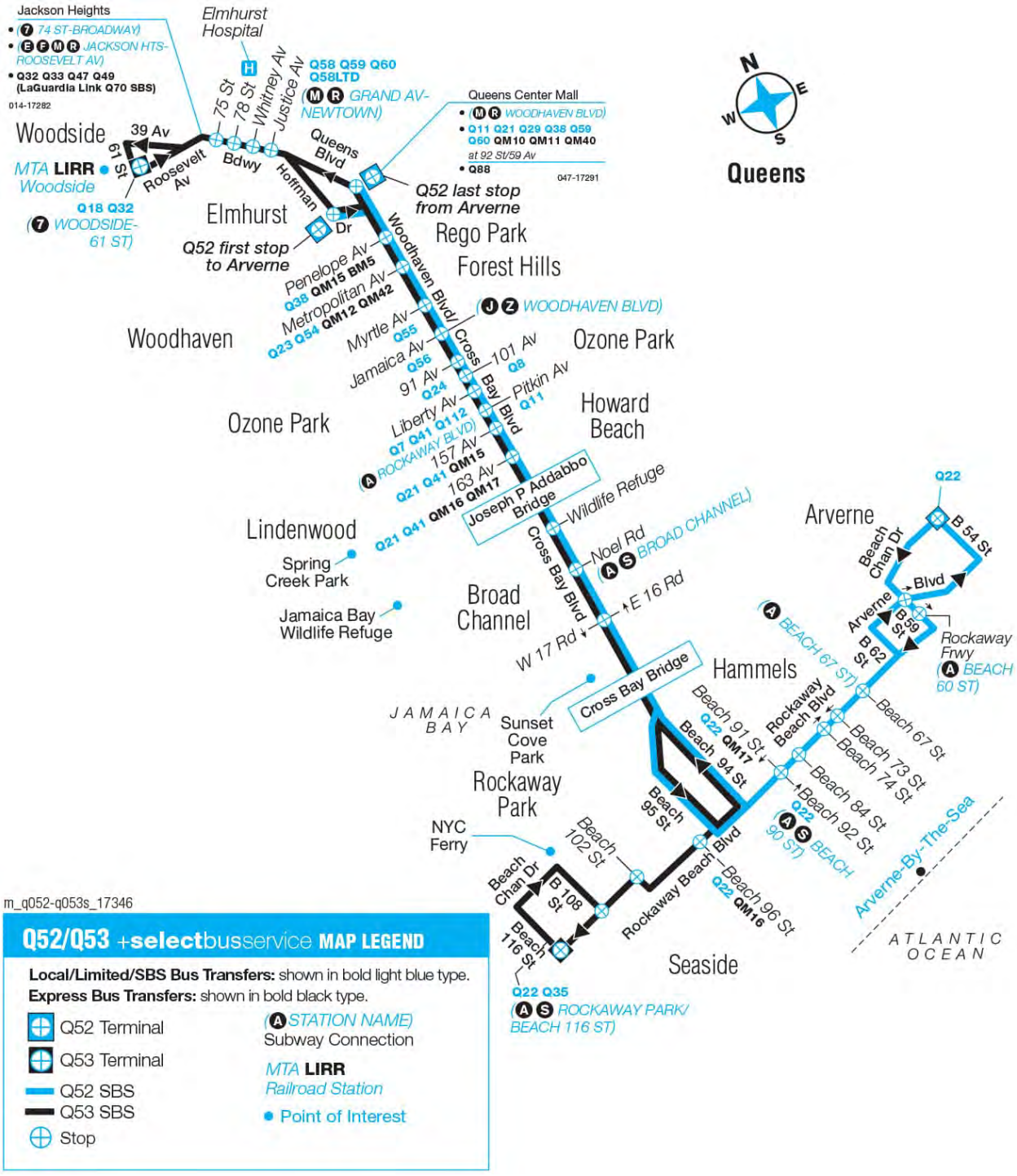
Bus Timetable
MTA Bus Company

Elmhurst/Woodside - Averne/Rockaway Park Via Broadway / Queens Blvd / Woodhaven Blvd / Cross Bay Blvd

+selectbusservice

Effective June 27, 2021

For accessible subway stations, travel directions and other information:
Visit www.mta.info or call us at 511



m_q052-q053s_17346

Q52/Q53 +selectbusservice MAP LEGEND

Local/Limited/SBS Bus Transfers: shown in bold light blue type.
Express Bus Transfers: shown in bold black type.

- Q52 Terminal
- Q53 Terminal
- Q52 SBS
- Q53 SBS
- Stop
- (A STATION NAME) Subway Connection
- MTA LIRR Railroad Station
- Point of Interest

Fares – MetroCard® is accepted for all MTA New York City trains (including Staten Island Railway - SIR), and, local, Limited-Stop and +SelectBusService buses (at MetroCard fare collection machines). Express buses only accept 7-Day Express Bus Plus MetroCard or Pay-Per-Ride MetroCard. All of our buses and +SelectBusService Coin Fare Collector machines accept exact fare in coins. Dollar bills, pennies, and half-dollar coins are not accepted. OMNY is the MTA's new fare payment system. Use your contactless card or smart device to pay the fare on buses and subways. Visit omny.info for details of the rollout.

Free Transfers – Unlimited Ride MetroCard permits free transfers to all but our express buses (between subway and local bus, local bus and local bus etc.) Pay-Per-Ride MetroCard allows one free transfer of equal or lesser value if you complete your transfer within two hours of the time you pay your full fare with the same MetroCard. If you pay your local bus fare with coins, ask for a free electronic paper transfer to use on another local bus.

Reduced-Fare Benefits – You are eligible for reduced-fare benefits if you are at least 65 years of age or have a qualifying disability. Benefits are available (except on peak-hour express buses) with proper identification, including Reduced-Fare MetroCard or Medicare card.

Children – The subway, SIR, local, Limited-Stop, and +SelectBusService buses permit up to three children, 44 inches tall and under to ride free when accompanied by an adult paying full fare.

Terms and Conditions – Fares and MetroCard use are subject to applicable tariffs and conditions of use.

Bus Operator Apple Award

If you think your bus operator deserves an Apple Award--our special recognition for this service, courtesy and professionalism-- go to mta.info/customer-feedback or call 511 and give us the badge or bus number.

Holiday Service 2022

Reduced weekday service operates on: Martin Luther King Day*, Day After Thanksgiving*.

Saturday service operates on: Presidents Day*, Independence Day, Dec 26.

Sunday service operates on: Memorial Day, Labor Day, Thanksgiving Day, Christmas Day+, New Years Day+.

** Special schedules for these days will be available at mta.info for express routes only.*
+ Service information for the day preceding this holiday or holiday weekend will be provided on mta.info, and on service notices posted on buses.
Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Travel Help and Information

511 **One MTA One Number.** Call 511 and say MTA.

TTY/TDD users only..... 711
Online: www.mta.info

IF YOU SEE SOMETHING, SAY SOMETHING.

Be suspicious of anything unattended. Tell a cop, an MTA employee or call 1-888-692-7233 (1-888-NYC-SAFE).

Filing a Title VI Complaint – MTA New York City Transit ("NYC Transit") and MTA Bus Company are committed to providing non-discriminatory service to ensure that no person is excluded from participation in, or denied the benefits of, or subjected to discrimination in the receipt of its services on the basis of race, color or national origin as protected by Title VI of the Civil Rights Act of 1964 ("Title VI").

To request more information about Title VI or to submit a written complaint if you believe that you have been subjected to discrimination, you may contact NYC Transit's Office of Equal Employment Opportunity, 130 Livingston Street, 3rd Floor, Brooklyn, NY 11201.

In addition to your right to file a complaint with NYC Transit and MTA Bus Company, you have the right to file a Title VI complaint with the U.S. Department of Transportation, Federal Transit Administration, Office of Civil Rights, Attention: Complaint Team, East Building 5th Floor – TCR, 1200 New Jersey Avenue SE, Washington, DC 20590.

We’re serious about safety

your safety

We are committed to providing you with the safest service possible. Please take a moment to read this list and consider what can happen if you’re not careful:

- **Don’t run for the bus** — that’s when most accidents happen. Slips, trips, and falls are the most common causes of injuries.
- **Stand behind the white line** if you are in the front of the bus. A sudden stop could propel you forward into the dashboard, window, or stairwell.
- **Avoid standing in the stairwell** of the rear door, and don’t lean on the rear door.
- **Allow the bus operator to secure your chair** if you are in a wheelchair.
- **Keep your head and arms inside** bus windows.
- **Hold the handrail** when you exit, particularly in wintry weather when the steps get slippery from snow.
- **Signal the bus operator** two blocks before you want to get off so that there’s sufficient time to stop.
- **Watch for cars** as you leave the bus. This becomes even more important when the bus operator is unable to pull completely into the bus stop. Make it a point to not cross in front of the bus after you get off.

Q70

+**select**bus service

Effective January 3, 2021

Bus Timetable

MTA Bus Company

For accessible subway stations, travel directions and other information:
Call 511 or visit www.mta.info

Q70-SBS Weekday — LaGuardia Link

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
12:00 AM	12:04 AM	12:14 AM	12:39 AM
12:20 AM	12:24 AM	12:34 AM	12:59 AM
12:40 AM	12:44 AM	12:54 AM	1:19 AM
1:00 AM	1:04 AM	1:12 AM	1:34 AM
1:20 AM	1:24 AM	1:32 AM	1:54 AM
1:40 AM	1:44 AM	1:52 AM	2:14 AM
2:00 AM	2:04 AM	2:12 AM	2:34 AM
2:20 AM	2:24 AM	2:32 AM	2:54 AM
2:40 AM	2:44 AM	2:52 AM	3:14 AM
3:00 AM	3:04 AM	3:12 AM	3:34 AM
3:20 AM	3:24 AM	3:32 AM	3:54 AM
3:40 AM	3:44 AM	3:52 AM	4:14 AM
4:00 AM	4:04 AM	4:12 AM	4:34 AM
4:20 AM	4:24 AM	4:32 AM	4:55 AM
4:40 AM	4:45 AM	4:55 AM	5:18 AM
4:55 AM	5:00 AM	5:10 AM	5:33 AM
5:05 AM	5:10 AM	5:20 AM	5:43 AM
5:15 AM	5:20 AM	5:30 AM	5:53 AM
5:25 AM	5:30 AM	5:40 AM	6:03 AM
5:35 AM	5:40 AM	5:50 AM	6:13 AM
5:45 AM	5:50 AM	6:00 AM	6:23 AM
5:55 AM	6:00 AM	6:10 AM	6:33 AM
6:05 AM	6:10 AM	6:20 AM	6:43 AM
6:15 AM	6:20 AM	6:30 AM	6:53 AM
6:22 AM	6:27 AM	6:37 AM	7:00 AM
6:30 AM	6:35 AM	6:45 AM	7:08 AM
6:37 AM	6:42 AM	6:52 AM	7:15 AM
6:45 AM	6:50 AM	7:00 AM	7:26 AM
6:52 AM	6:57 AM	7:07 AM	7:33 AM
7:00 AM	7:07 AM	7:16 AM	7:42 AM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
7:10 AM	7:17 AM	7:26 AM	7:52 AM
7:20 AM	7:27 AM	7:36 AM	8:02 AM
7:30 AM	7:37 AM	7:46 AM	8:12 AM
7:40 AM	7:47 AM	7:56 AM	8:22 AM
7:50 AM	7:57 AM	8:06 AM	8:32 AM
8:00 AM	8:07 AM	8:16 AM	8:42 AM
8:10 AM	8:17 AM	8:26 AM	8:52 AM
8:20 AM	8:27 AM	8:36 AM	9:05 AM
8:30 AM	8:37 AM	8:47 AM	9:16 AM
8:40 AM	8:47 AM	8:57 AM	9:26 AM
8:50 AM	8:57 AM	9:07 AM	9:36 AM
9:00 AM	9:07 AM	9:17 AM	9:46 AM
9:10 AM	9:17 AM	9:27 AM	9:56 AM
9:20 AM	9:27 AM	9:37 AM	10:06 AM
9:30 AM	9:37 AM	9:47 AM	10:16 AM
9:40 AM	9:47 AM	9:57 AM	10:26 AM
9:50 AM	9:57 AM	10:07 AM	10:36 AM
10:00 AM	10:07 AM	10:17 AM	10:46 AM
10:10 AM	10:17 AM	10:27 AM	10:56 AM
10:20 AM	10:27 AM	10:37 AM	11:08 AM
10:30 AM	10:37 AM	10:48 AM	11:19 AM
10:40 AM	10:47 AM	10:58 AM	11:29 AM
10:50 AM	10:57 AM	11:08 AM	11:39 AM
11:00 AM	11:07 AM	11:18 AM	11:49 AM
11:10 AM	11:17 AM	11:28 AM	11:59 AM
11:20 AM	11:27 AM	11:38 AM	12:09 PM
11:30 AM	11:37 AM	11:48 AM	12:19 PM
11:40 AM	11:47 AM	11:58 AM	12:29 PM
11:50 AM	11:57 AM	12:08 PM	12:39 PM
12:00 PM	12:07 PM	12:18 PM	12:49 PM
12:08 PM	12:15 PM	12:26 PM	12:57 PM
12:16 PM	12:23 PM	12:34 PM	1:05 PM
12:24 PM	12:31 PM	12:42 PM	1:13 PM
12:32 PM	12:39 PM	12:50 PM	1:21 PM
12:40 PM	12:47 PM	12:58 PM	1:29 PM
12:48 PM	12:55 PM	1:06 PM	1:37 PM
12:56 PM	1:03 PM	1:14 PM	1:45 PM
1:04 PM	1:11 PM	1:22 PM	1:53 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
1:12 PM	1:19 PM	1:30 PM	2:03 PM
1:20 PM	1:27 PM	1:38 PM	2:11 PM
1:28 PM	1:35 PM	1:48 PM	2:21 PM
1:36 PM	1:43 PM	1:56 PM	2:29 PM
1:44 PM	1:51 PM	2:04 PM	2:37 PM
1:52 PM	1:59 PM	2:12 PM	2:45 PM
2:00 PM	2:07 PM	2:20 PM	2:53 PM
2:08 PM	2:15 PM	2:28 PM	3:01 PM
2:16 PM	2:23 PM	2:36 PM	3:12 PM
2:24 PM	2:31 PM	2:44 PM	3:20 PM
2:32 PM	2:40 PM	2:53 PM	3:29 PM
2:40 PM	2:48 PM	3:01 PM	3:37 PM
2:48 PM	2:56 PM	3:09 PM	3:45 PM
2:56 PM	3:04 PM	3:17 PM	3:53 PM
3:04 PM	3:12 PM	3:25 PM	4:01 PM
3:12 PM	3:20 PM	3:33 PM	4:09 PM
3:20 PM	3:28 PM	3:41 PM	4:17 PM
3:28 PM	3:36 PM	3:49 PM	4:25 PM
3:36 PM	3:44 PM	3:57 PM	4:33 PM
3:44 PM	3:52 PM	4:05 PM	4:41 PM
3:52 PM	4:00 PM	4:13 PM	4:49 PM
4:00 PM	4:08 PM	4:21 PM	4:57 PM
4:08 PM	4:16 PM	4:29 PM	5:05 PM
4:16 PM	4:24 PM	4:37 PM	5:13 PM
4:24 PM	4:32 PM	4:45 PM	5:21 PM
4:32 PM	4:40 PM	4:53 PM	5:29 PM
4:40 PM	4:48 PM	5:01 PM	5:37 PM
4:48 PM	4:56 PM	5:09 PM	5:45 PM
4:56 PM	5:04 PM	5:17 PM	5:53 PM
5:04 PM	5:12 PM	5:25 PM	6:01 PM
5:12 PM	5:20 PM	5:33 PM	6:09 PM
5:20 PM	5:28 PM	5:41 PM	6:17 PM
5:28 PM	5:36 PM	5:49 PM	6:25 PM
5:36 PM	5:44 PM	5:57 PM	6:33 PM
5:44 PM	5:52 PM	6:05 PM	6:41 PM
5:52 PM	6:00 PM	6:13 PM	6:49 PM
6:00 PM	6:08 PM	6:21 PM	6:57 PM
6:08 PM	6:16 PM	6:29 PM	7:05 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
6:16 PM	6:24 PM	6:37 PM	7:08 PM
6:24 PM	6:32 PM	6:43 PM	7:14 PM
6:32 PM	6:41 PM	6:52 PM	7:23 PM
6:40 PM	6:49 PM	7:00 PM	7:31 PM
6:48 PM	6:57 PM	7:08 PM	7:39 PM
6:56 PM	7:05 PM	7:16 PM	7:47 PM
7:04 PM	7:13 PM	7:24 PM	7:55 PM
7:12 PM	7:21 PM	7:32 PM	8:00 PM
7:20 PM	7:29 PM	7:40 PM	8:08 PM
7:28 PM	7:37 PM	7:47 PM	8:15 PM
7:36 PM	7:42 PM	7:52 PM	8:20 PM
7:44 PM	7:50 PM	8:00 PM	8:28 PM
7:52 PM	7:58 PM	8:08 PM	8:36 PM
8:00 PM	8:06 PM	8:16 PM	8:44 PM
8:10 PM	8:16 PM	8:26 PM	8:54 PM
8:20 PM	8:26 PM	8:36 PM	9:04 PM
8:30 PM	8:36 PM	8:46 PM	9:14 PM
8:40 PM	8:46 PM	8:56 PM	9:24 PM
8:50 PM	8:56 PM	9:06 PM	9:34 PM
9:00 PM	9:06 PM	9:16 PM	9:44 PM
9:10 PM	9:16 PM	9:26 PM	9:54 PM
9:20 PM	9:26 PM	9:36 PM	10:04 PM
9:30 PM	9:36 PM	9:46 PM	10:14 PM
9:40 PM	9:46 PM	9:56 PM	10:24 PM
9:50 PM	9:56 PM	10:06 PM	10:34 PM
10:00 PM	10:06 PM	10:16 PM	10:44 PM
10:12 PM	10:18 PM	10:28 PM	10:56 PM
10:24 PM	10:30 PM	10:40 PM	11:08 PM
10:36 PM	10:42 PM	10:52 PM	11:20 PM
10:48 PM	10:54 PM	11:04 PM	11:32 PM
11:00 PM	11:06 PM	11:16 PM	11:44 PM
11:15 PM	11:21 PM	11:31 PM	11:59 PM
11:30 PM	11:36 PM	11:46 PM	12:14 AM
11:45 PM	11:51 PM	12:01 AM	12:26 AM

Q70-SBS Saturday			LaGuardia Link
Roosevelt Av / 61 St (R)	**74 St / Roosevelt Av Station (7)**	**LGA / Terminal C / D (L)**	**Woodside Av / 61 St (W)**
12:00 AM	12:06 AM	12:15 AM	12:43 AM
12:20 AM	12:26 AM	12:35 AM	1:03 AM
12:40 AM	12:46 AM	12:55 AM	1:23 AM
1:00 AM	1:06 AM	1:15 AM	1:43 AM
1:20 AM	1:26 AM	1:35 AM	2:03 AM
1:40 AM	1:46 AM	1:55 AM	2:23 AM
2:00 AM	2:05 AM	2:13 AM	2:36 AM
2:20 AM	2:25 AM	2:33 AM	2:56 AM
2:40 AM	2:45 AM	2:53 AM	3:16 AM
3:00 AM	3:05 AM	3:13 AM	3:36 AM
3:20 AM	3:25 AM	3:33 AM	3:56 AM
3:40 AM	3:45 AM	3:53 AM	4:16 AM
4:00 AM	4:05 AM	4:13 AM	4:36 AM
4:20 AM	4:25 AM	4:33 AM	4:56 AM
4:40 AM	4:45 AM	4:53 AM	5:16 AM
5:00 AM	5:05 AM	5:13 AM	5:36 AM
5:20 AM	5:25 AM	5:33 AM	5:56 AM
5:40 AM	5:45 AM	5:53 AM	6:16 AM
6:00 AM	6:05 AM	6:13 AM	6:36 AM
6:15 AM	6:20 AM	6:28 AM	6:51 AM
6:30 AM	6:35 AM	6:43 AM	7:06 AM
6:45 AM	6:50 AM	6:58 AM	7:21 AM
7:00 AM	7:05 AM	7:13 AM	7:36 AM
7:12 AM	7:17 AM	7:25 AM	7:48 AM
7:24 AM	7:29 AM	7:37 AM	8:00 AM
7:36 AM	7:41 AM	7:49 AM	8:12 AM
7:48 AM	7:53 AM	8:01 AM	8:24 AM
8:00 AM	8:05 AM	8:13 AM	8:36 AM
8:10 AM	8:15 AM	8:23 AM	8:46 AM
8:20 AM	8:25 AM	8:33 AM	8:58 AM
8:30 AM	8:36 AM	8:45 AM	9:10 AM
8:40 AM	8:46 AM	8:55 AM	9:20 AM
8:50 AM	8:56 AM	9:05 AM	9:30 AM
9:00 AM	9:06 AM	9:15 AM	9:40 AM
9:10 AM	9:16 AM	9:25 AM	9:50 AM
9:20 AM	9:26 AM	9:35 AM	10:00 AM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
9:30 AM	9:36 AM	9:45 AM	10:10 AM
9:40 AM	9:46 AM	9:55 AM	10:20 AM
9:50 AM	9:56 AM	10:05 AM	10:30 AM
10:00 AM	10:06 AM	10:15 AM	10:40 AM
10:10 AM	10:16 AM	10:25 AM	10:50 AM
10:20 AM	10:26 AM	10:35 AM	11:01 AM
10:30 AM	10:38 AM	10:48 AM	11:14 AM
10:40 AM	10:48 AM	10:58 AM	11:24 AM
10:50 AM	10:58 AM	11:08 AM	11:34 AM
11:00 AM	11:08 AM	11:18 AM	11:44 AM
11:10 AM	11:18 AM	11:28 AM	11:54 AM
11:20 AM	11:28 AM	11:38 AM	12:04 PM
11:30 AM	11:38 AM	11:48 AM	12:14 PM
11:40 AM	11:48 AM	11:58 AM	12:24 PM
11:50 AM	11:58 AM	12:08 PM	12:34 PM
12:00 PM	12:08 PM	12:18 PM	12:44 PM
12:10 PM	12:18 PM	12:28 PM	12:54 PM
12:20 PM	12:28 PM	12:38 PM	1:04 PM
12:30 PM	12:38 PM	12:48 PM	1:14 PM
12:40 PM	12:48 PM	12:58 PM	1:24 PM
12:50 PM	12:58 PM	1:08 PM	1:34 PM
1:00 PM	1:08 PM	1:18 PM	1:44 PM
1:10 PM	1:18 PM	1:28 PM	1:54 PM
1:20 PM	1:28 PM	1:38 PM	2:04 PM
1:30 PM	1:38 PM	1:48 PM	2:14 PM
1:40 PM	1:48 PM	1:58 PM	2:24 PM
1:50 PM	1:58 PM	2:08 PM	2:34 PM
2:00 PM	2:08 PM	2:18 PM	2:44 PM
2:10 PM	2:18 PM	2:28 PM	2:54 PM
2:20 PM	2:28 PM	2:38 PM	3:04 PM
2:30 PM	2:38 PM	2:48 PM	3:14 PM
2:40 PM	2:48 PM	2:58 PM	3:24 PM
2:50 PM	2:58 PM	3:08 PM	3:34 PM
3:00 PM	3:08 PM	3:18 PM	3:44 PM
3:10 PM	3:18 PM	3:28 PM	3:54 PM
3:20 PM	3:28 PM	3:38 PM	4:04 PM
3:30 PM	3:38 PM	3:48 PM	4:14 PM
3:40 PM	3:48 PM	3:58 PM	4:24 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
3:50 PM	3:58 PM	4:08 PM	4:34 PM
4:00 PM	4:08 PM	4:18 PM	4:44 PM
4:10 PM	4:18 PM	4:28 PM	4:54 PM
4:20 PM	4:28 PM	4:38 PM	5:04 PM
4:30 PM	4:38 PM	4:48 PM	5:14 PM
4:40 PM	4:48 PM	4:58 PM	5:24 PM
4:50 PM	4:58 PM	5:08 PM	5:34 PM
5:00 PM	5:08 PM	5:18 PM	5:44 PM
5:10 PM	5:18 PM	5:28 PM	5:54 PM
5:20 PM	5:28 PM	5:38 PM	6:04 PM
5:30 PM	5:38 PM	5:48 PM	6:14 PM
5:40 PM	5:48 PM	5:58 PM	6:24 PM
5:50 PM	5:58 PM	6:08 PM	6:34 PM
6:00 PM	6:08 PM	6:18 PM	6:44 PM
6:10 PM	6:18 PM	6:28 PM	6:54 PM
6:20 PM	6:28 PM	6:38 PM	7:04 PM
6:30 PM	6:38 PM	6:48 PM	7:14 PM
6:40 PM	6:48 PM	6:58 PM	7:24 PM
6:50 PM	6:58 PM	7:08 PM	7:34 PM
7:00 PM	7:08 PM	7:18 PM	7:44 PM
7:10 PM	7:18 PM	7:28 PM	7:54 PM
7:20 PM	7:28 PM	7:38 PM	8:04 PM
7:30 PM	7:38 PM	7:48 PM	8:14 PM
7:40 PM	7:48 PM	7:58 PM	8:24 PM
7:50 PM	7:58 PM	8:08 PM	8:34 PM
8:00 PM	8:08 PM	8:18 PM	8:44 PM
8:10 PM	8:18 PM	8:28 PM	8:54 PM
8:20 PM	8:28 PM	8:38 PM	9:04 PM
8:30 PM	8:38 PM	8:48 PM	9:14 PM
8:40 PM	8:48 PM	8:58 PM	9:24 PM
8:50 PM	8:58 PM	9:08 PM	9:31 PM
9:00 PM	9:07 PM	9:16 PM	9:39 PM
9:10 PM	9:17 PM	9:26 PM	9:49 PM
9:20 PM	9:27 PM	9:36 PM	9:59 PM
9:30 PM	9:37 PM	9:46 PM	10:09 PM
9:40 PM	9:47 PM	9:56 PM	10:19 PM
9:50 PM	9:57 PM	10:06 PM	10:29 PM
10:00 PM	10:07 PM	10:16 PM	10:39 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
10:12 PM	10:19 PM	10:28 PM	10:51 PM
10:24 PM	10:31 PM	10:40 PM	11:03 PM
10:36 PM	10:43 PM	10:52 PM	11:15 PM
10:48 PM	10:55 PM	11:04 PM	11:27 PM
11:00 PM	11:07 PM	11:16 PM	11:39 PM
11:15 PM	11:22 PM	11:31 PM	11:54 PM
11:30 PM	11:37 PM	11:46 PM	12:09 AM
11:45 PM	11:52 PM	12:01 AM	12:29 AM

Q70-SBS Sunday			LaGuardia Link
Roosevelt Av / 61 St (R)	**74 St / Roosevelt Av Station (7)**	**LGA / Terminal C / D (L)**	**Woodside Av / 61 St (W)**
12:00 AM	12:05 AM	12:14 AM	12:36 AM
12:20 AM	12:25 AM	12:34 AM	12:56 AM
12:40 AM	12:45 AM	12:54 AM	1:16 AM
1:00 AM	1:05 AM	1:14 AM	1:36 AM
1:20 AM	1:25 AM	1:34 AM	1:54 AM
1:40 AM	1:45 AM	1:53 AM	2:13 AM
2:00 AM	2:05 AM	2:13 AM	2:33 AM
2:20 AM	2:25 AM	2:33 AM	2:53 AM
2:40 AM	2:45 AM	2:53 AM	3:13 AM
3:00 AM	3:05 AM	3:13 AM	3:33 AM
3:20 AM	3:25 AM	3:33 AM	3:53 AM
3:40 AM	3:45 AM	3:53 AM	4:13 AM
4:00 AM	4:05 AM	4:13 AM	4:33 AM
4:20 AM	4:25 AM	4:33 AM	4:53 AM
4:40 AM	4:45 AM	4:53 AM	5:13 AM
5:00 AM	5:05 AM	5:13 AM	5:33 AM
5:20 AM	5:25 AM	5:33 AM	5:53 AM
5:40 AM	5:45 AM	5:53 AM	6:13 AM
6:00 AM	6:05 AM	6:13 AM	6:33 AM
6:15 AM	6:20 AM	6:28 AM	6:48 AM
6:30 AM	6:35 AM	6:43 AM	7:03 AM
6:45 AM	6:50 AM	6:58 AM	7:18 AM
7:00 AM	7:05 AM	7:13 AM	7:33 AM
7:12 AM	7:17 AM	7:25 AM	7:45 AM
7:24 AM	7:29 AM	7:37 AM	7:57 AM
7:36 AM	7:41 AM	7:49 AM	8:09 AM
7:48 AM	7:53 AM	8:01 AM	8:21 AM
8:00 AM	8:05 AM	8:13 AM	8:33 AM
8:10 AM	8:15 AM	8:23 AM	8:43 AM
8:20 AM	8:25 AM	8:33 AM	8:56 AM
8:30 AM	8:36 AM	8:45 AM	9:08 AM
8:40 AM	8:46 AM	8:55 AM	9:18 AM
8:50 AM	8:56 AM	9:05 AM	9:28 AM
9:00 AM	9:06 AM	9:15 AM	9:38 AM
9:10 AM	9:16 AM	9:25 AM	9:48 AM
9:20 AM	9:26 AM	9:35 AM	9:58 AM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
9:30 AM	9:36 AM	9:45 AM	10:08 AM
9:40 AM	9:46 AM	9:55 AM	10:18 AM
9:50 AM	9:56 AM	10:05 AM	10:28 AM
10:00 AM	10:06 AM	10:15 AM	10:38 AM
10:10 AM	10:16 AM	10:25 AM	10:48 AM
10:20 AM	10:26 AM	10:35 AM	11:03 AM
10:30 AM	10:37 AM	10:47 AM	11:15 AM
10:40 AM	10:47 AM	10:57 AM	11:25 AM
10:50 AM	10:57 AM	11:07 AM	11:35 AM
11:00 AM	11:07 AM	11:17 AM	11:45 AM
11:10 AM	11:17 AM	11:27 AM	11:55 AM
11:20 AM	11:27 AM	11:37 AM	12:05 PM
11:30 AM	11:37 AM	11:47 AM	12:15 PM
11:40 AM	11:47 AM	11:57 AM	12:25 PM
11:50 AM	11:57 AM	12:07 PM	12:35 PM
12:00 PM	12:07 PM	12:17 PM	12:45 PM
12:10 PM	12:17 PM	12:27 PM	12:55 PM
12:20 PM	12:27 PM	12:37 PM	1:05 PM
12:30 PM	12:37 PM	12:47 PM	1:15 PM
12:40 PM	12:47 PM	12:57 PM	1:25 PM
12:50 PM	12:57 PM	1:07 PM	1:35 PM
1:00 PM	1:07 PM	1:17 PM	1:45 PM
1:10 PM	1:17 PM	1:27 PM	1:55 PM
1:20 PM	1:27 PM	1:37 PM	2:05 PM
1:30 PM	1:37 PM	1:47 PM	2:15 PM
1:40 PM	1:47 PM	1:57 PM	2:25 PM
1:50 PM	1:57 PM	2:07 PM	2:35 PM
2:00 PM	2:07 PM	2:17 PM	2:45 PM
2:10 PM	2:17 PM	2:27 PM	2:55 PM
2:20 PM	2:27 PM	2:37 PM	3:05 PM
2:30 PM	2:37 PM	2:47 PM	3:15 PM
2:40 PM	2:47 PM	2:57 PM	3:25 PM
2:50 PM	2:57 PM	3:07 PM	3:35 PM
3:00 PM	3:07 PM	3:17 PM	3:45 PM
3:10 PM	3:17 PM	3:27 PM	3:55 PM
3:20 PM	3:27 PM	3:37 PM	4:05 PM
3:30 PM	3:37 PM	3:47 PM	4:15 PM
3:40 PM	3:47 PM	3:57 PM	4:25 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
3:50 PM	3:57 PM	4:07 PM	4:39 PM
4:00 PM	4:08 PM	4:18 PM	4:50 PM
4:10 PM	4:18 PM	4:28 PM	5:00 PM
4:20 PM	4:28 PM	4:38 PM	5:10 PM
4:30 PM	4:38 PM	4:48 PM	5:20 PM
4:40 PM	4:48 PM	4:58 PM	5:30 PM
4:50 PM	4:58 PM	5:08 PM	5:40 PM
5:00 PM	5:08 PM	5:18 PM	5:50 PM
5:10 PM	5:18 PM	5:28 PM	6:00 PM
5:20 PM	5:28 PM	5:38 PM	6:10 PM
5:30 PM	5:38 PM	5:48 PM	6:20 PM
5:40 PM	5:48 PM	5:58 PM	6:30 PM
5:50 PM	5:58 PM	6:08 PM	6:40 PM
6:00 PM	6:08 PM	6:18 PM	6:50 PM
6:10 PM	6:18 PM	6:28 PM	7:00 PM
6:20 PM	6:28 PM	6:38 PM	7:10 PM
6:30 PM	6:38 PM	6:48 PM	7:20 PM
6:40 PM	6:48 PM	6:58 PM	7:30 PM
6:50 PM	6:58 PM	7:08 PM	7:40 PM
7:00 PM	7:08 PM	7:18 PM	7:50 PM
7:10 PM	7:18 PM	7:28 PM	8:00 PM
7:20 PM	7:28 PM	7:38 PM	8:03 PM
7:30 PM	7:38 PM	7:48 PM	8:13 PM
7:40 PM	7:48 PM	7:58 PM	8:23 PM
7:50 PM	7:58 PM	8:08 PM	8:33 PM
8:00 PM	8:08 PM	8:18 PM	8:43 PM
8:10 PM	8:18 PM	8:28 PM	8:53 PM
8:20 PM	8:28 PM	8:38 PM	9:03 PM
8:30 PM	8:38 PM	8:48 PM	9:13 PM
8:40 PM	8:48 PM	8:58 PM	9:23 PM
8:50 PM	8:58 PM	9:08 PM	9:32 PM
9:00 PM	9:06 PM	9:15 PM	9:39 PM
9:10 PM	9:16 PM	9:25 PM	9:49 PM
9:20 PM	9:26 PM	9:35 PM	9:59 PM
9:30 PM	9:36 PM	9:45 PM	10:09 PM
9:40 PM	9:46 PM	9:55 PM	10:19 PM
9:50 PM	9:56 PM	10:05 PM	10:29 PM
10:00 PM	10:06 PM	10:15 PM	10:39 PM

Roosevelt Av / 61 St (R)	74 St / Roosevelt Av Station (7)	LGA / Terminal C / D (L)	Woodside Av / 61 St (W)
10:12 PM	10:18 PM	10:27 PM	10:51 PM
10:24 PM	10:30 PM	10:39 PM	11:03 PM
10:36 PM	10:42 PM	10:51 PM	11:15 PM
10:48 PM	10:54 PM	11:03 PM	11:25 PM
11:00 PM	11:05 PM	11:14 PM	11:36 PM
11:15 PM	11:20 PM	11:29 PM	11:51 PM
11:30 PM	11:35 PM	11:44 PM	12:06 AM
11:45 PM	11:50 PM	11:59 PM	12:21 AM

Q70

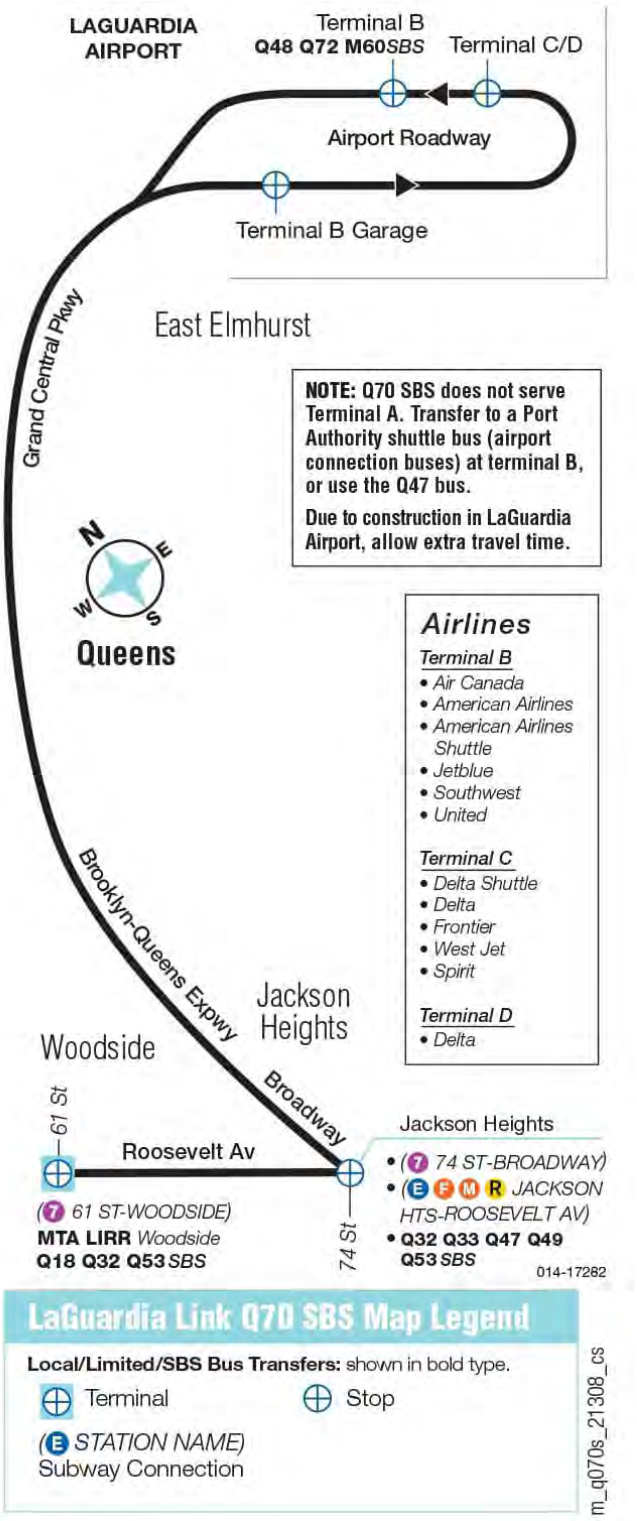
+**selectbus**service

Effective January 3, 2021

Bus Timetable

MTA Bus Company

For accessible subway stations, travel directions and other information:
Call 511 or visit www.mta.info



Fares – MetroCard® is accepted for all MTA New York City trains (including Staten Island Railway - SIR), and, local, Limited-Stop and +SelectBusService buses (at MetroCard fare collection machines). Express buses only accept 7-Day Express Bus Plus MetroCard or Pay-Per-Ride MetroCard. All of our buses and +SelectBusService Coin Fare Collector machines accept exact fare in coins. Dollar bills, pennies, and half-dollar coins are not accepted. OMNY is the MTA's new fare payment system. Use your contactless card or smart device to pay the fare on buses and subways. Visit omny.info for details of the rollout.

Free Transfers – Unlimited Ride MetroCard permits free transfers to all but our express buses (between subway and local bus, local bus and local bus etc.) Pay-Per-Ride MetroCard allows one free transfer of equal or lesser value if you complete your transfer within two hours of the time you pay your full fare with the same MetroCard. If you pay your local bus fare with coins, ask for a free electronic paper transfer to use on another local bus.

Reduced-Fare Benefits – You are eligible for reduced-fare benefits if you are at least 65 years of age or have a qualifying disability. Benefits are available (except on peak-hour express buses) with proper identification, including Reduced-Fare MetroCard or Medicare card.

Children – The subway, SIR, local, Limited-Stop, and +SelectBusService buses permit up to three children, 44 inches tall and under to ride free when accompanied by an adult paying full fare.

Terms and Conditions – Fares and MetroCard use are subject to applicable tariffs and conditions of use.

Bus Operator Apple Award

If you think your bus operator deserves an Apple Award--our special recognition for this service, courtesy and professionalism-- go to mta.info/customer-feedback or call 511 and give us the badge or bus number.

Holiday Service 2022

Reduced weekday service operates on: Martin Luther King Day*, Day After Thanksgiving*.

Saturday service operates on: Presidents Day*, Independence Day, Dec 26.

Sunday service operates on: Memorial Day, Labor Day, Thanksgiving Day, Christmas Day+, New Years Day+.

** Special schedules for these days will be available at mta.info for express routes only.*
+ Service information for the day preceding this holiday or holiday weekend will be provided on mta.info, and on service notices posted on buses.
Information in this timetable is subject to change without notice. Traffic conditions and weather can affect running time.

Travel Help and Information

511 **One MTA One Number.** Call 511 and say MTA.

TTY/TDD users only..... 711
Online: www.mta.info

IF YOU SEE SOMETHING, SAY SOMETHING.

Be suspicious of anything unattended. Tell a cop, an MTA employee or call 1-888-692-7233 (1-888-NYC-SAFE).

Filing a Title VI Complaint – MTA New York City Transit ("NYC Transit") and MTA Bus Company are committed to providing non-discriminatory service to ensure that no person is excluded from participation in, or denied the benefits of, or subjected to discrimination in the receipt of its services on the basis of race, color or national origin as protected by Title VI of the Civil Rights Act of 1964 ("Title VI").

To request more information about Title VI or to submit a written complaint if you believe that you have been subjected to discrimination, you may contact NYC Transit's Office of Equal Employment Opportunity, 130 Livingston Street, 3rd Floor, Brooklyn, NY 11201.

In addition to your right to file a complaint with NYC Transit and MTA Bus Company, you have the right to file a Title VI complaint with the U.S. Department of Transportation, Federal Transit Administration, Office of Civil Rights, Attention: Complaint Team, East Building 5th Floor – TCR, 1200 New Jersey Avenue SE, Washington, DC 20590.

We’re serious about safety

your safety

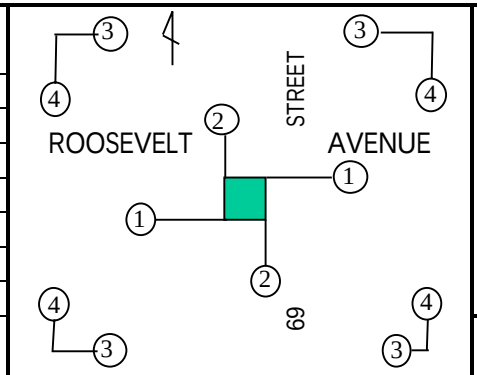
We are committed to providing you with the safest service possible. Please take a moment to read this list and consider what can happen if you’re not careful:

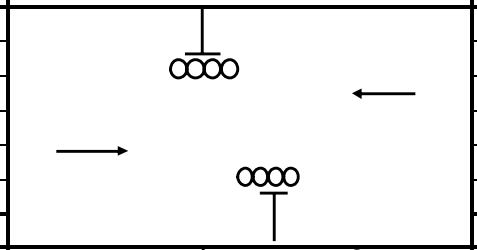
- **Don’t run for the bus** — that’s when most accidents happen. Slips, trips, and falls are the most common causes of injuries.
- **Stand behind the white line** if you are in the front of the bus. A sudden stop could propel you forward into the dashboard, window, or stairwell.
- **Avoid standing in the stairwell** of the rear door, and don’t lean on the rear door.
- **Allow the bus operator to secure your chair** if you are in a wheelchair.
- **Keep your head and arms inside** bus windows.

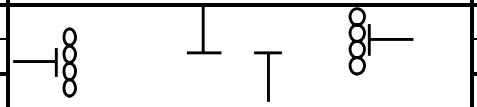
- **Hold the handrail** when you exit, particularly in wintry weather when the steps get slippery Borough from snow.
- **Signal the bus operator** two blocks before you want to get off so that there’s sufficient time to stop.
- **Watch for cars** as you leave the bus. This becomes even more important when the bus operator is unable to pull completely into the bus stop. Make it a point to not cross in front of the bus after you get off.

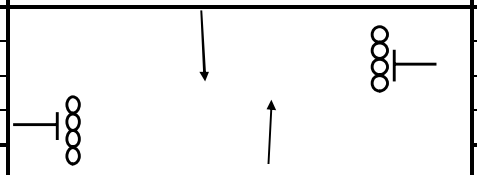
Attachment F: Signal Timing Plans

	1	2	3	4	5	6
	R	R	DW	DW		
	A	A	WK	WK		
	G	G				
L/S #	*1*	*2*	*5*	*6*		
NEMA	1	3	1P	POL1		
				(2+3)		
PHASE A	G	R	WK	DW		
SPARE	G	R	WK	DW		
PED CL	G	R	**FLDW**	DW		
TSP EXT	G	R	DW	DW		
VEH CL	A	R	DW	DW		
VEH CL	R	R	DW	DW		
PHASE B	R	R	DW	WK		
LPI	R	R	DW	WK		
PHASE C	R	G	DW	WK		
PED CL	R	G	DW	**FLDW**		
VEH CL	R	A	DW	DW		
VEH CL	R	R	DW	DW		









	MON-FRI 05:00 - 10:30	MON-FRI 10:30-14:30 19:30 - 00.00 WEEKEND 07:00 - 01:00	MON-FRI 14:30 - 19:30	MON-FRI 00:00-05:00 WEEKEND 01:00 - 07:00
	120 SEC	**120 SEC**	**120 SEC**	**90 SEC**
PHASE A	57	56	57	22
SPARE	2	2	2	2
PED CL	12	12	12	12
TSP EXT	1	1	1	1
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	77	**76**	**77**	**42**
PHASE B	3	6	3	6
LPI	4	4	4	4
	7	**10**	**7**	**10**
PHASE C	20	18	20	22
PED CL	11	11	11	11
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	36	**34**	**36**	**38**
OFFSET	**8**	**0**	**90**	**40**

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

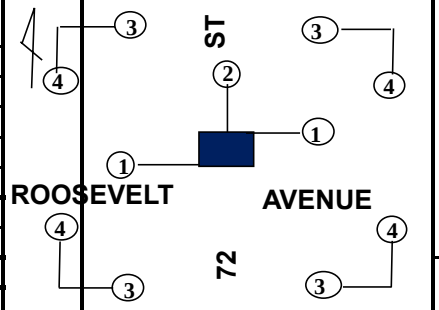
DATE	BY	REVISIONS
9/20	MK	TIMING MODIFICATION /TSP 2020 (Q53)

NOTES: NON - ACTUATED
PC=3.0 FT/SEC
INTERVAL PROGRAM
PEDESTRIAN COUNTDOWN
CABINET TYPE: ASTC-6
CABINET ADDRESS: 66A1

ROOSEVELT AVENUE @ 69 STREET

Prep	M.Kobets	Date	9/11/20
Appr.		Date	

	1	2	3	4	5	6	7
	R	R	DW	DW			
	A	A	WK	WK			
	G	G					
L/S #	1	2	5	6			
NEMA	1	3	1P	POL1			
				(2+3)			



	MON - FRI 5:00 -14:30 19:30 - 00:00 WEEKEND 07:00 -14:30 19:30 - 01: 00	MON-FRI 14:30 -19:30	WEEKEND 14:30 - 19:30	MON - FRI 00: 00 5:00 WEEKEND 01: 00 - 7: 00
	120 SEC	120 SEC	120 SEC	90 SEC
PHASE A	62	55	54	27
SPARE	2	2	2	2
PED CL	7	7	7	7
TSP EXT	1	1	1	1
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	77	70	69	42
PHASE B	3	3	6	6
LPI	4	4	4	4
	7	7	10	10
PHASE C	20	27	25	22
PED CL	11	11	11	11
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	36	43	41	38
OFFSET	108	15	111	52

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

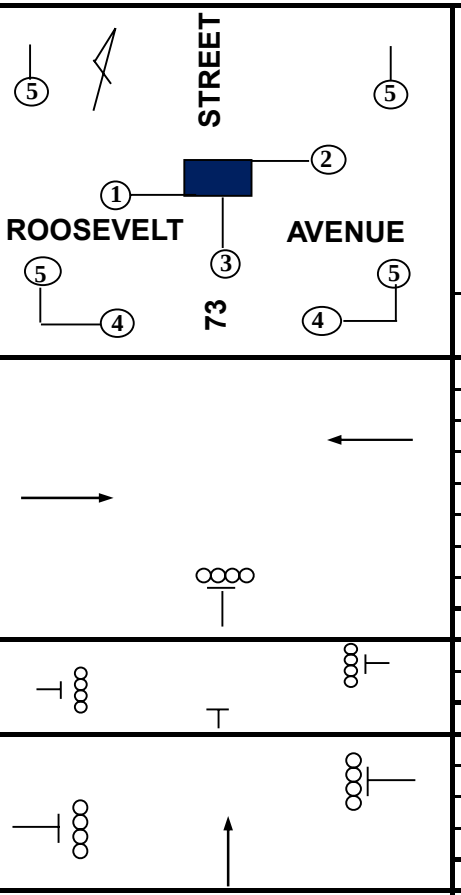
DATE	BY	REVISIONS
9/20	MK	TIMING MODIFICATION / TSP 2020 (Q53)

NOTES: NON ACTUATED
PC = 3.0 FT/SEC
PEDESTRIAN COUNTDOWN
INTERVAL PROGRAM
CABINET TYPE: ASTC-6
CABINET ADDRESS: 6747

ROOSEVELT AVENUE @ 72 STREET

Prep M.Kobets Date 9/11/20
Appr. Date

	1	2	3	4	5	6
	R	R	R	DW	DW	
	A	A	A	WK	WK	
	G	G	G			
L/S#	1	2	3	5	6	
NEMA	1	1	3	1P	POL 1 (2+3)	
PHASE A	G	G	R	WK	DW	
SPARE	G	G	R	WK	DW	
PED CL	G	G	R	**FLDW**	DW	
TSP EXT	G	G	R	DW	DW	
VEH CL	A	G	R	DW	DW	
VEH CL	R	G	R	DW	DW	
VEH CL	R	A	R	DW	DW	
VEH CL	R	R	R	DW	DW	
PHASE B	R	R	R	DW	WK	
LPI	R	R	R	DW	WK	
PHASE C	R	R	G	DW	WK	
PED CL	R	R	G	DW	**FLDW**	
VEH CL	R	R	A	DW	DW	
VEH CL	R	R	R	DW	DW	



	MON - FRI 05:00 - 14:30 19:30 - 00:00 WEEKEND 07: 00 -14 :30 19:30 - 01: 00	MON - FRI 14 :30 - 19:30	WEEKEND 14 :30 - 19:30	MON - FRI 00:00 - 5:00 WEEKEND 01:00 - 07: 00
	120 SEC	**120 SEC**	**120 SEC**	**90 SEC**
	50	51	49	26
	2	2	2	2
	7	7	7	7
	1	1	1	1
	3	3	3	3
	2	2	2	2
	3	3	3	**3**
	2	2	2	2
	70	71	69	46
	3	3	6	6
	4	4	4	4
	7	7	10	10
	27	26	25	18
	11	11	11	11
	3	3	3	3
	2	2	2	2
	43	**42**	**41**	**34**
OFFSET				
	98	**23**	**1**	**85**

CITY OF NEW YORK
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34-02 Queens Blvd. Long Island City, NY 11101

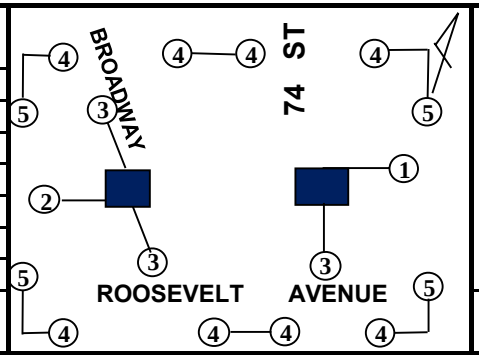
DATE	BY	REVISIONS
9/20	MK	TIMING MODIFICATION/ TSP 2020 (Q53)

NOTES: NON ACTUATED
CONTROLLER # 2
PC = 3.0 FT/SEC
INTERVAL PROGRAM
Cabinet Type: ASTC-6
Cabinet Address: 6748

ROOSEVELT AVENUE @ 73 STREET

Prep **M.Kobets** Date **09/11/20**
Appr. Date

	1	2	3	4	5	6
	R	R	R	DW	DW	
	A	A	A	WK	WK	
	G	G	G			
L/S#	**1**	**2**	**3**	**5**	**6**	
NEMA	**1**	**1**	**3**	**POL1**	**POL2**	
				1+4	**2+3**	
PHASE A	G	G	R	WK	DW	
SPARE	G	G	R	WK	DW	
PED CL	G	G	R	**FLDW**	DW	
TSP EXT	G	G	R	DW	DW	
VEH CL	A	G	R	DW	DW	
VEH CL	R	G	R	DW	DW	
VEH CL	R	A	R	DW	DW	
VEH CL	R	R	R	DW	DW	
PHASE B	R	R	R	DW	WK	
LPI	R	R	R	DW	WK	
PHASE C	R	R	G	DW	WK	
PED CL	R	R	G	DW	**FLDW**	
VEH CL	R	R	A	DW	DW	
VEH CL	R	R	R	DW	DW	
PHASE D	R	R	R	WK	DW	
LPI	R	R	R	WK	DW	



	MON - FRI 05:00 -14:30 19:30 - 00:00 WEEKEND 07:00 -14:30 19:30 - 01:00	MON - FRI 14:30-19:30	WEEKEND 14:30 -19:30	MON - FRI 00:00 - 5:00 WEEKEND 01:00 - 07:00
	120 SEC	**120 SEC**	**120 SEC**	**90 SEC**
PHASE A	24	24	20	1
SPARE	2	2	2	1
PED CL	26	26	26	26
TSP EXT	1	1	1	1
VEH CL	3	3	3	3
VEH CL	4	4	4	4
VEH CL	3	3	3	3
VEH CL	3	3	3	3
	66	**66**	**62**	**42**
PHASE B	3	3	6	6
LPI	4	4	4	4
	7	**7**	**10**	**10**
PHASE C	25	25	23	13
PED CL	10	10	10	10
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	40	**40**	**38**	**28**
PHASE D	3	3	6	6
LPI	4	4	4	4
	7	**7**	**10**	**10**
OFFSET	**92**	**27**	**7**	**2**

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

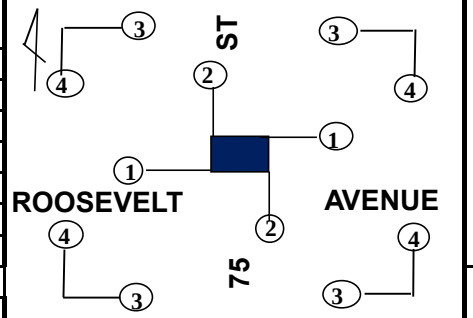
DATE	BY	REVISIONS
04-22	MH	ADD LPI CROSSING ROOSEVELT AVE

NOTES : NON ACTUATED
PC = 3.0 FT/SEC
PEDESTRIAN COUNTDOWN
INTERVAL PROGRAM
CABINET TYPE : ASTC-6
CABINET ADDRESS: 6A5C

ROOSEVELT AVENUE @ BROADWAY & 74 STREET

Prep **M. Hanna** Date 04/06/22
Appr. Date

	1	2	3	4	5	6	7
	R	R	DW	DW			
	A	A	WK	WK			
	G	G					
L/S #	1	2	5	6			
NEMA	1	3	1P	POL1			
				(2+3)			
PHASE A	G	R	WK	DW			
SPARE	G	R	WK	DW			
PED CL	G	R	**FLDW**	DW			
TSP EXT	G	R	DW	DW			
VEH CL	A	R	DW	DW			
VEH CL	R	R	DW	DW			
PHASE B	R	R	DW	WK			
LPI	R	R	DW	WK			
PHASE C	R	G	DW	WK			
PED CL	R	G	DW	**FLDW**			
VEH CL	R	A	DW	DW			
VEH CL	R	R	DW	DW			



MON - FRI 5:00 -14:30 19:30 - 00:00 WEEKEND 07:00 -14:30 19:30 - 01: 00	MON-FRI 14:30 -19:30	WEEKEND 14:30 - 19:30	MON - FRI 00: 00 5:00 WEEKEND 01: 00 - 7: 00
120 SEC	**120 SEC**	**120 SEC**	**90 SEC**
52	46	45	15
2	2	2	2
16	16	16	16
1	1	1	1
3	3	3	3
2	2	2	2
76	**70**	**69**	**39**
3	3	6	6
4	4	4	4
7	**7**	**10**	**10**
20	26	24	24
12	12	12	12
3	3	3	3
2	2	2	2
37	**43**	**41**	**41**
OFFSET			
84	**33**	**15**	**10**

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34-02 Queens Blvd. Long Island City, NY 11101

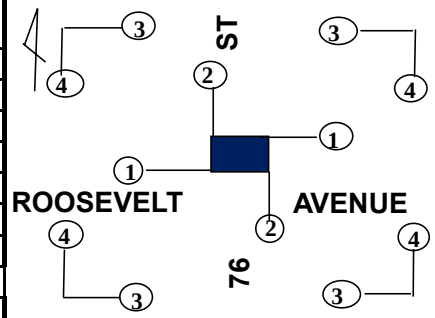
9/20	MK	TIMING MODIFICATION
DATE	BY	REVISIONS

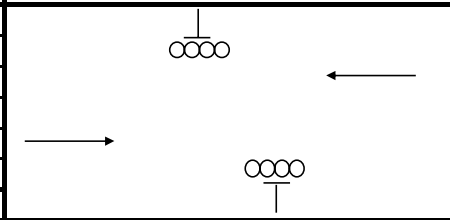
NOTES: NON ACTUATED
PC = 3.0 FT/SEC
INTERVAL PROGRAM
PEDESTRIAN COUNTDOWN
CABINET TYPE: ASTC-6
CABINET ADDRESS: 6A84

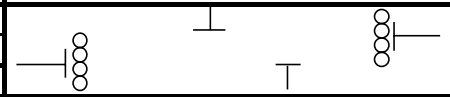
ROOSEVELT AVENUE @ 75 STREET

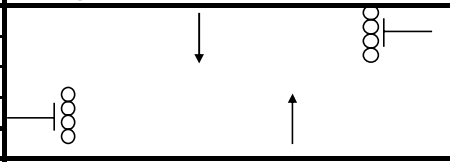
Prep	M.Kobets	Date	9/11/20
Appr.		Date	

	1	2	3	4	5	6	7
	R	R	DW	DW			
	A	A	WK	WK			
	G	G					
L/S #	1	2	5	6			
NEMA	1	3	1P	POL1			
				(2+3)			
PHASE A	G	R	WK	DW			
SPARE	G	R	WK	DW			
PED CL	G	R	**FLDW**	DW			
TSP EXT	G	R	DW	DW			
VEH CL	A	R	DW	DW			
VEH CL	R	R	DW	DW			
PHASE B	R	R	DW	WK			
LPI	R	R	DW	WK			
PHASE C	R	G	DW	WK			
PED CL	R	G	DW	**FLDW**			
VEH CL	R	A	DW	DW			
VEH CL	R	R	DW	DW			









	MON - FRI 5:00 -14:30 19:30 - 00:00 WEEKEND 07:00 -14:30 19:30 - 01: 00	MON-FRI 14:30 -19:30	WEEKEND 14:30 - 19:30	MON - FRI 00: 00 5:00 WEEKEND 01: 00 - 7: 00
	120 SEC	**120 SEC**	**120 SEC**	**90 SEC**
	62	56	55	25
	2	2	2	2
	6	6	6	6
	1	1	1	1
	3	3	3	3
	2	2	2	2
	76	**70**	**69**	**39**
	3	3	6	6
	4	4	4	4
	7	**7**	**10**	**10**
	21	27	25	25
	11	11	11	11
	3	3	3	3
	2	2	2	2
	37	**43**	**41**	**41**
OFFSET				
	77	**44**	**22**	**5**

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

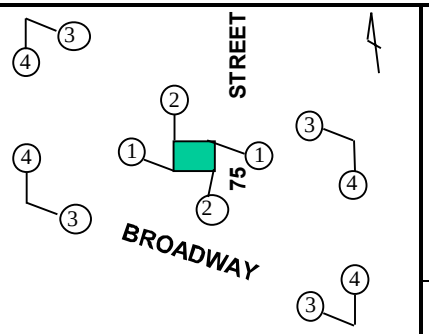
9/20	MK	TIMING MODIFICATION
DATE	BY	REVISIONS

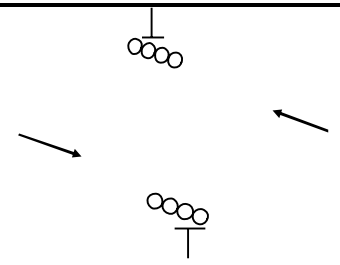
NOTES: NON ACTUATED
PC = 3.0 FT/SEC
INTERVAL PROGRAM
PEDESTRIAN COUNTDOWN
CABINET TYPE: ASTC-6
CABINET ADDRESS: 6A85

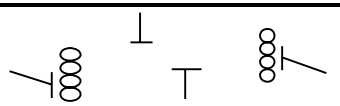
ROOSEVELT AVENUE @ 76 STREET

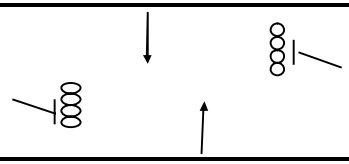
Prep	M.Kobets	Date	9/11/20
Appr.		Date	

	1	2	3	4	5	6	7	8
	R	R	DW	DW				
	A	A	WK	WK				
	G	G						
L/S #	1	2	5	6				
NEMA	1	3	1P	POL1				
				2+3				
PHASE A	G	R	WK	DW				
SPARE	G	R	WK	DW				
PED CL	G	R	FLDW	DW				
TSP EXT	G	R	DW	DW				
VEH CL	A	R	DW	DW				
VEH CL	R	R	DW	DW				
PHASE B	R	R	DW	WK				
(LPI)	R	R	DW	WK				
PHASE C	R	G	DW	WK				
PED CL	R	G	DW	FLDW				
VEH CL	R	A	DW	DW				
VEH CL	R	R	DW	DW				









	MON-FRI 05:00-10:30	MON-FRI 10:30-14:30 19:30-00:00 WEEKEND 07:00-01:00	MON-FRI 14:30-19:30	MON-FRI 00:00-05:00 WEEKEND 01:00-07:00
	90 SEC	90 SEC	90 SEC	90 SEC
PHASE A	23	23	21	23
SPARE	2	2	2	2
PED CL	19	19	19	19
TSP EXT	1	1	1	1
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	50	50	48	50
PHASE B	3	3	3	3
(LPI)	4	4	4	4
	7	7	7	7
PHASE C	8	8	10	8
PED CL	20	20	20	20
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	33	33	35	33
OFFSET	56	45	73	67

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

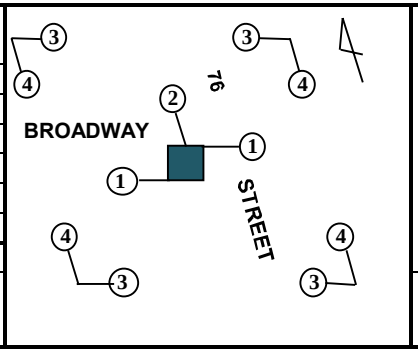
DATE	BY	REVISIONS
10/20	FM	TIMING MODIFICATION / TSP 2020 (Q53)

NOTES: NON - ACTUATED
PC = 3.0 FT/SEC
INTERVAL PROGRAM
PEDESTRIAN COUNTDOWN
CABINET TYPE: ASTC-6
CABINET ADDRESS: 6A61

BROADWAY @ 75 STREET

Prep.	F Mikhail	Date	10/02/20
Appr.		Date	

	1	2	3	4	5	6	7	8
	R	R	DW	DW				
	A	A	WK	WK				
	G	G						
L/S #	**1**	**2**	**5**	**6**				
NEMA	**1**	**3**	**1P**	**POL1**				
				2+3				
PHASE A	G	R	WK	DW				
SPARE	G	R	WK	DW				
PED CL	G	R	**FLDW**	DW				
TSP EXT	G	R	DW	DW				
VEH CL	A	R	DW	DW				
VEH CL	R	R	DW	DW				
PHASE B	R	R	DW	WK				
(LPI)	R	R	DW	WK				
PHASE C	R	G	DW	WK				
PED CL	R	G	DW	**FLDW**				
VEH CL	R	A	DW	DW				
VEH CL	R	R	DW	DW				



	MON-FRI 05:00-10:30	MON-FRI 10:30-14:30 19:30-00:00 WEEKEND 07:00-01:00	MON-FRI 14:30-19:30	MON-FRI 00:00-05:00 WEEKEND 01:00-07:00
	90 SEC	**90 SEC**	**90 SEC**	**90 SEC**
PHASE A	27	27	27	27
SPARE	2	2	2	2
PED CL	12	12	12	12
TSP EXT	1	1	1	1
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	47	**47**	**47**	**47**
PHASE B	3	3	3	3
(LPI)	4	4	4	4
	7	**7**	**7**	**7**
PHASE C	12	12	12	12
PED CL	19	19	19	19
VEH CL	3	3	3	3
VEH CL	2	2	2	2
	36	**36**	**36**	**36**
OFFSET	**56**	**54**	**73**	**77**

CITY OF NEW YORK
BUREAU OF TRAFFIC OPERATIONS
34-02 Queens Blvd. Long Island City, NY 11101

DATE	BY	REVISIONS
7/21	YK	ADD ACCESSIBLE PEDESTRIAN SIGNAL

NOTES: NON-ACTUATED
PC = 3.0 FT/SEC
PEDESTRIAN COUNTDOWN
ACCESSIBLE PEDESTRIAN SIGNAL
INTERVAL PROGRAM
CABINET TYPE: ASTC-6
CABINET ADDRESS: 6B00

BROADWAY @ 76 STREET

Prep. Y.KUSHNIR **Date** 07/29/21
Appr. **Date**

Attachment G: Best Practice Model Growth Rate

Estimated Weekday Person Trips To/From TAZs

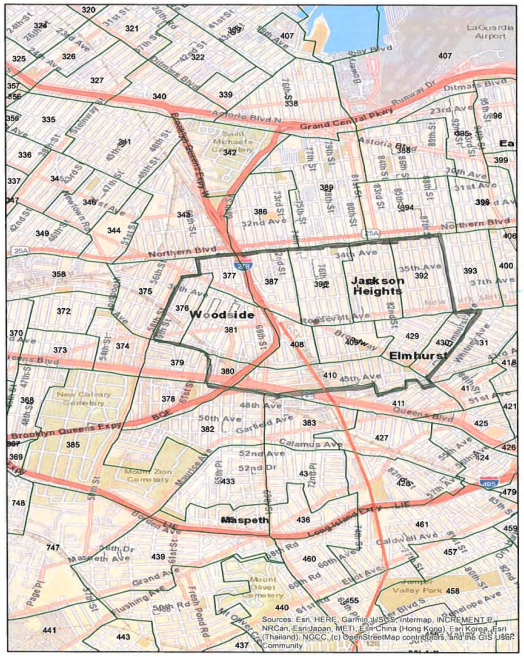
Southern Zone (see Maps Tab)

	2018		2040		2018 to 2040 % Growth	
Zones	Productions	Attractions	Productions	Attractions	Productions	Attractions
1371	9,716	8,371	11,425	9,427	18%	13%
1372	8,032	5,825	9,454	6,559	18%	13%
1373	10,175	8,699	11,976	9,748	18%	12%
1374	10,821	9,533	12,717	10,756	18%	13%
1375	9,000	8,641	10,584	9,714	18%	12%
1376	13,624	11,378	16,019	12,923	18%	14%
1409	9,360	8,153	10,413	9,152	11%	12%
1410	11,516	10,191	12,795	11,520	11%	13%
1411	0	84	0	139	0%	65%
1412	9,536	7,034	10,573	7,909	11%	12%
1413	5,870	3,709	6,476	4,212	10%	14%
1414	10,462	9,206	11,626	10,353	11%	12%
1415	11,971	14,097	13,322	15,771	11%	12%
1422	6,430	5,323	7,153	6,021	11%	13%
1423	6,644	4,643	7,353	5,261	11%	13%
1424	13,329	20,810	14,847	23,295	11%	12%
1425	6,122	7,111	6,822	7,895	11%	11%
1426	8,559	6,521	9,462	7,341	11%	13%
1486	9,221	12,330	10,878	13,761	18%	12%
1487	15,190	12,695	17,873	14,265	18%	12%
1488	10,434	6,687	12,215	7,612	17%	14%
1489	9,042	5,784	10,580	6,579	17%	14%
1510	11,993	10,737	12,993	11,844	8%	10%
1511	5,082	4,501	5,531	5,041	9%	12%
1512	8,697	6,074	9,455	6,788	9%	12%
1513	11,944	9,392	12,939	10,316	8%	10%
1514	7,858	4,918	8,498	5,521	8%	12%
1515	9,344	6,822	10,131	7,628	8%	12%
1516	11,133	15,176	12,038	16,637	8%	10%
Southern Total	271,103	244,443	306,147	273,985	13%	12%

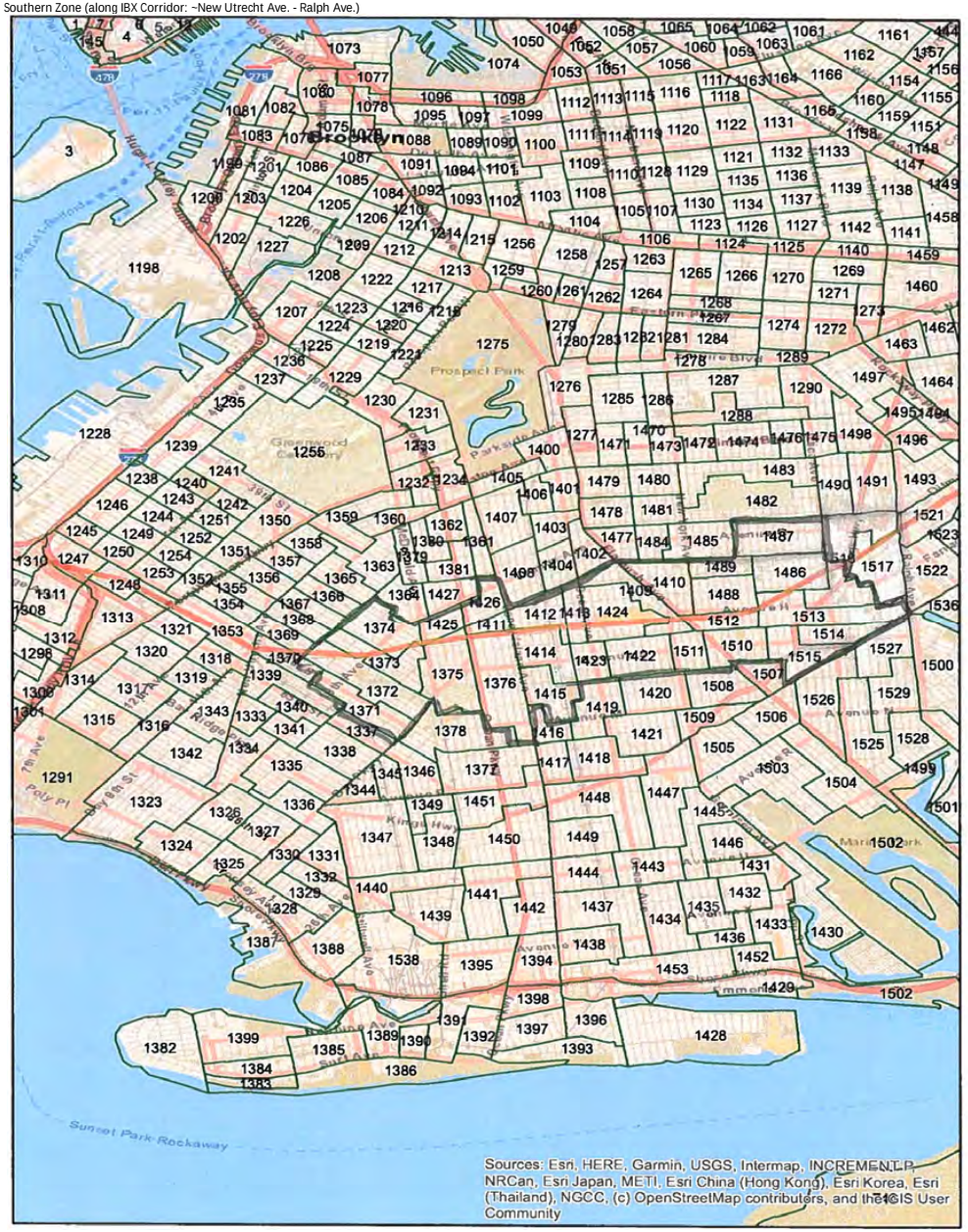
Northern (Roosevelt Ave.) Zone (see Maps Tab)

	2018		2040		2018 to 2040 % Growth	
Zones	Productions	Attractions	Productions	Attractions	Productions	Attractions
376	5,864	5,597	6,662	6,153	14%	10%
377	2,229	2,381	2,539	2,650	14%	11%
380	2,405	2,014	2,731	2,217	14%	10%
381	21,052	18,190	24,005	20,169	14%	11%
387	10,322	7,877	11,809	8,835	14%	12%
391	18,040	17,184	20,663	19,239	15%	12%
392	24,037	16,051	27,610	17,505	15%	9%
408	6,518	5,902	7,004	6,582	7%	12%
409	10,213	16,035	10,927	17,812	7%	11%
410	15,721	13,808	16,871	15,403	7%	12%
429	13,455	13,423	14,467	14,762	8%	10%
430	11,599	10,196	12,454	11,185	7%	10%
Northern Total	552,524	502,659	620,186	561,022	12%	12%

Northern (Roosevelt Ave.) Zone TAZs

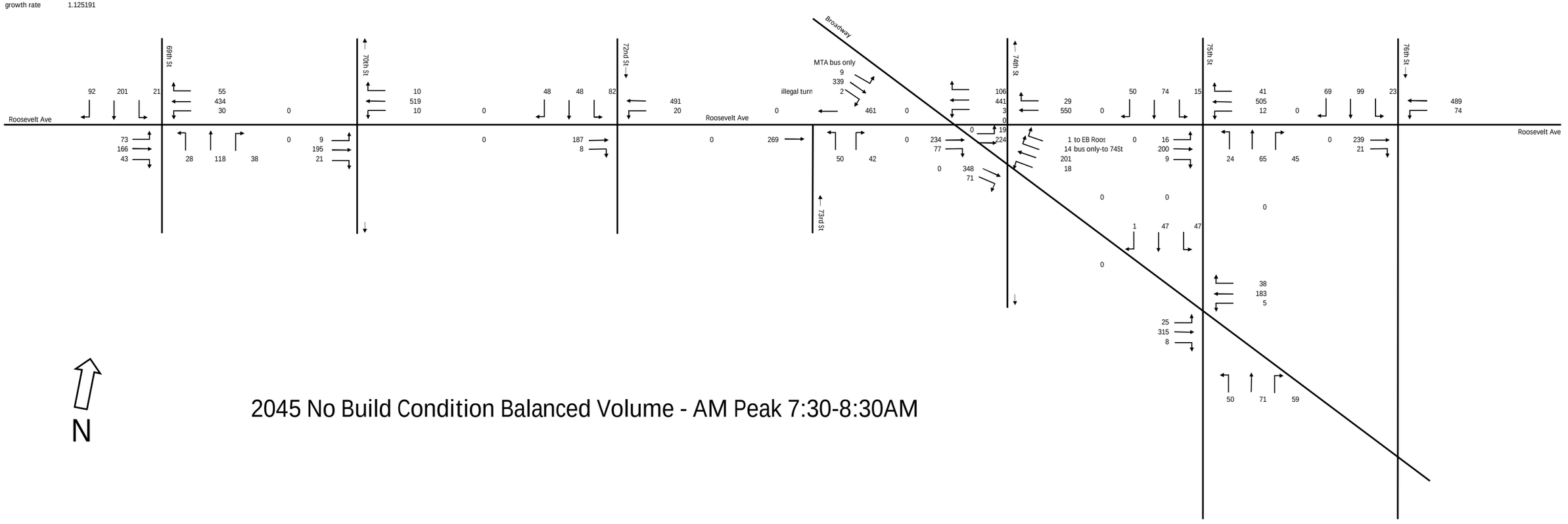


Southern Zone (along IBX Corridor: ~New Utrecht Ave. - Ralph Ave.)



Attachment H: 2045 No Build Volume Diagrams

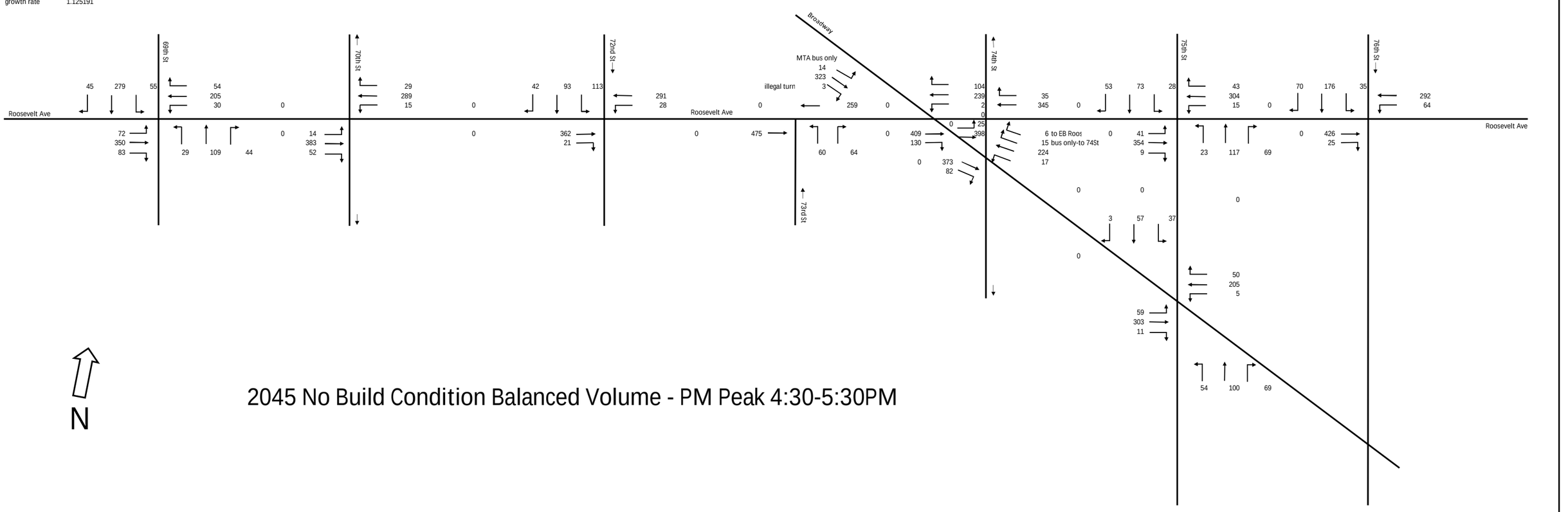
annual growth rate 0.514%
growth rate 1.125191



N

2045 No Build Condition Balanced Volume - AM Peak 7:30-8:30AM

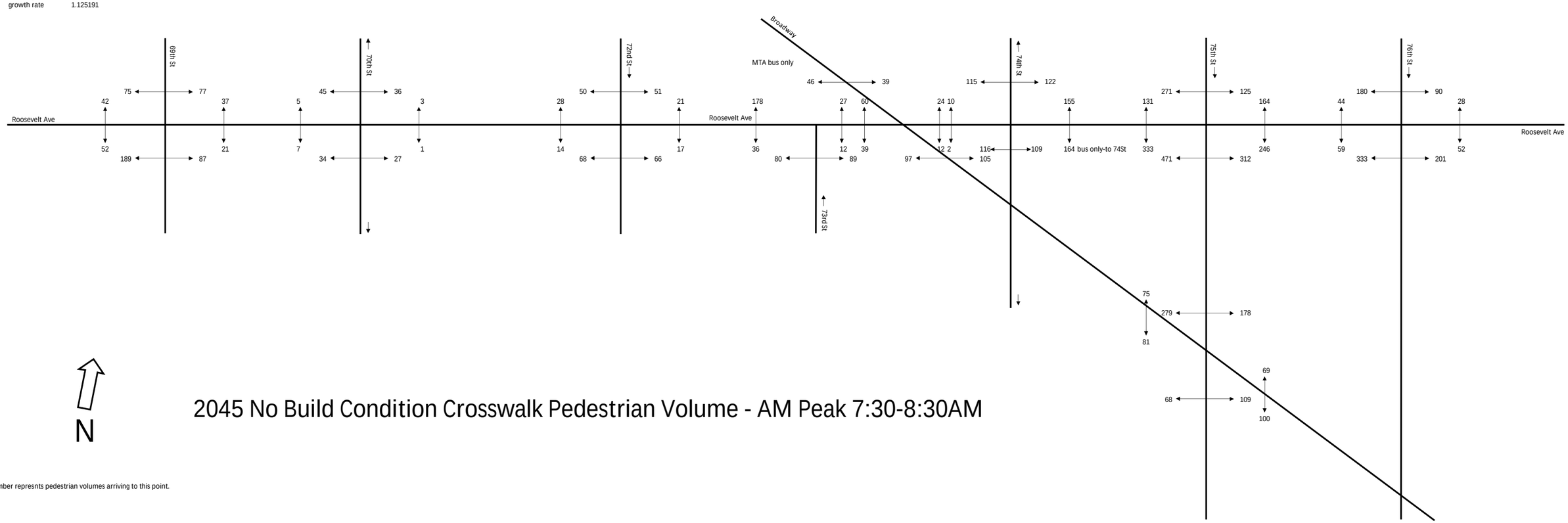
annual growth rate 0.514%
growth rate 1.125191



N

2045 No Build Condition Balanced Volume - PM Peak 4:30-5:30PM

annual growth rate 0.514%
growth rate 1.125191

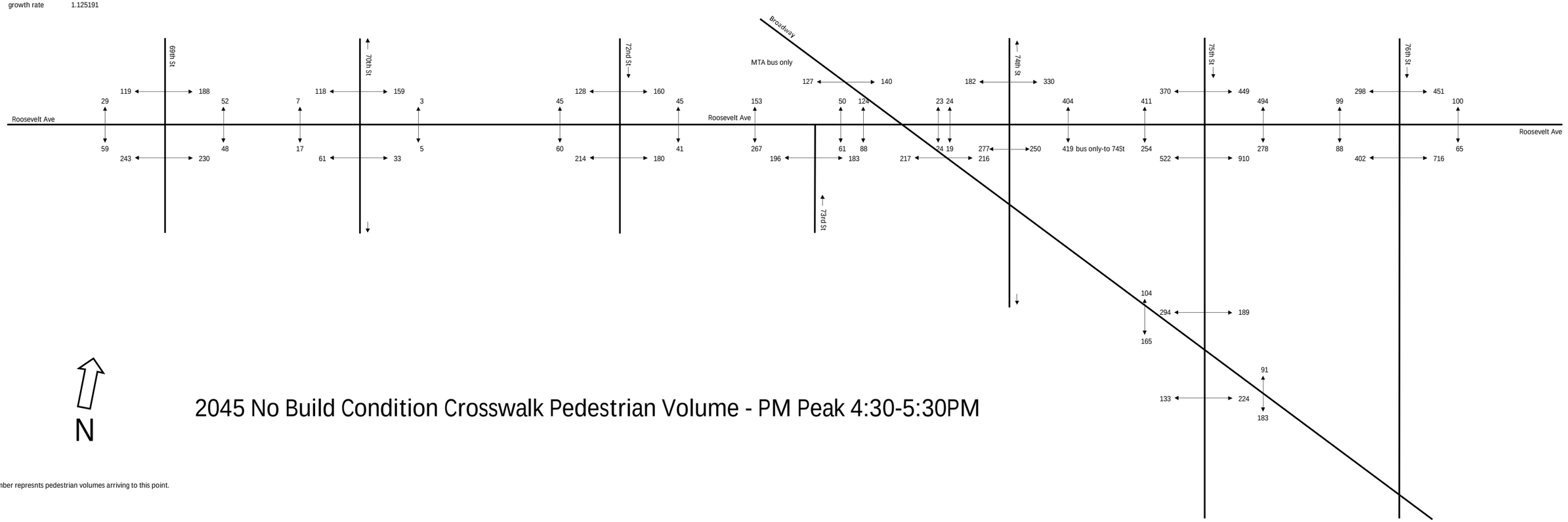


N

2045 No Build Condition Crosswalk Pedestrian Volume - AM Peak 7:30-8:30AM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual growth rate 0.514%
growth rate 1.125191

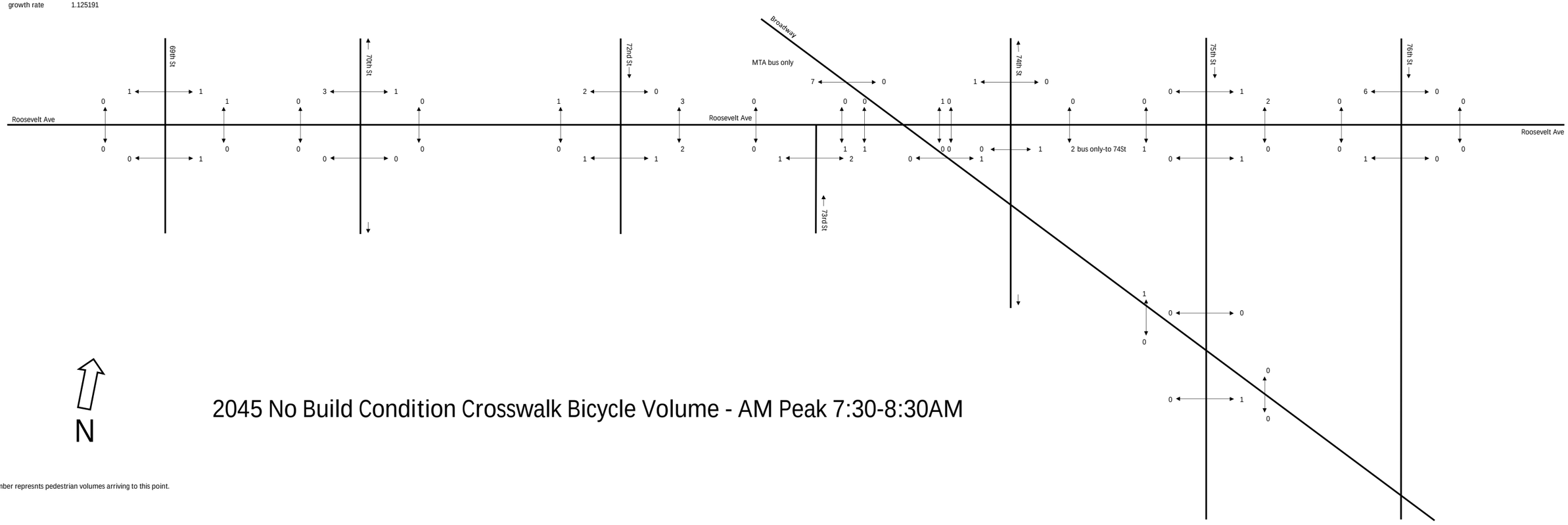


N

2045 No Build Condition Crosswalk Pedestrian Volume - PM Peak 4:30-5:30PM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual growth rate 0.514%
growth rate 1.125191

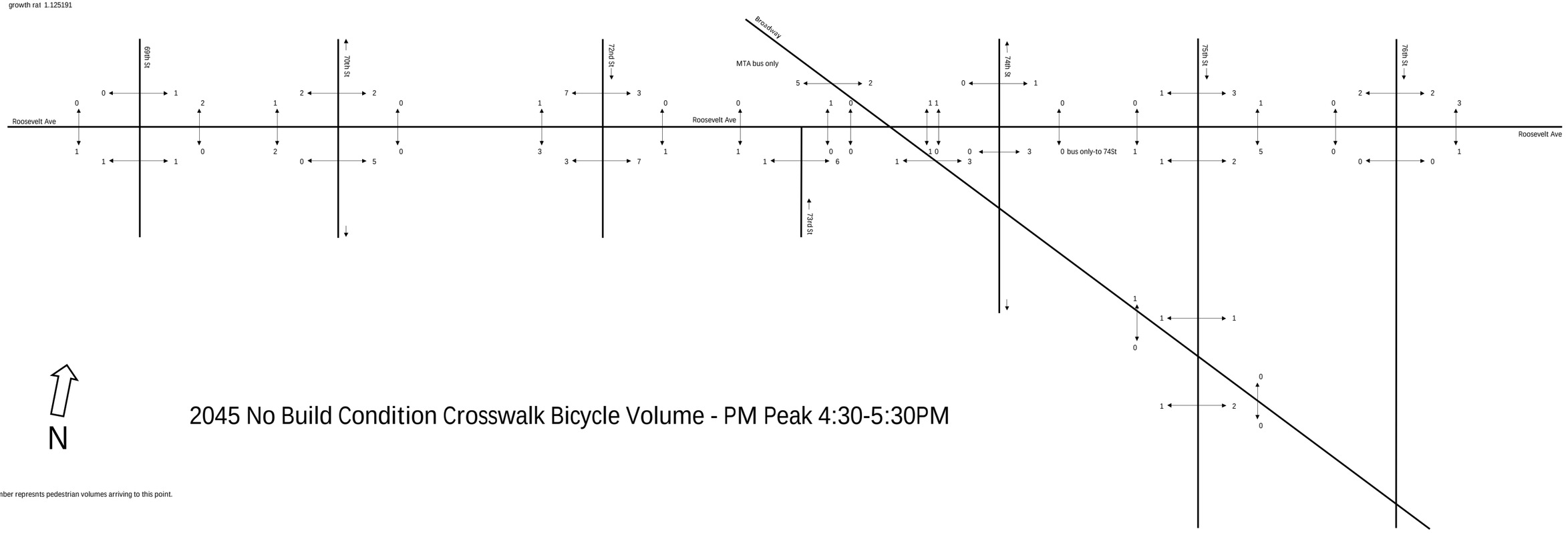


N

2045 No Build Condition Crosswalk Bicycle Volume - AM Peak 7:30-8:30AM

Notes:
The number represnts pedestrian volumes arriving to this point.

annual grc 0.514%
growth rat 1.125191

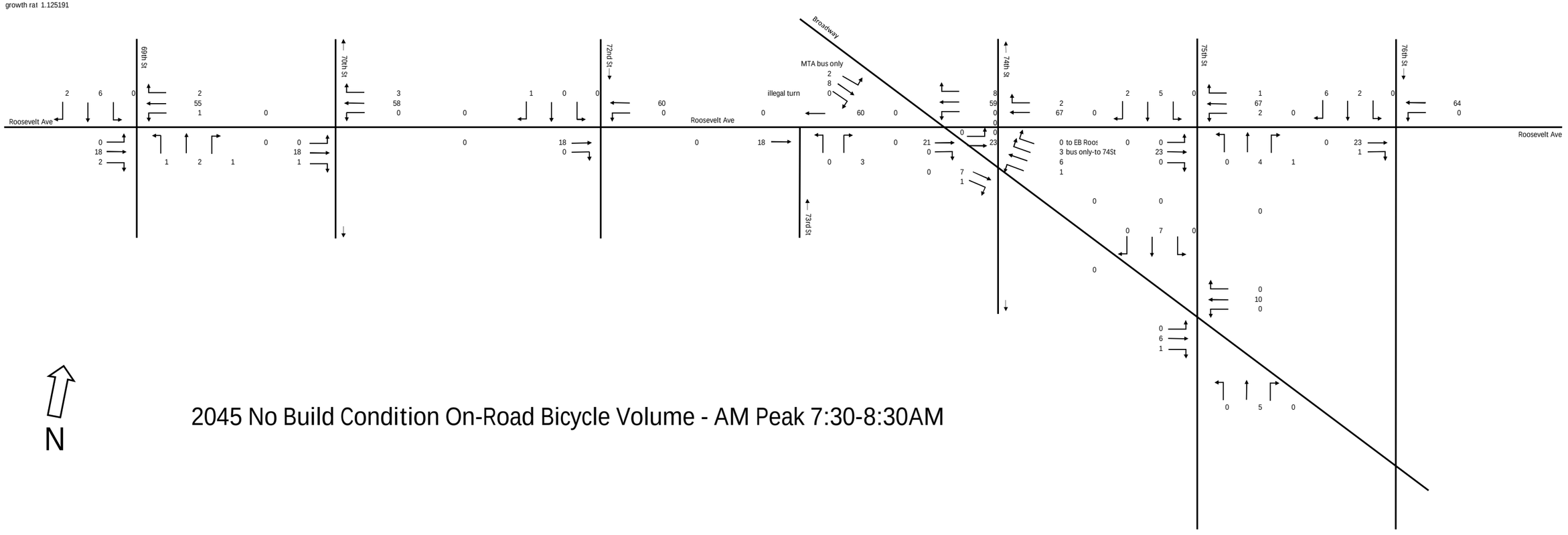


N

2045 No Build Condition Crosswalk Bicycle Volume - PM Peak 4:30-5:30PM

Notes:
The number represnts pedestrian volumes arriving to this point.

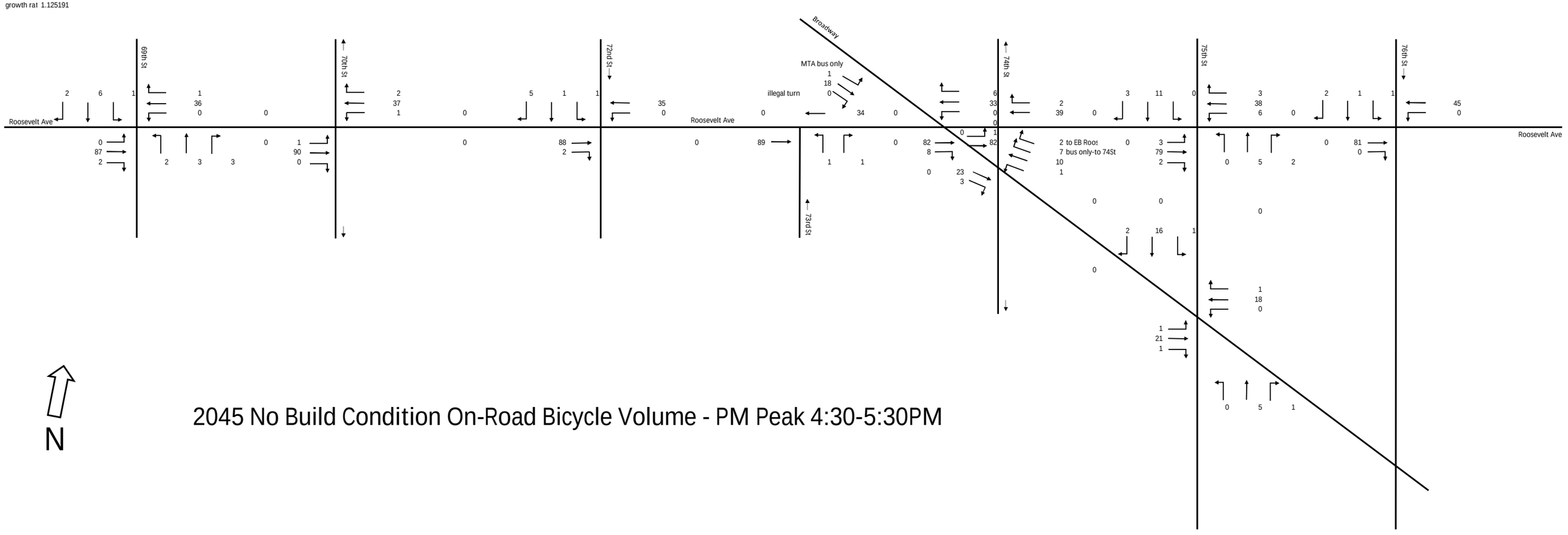
annual grc 0.514%
growth rat 1.125191



N

2045 No Build Condition On-Road Bicycle Volume - AM Peak 7:30-8:30AM

annual grc 0.514%
growth rat 1.125191



N

2045 No Build Condition On-Road Bicycle Volume - PM Peak 4:30-5:30PM

Appendix 1.10 Capital Cost Methodology

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

NOVEMBER 2022

Volume 1

IBX

Contents

1. INTRODUCTION

This Technical Memorandum is part of the work of Task 10.3 for the Interborough Express Study being prepared by AECOM. In response to the RFP the AECOM Team will develop preliminary, order-of-magnitude (OOM) estimates (with +/- 20% confidence) for capital (construction) costs. The computation of each alternative's capital cost include unit prices for all major items of work and estimated quantities for those items, including rolling stock and support equipment.

According to the Association for Advancement of Cost Engineering, cost estimating is the process used to quantify, cost, and price the resources required for the scope of a project. The cost estimate is the most probable cost for a project based upon its scope. The cost estimate is important in that it is the backbone, utilized by stakeholders, to generate a project budget. The cost estimate is derived by utilizing a variety of means and methods outlined in this report. Eventually the cost estimate will be refined as more detailed specifications are developed. A good cost estimate is necessary for the success of a project.

2. ESTIMATE DEVELOPMENT

2.1 Overall Scope Review

Prior to performing any work all team members will convene and review the scope documents to gain an understanding of the overall scope, its design, goals, details, approach, and deadlines etc. The review will provide team members with a general understanding of the individual components of a project as well as provide any required coordination if any.

In concurrence with the project RFP, the estimate will address the State of Good Repair needs of existing Bay Ridge Branch and Fremont Secondary infrastructure as well as highway and rail bridges and the East New York tunnel. Potential sources for the OOM capital construction costs will include:

- Statistical data compiled from previous construction projects having items of work that are similar in nature;
- Local/regional area cost data;
- Vendor information; and
- Industry publications

Unit prices will be based upon current (i.e. 2019) dollars, and escalated to the midpoint of the project. Quantity takeoffs will be primarily based upon information shown on the functional feasibility study drawings. Quantity estimates will be on an aggregate level, with similar levels of precision among alternatives to ensure valid comparisons. Order-of-magnitude estimates of construction contingency, LIRR or NYCT labor (as appropriate), construction supervision and design will be included.

Property acquisition and relocation costs will be based on information to be provided by the MTA Real Estate Department. Capital cost estimates will also include construction contingency, MTA labor, construction supervision and design. The rail alternatives shall include capital cost estimates for single and double track operating segments and any necessary terminal storage and bypass tracks, based on LIRR and NYCT operating specifications.

2.1.1 Reports and Analyses Review

At this time the Team will not be developing technical specifications, but will be preparing various reports and analyses to guide the Feasibility Study that will give the Team a general understanding of a project. Those reports and analyses may contain details regarding phasing, general conditions etc. as well as pertinent information that will be considered in the development of the OOM estimate.

2.1.2 Drawings Review

Estimating team members will review the set of conceptual-level drawings, if any, to further understand and develop the estimates of the alternatives. Those drawings, typical sections and sketches will also be reviewed and used to establish the basis of comparison of the alternatives.

2.1.3 Questions

During the review the estimators will also note down any important questions. Questions regarding scope should be compiled during the beginning and submitted for answers as early on as possible.

2.1.4 Quotations

While going through the overall review the team may come across some items that are either “large ticket” items or unknown items. With either case it may be necessary to reach out to a manufacturer, vendor, or distributer to acquire a material quote. Quotes will be requested as early as possible to allow ample time for vendors to respond.

2.1.5 Ground Rules and Assumptions

During the review, the Team should also make note of any ground rules and assumptions that may be required. These rules are important so that the estimate can be accurate as possible. For example: “The estimate includes items x,y,z.”, and/or “Estimate does not include scope x,y,z. Ground rules can also include how fast the project needs to be completed, constraints, travel costs, etc.

2.1.6 Develop a Work Breakdown Structure

Once the scope of the work has been understood, the team will create a detailed work breakdown structure (WBS). The Work Breakdown Structure (WBS) will provides a means for defining the project scope will be used to define the estimate’s organization so it needs to be reviewed by all team members including the design team to make sure it is appropriate. How an estimate is organized will change depending on the required requests from the client on organization.

2.1.7 Agency Support

The Team should identify early on what scope in the project requires agency intervention. The team should review such costs and request further data from the agency. An example of agency support would be the cost to perform “Force Account” work. The “Force Account” scope is a cost that is usually provided by the agency and then factored in accordingly to the budget.

2.1.8 Technical Standards

The following standards will be referenced and followed to guarantee the estimate adheres to industry standards:

- Association for Advancement of Cost Engineering (AACE International)
- Federal Transit Administration (FTA) Project and Construction Management Guidelines
- New York State Metropolitan Transportation Authority (MTA) Capital Projects Cost Estimation Guidelines
- R. S. Means Construction Cost Estimating Manual

2.2 Estimating

Different portions of the project scope will be estimated by the estimating team members. It is estimators’ role to execute the steps mentions in section 2.1 Overall Scope Review. The estimators will use unit quantities taken from the drawings and sketches developed by the planning and engineering staff to establish the order of magnitude costs. Once completed they can move on to the following steps in order to complete their portion of the estimate.

2.2.1 Gather Data/Takeoff

Data may be gathered from the drawings or from the specifications or various

other sources. One way that estimators can gather data is by performing takeoffs. Takeoffs are essential for a correct estimate. Takeoffs provide the quantities to which unit prices are applied in the estimate.

2.2.2 Compile Data

A proper estimate is one that is easy for project stakeholders to decipher and understand. Therefore, it important that the data be adapted to the framework of the estimates work breakdown structure.

2.2.3 Pricing

Every item in the estimate will have a direct cost associated with it. These costs are typically split up by labor, materials, & equipment.

- Labor – the cost of the required manpower to install an item. Labor costs can be calculated as the [Average Hourly Wage] x [Productivity Rate].
    - Average Hourly Wage rates can vary from project to project depending on the requirements, Open Shop, Union, Prevailing Wage, Project Labor Agreements. These requirements need to be determined before pricing can begin. If not provided a clear assumption will be provided.
    - The average hourly wage rate often can be further divided into “labor” and “non-labor” costs
        - Labor costs are the costs associated directly the salary and benefits that the contactor incurs for each worker per hour.
        - Non-labor costs are portions of the wage rate that are not directly related to salary and benefits. These include things such as hardware and software, training and, in some instances, travel expenses to and from the site.
- Productivity Rates will be determined from historical precedent and adjusted to depending on the specific site conditions
- Material – the cost of purchasing materials to be installed. Material unit cost is simply $/unit.
- Equipment – the cost of the required equipment to install an item. Equipment cost can be calculated as the (Hourly Cost of equipment) x (Productivity Rate).

At this point any quotations that are obtained should also be incorporated into the estimates. Always note in the estimate who provided the estimate and what date it was obtained.

2.2.4 Unit Costs, Hard Costs and Soft Costs

The estimates at this level of the project development is often developed in terms of a unit price cost, rather than the actual line-by-line estimate of the costs. The cost may use, for example, a cost per square foot of bridge rather than a detailed description of the individual components of the construction of a bridge (excavation, formwork, concrete, reinforcing steel, etc.).

In addition, the estimate will include both hard costs and soft costs. Hard costs will address the tactile elements of the work: concrete, steel, vehicles and labor.

Soft costs, on the other hand, are not necessarily visible at the completion of the work. The soft costs, often estimated in terms of percentage of the hard costs include items such as architectural and engineering design, insurance, permits and construction management. These are usually included in Category 80 ("Professional Services") of the FTA's SCC structure.

In the early phase of a project development, a large portion of soft costs may be associated with the Environmental Impact Statement (EIS) of the project, which may be required by the National Environmental Policy Act (NEPA) for projects seeking Federal funding. A discussion of both soft costs and how the EIS affect the estimate is provided in detail in the Transportation Research Board's *TCRP Report 138: Estimating Soft Costs for Major Public Transportation Fixed Guideway Projects*.[1]

2.3 Final Review

Prior to submitting an estimate, a formal review process must be undertaken. This step is crucial so that key elements in the estimate are not missed and that a thorough review can

2.3.1 Historical Estimates and Data

Part of the review process involves looking into past historical data. Historical data can be obtained from a variety of sources. These sources may include the agency, prior estimates, and prior bids. Prior to being finalized the estimate should be checked to see if it falls within the range of historical data. If it does not the team needs to reevaluate why it does not. Scope and/or market conditions may have changed. Once each individual estimate is complete the team should review the prior data to see if it matches.

2.3.2 Quality Control and Quality Assurance

Each estimator team member will develop individual elements of the project so that an independent estimate can be reviewed by other members of the estimating team. Each estimate undergoes a thorough and rigorous quality control and quality assurance check prior to final submission.

The following are examples of some quality control checks utilized prior to final submission:

- Math checks – All estimators will check that formulas and math are performed accurately in the estimate.
- Spell Check
- High/Low Check - look for any item that has an extremely high or low unit cost. Potentially errant unit costs were reviewed by an independent member of the estimating team with the estimator and estimated costs will be verified or modified accordingly.

2.4 Prepare Final Submission

Once the pre-final version of the estimate is completed, the estimating team will convene and, together with members of the planning and/or engineering team, will verify and compile the final estimate. Each individual estimate should be combined into the overall work breakdown structure. Once complied the following sections will be developed:

[1] http://www.trb.org/Publications/Blurbs/163381.aspx

Basis of Estimate and Estimate Summary. After that the final quality control checks will be completed.

2.4.1 Basis of Estimate Page

The basis of estimate page will include the information on the cover page as well as any Estimate Exclusions/qualifications and/or clarifications. Examples of some clarifications may include overhead and profit percentages, escalation percentages, assumed construction duration etc. Exclusions will include all items that are not covered under the estimate. Examples may be general order shutdowns, loose furniture and other work usually performed by the agency

2.4.2 Estimate Summary

The estimate summary will have a price to each work breakdown structure/trades. The summary page will also include percentages for allowances, phasing & lost time, mobilization, and escalation etc. Depending on the level of the estimate, these costs/percentages may need to be adjusted accordingly. Likewise depending on the type of estimate additional line items may need to be included (i.e. architectural fees additional design build costs etc.)

2.4.3 Final Quality Control Checks

Once all other tasks are completed, and the estimate is compiled properly a final check of the estimate needs to be done. The following are items that are once again checked after the final estimate is compiled.

- Spell Check: run a spell check on the entire file
- Math Check: run math checks on the entire estimate.
- Sanity Checks: Ensure total dollars per gross square foot checks out with historical models, ensure specific spec section dollars per gross square foot check.
- Review top 10 to 20 largest individual line items.
- Template Check: Confirm the estimate has been put together in the correct template as required by the design team / owner. Borders, fonts, etc. also need to be checked during this stage.

3. WORK BREAKDOWN STRUCTURE

The order of magnitude estimate for the project alternative(s) will be established using the FTA Standard Cost Categories to facilitate consistency in the review of the potential costs for various project alternatives. In 2005, FTA implemented the Standard Cost Categories (SCC) to establish a consistent format for the reporting, estimating, and managing of capital costs for New Starts projects. Information gathered from projects across the country has been developed into a database called the Capital Cost Database, a cost-estimating resource useful to FTA and the transit industry as a whole[2]. By using this format will allow the MTA to use a common baseline from which to view the project in the same fashion used in similar projects of this nature.

The following Work Breakdown Structure (WBS) is very similar to the SCC categories, but sub-elements have been used that will both provide project-specific information and then allow those sub-element estimates to "roll up" to the standard SCC categories. The following WBS will be used to track the direct costs for all Design Options.

10 GUIDEWAY & TRACK ELEMENTS

10.01 Guideway: At-grade exclusive right-of-way
Any guideway, rail-based or BRT

10.02 Guideway: At-grade semi-exclusive (allows cross-traffic)
LRT or BRT alternatives

10.03 Guideway: At-grade in mixed traffic
LRT or BRT alternatives

10.04 Guideway: Aerial structure
Any guideway, rail-based or BRT

10.05 Guideway: Built-up fill
Any guideway, rail-based or BRT

10.06 Guideway: Underground cut & cover
Any guideway, rail-based or BRT

10.07 Guideway: Underground tunnel
Any guideway, rail-based or BRT

10.08 Guideway: Retained cut or fill
Any guideway, rail-based or BRT

10.09 Track: Direct fixation
Include rails, connectors.

10.10 Track: Embedded
Include rails, ties; ballast where applicable

10.11 Track: Ballasted
Include rails, ties and ballast.

10.12 Track: Special (switches, turnouts)
Include transitional curves.

10.13 Track: Vibration and noise dampening
Include upcharge for vib/noise dampening to any track condition above.

20 STATION, STOPS, TERMINALS, INTERMODAL

20.01 At-grade station, stop, shelter, mall, terminal, platform
Side Platform, incl. canopies and amenities
Center Platform, incl. canopies and amenities
Walk-on / Walk-off "sidewalk" platform, incl. canopies and amenities

20.02 Aerial station, stop, shelter, mall, terminal, platform

[2] From FTA's *Standard Cost Categories for Capital Projects* https://www.transit.dot.gov/funding/grant-programs/capital-investments/standard-cost-categories-capital-projects

Side Platform, incl. canopies and amenities
Center Platform, incl. canopies and amenities

20.03 Underground station, stop, shelter, mall, terminal, platform
Side Platform, incl. canopies and amenities
Center Platform, incl. canopies and amenities

20.04 Other stations, landings, terminals: Intermodal, ferry, trolley, etc.
Side platform - retained cut section, incl. canopies and amenities
Center platform - retained cut section, incl. canopies and amenities

20.07 Elevators, escalators

30 SUPPORT FACILITIES: YARDS, SHOP, ADMIN. BLDGS

30.01 Administration Building: Office, sales, storage, revenue counting

30.02 Light Maintenance Facility (Include service, inspection, and storage facilities and equipment)
Infrastructure construction
Maintenance
Operations

30.03 Heavy Maintenance Facility (Include service, inspection, and storage facilities and equipment)
Infrastructure construction
Maintenance
Operations

30.04 Storage or Maintenance of Way Building

30.05 Yard and Yard Track (Include yard construction, guideway and track associated with yard)

40 SITEWORK & SPECIAL CONDITIONS

40.01 Demolition, Clearing, Earthwork (Include project-wide clearing, demolition and fine grading)

40.02 Site Utilities, Utility Relocation (Include all site utilities: storm, sewer, water, gas, electric)
Electrical facilities / ductbanks
Water, Sewer and Pipelines
Fiber Optic facilities

40.03 Haz. mat'l, contaminated soil removal/mitigation, ground water treatments (Include underground storage tanks, fuel tanks, other hazardous materials and treatments, etc)

40.04 Environmental mitigation, e.g. wetlands, historic/archeologic, parks (Include other environmental mitigation not listed)

40.05 Site structures including retaining walls, sound walls

40.06 Pedestrian / bike access and accommodation, landscaping (Include sidewalks, paths, plazas, functional landscaping, site and station furniture, site lighting, signage, bike facilities, permanent fencing)

40.07 Automobile, bus, van accessways including roads, parking lots (including all on grade paving)

40.08 Temporary Facilities and other indirect costs during construction

50 SYSTEMS

50.01 Train control and signals

50.02 Traffic signals and crossing protection (Include signal prioritization at intersections)
Traffic prioritization

50.03 Traction power supply: substations

50.04 Traction power distribution: catenary and third rail

50.05 Communications (Include passenger information systems at stations and on vehicles [real time travel information; static maps and schedules]. Include equipment to allow communications among vehicles and with central control)
Pathfinder signage
PIDS (passenger information display system)

50.06 Fare collection system and equipment
- On-board fare control (collection & maintenance cost)
- Platform-based fare control
- Station / mezzanine-based fare control

50.07 Central Control (SCADA modifications)

60 ROW, LAND, EXISTING IMPROVEMENTS

60.01 Purchase or lease of real estate
Relocation of existing households and businesses

70 VEHICLES

70.01 Light Rail
70.02 Heavy Rail
70.03 Commuter Rail
70.04 Bus
70.05 Automated Guideway Transit
70.06 Non-revenue vehicles
70.07 Spare parts

80 PROFESSIONAL SERVICES

80.01 Project Development
80.02 Engineering
80.03 Project Management for Design and Construction
80.04 Construction Administration & Management
80.05 Professional Liability and other Non-Construction Insurance
80.06 Legal; Permits; Review Fees by other agencies, cities, etc.
80.07 Surveys, Testing, Investigation, Inspection
80.08 Start up

Appendix 1.11 Capital Cost Estimate

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

NOVEMBER 2022

Volume 1

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Section 1.11 has been omitted due to non-final, deliberative cost estimation material.

Appendix 1.12 Operating & Maintenance Cost Methodology Report

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

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Contents

1. Objective

The objective of this technical memorandum is to describe the methodology that will be used to determine the preliminary, high-level, order of magnitude, future one-year operating and maintenance (O&M) costs for up to three selected short list alternatives (hereafter referred to as Feasible Alternatives) for the Interborough Express (IBX) project. The O&M costs will also help provide a cost comparison between the Feasible Alternatives.

2. Scope

The O&M costs will be developed for the build year, which is assumed to be 2045, and will present the one-year O&M costs to operate each of the Feasible Alternatives as defined by the operating plan to be developed during this study.

3. Study Alignment

The study alignment consists of the full length of the Bay Ridge Branch and the Fremont Secondary Branch. The Bay Ridge Branch is currently a freight-only rail corridor that starts at the 65th Street car float facility in Sunset Park, Brooklyn where freight cars are trans-shipped by car float from/to the Greenville Yard in Jersey City, New Jersey, connecting to the national railroad network. The Bay Ridge Branch corridor runs in a crescent shaped alignment between Sunset Park, Brooklyn and Middle Village, Queens, where it transitions to the Fremont Secondary and terminates, but does not connect with, the southern approach to the Hell Gate Bridge in Woodside, Queens.

The IBX Study will examine the feasibility of developing a public transit mode along the Bay Ridge Branch and Fremont Secondary while maintaining freight rail service. This study assumes growth in the volume of rail freight in the corridor. This includes consideration of the potential future use with the development of the Cross-Harbor Freight Tunnel, which, among other options, is currently being studied further by the Port Authority of New York & New Jersey (PANYNJ).

The public transit mode for the BRC has not been determined. The Initial List of Access Alternatives encompasses 12 concepts arranged by mode, including Bus Rapid Transit (BRT), Light Rail Transit (LRT), subway, commuter rail (electrified and diesel), commuter rail DMU railcars and Automated Guideway Transit (AGT). This study will analyze the comparative benefits of each of these alternatives and select up to three Feasible Alternatives that will be forwarded for O&M cost estimation.

4. O&M Cost Methodology

The process is dependent upon several precedent tasks to be performed by the study team to define and provide critical inputs, as these would serve as the drivers for O&M cost estimation. These include:

4.1. Definition of the Feasible Alternatives

For the concepts that comprise the three selected Feasible Alternatives, the following will be defined:

1. Vehicles/trains

The vehicle equipment model or type will be defined as specifically as possible. This specificity does not imply an endorsement of a particular equipment manufacturer; rather it is needed to determine the vehicle or train performance (as applicable) which will serve as an input into the vehicle (or train) simulations.

- **BRT --** a bus type comparable to the New Flyer battery electric articulated bus currently used by New York City Transit (NYCT) would be used to simulate vehicle performance and carrying capacity.
- **Subway** -- a subway car type comparable to the forthcoming R-211 or the existing R-179 (both of which are B-Division railcars) or the current A-Division railcar would be used to model vehicle performance and trainset capacity.
- **Commuter rail** -- the LIRR's M7 or M9 EMU (Electric Multiple Unit) railcar and diesel (DE-30) or dual-mode (DM-30) locomotives with passenger coaches (C-3) would be used to simulate vehicle performance and trainset capacity.
- **Diesel Multiple Unit (DMU) railcar** -- an FRA compliant vehicle such as the Stadler Flirt DMU—which is currently in service by TEXRail in Fort Worth, Texas—would be used to simulate vehicle performance and trainset capacity.
- **Automated Guideway Transit (AGT)** -- a vehicle similar to the Bombardier Mark II (now branded as MOVIA) linear induction motor vehicle—and used by AirTrain JFK and by TransLink in Vancouver, Canada would be used to simulate vehicle performance and capacity.
- **LRT** -- a vehicle similar to the Kinki Sharyo LRV used by Newark Light Rail and by the Hudson-Bergen Light Rail would be used to simulate vehicle performance and trainset *capacity.*

Expected outputs:
For each alternative: 1) Type of vehicle or train to be simulated, 2) number of vehicles per train for the rail alternatives, 3) average operating speed by mode, 4) roundtrip running (cycle) times (including layovers at terminals).

2. Station locations and size

For each Feasible Alternative, the proposed station location will be defined, along with the size and scale, including the proposed platform lengths, number of platforms per station, and major station components. The size of the station varies by mode—the BRT platform typically accommodates 1-2 vehicles per platform per direction, LRT 1-4 vehicles per platform per direction, subway 10 cars per platform per direction, commuter rail EMU 4-12 cars or diesel or dual-mode locomotives with passenger coaches (4-12 cars), commuter rail DMU 1-4 cars and AGT 1-4 cars per platform per direction.

The required station elements that serve as primary cost drivers will be identified. For example, since much of the Bay Ridge Branch is in open cut or on embankment, a decision will need to be made as to whether elevators or ramps or a combination will be used to provide ADA access between the street level and the platform level based upon station location.
Expected outputs: For each alternative: 1) Location of stations, 2) number of stations, 3) scale of each station (size, square footage, platform length, canopy length, etc.), 4) high level assessment of the components that drive O&M costs (i.e. vertical circulation elements, enclosed

or climate controlled passenger facilities, etc.). All of these design elements will be done at a high-concept level.

3. Staffing method

The staffing levels associated with each alternative will be defined, as this is another cost driver. This includes determining the level of on-vehicle staffing, whether stations will be staffed or unstaffed—and the like.

Expected outputs: For each alternative: 1) On-vehicle/train staffing levels (operations), 2) At-station staffing levels (if any; operations), 3) maintenance staffing for the guideway, 4) maintenance staffing for stations, 5) staffing at vehicle maintenance facilities, 6) staffing for vehicle dispatch, 6) general administration staffing.

4.2. Definition of service patterns for each Feasible Alternative

The service pattern for each Feasible Alternative will be defined. This will identify span of service, frequency of service during the operating day and night time periods, whether there are short turn service patterns to serve high ridership segments, etc.

Expected outputs: 1) revenue service hours, 2) revenue service miles.

4.3. Definition of operating entity for each Feasible Alternative

For each Feasible Alternative, a type of operating entity will be identified. An understanding of the type of operating entity and its associated O&M cost structure will be important for determining the operating costs for the Feasible Alternatives. As the study does not assign a specific operating entity for these modes, the following assumptions will be made:

- For the BRT and subway modes, NYCT's cost data as reported to the National Transit Database (NTD) will be used. A determination will be made as how to treat the BRT guideway costs since NYCT's BRT currently uses city streets maintained by New York City Department of Transportation (NYCDOT) or New York State Department of Transportation (NYSDOT). Similar bus guideway currently in operation in the United States would be used for cost data such as the Pittsburgh, PA busway or Los Angeles (Orange Line) BRT line.
- For the commuter rail mode, LIRR's cost data as reported to the NTD will be used.
- The LRT and AGT modes are not currently operated by any of the MTA agencies. Comparable costs will be used from applicable peer agency NTD or CUTA (Canadian Urban Transit Association) for Canadian agency data. For the LRT mode, NJ TRANSIT's LRT cost data from the NTD will be used and adjusted to match NYCT wage rates and operations, if applicable, for either bus or subway train operators.
- For AGT, the nearest operating AGT mode to the study area is the AirTrain JFK system, operated under contract by Bombardier for the Port Authority of New York & New Jersey. This cost data is not reported to the NTD and the cost breakdown is proprietary. Therefore, TransLink's cost data from Vancouver, Canada would be used, as they operate North America's largest AGT system. Cost data obtained from CUTA would be adjusted to match NYCT wage rates and operations, and the Canadian dollar converted to US dollar values.

Expected output: Definition of agency cost structure for the Feasible Alternatives.

4.4. Establish ridership for each Feasible Alternative

Ridership estimates for each Feasible Alternative will be developed as part of Task 10, the results of which will be utilized for the O&M studies to predict revenue vehicle requirements for each alternative as an input to determine the O&M cost..

4.5. Develop the initial, high-level, concept of operation

A high-level operating plan using several key inputs will be defined as part of Task 10, and will be developed based on:

- ✓ Station locations and size for each alternative
- ✓ Vehicle types
- ✓ Service operating concepts
- ✓ End-to-end travel times, and average operating speed, as determined by BRT/train performance simulators
- ✓ Span of service
- ✓ Service frequency
- ✓ Definition of operating entity
- ✓ Staffing concept
- ✓ Forecast ridership

Expected output: For each Feasible Alternative:

- ✓ Annual vehicle operating hours
- ✓ Annual vehicle operating miles
- ✓ Peak fleet size, including spare vehicle requirements
- ✓ Number of guideway lane miles/track miles.

4.6. Select a base year that is representative of typical annual operating costs

The NTD 2018 cost database is the most recent year of information currently available and would be used. This year was generally free of unusual major service disruptions for NYCT and other peer agencies, such as NJ TRANSIT's light rail and TransLink's AGT operations.

4.7. Apply four-supply variable model

The 2018 NTD submissions will be used to develop unit costs to estimate O&M costs for each Feasible Alternatives. For the BRT and rail modes, a four-supply variable will be used to estimate the O&M costs using the following unit costs:

- ➢ Cost per vehicle revenue hour
- ➢ Cost per vehicle revenue mile
- ➢ Cost per vehicle required in maximum service
- ➢ Cost per guideway mile.

BRT is proposed to use the four-variable cost model approach rather than the three-variable cost model traditionally used to estimate the cost of bus operations since BRT operations on the BRC study alignment would use dedicated bus lanes and enhanced bus stops or stations; these costs are best estimated under a four-variable factor model.

4.8. Apply unit costs

To calculate the unit cost of the individual variables, the costs associated with each of the expense items for operating and maintaining transit service is assigned to one of the variables summed, and then divided by the number of units of the supply variable to which it is assigned.

> For example, the annual costs associated with revenue vehicle hours for a particular mode are divided by the annual number of revenue vehicle hours operated that year to calculate the unit cost for the vehicle revenue hour variable.

The cost drivers of the O&M model are:

1) Estimated revenue vehicle hours
2) Revenue vehicle miles
3) Peak vehicles
4) Total guideway miles.

The calculations of service statistics and units of service will be based on the proposed service plan for each alternative. **Table 1** shows a typical assignment of the different expenses to these four cost driver categories; these line items may vary to accommodate study needs.

Table 1 Typical Assignment of Expense Items

	Assignment of Expense Items			
	Revenue Vehicle Hours	Revenue Vehicle Miles	Peak Vehicles	Guideway Miles
Vehicle Operations Labor				
Operator Salaries and Wages	X			
Other Salaries and Wages	X			
Fringe Benefits	X			
Services	X			
Vehicle Operations Materials and Supplies				
Fuel and Lubricants		X		
Tires and Tubes		X		
Other Materials/Supplies		X		
Utilities		X		
Casualty and Liability		X		
Miscellaneous			X	
Vehicle Maintenance Labor				
Other Salaries and Wages		X		
Fringe Benefits		X		
Services		X		
Vehicle Maintenance Materials and Supplies				
Fuel and Lubricants		X		
Tires and Tubes		X		
Other Materials and Supplies		X		
Utilities		X		
Casualty & Liability		X		
Miscellaneous		X		
Non-Vehicle Maintenance Labor				
Other Salaries and Wages				X
Fringe Benefits				X
Services				X
Non-Vehicle Maintenance Materials and Supplies				
Fuel and Lubricants				X
Tires and Tubes				X
Other Materials and Supplies				X
Utilities				X
Casualty & Liability		X		
Miscellaneous				X
General Administration				
Other Salaries and Wages			X	
Fringe Benefits			X	
Services			X	
Fuel and Lubricants			X	

Tires and Tubes			X	
Other Materials and Supplies			X	
Utilities			X	
Casualty and Liability		X		
Miscellaneous Expense			X	

4.9. Apply lump sum costs

There may be certain cost elements that do not lend themselves to unit pricing and may need to be treated as lump sum, as proportionate or aggregate costs. Example of this include general administration, insurance—and the like. These cost elements will also be added as line items, consistent with FTA cost estimating procedures.

4.10. Apportion shared costs

One or more of the Feasible Alternatives may share some of the same tracks with rail freight services. A method to allocate the O&M costs for those common elements between two (or more) railroad track users will be developed, and the costs will be apportioned, based on an agreed upon service volume metric.

4.11. Prepare service summary

The Feasible Alternatives will be summarized in a service summary table that lists:

- Annual revenue vehicle service hours
- Annual revenue vehicle service miles
- Peak vehicle requirement
- Lane/track miles of guideway

4.12. Calculation of cost estimates

Cost estimates will be calculated by multiplying the operating statistics for each of the Feasible Alternatives by the unit cost factors by mode and then summing the products of each variable for each alternative, as shown in **Table 2**.

Table 2 Calculation of Cost Estimates

Estimated Future Revenue Vehicle Hours	X	Revenue Vehicle hour Cost Factor	=	Estimated O&M Cost associated with Revenue Vehicle Hours
Estimated Future Revenue Vehicle Miles	X	Revenue Vehicle Mile Cost Miles	=	Estimated O&M Cost associated with Revenue Vehicle Miles
Estimated Future Vehicles Required in Peak Service	X	Vehicles Required in Maximum Service Cost Factor	=	Estimated O&M Costs associated with Vehicles Required in Peak Service
Estimated Future Guideway Miles	X	Guideway Miles Cost Factor	=	Estimated O&M Costs associated with Guideway Miles
				Estimated Total O&M Costs

4.13. Inflate to Build Year

Once the O&M costs have been determined in current year dollars, they will be inflated to the Build Year, which is currently assumed as 2045. The study team will confer with the Client as to the appropriate inflation rate to use.

4.14. Create summary table

The O&M cost results will be presented in a summary table to provide a comparison between the three Feasible Alternatives. Because of the high-level nature of this order of magnitude cost estimate, a range of +/- 10 percent of the calculated O&M cost is proposed.

5. Deliverables

- Draft 2045 preliminary, order of magnitude O&M operating costs for each Feasible Alternatives.
- O&M technical memorandum documenting the methodology and results.

Appendix 1.13 Operating & Maintenance Cost Estimates

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

NOVEMBER 2022

Volume 1

IBX

Contents

10.1 Introduction

This technical memorandum describes the inputs and results that were used to develop the preliminary, high-level, order of magnitude, future one-year operating and maintenance (O&M) costs for the three selected Feasible Alternatives: Bus Rapid Transit (BRT), Light Rail Transit (LRT) and Commuter Rail (CR), as documented in the Task 10 Operation & Maintenance Cost Methodology Technical Memorandum (O&M Methodology).

These results provide a comparison of projected O&M costs among these Feasible Alternatives, which were developed using 2019 dollars and can be escalated as necessary for future build years. This memorandum is organized beginning with the Feasible Alternatives, operational definitions of the short list alternatives, four-supply variable model development, and estimated Operations and Maintenance Costs.

10.2 Feasible Alternatives

As part of Task 9 of this study, Fatal Flaw screening criteria were applied to the 14 initial alternatives that were developed earlier in the study, with three alternatives advanced for further study as Feasible Alternatives, as they met four of the study's goals and objectives. An outline of these three alternatives - BRT, LRT and CR – are shown in **Table 1**. For more details, see the Technical Memorandum Task 9: Fatal Flaw Screening Results.

Table 1: Feasible Alternatives

Alternative	Alternative Mode	Guideway Location	Specified service frequency (headways), in minutes		Propulsion Power
			Peak	Off-Peak	
CR	**COMMUTER RAIL**	Pair of dedicated commuter rail tracks	5	10 - 20	Electric 3rd (Rail)
LRT	**LIGHT RAIL TRANSIT (LRT)**	Pair of dedicated LRT tracks	5	10-20	Electric Overhead Catenary System (OCS)
BRT	**BUS RAPID TRANSIT (BRT)**	2 lane busway	5	10-20	Battery Electric bus with terminal charging

All three alternatives serve up to 20 stations along the IBX service alignment extending from Bay Ridge in Brooklyn to Jackson Heights in Queens and share the same common western terminus as 4th Av Station. The BRT and LRT modes leave the IBX right of way (ROW) at Roosevelt Avenue, run on street along Roosevelt Avenue to terminate at the Jackson Heights-Roosevelt Avenue subway station complex. The CR alternative remains within and terminates on the IBX ROW at Roosevelt Avenue.

The following sections describe the proposed operational characteristics and O&M cost estimates for each of the three Feasible Alternatives.

10.3 Operational Characteristics

Proposed operational parameters were defined for each alternative as part of the Task 10 work on the study. The O&M Methodology assumes calculation of the following for each Feasible Alternative:

- Annual vehicle operating hours
- Annual vehicle operating miles
- Peak fleet size, including spare vehicle requirements
- Number of guideway lane miles/track miles.

The summary of the above, as well as other pertinent characteristics that feed into the above calculations, are provided below. More detail can be found in **Task 10.6 Operations Characteristics Memorandum**.

10.3.1 BRT

The proposed schedule provides the annual revenue miles and hours, and determined the required peak BRT vehicles to operate the BRT alternative. **Table 2** below shows the schedule that feeds into the annual BRT trips and miles. Some trips (at 17 miles) have been assumed to deadhead to/from the maintenance facility, while other trips (at 15 miles) do not.

Table 2: Proposed BRT Schedule, Including Distance and Travel Time

Schedule Times					
Monday – Friday (headway in min)	**Weekday Trips**	**Miles per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 6am - 20	36	17	612	48	1,728
6am - 7am - 10	12	17	204	48	576
7am - 10am - 5	36	17	612	48	1,728
7am - 10am - 5	36	15	540	45	1,620
10am - 4pm - 10	72	17	1,224	48	3,456
4pm - 7pm - 5	36	17	612	48	1,728
4pm - 7pm - 5	36	15	540	45	1,620
7pm - 12am - 10	60	17	1,020	48	2,880
Totals	324		5,364		15,336
Sat, Sun & Holidays (headway in min)	**Weekend/Holiday Trips**	**Miles Per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 7am - 20	36	17	612	48	1,728
7am - 12am - 10	216	17	3,672	48	10,368
Totals	252		4,284		12,096

The proposed Bus Rapid Transit service would operate with the characteristics as shown in **Table 3**, which feed into the O&M cost estimating model as described in the O&M Methodology.

Table 3: BRT Operational Characteristics

Operational Characteristic	Total
Round trip running time (mins)	101
Peak headway (mins)	5
Peak vehicles required (not including spares)	22
Annual Revenue Miles	1,836,900
Annual Revenue Hours	87,246
Busway Miles (total both directions)	30

The BRT alternative has 24 unstaffed[1], as described in **Section 10.2** . Although unstaffed, labor would be still be required for cleaning, maintenance and maintenance of station elements, such as elevators/escalators, servicing TVMs, etc.

The fare collection method for BRT assumes the use of Proof of Payment, barrier free (no turnstiles), fare collection consistent with other North American BRT systems and somewhat similar to NYCT's Select Bus Service[2]. The fare collection costs are part of Revenue Vehicle Hours cost factor.

For the BRT alternative only, the two "protect" buses have been included in the peak vehicle requirement because these two buses are part of the revenue service fleet; they are needed to cover for buses that need terminal recharging that exceeds the 5-minute peak period terminal turn time. Thus, the round-trip BRT running time includes the terminal layover time.

[1] BRT will originate/terminate at the Jackson Heights-Roosevelt Avenue intermodal complex. While the BRT platform will be unstaffed, NYCT staff is available inside the subway headhouse. This applies to the LRT alternative as well.

[2] BRT is assumed to use OMNY and other NFC enabled payment methods, which eliminates the need to insert a MetroCard into a fare machine to get a printed receipt. Instead, OMNY and NFC enabled devices can be directly scanned by roving fare inspectors to confirm validity. This applies to the LRT and CR alternatives as well.

10.3.2 LRT

The proposed schedule provides the annual revenue miles and hours, and also determines the required peak LRT vehicles to operate the LRT alternative. LRT vehicles will be comprised of three-car consists. **Table 4** below shows the schedule that feeds into the annual LRT trips and miles. As with the BRT mode, some of the trips have been assumed to deadhead to/from the maintenance facility.

Table 4: Proposed LRT Schedule, Including Distance and Travel Time

Schedule Times					
Monday – Friday (headway in min)	**Weekday Trips**	**Miles Per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 6am - 20	36	15	540	46	1,656
6am - 7am - 10	12	15	180	46	552
7am - 10am - 5	36	15	540	46	1,656
7am - 10am - 5	36	14	504	43	1,548
10am - 4pm - 10	72	15	1080	46	3,312
4pm - 7pm - 5	36	15	540	46	1,656
4pm - 7pm - 5	36	14	504	43	1,548
7pm - 12am - 10	60	15	900	46	2,760
Totals	324		4,788		14,688
Sat, Sun & Holidays (headway in min)	**Weekend/Holiday Trips**	**Miles Per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 7am - 20	36	15	540	46	1,656
7am - 12am - 10	216	15	3,240	46	9,936
Totals	252		3,780		11,592

The proposed Light Rail Transit service would operate with the characteristics shown in **Table 5**, which feed into the O&M cost estimating model as described in the O&M Methodology. The 24 proposed stations would be unstaffed. Although unstaffed, labor would still be required for cleaning, maintenance and maintenance of station elements, such as elevators/escalators, servicing TVMs, etc.

The fare collection method for LRT assumes the use of Proof of Payment, barrier free (no turnstiles), fare collection consistent with operating practices for the Hudson Bergen Light Rail system (NJ Transit) and other North American LRT systems The fare collection costs are part of Revenue Vehicle Hours cost factor.

Table 5: LRT Operational Characteristics

Operational Characteristic	Total
Round trip running time (mins)	96
Peak headway (mins)	5
Peak vehicles required (3-car consists, not including spares)	57
Annual Revenue Miles	1,634,724
Annual Revenue Hours	83,573
Guideway Miles (total both directions)	30

The LRT alternative has a total of 24 proposed stations, as described further in **Section 10.2** .

10.3.3 Commuter Rail

The proposed schedule provides the annual revenue miles and hours and determines the required peak commuter rail cars to operate the CR alternative. Trains will be comprised of four-car consists. **Table 6** below shows the schedule that feeds into the annual commuter rail trips and miles. As with the other two modes, some trips assume deadheading to/from the maintenance facility.

Table 6: Proposed CR Schedule, Including Distance and Travel Time

Schedule Times					
Monday – Friday (headway in min)	**Weekday Trips**	**Miles Per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 6am - 20	36	15	540	47	1,692
6am - 7am - 10	12	15	180	47	564
7am - 10am - 5	36	15	540	47	1,692
7am - 10am - 5	36	14	504	46	1,656
10am - 4pm - 10	72	15	1080	47	3,384
4pm - 7pm - 5	36	15	540	47	1,692
4pm - 7pm - 5	36	14	504	46	1,656
7pm - 12am - 10	60	15	900	47	2,820
Totals	324		4,788		15,156
Sat, Sun & Holidays (headway in min)	**Weekend/Holiday Trips**	**Miles Per Trip**	**Miles Per Day**	**Travel Time (min)**	**Time Per Interval (min)**
12am - 6am - 20	36	15	540	47	1,692
6am - 12am - 10	216	15	3,240	47	10,152
Totals	252		3,780		11,844

The proposed commuter rail service would operate with the characteristics shown in **Table 7**, which feed into the O&M cost estimating model as described in the O&M Methodology. The 24 proposed stations would be unstaffed, as described in **Section 10.2** . Although unstaffed, labor would be still be required for cleaning, maintenance and maintenance of station elements, such as elevators/escalators, servicing TVMs, etc.

Fare collection method for CR assumes the use of Proof of Payment, barrier free (no turnstiles), fare collection. This type of fare collection for commuter rail would be new for the NYC area, but has been successfully used by other US and global commuter rail systems, including Caltrain (San Francisco), Metrolink (Los Angeles), Metrolinx (Toronto), RTD (Denver)—to name a few. The fare collection costs are part of Revenue Vehicle Hours cost factor.

Table 7: CR Operational Characteristics

Operational Characteristic	Total
Round trip running time (mins)	102
Peak headway (mins)	5
Peak vehicles required (4-car consists, not including spares)	80
Annual Revenue Miles	1,634,724
Annual Revenue Hours	86,017
Guideway Miles (total both directions)	30

The CR alternative has a total of 24 proposed stations, as described further in **Section 10.2** .

10.4 Four-Supply Operations and Maintenance Cost Model inputs

As defined in the O&M Methodology, the latest available (2019) NTD submissions were used to develop unit costs to estimate O&M costs for each of the three Feasible Alternatives[3]. For all three Feasible Alternatives, a four-supply variable model was used to estimate the O&M costs, using the following unit costs:

- Cost per vehicle revenue hour
- Cost per vehicle revenue mile
- Cost per vehicle required in maximum service
- Cost per guideway mile

The calculations of service statistics and units of service is based on the proposed service plan developed for each alternative, as described above. The following tables indicate the unit costs for revenue hour, revenue miles, and peak vehicles as developed, based on existing operating systems. While guideway O&M costs were developed for each system as shown below, the proposed BRT alternative has additional cost input assumptions for its dedicated guideway, as noted below. The LRT and CR guideway costs are assumed to be consistent with these similar systems.

10.4.1 BRT Operating Expense Unit Costs Development

BRT Unit costs were based upon NYCT's existing Select Bus Service (SBS) operations. As noted above, these SBS routes do not operate within a dedicated guideway or feature dedicated BRT stations, so separate annual unit costs were developed for guideway, based upon a range of BRT systems provided in the NTD, as well as from cost estimates developed for BRT guideways on other New York City projects, such as the MTA's recent Staten Island West Shore and Utica Avenue transit studies.

Costs assume the full cost for maintaining a busway and includes street sweeping, snow clearance, busway lighting, pavement repairs, etc. Each BRT station O&M cost accounts for cleaning and repairs, station lighting, snow removal from public walkways and platforms, cost of elevator and/or escalator maintenance, Passenger Information Displays (PIDs) maintenance, etc. The annual O&M costs for BRT guideway are as follows:

- Cost per mile of guideway: $50,000
- Cost per station: $150,000

[3] Due to a data anomaly with revenue vehicle hours in 2019 for Long Island Rail Road, the NTD data for commuter rail was drawn from the 2018 LIRR data set.

Table 8: BRT Operating and Maintenance Expense Items ($2019)

BRT2	Assignment of Expense Items			
	Revenue Vehicle Hours	Revenue Vehicle Miles	Peak Vehicles	Guideway
Vehicle Operations Labor				
Operator Salaries and Wages	$ 30,751,401			
Other Salaries and Wages	$ 4,551,496			
Fringe Benefits	$ 25,761,976			
Services	$ 347,485			
Vehicle Operations Materials and Supplies				
Fuel and Lubricants		$ 2,587,067		
Tires and Tubes		$ 468,537		
Other Materials/Supplies		$ 213,972		
Miscellaneous			$ 889,131.00	
Vehicle Maintenance Labor				
Other Salaries and Wages		$ 9,457,959		
Fringe Benefits		$ 6,172,122		
Services		$ 190,423		
Vehicle Maintenance Materials and Supplies				
Fuel and Lubricants		$ 155,249		
Tires and Tubes		$ 29,907		
Other Materials and Supplies		$ 2,817,792		
Miscellaneous		$ 43,416		
Non-Vehicle Maintenance Labor				
Other Salaries and Wages				$ 2,802,552
Fringe Benefits				$ 1,899,173
Services				$ 1,487,133
Non-Vehicle Maintenance Materials and Supplies				
Other Materials and Supplies				$ 200,870
Miscellaneous				$ 3,433
General Administration				
Other Salaries and Wages			$ 2,833,769	
Fringe Benefits			$ 2,943,588	
Services			$ 1,636,224	
Other Materials and Supplies			$ 582,237	
Utilities			$ 393,732	
Casualty and Liability			$ 3,563,337	
Miscellaneous Expense			$ 287,374	
TOTAL Costs	$ 61,412,358	$ 22,136,444	$ 13,129,392	$ 6,393,161
2019 Units	517,519	3,382,426	181	65
2019 Cost/Unit for BRT2	$ 118.67	$ 6.54	$ 72,538.08	$ 98,965.34

Source: 2019 Operating Expenses workbook, NTD, (downloaded January 2021)

10.4.2 LRT Operating Expense Unit Costs Development

LRT unit costs were based upon New Jersey Transit's light rail service and are shown in **Table 9**. NJ TRANSIT's Hudson Bergen Light Rail Transit (HBLRT) served as a proxy for the IBX's LRT Alternative because they share similar physical and operational characteristics, such as extensive use of dedicated ROW with segments of street running, identical LRT vehicle types, similar on-train staffing, unstaffed stations, proof of payment fare collection, climatic conditions and comparable New York metropolitan area labor rates. Additionally, HBLRT is operated under a Design Build Operate Maintain (DBOM) contract and has costs comparable to a contracted IBX LRT service.

Table 9: Operating and Maintenance Expense Items ($2019)

LRT2	Assignment of Expense Items			
	Revenue Vehicle Hours	Revenue Vehicle Miles	Peak Vehicles	Guideway
Vehicle Operations Labor				
Operator Salaries and Wages	$ 2,540,218			
Other Salaries and Wages	$ 2,493,514			
Fringe Benefits	$ 3,108,275			
Services	$ 326,577			
Vehicle Operations Materials and Supplies				
Other Materials/Supplies		$ 34,566		
Utilities		$ 722,980		
Miscellaneous			$ 28,969.00	
Vehicle Maintenance Labor				
Other Salaries and Wages		$ 1,616,199		
Fringe Benefits		$ 1,054,641		
Services		$ 27,379		
Vehicle Maintenance Materials and Supplies				
Other Materials and Supplies		$ 1,084,266		
Miscellaneous		$ 8,959		
Non-Vehicle Maintenance Labor				
Other Salaries and Wages				$ 3,026,326
Fringe Benefits				$ 1,870,918
Services				$ 1,174,436
Non-Vehicle Maintenance Materials and Supplies				
Other Materials and Supplies				$ 599,292
Miscellaneous				$ 19,039
General Administration				
Other Salaries and Wages			$ 1,636,976	
Fringe Benefits			$ 1,060,090	
Services			$ 636,660	
Other Materials and Supplies			$ 91,967	
Utilities			$ 520,084	
Casualty and Liability		$ 172,587		
Taxes			$ 1,774	
Miscellaneous Expense			$ 97,467	
TOTAL Costs	$ 8,468,584	$ 4,721,577	$ 4,073,987	$ 6,690,011
2019 Units	51,294	507,528	14	14
2019 Cost/Unit for LRT2	$ 165.10	$ 9.30	$ 290,999.07	$ 477,857.93

Source: 2019 Operating Expenses workbook, NTD, (downloaded January 2021)

10.4.3 CR Operating Expense Unit Costs Development

CR unit costs were based upon Long Island Rail Road (LIRR) service and are shown in **Table 10**. LIRR data was used as a basis for the cost inputs for the CR Alternative. It should be noted that the LIRR has a higher cost structure than the proposed IBX, given its greater on-train staffing (3+ train crew) than is proposed for IBX (two-person train crew). IBX also proposes smaller, simpler stations than some LIRR stations (such as large transfer and/or terminal stations as Penn Station, Woodside, Jamaica, Long Beach, Babylon, Ronkonkoma, etc.). The commuter rail costs could vary if an independent contractor were to operate the system.

To provide a conservative cost estimate, the LIRR current costs were used, recognizing that there is potential to reduce O&M costs if new work rules were negotiated and implemented by either the MTA or a contract operator to reduce train crew size and to streamline and provide more flexible work rules and other operating efficiencies.

Table 10: CR Operating and Maintenance Expense Items ($2019)

CR4	Assignment of Expense Items			
	Revenue Vehicle Hours	Revenue Vehicle Miles	Peak Vehicles	Guideway
Vehicle Operations Labor				
Operator Salaries and Wages	$ 169,607,504			
Other Salaries and Wages	$ 84,749,718			
Fringe Benefits	$ 143,958,021			
Services	$ 13,933,572			
Vehicle Operations Materials and Supplies				
Fuel and Lubricants		$ 15,494,818		
Other Materials/Supplies		$ 1,234,064		
Utilities		$ 68,254,282		
Miscellaneous			$ 13,039,922	
Vehicle Maintenance Labor				
Other Salaries and Wages		$ 242,222,211		
Fringe Benefits		$ 147,385,120		
Services		$ 11,678,365		
Vehicle Maintenance Materials and Supplies				
Fuel and Lubricants		$ 2,475,639		
Other Materials and Supplies		$ 100,677,543		
Miscellaneous		$ 2,250,561		
Non-Vehicle Maintenance Labor				
Other Salaries and Wages				$ 159,844,492
Fringe Benefits				$ 67,874,013
Services				$ 22,469,420
Non-Vehicle Maintenance Materials and Supplies				
Other Materials and Supplies				$ 31,242,354
Miscellaneous				$ 25,359,837
General Administration				
Other Salaries and Wages			$ 55,313,613	
Fringe Benefits			$ 29,587,654	
Services			$ 21,912,955	
Other Materials and Supplies			$ 5,208,599	
Utilities			$ 15,273,695	
Casualty and Liability		$ 54,788,865		
Miscellaneous Expense			$ 1,189,711	
TOTAL Costs	$ 412,248,815	$ 646,461,468	$ 141,526,149	$ 306,790,116
2019 Units	2,207,645	67,942,021	1,026	632
2019 Cost/Unit for CR4	$ 186.74	$ 9.51	$ 137,939.72	$ 485,504.22

Source: 2019 Operating Expenses workbook, NTD, (downloaded January 2021)

Appendix 1.14 Environmental Existing Conditions and Impacts Analysis

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

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Tables

Figures

1 Introduction

This Technical Memorandum documents existing environmental conditions in the Interborough Express (IBX) Project area. This report is part of a Planning and Environmental Linkages (PEL) Study[1] being undertaken by the Metropolitan Transportation Authority (MTA) to further evaluate the transit alternatives that MTA is carrying forward from the 2021 IBX *Feasibility Study and Alternatives Analysis*[2] (IBX Feasibility Study) for the IBX Project. The PEL Study allows for further evaluation of these alternatives to help inform the environmental review under the National Environmental Policy Act (NEPA) in the next phase of study.

The MTA proposes to provide rapid transit service along a 14-mile freight rail corridor that runs through Brooklyn and Queens. The freight rail corridor consists of two sequential freight rail lines: the Long Island Rail Road (LIRR) Bay Ridge Branch and the CSX railroad's Fremont Secondary (**Figure 1**). A Study Area was defined for the purpose of the environmental review as the area ½-mile on either side of the IBX Corridor. This geographic area enables the identification of environmental resources within and near the IBX Corridor as well as consideration of the potential effects of the IBX Project. The Study Area is comprised of four subdistrict zones, defined as superzones: Brooklyn South, Brooklyn North, Queens Central, and Queens North.

The three alternatives MTA carried forward from the 2021 IBX Feasibility Study are:

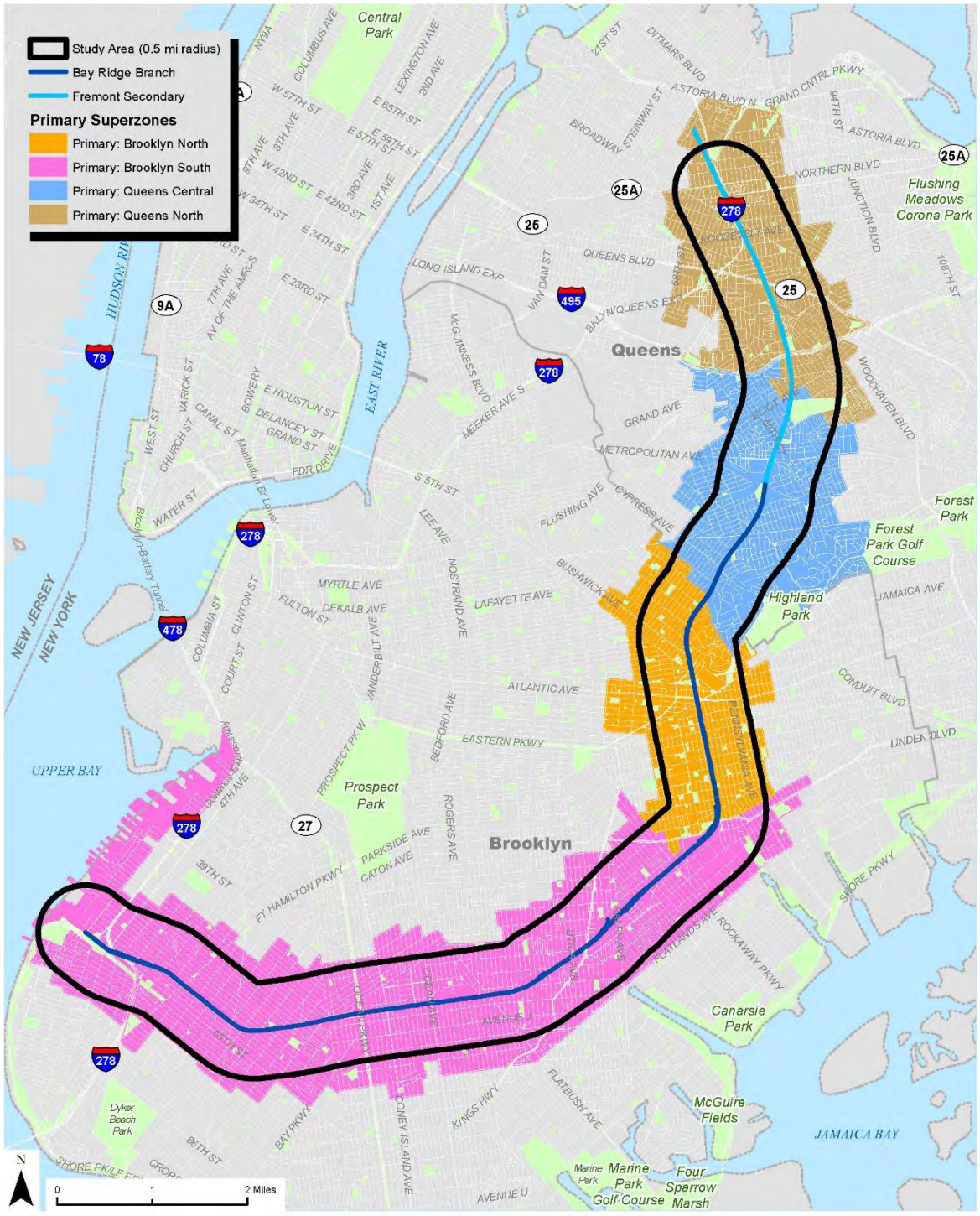
- Bus Rapid Transit (BRT) – Battery-electric buses that operate on a dedicated, bus-only corridor. Service would operate alongside existing freight rail service either separated by a barrier/required buffer distance or grade-separated from existing freight rail service, in accordance with Federal Railroad Administration (FRA) regulations.
- Light Rail Transit (LRT) – Electrical multiple-unit vehicles that operate on two dedicated passenger rail tracks. Service would operate alongside existing freight rail service, either separated by a barrier/required buffer distance or grade-separated from existing freight rail service, in accordance with Federal Railroad Administration (FRA) regulations.
- Conventional Rail (CR) – Electrical multiple-unit vehicles that operate on two dedicated passenger rail tracks. Service would combine aspects of traditional high frequency transit operations and can operate adjacent to existing freight rail service, in accordance with FRA regulations.

Each alternative would include an alignment, 19 potential stations, and a maintenance and storage yard. In general, the alignments of the alternatives are similar along the IBX Corridor; however, where the alignments vary from one another, the differences among the alignments in terms of proximity to environmental resources are noted. The 19 potential stations would also be along the existing freight corridor and would be consistent among the three alternatives. As the purpose of the PEL Study is to select a Preferred Alternative from among the modes identified for further evaluation as a result of the previous feasibility study, and because potential station locations would be consistent among the alternatives evaluated in the PEL Study, the specific locations of stations are not evaluated. Detailed location selection and analysis for the stations would occur upon consideration of engineering and environmental studies as well as inputs from the public, stakeholders, and agencies during the NEPA phase of environmental evaluation. The maintenance and storage yards are potentially in different locations and would require different configurations depending on the alternative.

[1] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pel.cfm
[2] *IBX Feasibility Study and Alternatives Analysis*, 2021. Prepared by the MTA and AECOM.

This technical report presents the IBX Project purpose and need and existing environmental conditions in the freight rail corridor (IBX Corridor) as determined by preliminary desktop research of readily available data and information. This report also initially assesses the potential environmental effects of the three alternatives and identifies next steps in the environmental evaluation. The assessment of potential effects of the IBX Project in this PEL Study is preliminary and subject to change as MTA continues to refine the engineering design during the NEPA environmental review with the intention of avoiding or minimizing IBX Project effects on the environment.

Figure 1: IBX Corridor and Study Area



Print Date: 8/10/2022
Source: Land Use: MapPLUTO, NYC Planning, July, 2021.

Interborough Express
Project Study Area

2 Project Purpose and Need

2.1 Problem Statement

In the PEL Study, MTA is using additional tools and metrics to evaluate the alternatives. The first tool is a problem statement, which defines and provides context for the alternatives development and evaluation phases of work, including the current PEL Study. The problem statement is a predecessor to the purpose and need statement; it is typically a concise, holistic snapshot of the deficiencies and problems that form the context of a project.

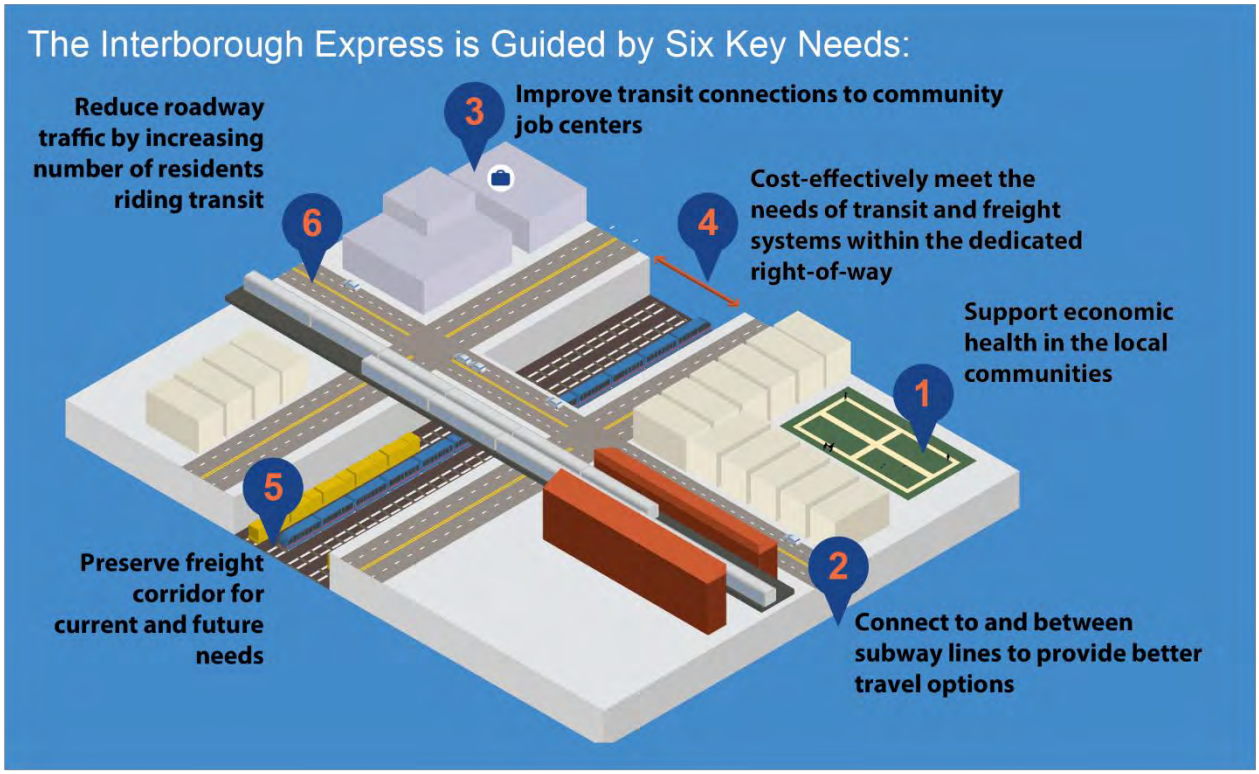
The problem statement that was developed for the PEL Study is as follows:

> While Brooklyn and Queens are well served by subway and other transit services to and from Manhattan, these boroughs have long contended with limited direct rapid transit links within and between the boroughs. The IBX Feasibility Study demonstrated significant existing and foreseeable travel demand for improved intra- and inter-borough transit service. For example, under existing conditions, many Brooklyn transit riders with destinations in Queens must travel into Manhattan on one transit line and then transfer to another line heading out of Manhattan to reach their destination in Queens, resulting in significant travel time (for example, an hour to go from Brooklyn College in Midwood to Roosevelt Avenue in Flushing, Queens via Times Square). These transportation constraints affect all populations but are particularly adverse for underserved populations (such as minority, low-income, and zero-car households) who depend on transit and often hold multiple jobs in these boroughs. These transportation conditions also constrain residents' transit access to existing and planned employment and an employer's ability to attract the necessary workforce in areas targeted by the City for economic development and redevelopment, such as the East New York Industrial Business Zone.

2.2 Refined Purpose and Need

A second tool MTA is using in the PEL Study is a refined purpose and need statement. A purpose and need statement expands on the problem statement by identifying specific needs for a project that are supported by relevant data and evidence. As part of the IBX Feasibility Study, MTA developed an initial list of existing and foreseeable transportation needs in the IBX Project area as well as a list of IBX Project goals (**Figure 2**). In the PEL Study, MTA is examining the three alternatives in the context of additional engineering, traffic, and environmental measures. This is one reason why the purpose and need statement is being refined.

Figure 2: Project Needs During IBX Feasibility Study



Source: Interborough Express Feasibility Study and Alternatives Analysis Summary Report, 2021

The PEL Study is evaluating the alternatives selected by the previous feasibility study and selecting a Preferred Alternative to be further evaluated during the NEPA environmental review. In preparation for NEPA review, the MTA is refining the purpose and need statement in the PEL Study to be consistent with federal requirements. The Federal Transit Administration's (FTA) Standard Operating Procedures (SOPs) for Managing the Environmental Review Process, No. 4, provides guidance on preparing a purpose and need statement within a NEPA context. FTA's SOPs provide the following key guidance:

- A purpose and need is typically developed during planning and is refined during NEPA.
- In making refinements, "a project's purpose and need should exhibit continuity from planning, through each project development phase, to project approval."
- During NEPA, the statements in a purpose and need should be transportation focused, i.e.:
    - The purpose is what MTA intends to accomplish with the project; and
    - The needs are the transportation problems the project would address.

MTA reviewed the IBX Feasibility Study and FTA guidance, and considered that a purpose statement should be sufficiently narrow to focus on the IBX Corridor. As a result, the following is the refined purpose statement for the IBX Project:

> Provide fast, direct, and reliable transit service connecting Brooklyn and Queens using the existing Bay Ridge Branch and Fremont Secondary freight rail corridors between the Brooklyn Army Terminal (BAT) and Roosevelt Avenue in Jackson Heights.

MTA then refined the IBX Project needs, starting with those from the IBX Feasibility Study and refining them to align with FTA's guidance. The primary refinements involved focusing each need on transportation and moving non-transportation needs to the list of IBX Project goals. The following are the refined needs for the IBX Project:

- Need for efficient, direct, and reliable transit service connecting Brooklyn and Queens – This need will identify deficiencies in the existing travel between the two boroughs, including travel time, routing, and delays due to roadway congestion;
- Need to connect to existing transit that serves Brooklyn and Queens – This need will identify the existing deficiencies in making connections between existing subway and transit systems along the IBX Corridor; and,
- Need to improve access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services – This need will identify existing and foreseeable problems in making connections along the corridor between communities, job centers, and targeted growth areas in the two boroughs.

2.3 Project Goals

In addition to refining the purpose and need statement, MTA refined the IBX Project goals in anticipation of the forthcoming NEPA process. The FTA allows for establishing goals during NEPA as tools to evaluate alternatives in addition to the project's purpose and need. In practice, goals should be measurable and achievable. Topics typically captured in goals relate to transportation as well as the natural and human environment. Public and agency input can shape the goals to fit specific project area conditions and concerns.

After reviewing the IBX Feasibility Study and considering the refinements to the IBX Project purpose and need, MTA developed the following IBX Project goals:

- Support the economic health and development of local communities – This goal will enable comparison of the feasible alternatives in terms of the relative ability to promote transit-oriented development, opportunities for public-private investment, and potential changes to existing community character and land use patterns.
- Maximize the development of proposed new transit services within the existing freight railroad alignment – This goal will enable comparison of the feasible alternatives in terms of the relative ability to avoid the use of adjacent same-grade or above-grade roadways or other public or private spaces.
- Accommodate transit and freight systems within the existing freight rail corridors – This goal will allow comparison of the feasible alternatives in terms of their ability to operate both rail freight and potential transit service within the same corridor while minimizing the need for additional right of way (ROW)-related impacts.
- Avoid or minimize environmental issues – This goal will enable the comparison of the feasible alternatives in terms of the ability to avoid or minimize impacts to natural resources and the built environment.
- Provide cost-effective transit service improvements – This goal will enable comparison of the alternatives in terms of capital and operating costs relative to other alternatives under consideration.

3 Environmental Evaluation

3.1 Introduction

MTA identified and evaluated existing environmental conditions in and around the IBX Corridor as a first step in the environmental review. A Study Area was defined for the purpose of the environmental review as the area ½-mile on either side of the IBX Corridor. This geographic area enables the identification of environmental resources within and near the IBX Corridor as well as consideration of the potential effects of the IBX Project. Although potential station locations are not specifically evaluated in the PEL Study, the Study Area is sufficiently sized to include the areas where stations could potentially be located during future NEPA review. For environmental resources that use an alternative study area, those study areas are defined within the following subsections.

In general, the alignments of the alternatives are similar along the IBX Corridor; however, where the alignments vary from one another, the differences among the alignments in terms of proximity to environmental resources are noted. The 19 potential stations would also be along the existing freight corridor and would be consistent among the three alternatives, see **Figure 3**. As described in Section 1, detailed location selection and analysis for the stations would occur upon consideration of engineering and environmental studies as well as public, stakeholder, and agency inputs during the NEPA phase of environmental evaluation. The maintenance and storage yards are potentially in different locations and would require different configurations depending on the alternative.

The following environmental resources are identified in this environmental evaluation:

- Socioeconomic conditions
- Environmental justice populations
- Open space
- Historic and cultural resources
- Urban design and visual resources
- Natural resources
- Hazardous materials
- Noise and vibration
- Air quality

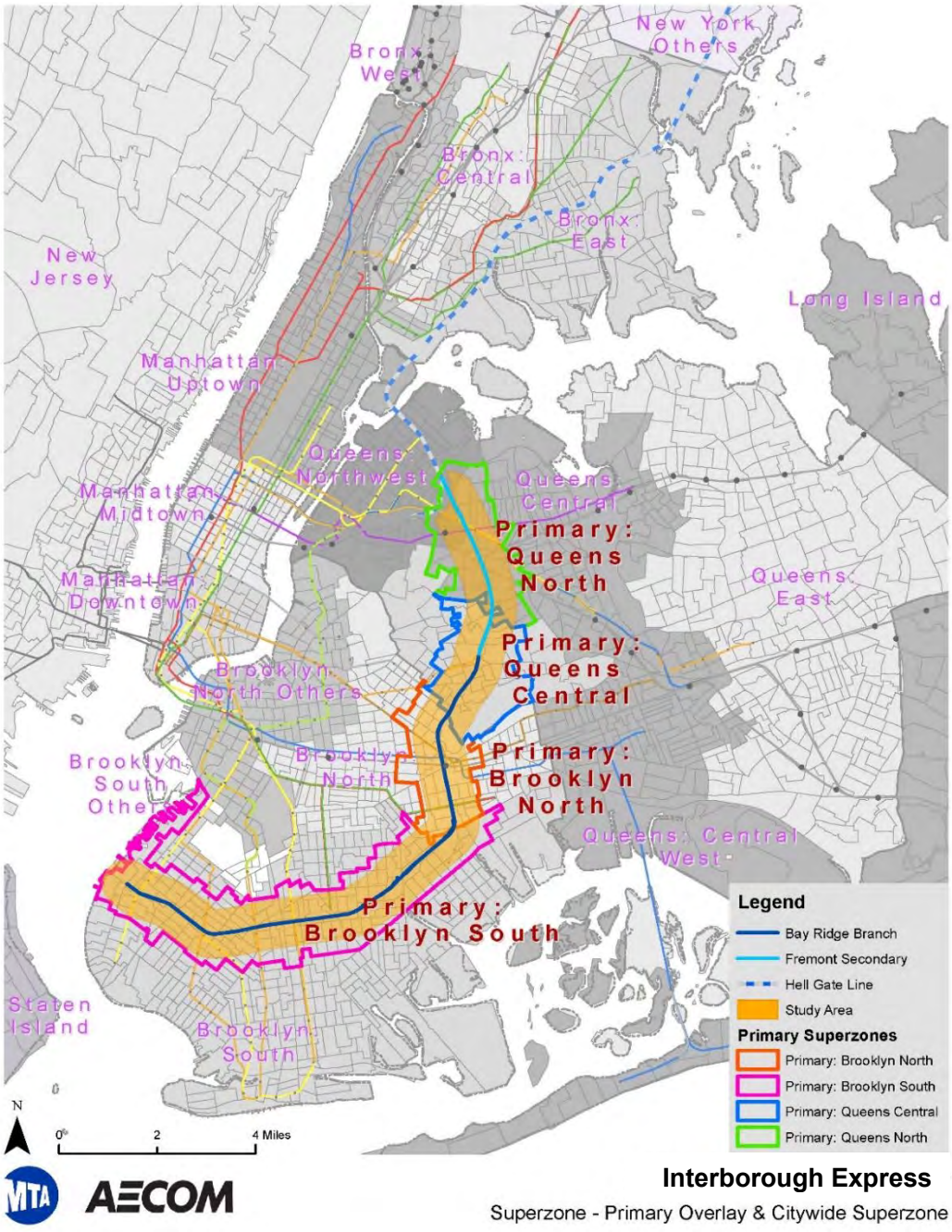
The assessment of potential effects of the IBX Project in this PEL Study is preliminary and subject to change as MTA continues to refine the engineering design during NEPA environmental review with the intention of avoiding or minimizing IBX Project effects on the environment.

Figure 3: IBX Corridor – Potential Station Locations for All Alternatives

Socioeconomic Conditions

The New York Metropolitan Transportation Council (NYMTC) provides current and future population and employment estimates. The Study Area is comprised of 262 census tracts, forming primary superzones referred to here as Brooklyn South, Brooklyn North, Queens Central, and Queens North (**Figure 4**).

Figure 4: Socioeconomic Conditions Study Area and Primary Superzones



3.1.1 Population

The Study Area includes 899,811 persons (**Table 1**). Brooklyn South has the largest population, with an estimated 474,329 persons. Brooklyn North has an estimated 152,403 persons, Queens North has an estimated population of 188,986, and Queens Central has an estimated 84,093, the smallest population of the four superzones in the Study Area.

NYMTC estimates that in 2045, the Study Area will have 940,679 persons, representing 4.5 percent growth from 2020. Brooklyn North is projected to experience the largest growth between 2020 and 2045, with a projected population increase of 18,192 persons, or 11.9 percent. Brooklyn South, Queens Central, and Queens South will all see growth of less than four percent between 2020 and 2045.

Table 1: 2020-2045 Population Projections in the Study Area

Location	2020 Population	2045 Population	Total Growth in Population between 2020-2045	% Growth in Population between 2020-2045
Brooklyn South	474,329	491,146	+ 16,817	3.55%
Brooklyn North	152,403	170,595	+ 18,192	11.94%
Queens Central	84,093	84,470	+ 377	0.45%
Queens North	188,986	194,468	+ 5,482	2.90%
Study Area Total	**899,811**	**940,679**	**+ 40,868**	**4.54%**

Source: NYMTC Projections (2020)

3.1.2 Employment

The NYMTC data identifies 261,110 jobs within the Study Area. Most are located within Brooklyn South, where there are 168,510 jobs (**Table 2**). NYMTC estimated employment projections for 2045 are that the Study Area will have approximately 272,150 jobs, representing 4.23 percent growth from 2020. Brooklyn South is projected to see an increase of 8,427 jobs, or five percent growth from 2020, and Brooklyn North is estimated to see an increase of 2,113 jobs, or eight percent growth from 2020. Both Queens Central and Queens North are expected to grow by less than one percent between 2020 and 2045.

Table 2: 2020-2045 Employment Projections in the Study Area

Location	2020 Employment	2045 Employment	Total Growth in Employment between 2020-2045	Growth in Employment between 2020-2045
Brooklyn South	168,510	176,937	+8,427	5.00%
Brooklyn North	26,118	28,231	+ 2,113	8.09%
Queens Central	15,533	15,632	+ 99	0.64%
Queens North	50,949	51,350	+ 401	0.79%
Study Area Total	**261,110**	**272,150**	**+ 11,040**	**4.23%**

Source: NYMTC Best Practice Model for TAZ-level forecasts

Note: The Study Area for socioeconomic conditions is consistent with the limits from the original IBX Feasibility Study, which have since been refined. For this PEL Study, the IBX Corridor terminates at Roosevelt Avenue in Queens. The Study Area only includes the census tracts within a ½-mile buffer of this location. While the maps and tables of socioeconomic reflect a larger Study Area in Queens, this does not impact the evaluation of the alternatives in this PEL Study.

3.2 Potential Property Acquisitions

3.2.1 Alternatives Evaluation for Potential Property Acquisitions

Although the alignment of each alternative would primarily be within the existing freight rail corridor, the right of way of that corridor is not wide enough in some areas to accommodate the alignment and support facilities for the IBX Project. As a result, additional property acquisition would be required in some areas. The need for property acquisitions along the IBX Corridor has been preliminarily determined for all alternatives, by considering the alignments and support facilities (potential stations, power and substations, tunnel construction, and clearance requirements). The number of properties varies with each alternative, see **Table 3**.

Table 3: Preliminary Number of Property Acquisitions by Owner Type by Alternative

	Preliminary Number of Parcels		
Parcel Owner Type	**CR**	**LRT**	**BRT**
ROW Air Rights	15	15	15
RRs: MTA, Conrail, NYCT, CSX	148	149	148
Other Agencies	17	21	21
Private Property-Full Acquisition	13	12	13
Private Property-Partial Acquisition	152	125	113
Cemetery	2	3	1
Others	5	4	4
Total Preliminary Number of Parcels	**352**	**329**	**315**

Source: AECOM, 2021

3.2.2 Conclusions and Next Steps

It is important to note that the potential property acquisitions identified in this section are preliminary. During the next engineering and NEPA environmental review phases of the IBX Project, MTA will undertake additional design and study with the goal of avoiding or minimizing the need for additional right of way for the IBX Project to the extent feasible.

3.3 Environmental Justice Populations

3.3.1 Existing Environment Justice Conditions

This section identifies Environmental Justice (EJ) populations in the Study Area that could benefit from or be affected by the IBX Project. Local Law 64 (2017) defines the term “environmental justice area” as a low-income community or a minority community located in a census tract. Low-income communities are those where the population below poverty is equal to or greater than 23.59 percent of the total population. Minority communities are those where the minority population is equal to or greater that 51.1 percent of the total population. Tracts that are above the threshold for either variable

are identified as “EJ Area.” Tracts that straddle the threshold for either variable are identified as "Potential EJ Area," and tracts that are significantly lower than the thresholds are labeled as “Not EJ Area.”

Overall, of the Study Area’s 262 census tracts, 171 (65 percent) are EJ Areas. Only 36 (or 14 percent) of the census tracts are identified as Not EJ Areas (**Table 4**). Brooklyn South, Brooklyn North, and Queens North are all primarily EJ Areas, with each over 65 percent of the census tracts containing EJ populations. Brooklyn North, including Brownsville and Bushwick neighborhoods along Bushwick and Jamaica Avenues, is primarily an EJ Area with 98 percent of the census tracts containing EJ populations. Queens Central, including neighborhoods Ridgewood and Middle Village contains the fewest EJ Areas.

Table 4: Environmental Justice Areas – Number and Percent of Census Tracts in the Study Area

Location	EJ Area		Potential EJ Area		Not EJ Area		Total
	Number	Percent	Number	Percent	Number	Percent	
Brooklyn South	92	65%	35	25%	15	11%	142
Brooklyn North	42	98%	0	0%	1	2%	43
Queens Central	6	18%	13	39%	14	42%	33
Queens North	31	70%	7	16%	6	14%	44
Study Area Total	**171**	**65%**	**55**	**21%**	**36**	**14%**	**262**

Source: U.S. Census Bureau, 2014-2018 American Community Survey.

3.3.2 Alternative Evaluation Results

All three alternatives would provide a benefit to EJ populations by providing efficient, direct, and reliable transit service that connects Brooklyn and Queens; providing connections to the existing subway and transit system that serves Brooklyn and Queens; and improving access and connections to and among communities and job centers in the IBX Corridor that are currently underserved.

No clear differentiators between the three alternatives in terms of potential impacts to EJ populations can be discerned through review and comparison of the IBX Project components at this level of review. In the next phase of the NEPA environmental review, a detailed EJ analysis would be conducted including outreach to impacted communities.

3.4 Open Space

This section identifies publicly accessible open space resources within 10 feet of the IBX Corridor, which either overlap or border any of the three alternatives. The following assessment identifies the open space resources that may be directly impacted by any of the three alternatives. Direct impacts to, or uses of, open space resources are regulated under the United States Department of Transportation Act of 1966 Section 4(f) and the New York City’s 2021 *City Environmental Quality Review (CEQR) Technical Manual*.

3.4.1 Regulatory Framework

3.4.1.1 Federal Regulations

The United States Department of Transportation Act of 1966 applies to projects with funding from or requiring approval by agencies of the United States Department of Transportation (USDOT), including the FTA. The United States Department of Transportation Act of 1966 enacted the regulations as 23 CFR 774, which implements 23 U.S.C. §138 and 49 U.S.C. §303, commonly referred to as Section 4(f). A Section 4(f) analysis is required for USDOT actions undergoing NEPA analysis and documentation if properties protected by Section 4(f) would be “used”; however, a Section 4(f) analysis may also be required for construction activities after NEPA when there are either late discoveries or

late designations of properties protected by Section 4(f). Section 4(f) applies to the following properties:

- Historic properties that are either listed, or are eligible for listing on, the National Register of Historic Places regardless of ownership, including archaeological sites that are important for preservation in place;
- Significant publicly owned parks and recreation areas that are also open to the public; and
- Significant publicly owned wildlife or waterfowl refuges whether they are open to the public or not.

A use of a Section 4(f) property occurs under the following three circumstances:

- When land is permanently incorporated into a transportation facility;
- When there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose; or
- When there is a constructive use (a project's proximity impacts are so severe that the protected activities, features, or attributes of a property are substantially impaired)

Before approving a project that uses Section 4(f) property, the FTA must either determine that the impacts are *de minimis*, or undertake a Section 4(f) evaluation. A *de minimis* impact is one that would not adversely affect the activities, features, or attributes of the property. If the Section 4(f) evaluation identifies a feasible and prudent alternative that completely avoids Section 4(f) properties, it must be selected. If there is no feasible and prudent alternative that avoids all Section 4(f) properties, the alternative that causes the least overall harm would be selected.

3.4.1.2 New York City Regulations

Under the *CEQR Technical Manual*, an analysis of open space is conducted to determine whether a proposed project would have a direct impact resulting from the elimination or alteration of open space and/or an indirect impact resulting from overtaxing available open space. The *CEQR Technical Manual* defines a public open space as "accessible to the public on a constant and regular basis for active and passive recreation, including for designated daily periods," and the public space "may be under government or private jurisdiction."[3] According to the *CEQR Technical Manual*, public open spaces may include the following:

- Parks operated or managed by City, State, or federal governments;
- Open space designated through regulatory approvals (e.g., zoning), including large-scale permits that prescribe publicly accessible open space, such as public plazas;
- Outdoor schoolyards, if available to the public during non-school hours;
- Publicly accessible institutional campuses;
- Promenades and Esplanades;
- Designated greenways;
- Landscaped medians or malls with seating;
- Housing complex grounds, if available for use by the general public on a constant and regular basis;
- Nature preserves, if publicly accessible on a constant and regular basis;
- Gardens, if publicly accessible on a constant and regular basis;

[3] NYCDCP. 2021. *CEQR Technical Manual – Open Space*. Accessed on June 1, 2022. https://www1.nyc.gov/site/oec/environmental-quality-review/technical-manual.page.

- Church yards (with seating) or cemeteries, if publicly accessible on a constant and regular basis for passive recreation such as strolling; or
- Waterfront piers used for recreation.

New York City Greenstreets, landscaped roadway medians or pedestrian malls, and landscaped sidewalks are not considered public open spaces unless they include features such as benches or seating areas.

Effects, or impacts, to public open space may be direct or indirect. Direct effects on public open space may occur when a proposed project encroaches on, or causes a loss of, open space. Direct effects may also occur if public access is limited, the type and amount of public space is changed, or if the facilities within an open space would be so changed that the open space no longer serves the same user population. Other direct effects may result from sources of noise, air pollutants, odors, or shadows on public open space, affecting its function, usability, or enjoyment. Indirect effects may occur when the population generated by a proposed project overtaxes the capacity of existing public open spaces so that the service provided to existing and future populations in the area would be substantially or noticeably diminished.

Because the IBX Project would not generate new population, only potential direct effects, or impacts, to public open space are identified in this assessment.

3.4.2 Publicly Accessible Open Spaces

Publicly accessible open spaces were identified using the New York City Department of Information Technology and Telecommunications (DoITT) Planimetrics[4] dataset for parks and open spaces throughout the city. Further screening was conducted using a desktop survey and aerial imagery to determine if parks or open spaces are publicly accessible and the features that characterize them as active or passive recreational opportunities. Publicly accessible open space resources are summarized in the following subsections according to their location within superzones: Brooklyn South, Brooklyn North, Queens Central, and Queens North. **Figure 5** through **Figure 12** display the publicly accessible open spaces. **Table 5** through **Table 8** list the publicly accessible open spaces according to the four superzones, provide a brief description of open space characteristics, and identify the open space resource owners.

[4] DoITT. 2019. Planimetrics. Accessed on June 1, 2022. https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

Figure 5: Open Space Resources in the Open Space Study Area (1 of 8)

Figure 6: Open Space Resources in the Open Space Study Area (2 of 8)

Figure 7: Open Space Resources in the Open Space Study Area (3 of 8)

Figure 8: Open Space Resources in the Open Space Study Area (4 of 8)

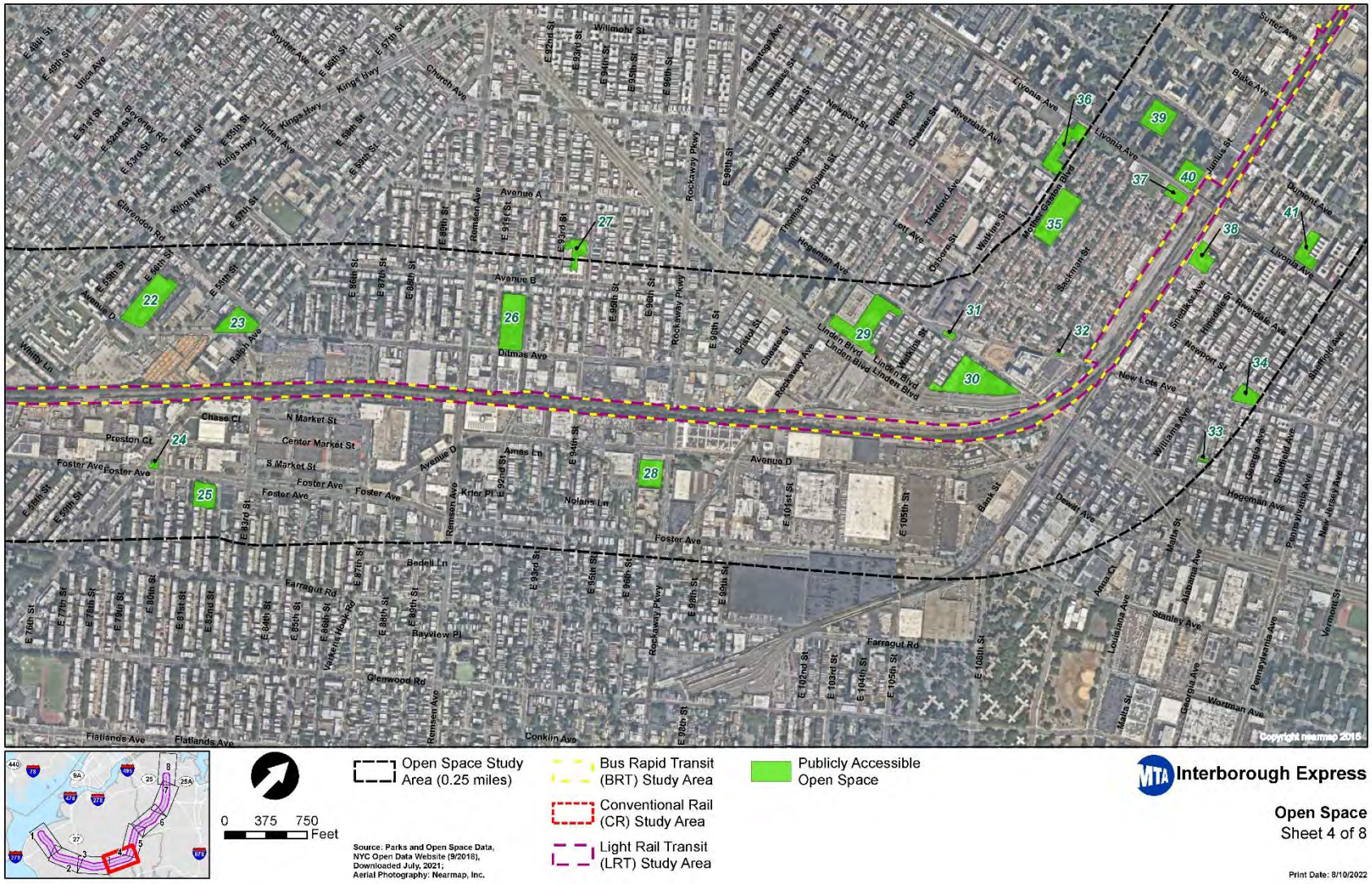
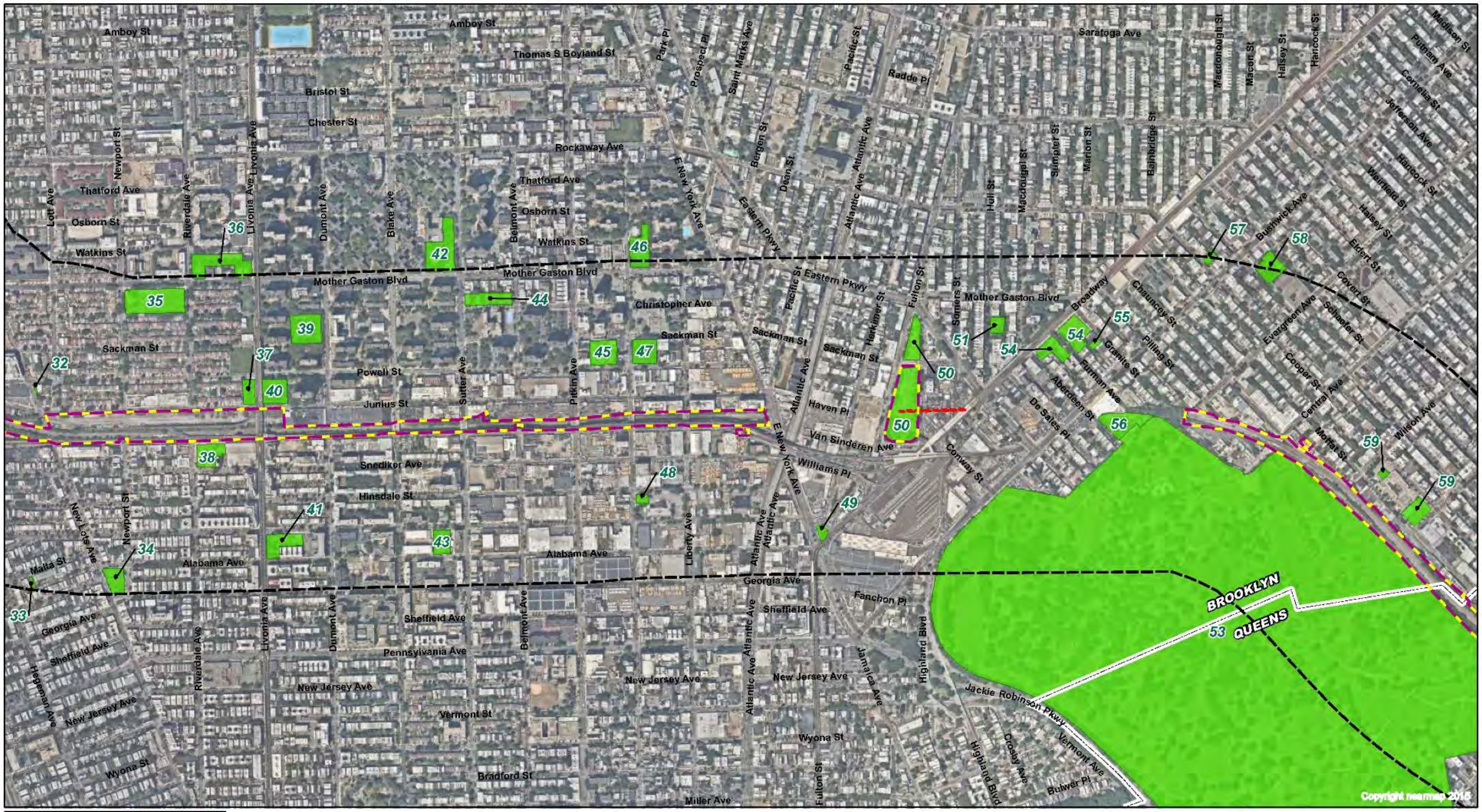
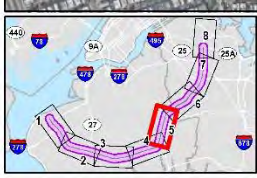


Figure 9: Open Space Resources in the Open Space Study Area (5 of 8)





0 375 750 Feet

Open Space Study Area (0.25 miles)

Bus Rapid Transit (BRT) Study Area

Conventional Rail (CR) Study Area

Light Rail Transit (LRT) Study Area

Publicly Accessible Open Space

Source: Parks and Open Space Data, NYC Open Data Website (9/2018), Downloaded July, 2021; Aerial Photography: Nearmap, Inc.

Interborough Express

Open Space
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Figure 10: Open Space Resources in the Open Space Study Area (6 of 8)

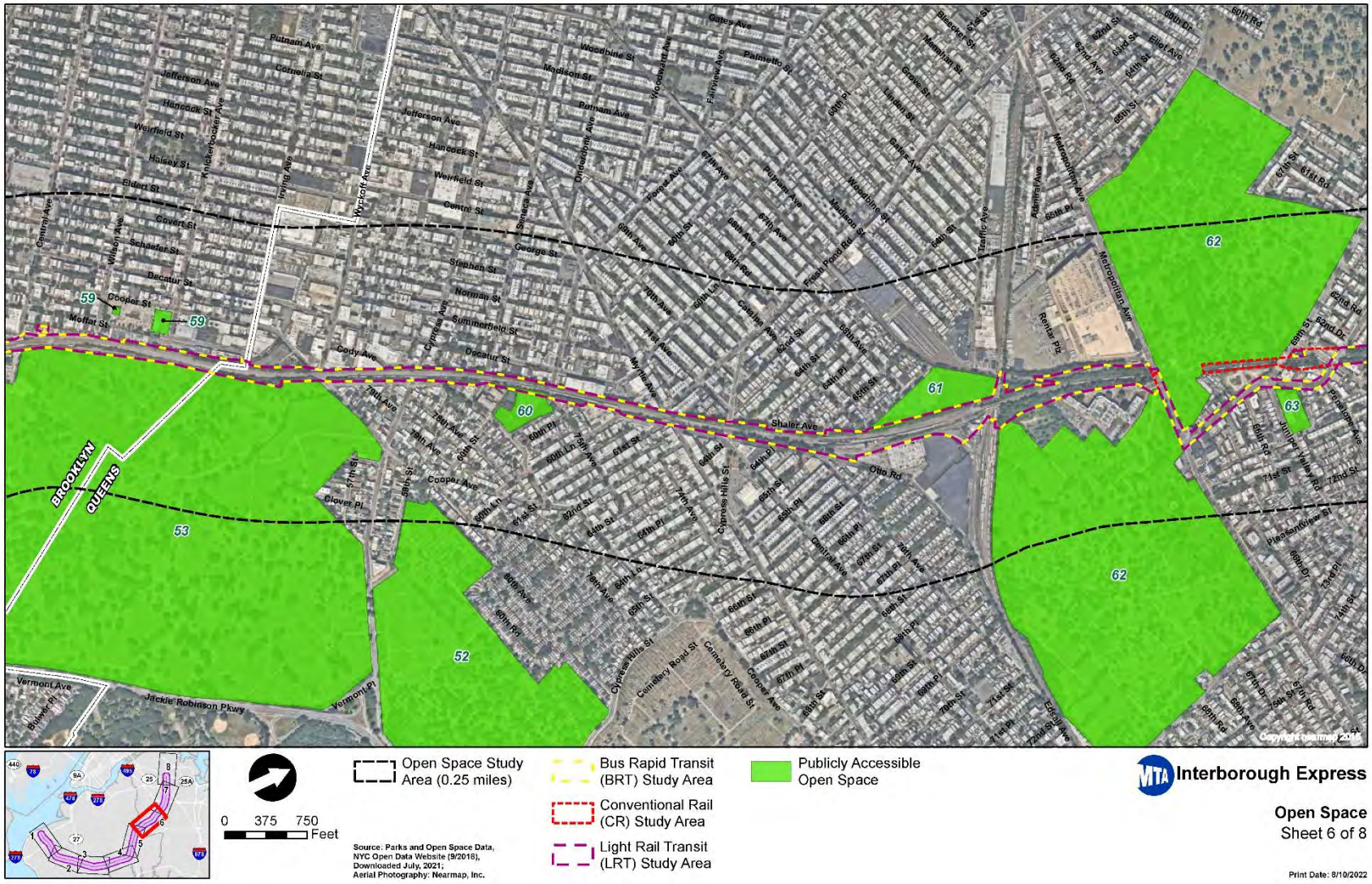

Figure 11: Open Space Resources in the Open Space Study Area (7 of 8)

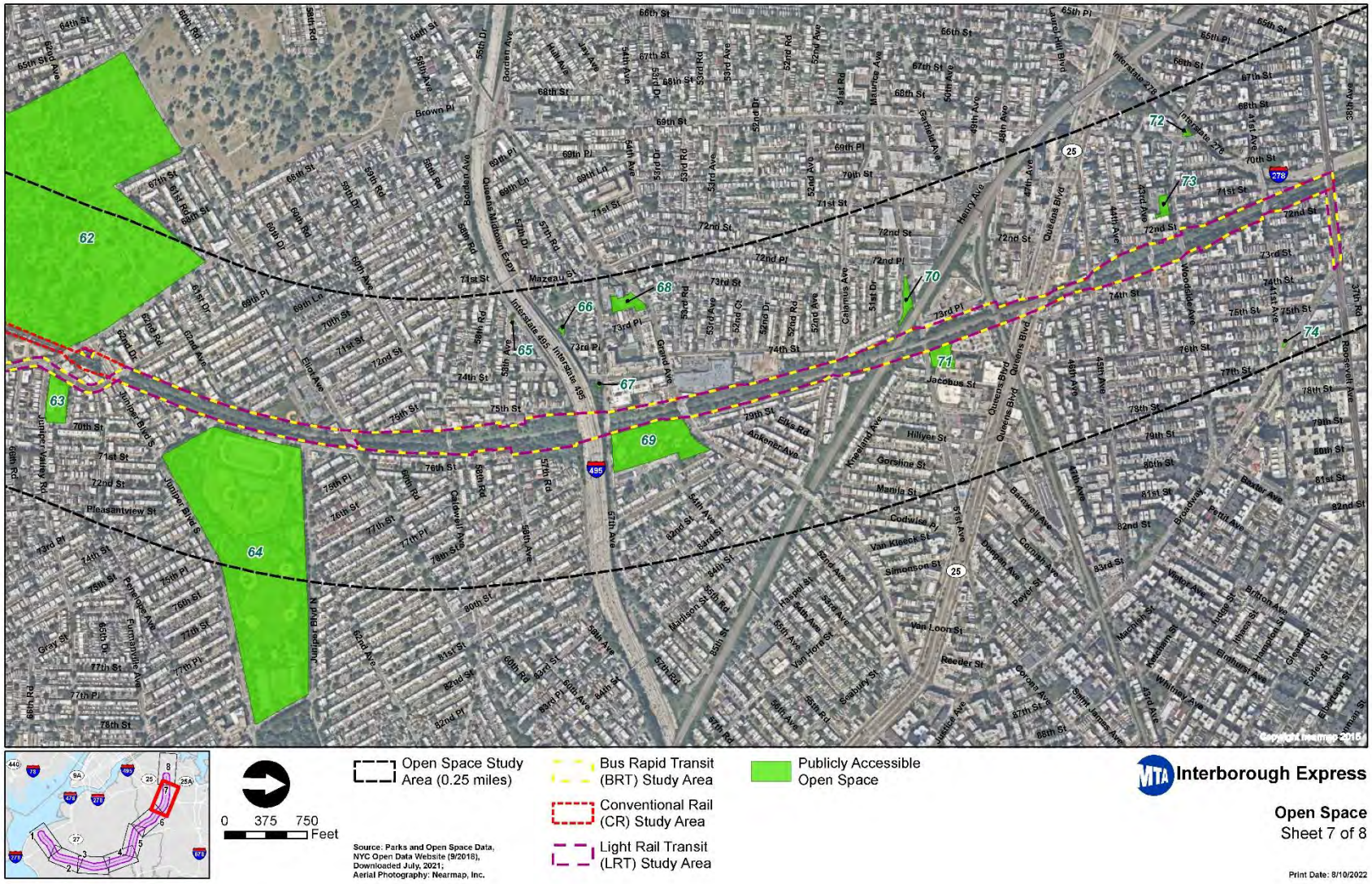

Figure 12: Open Space Resources in the Open Space Study Area (8 of 8)

3.4.2.1 Brooklyn South

The Brooklyn South superzone begins at the southern and western end of the IBX Corridor in the vicinity of Owl's Head Park and the BAT at 2nd Avenue adjacent to the Upper New York Bay. The Brooklyn South superzone ends to the east and north along Linden Boulevard. **Table 5** lists the 28 publicly accessible open space resources in the Brooklyn South superzone. These open space resources include parks, playgrounds, school yards used as playgrounds after school hours, Greenstreets with seating areas, and a cemetery (Washington Cemetery).

Table 5: Brooklyn South Publicly Accessible Open Space Resources

Name	Type	Owner	Acres	Map ID
Owl's Head Park	Neighborhood Park	NYC Parks	25.58	1
Shore Park and Parkway	Community Park	NYC Parks	15.96	2
John Allen Payne Park	Playground	NYC Parks	1.30	3
Greenstreet	Seating Area	NYCDOT	0.12	4
Leif Ericson Park	Neighborhood Park	NYC Parks	13.83	5
Leif Ericson Fields	Recreation Field/Courts	NYC Parks	1.76	6
P.S. 69	School Yard to Playground	NYCDOE	0.17	7
Greenstreet	Seating Area	NYCDOT	0.38	8
P.S. 105	School Yard to Playground	NYCDOE	0.16	9
I.S. 187	School Yard to Playground	NYCDOE	0.63	10
I.S. 227	School Yard to Playground	NYCDOE	0.78	11
P.S. 180	School Yard to Playground	NYCDOE	0.97	12
Gravesend Park	Neighborhood Park	NYC Parks	5.31	13
Washington Cemetery	Cemetery	Washington Cemetery Corp	71.73	14
P.S. 192	School Yard to Playground	NYCDOE	0.76	15
Historic Brooklyn Greenway	Greenway	NYCDOT	N/A	16
Hot Spot Tot Lot	Playground	NYC Parks	0.18	17
P.S. 152	School Yard to Playground	NYCDOE	0.94	18
Amersfort Park	Neighborhood Park	NYC Parks	3.73	19
Sunners Playground	Playground	NYC Parks	0.21	20
Chiarantano Playground	Playground	NYCDOE	0.21	21
Harry Maze Playground	Neighborhood Park	NYC Parks	2.58	22
M Fidler-Wyckoff House Park	Historic House Park	NYC Parks	1.30	23
Greenstreet	Seating Area	NYCDOT	0.15	24
Curtis Playground	Playground	NYC Parks	1.02	25
Railroad Playground	Neighborhood Park	NYC Parks	2.42	26
P.S. 233	School Yard to Playground	NYCDOE	0.74	27
P.S./I.S. 66	School Yard to Playground	NYCDOE	1.16	28

Source: NYC Department of Information Technology & Telecommunications Planimetrics - https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

3.4.2.2 Brooklyn North

The Brooklyn North superzone begins to the south at Linden Boulevard and ends to the north in the vicinity of Irving Avenue and in the center of the Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery. **Table 6** lists the 30 publicly accessible open space resources in the Brooklyn North superzone. These open space resources include parks, playgrounds, school yards used as playgrounds after school hours, public gardens, Greenstreets with seating areas, and a cemetery (the Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery). The Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery is in both the Brooklyn North and Queens Central superzones.

Table 6: Brooklyn North Publicly Accessible Open Space Resources

Name	Type	Owner	Acres	Map ID
Osborn Playground	Playground	NYC Parks/ NYCDOE	2.79	29
Brownsville Playground	Buildings/ Institutions	NYC Parks	3.20	30
Veterans Triangle	Seating Area	NYCDOT	0.13	31
Powell St. Block Association	Garden	NYC Parks	0.04	32
Prophecy Garden	Garden	NYC Parks	0.06	33
United Community Centers	Garden	NYC Parks	0.68	34
Floyd Patterson Ballfields	Recreation Field/ Courts	NYC Parks	2.35	35
Nehemiah Park	Playground	NYC Parks	1.61	36
Powell Street Livonia Garden	Garden	NYC Parks	0.49	37
Lion's Pride Playground	Playground	NYC Parks	0.89	38
Van Dyke Playground	Neighborhood Park	NYCHA	1.44	39
Livonia Park	Neighborhood Park	NYCHA	0.96	40
Success Garden	Garden	NYC Parks	0.93	41
Dr. Green Playground	Playground	NYC Parks	1.81	42
P.S. 328	School Yard to Playground	NYCDOE	0.66	43
Carter G. Woodson Children's Park	Community Park	NYC Parks	0.93	44
Powell Playground	Playground	NYC Parks	1.03	45
Howard Playground	Community Park	NYC Parks	1.08	46
Houston Playground	Playground	NYC Parks	0.94	47
Tlc Sculpture Park Garden	Garden	NYC Parks	0.18	48
Greenstreet	Seating Area	NYCDOT	0.20	49
Callahan-Kelly Playground	Community Park	NYC Parks	4.03	50
Hull Street Garden	Garden	NYC Parks	0.37	51
The Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery	Cemetery	Knollwood Pk Cemetery / Cemetery of the Evergreens / Highld View Cemty Cp	291.57	53
Thomas Boyland Park	Neighborhood Park	NYC Parks	1.77	54
Granite St Block Association	Garden	NYC Parks	0.12	55

Name	Type	Owner	Acres	Map ID
Rudd Playground	Playground	NYC Parks	1.29	56
Cooper St Block Buster Bl Association	Garden	NYC Parks	0.18	57
Evergreen Playground	Playground	NYC Parks	0.88	58
P.S. 384	School Yard to Playground	NYCDOE	0.86	59

Source: NYC Department of Information Technology & Telecommunications Planimetrics - https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

3.4.2.3 Queens Central

The Queens Central superzone begins to the south at Irving Avenue and in the center of the Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery and extends north into the vicinity of Eliot Avenue and Juniper Boulevard North. **Table 7** lists the eight publicly accessible open space resources in the Queens Central superzone. These open space resources include parks, a playground, a school yard used as a playground after school hours, a landscaped seating area, and three cemeteries (the Union Field Cemetery-Zion of Yampola Tzadik-Machpelah Cemetery-Hungarian Cemetery, the Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery, and All Faiths Cemetery). The Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery is in both the Brooklyn North and Queens Central superzones.

Table 7: Queens Central Publicly Accessible Open Space Resources

Name	Type	Owner	Acres	Map ID
Union Field Cemetery-Zion of Yampola Tzadik-Machpelah Cemetery-Hungarian Cemetery	Cemetery	Congregation Emanu-el / Highld View Cemty Cp	82.41	52
The Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery	Cemetery	Knollwood Pk Cemetery / Cemetery of the Evergreens / Highld View Cemty Cp	291.57	53
Evergreen Park	Playground	NYC Parks	2.70	60
Mafera Park	Community Park	NYC Parks	6.88	61
All Faiths Cemetery	Cemetery	Lutheran Cemetery	214.93	62
P.S. 128	School Yard to Playground	NYCDOE	1.73	63
Juniper Valley Park	Community Park	NYC Parks	46.95	64
Triangle/Plaza	Seating Area	NYCDOT	0.03	65

Source: NYC Department of Information Technology & Telecommunications Planimetrics - https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

3.4.2.4 Queens North

The Queens North superzone begins to the south in the vicinity of Eliot Avenue and Juniper Boulevard North and extends north to the Grand Central Parkway. **Table 8** lists the 15 publicly accessible open space resources in the Queens North superzone. These open space resources include parks, school

yards used as a playgrounds after school hours, and landscaped seating areas. Juniper Valley Park is in both the Queens Central and Queens North superzones.

Table 8: Queens North Publicly Accessible Open Space Resources

Name	Type	Owner	Acres	Map ID
Juniper Valley Park	Community Park	NYC Parks	46.95	64
Quick Brown Fox Triangle	Seating Area	NYCDOT	0.07	66
Triangle/Plaza	Seating Area	NYCDOT	0.04	67
P.S. 58	School Yard to Playground	NYCDOE	0.81	68
Elmhurst Park	Community Park	NYC Parks	5.86	69
Long Island Mews	Playground	NYC Parks	0.52	70
I.S. 5	School Yard to Playground	NYCDOE	0.87	71
Winfield Plaza	Seating Area	NYC Parks	0.08	72
P.S. 12	School Yard to Playground	NYCDOE	0.35	73
Nine Heroes Plaza	Triangle/Plaza	NYC Parks	0.04	74
Greenstreet	Seating Area	NYCDOT	0.06	75
Pigeon Paradise	Seating Area	NYC Parks	0.21	76
Hart Playground	Neighborhood Park	NYC Parks	0.94	77
Sergeant Collins Triangle	Seating Area	NYCDOT	0.11	78
P.S. 152	School Yard to Playground	NYCDOE	0.65	79

Source: NYC Department of Information Technology & Telecommunications Planimetrics - https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

3.4.3 Alternative Evaluation Results

This section identifies publicly accessible open space resources within 10 feet of the IBX Corridor's three alternatives (BRT, CR, and LRT) that are either publicly or privately owned. These open space resources have the potential to be impacted when additional ROW would be required.

In both Section 4(f) and the *CEQR Technical Manual*, the assessment of use or direct effects on open space resources is focused on publicly accessible open space resources. Section 4(f) applies to publicly owned parks and recreation areas, while the *CEQR Technical Manual* applies to both publicly and privately owned publicly accessible open spaces. To identify the publicly accessible open space resources that potentially could be considered a use under Section 4(f) and/or a direct effect under the *CEQR Technical Manual*, publicly accessible open space resources within 10 feet of the BRT, CR, and LRT alternatives were identified and listed in **Table 9**.

Publicly accessible open spaces were identified using the New York City DoITT Planimetrics[5] dataset for parks and open spaces throughout the city. Further screening was conducted using a desktop survey and aerial imagery to determine if parks or open spaces are publicly accessible and the features that characterize them as active or passive recreational opportunities.

Of the nine open space resources within 10 feet of the alternatives, eight are located within 10 feet of all three alternatives. One publicly-accessible open space resource, the P.S. 128 school yard playground, is within 10 feet of the BRT and LRT alternatives but not the CR alternative. P.S. 128 is bound by 69th Place to the west, Juniper Valley Road to the south, 70th Street to the east, and 65th

[5] DoITT. 2019. Planimetrics. Accessed on June 1, 2022. https://data.cityofnewyork.us/Transportation/NYC-Planimetrics/wt4d-p43d

Drive to the north. The main entrance to P.S. 128 is located along 69th Place, where the BRT and LRT alternatives have a street running section of the alignment. Public entrances to the school yard to playground section of P.S. 128 are located on Juniper Valley Road, 70th Street, and 65th Drive. The distance between the public entrance on Juniper Valley Road and the BRT and LRT alternatives on 69th Place is approximately 430 feet. The distance between the public entrance on 65th Drive and the BRT and LRT alternatives on 69th Place is approximately 170 feet.

Table 9: Publicly Accessible Open Space Resources within 10 Feet of Alternatives

Name	Type	Owner	BRT	CR	LRT	Map ID
Shore Park and Parkway	Community Park	NYC Parks	✓	✓	✓	2
Callahan-Kelly Playground	Community Park	NYC Parks	✓	✓	✓	50
The Evergreens Cemetery-Trinity Cemetery-Knollwood Park Cemetery-Mt Judah Cemetery	Cemetery	Knollwood Pk Cemetery / Cemetery of the Evergreens / Highld View Cemty Cp	✓	✓	✓	53
Evergreen Park	Playground	NYC Parks	✓	✓	✓	60
Mafera Park	Community Park	NYC Parks	✓	✓	✓	61
All Faiths Cemetery	Cemetery	Lutheran Cemetery	✓	✓	✓	62
P.S. 128	School Yard to Playground	NYCDOE	✓		✓	63
Elmhurst Park	Community Park	NYC Parks	✓	✓	✓	69
I.S. 5	School Yard to Playground	NYCDOE	✓	✓	✓	71

3.4.4 Conclusions and Next Steps

The preliminary open space screening assessment identified several areas for potential impacts along the IBX Corridor. Of the nine open space resources within ten feet of the alternatives, eight are located within ten feet of all three alternatives. One publicly-accessible open space resource, the P.S. 128 playground, is within ten feet of the BRT and LRT alternatives but not the CR alternative. While the BRT and LRT alternative have the potential to affect more open space resources than the CR alternative, the differences between the alternatives are not measurable. Further analysis would be performed during the NEPA environmental review to assess the potential for direct impacts on open space resources.

3.5 Historic and Cultural Resources

The historic and cultural resources review is focused on a preliminary screening-level review for the three alternatives. The Study Area for the analysis is based on a ½-mile radius around the IBX Corridor.

3.5.1 Existing Archaeological Resources

The IBX Corridor is currently used for active freight rail service. Initially constructed in the last quarter of the 19th century, the existing geometric alignment lengths along IBX Corridor are as follows, by operating environment:

- In cut section below street level – 42,864 feet 8.2 miles
- On embankment over street level – 26,717 feet 5.1 miles
- Tunnel Section – 6,712 feet 1.3 miles

The preliminary screening effort consisted of review of previously identified archaeological sites and previously conducted archaeological survey reports within the specified search area around the IBX Corridor. Similar environmental conditions within the IBX Corridor as those noted in the known archaeological site descriptions is an important factor during preliminary screening. An understanding of prior subsurface disturbances that have affected the IBX Project area is also an important factor during the screening because extensive prior disturbance would preclude the possibility of encountering intact archaeological resources that would meet National Register of Historic Places (National Register) eligibility criteria.

The Study Area was researched in the New York State Historic Preservation Office's (SHPO) Cultural Resource Information System (CRIS) website to identify any previously identified archaeological sites registered with the SHPO, the New York State Museum (NYSM), as well as NYSM Site Areas and Areas of Archaeological Sensitivity. CRIS also maps the locations of prior archaeological survey areas, and the resulting reports may be downloaded for reference. The New York City Landmarks Preservation Commission (LPC) online archive of archaeological reports was also consulted for relevant prior surveys conducted in proximity to the current IBX Corridor.

The following subsections provide the results of the CRIS search.

3.5.1.1 Previously Identified Archaeological Sites

The CRIS search revealed that there are few previously identified archaeological sites within the Study Area. However, there are multiple Areas of Archaeological Sensitivity that incorporate portions of the Study Area. **Table 10** details these known and potential resource areas.

Table 10: Archaeological Resources Within the Study Area

SHPO/NYSM Site Number	Site Name	Site Type	Location/Address	Date/Time Period	Description	National Register Status
04701.018702	Barkeloo Family Cemetery	Cemetery	Bay Ridge, Brooklyn	18th–19th Century	Currently located at the corner of Narrows Avenue and Mackay Place in Bay Ridge. On former Barkeloo homestead, in the former Yellow Hook section of the Town of New Utrecht. Revolutionary War-era through mid-19th Century.	Eligible
04701.020922	Keskaechqueren, Amersfoort, Historic Flatlands	Precontact burials; Contact Period Long House; 17th Century cemetery and church grounds	Flatlands, Brooklyn	Precontact; Historic 17th Century	Area of Historic Flatlands with high archaeological potential. Colonial period roads intersecting at this location include Flatlands Neck Road, Kings Highway, Flatbush Turnpike and Mill Road Lane.	Undetermined
04701.000023	Pieter Claeson Wyckoff House Museum	Homestead: House and 1.5 acres	5816 Clarendon Road, East Flatbush, Brooklyn	Historic 17th Century	Testing was conducted by NYU in 1972 during house stabilization efforts. Grounds surrounding house considered high archaeological potential for subsurface farmyard evidence and possible out-building remains. Site now the Pieter Claeson Wyckoff House Museum (2001).	NYC Landmark in 1965
08101.013079	Elmhurst African-American Cemetery	Cemetery and former Church grounds	Elmhurst Queens	Historic 19th Century	Former grounds of St. Mark A.M.E. Church, which stood until 1930. Permit application to move 300+ graves in 1930 was denied. Records indicate only 20 graves were moved to Mt. Olivet Cemetery. In 1931, the City de-mapped the cemetery, but the Elmhurst History and Cemeteries Preservation Society (EHCPS) is seeking to landmark the site, as of 2019.	No Status at Present
N/A	Area of Archaeological Sensitivity	N/A	Bay Ridge, Brooklyn	Historic 18th – 19th Century	Located near western end of IBX Corridor, area surrounding the Barkeloo Family Cemetery, and extends into the Study Area on south side of tracks.	N/A
N/A	Area of Archaeological	N/A	Flatlands, Brooklyn	Precontact Contact Historic 17th	Located in Historic Flatlands, area is centered around intersection of Flatbush Avenue and Kings	N/A

SHPO/NYSM Site Number	Site Name	Site Type	Location/Address	Date/Time Period	Description	National Register Status
	Sensitivity			Century	Highway and extends into the Study Area on south side of tracks.	
N/A	Area of Archaeological Sensitivity	N/A	East Flatbush, Brooklyn	Historic 17th Century	Area of Archaeological Sensitivity surrounding the Wyckoff House Museum Site at corner of Clarendon Road and Ralph Avenue, in the Study Area on north side of tracks.	N/A
N/A	Area of Archaeological Sensitivity	N/A	Canarsie, Brooklyn	Historic 19th Century Precontact	Area of Archaeological Sensitivity surrounding the partially impacted "Old Canarsie Cemetery"(1843) on 91st to 92nd streets and NYSM Site #3610, a Precontact Camp site identified by then State Archaeologist Arthur C. Parker in 1922, and extends into the Study Area on south side of tracks.	N/A
N/A	Area of Archaeological Sensitivity	N/A	Elmhurst, Queens	Historic 19th Century	Area of Archaeological Sensitivity surrounding the Elmhurst African-American Cemetery, which extends slightly into the Study Area on south side of tracks.	N/A
N/A	Area of Archaeological Sensitivity	N/A	East Elmhurst, Queens	Precontact Historic 19th Cemetery	Area of Archaeological Sensitivity surrounding NYSM Site #4533, a Precontact Shell Midden identified by then State Archaeologist Arthur C. Parker as ACP QUNS 10 and NYSM Site #5472, St. Michael's Cemetery, first established on 7-acres in 1852; now covers 88-acres. Area extends into the Study Area across its eastern end and along south side of tracks	N/A

Source: Cultural Resource Information System https://cris.parks.ny.gov/Login.aspx?ReturnUrl=%2f

3.5.1.2 Prior Archaeological Surveys Conducted in the Study Area

There are eight previous archaeological studies within the Study Area. The most relevant studies are two that include a portion of the IBX Corridor. In 2002, John Milner Associates, Inc. (JMA) completed the "*Cross Harbor Freight Movement Project: Phase IA Archaeological Assessment: Overhead Rail Clearances, Bay Ridge Line and the Montauk Branch of the Long Island Railroad, Brooklyn, Kings County, New York and Maspeth, Queens County, New York"* report for AKRF, Inc. Components of the project discussed in this report include the reconstruction of a series of overhead clearances along the Bay Ridge Line and a portion of the Montauk Branch of the LIRR, located in Kings and Queens Counties, New York. These components represent only a portion of the proposed improvement alternatives that comprise the larger project. Each of the alternatives studied for the larger project includes rail infrastructure improvements involving increased overhead clearance heights on the Bay Ridge Line of the LIRR and on a limited section of the Montauk Branch of the LIRR.

JMA concluded that it is unlikely that intact archaeological resources are present at the railroad clearance locations studied due to the extent of prior subsurface disturbance documented at the locations. No additional archaeological work was recommended for the proposed improvements to overhead clearances along the Bay Ridge Line and Montauk Branch of the LIRR. It is noted, however, that the vertical clearance locations studied by JMA are only a small portion of the IBX Corridor being assessed for the current PEL Study.

The second study that included part of the IBX Corridor was for the Cross Harbor Freight Movement Project in 2002. The report, *Phase IA Archaeological Assessment for the 65th Street Rail Yard, Bay Ridge Tunnel Alignment, Brooklyn, Kings County, New York*, was completed by JMA in April 2002. The Phase IA study for 65th Street Yard analyzed an area comprising the southern half of the yard including the project area between the 65th Street Yard and 9th Avenue.

Because a substantial degree of subsurface ground disturbance was documented, the 2002 Phase IA Study concluded that the portions of the rail yard studied possessed low sensitivity for precontact period archaeological deposits. A portion of the rail yard was considered sensitive for transportation related or industrial sites associated with the 1870s construction of the rail yard, the 1880s burning and rebuilding of the rail yard, and use of the railroad depot and yard in the late 19th century. The entire rail yard was not included in this study; therefore, additional archaeological documentary research would likely be required to assess the archaeological sensitivity of this area for the IBX Project.

In 2016, Joan H. Geismar, Ph.D., LLC completed the report *The Evergreens Cemetery Phase IA Survey, An Archaeological Assessment of Beacon Hill and Lawn Side* for the Trustees of The Evergreens Cemetery, Brooklyn. Phase IA survey documentation addressed the archaeological potential of the Beacon Hill and Lawn Side sections in the Evergreens Cemetery, both located on the Brooklyn side of the line that divides Kings and Queens Counties. It is noted in the report that the potential for Native American archaeological resources was identified by the LPC throughout the 225-acre cemetery. The potential for encountering evidence of British Army activity during the American Revolution was also noted for the area along the Rockaway Footpath associated with the August 1776 Battle of Brooklyn.

The report concludes that subsequent ground disturbance most likely eliminated the potential for encountering intact archaeological resources in both locations. The studied portion of Beacon Hill in the southeastern portion of the cemetery was extensively impacted by the 1934 construction of the Interborough Parkway (subsequently renamed the Jackie Robinson Parkway), and the effects of Superstorm Sandy in 2012. The studied portion of Lawn Side in the southwestern portion of the cemetery was impacted by extensive grading during landscape alterations involving the removal of

hills and a documented water source from the location. The exact amount of grading is not known, but historic topographic maps show significant elevation changes. The report also states that undocumented burials and scattered human remains might be present, and isolated Native American and historic period artifacts could be encountered in either location.

In 2014, AKRF, Inc. completed the *Phase IA Archaeological Documentary Study, Our Lady of Lourdes Apartments, Block 3468, Lots 1 and 50, 1 De Sales Place, Brooklyn, Kings County, New York.* Georgica Green Ventures, LLC, proposed to construct an affordable housing project at the Our Lady of Lourdes site at 1 De Sales Place in the Bushwick section of Brooklyn, Kings County, New York. The project would involve the construction of an apartment complex on the grounds of the existing Our Lady of Lourdes Church, which is bounded by Broadway, De Sales Place, Bushwick Avenue, and Aberdeen Street. The SHPO was asked to provide a preliminary assessment of the project site's archaeological sensitivity. In a comment letter dated January 7, 2013, SHPO recommended that a Phase 1 archaeological survey of the site be prepared to document disturbance to the project site and to identify any intact archaeological resources that may be present. No areas of archaeological sensitivity were identified through the Phase IA research; therefore, Phase 1B archaeological subsurface testing was not recommended. The report was also submitted to the LPC for review and comment.

In 2013, Historical Perspectives Inc. (HPI) completed the *Memorandum: Preliminary Assessment/ Disturbance Record, Proposed New PS/IS 511a +6002, Fort Hamilton Parkway, Brooklyn, Kings County, New York.* The New York City School Construction Authority (SCA) proposed the construction of Public School/Intermediate School (PS/IS) 511 by acquiring one parcel identified on tax maps as Block 5715, Lot 27. The parcel is bounded by 60th Street, 61st Street, Fort Hamilton Parkway, and 9th Avenue. The research completed indicated that the project site was extensively disturbed from construction and alterations to former buildings, many of which contained basements. Soil boring data reviewed indicated that fill deposits were present on site, from 6.5 feet to 14 feet below existing grade. It was concluded that the site possessed low potential for intact precontact and historic period archaeological resources, and no further archaeological work was recommended.

In 1999 and updated in 2001, HPI conducted the *Stage IA and Stage IB Field Survey, Public School/ Intermediate School 66-K, Brooklyn, New York* survey for AKRF, Inc*.* The New York City SCA proposed the construction of PS/IS 66-K on Block 8129 in Canarsie. The project site is bounded by Rockaway Parkway, Foster Avenue, East 96th Street, and former Ames Lane, now an alley on Block 8129. The 1999 Stage IA research determined that there were discrete areas of potential archaeological sensitivity for historic resources associated with residential occupations c. 1870 through c. 1929. These areas were proposed for Stage IB subsurface testing to determine the presence or absence of archaeological deposits and/or features associated with the former residences.

During 2001, a Stage IB survey was completed for the project site. The survey included review of soil boring data, which revealed a series of undocumented fill episodes at least 7 feet deep. The subsurface testing consisted of six backhoe trenches in the sensitive portions of the project site. The trenching revealed recent trash and demolition debris and fill deposits; no *in situ* historic finds were encountered. No clearly defined 19th century living surfaces were identified in either the soil boring data or the backhoe trenches. No additional archaeological work was recommended.

In 2010, and updated in 2018, Daniel Pagano, Ph.D., of the LPC prepared the *NA NMAI Keskaechqueren, Amersfoort, Historic Flatlands Landscape Polygon Preliminary Archaeological Survey.* According to the documentation compiled for this preliminary survey, Prehistoric Flatlands was the site of a freshwater spring heading a brook that once flowed easterly towards the marine

estuary and tidal basin of present-day Jamaica Bay. It is noted that Native American villages, habitation, and camp sites were typically located on uplands adjacent to springs and creeks that fed a marine estuary. The Historic Flatlands area is documented to have Precontact Burials; a Contact Period Long House; 17th Century cemetery and church grounds. Colonial period roads intersecting at the center of this area include Flatlands Neck Road, Kings Highway, Flatbush Turnpike and Mill Road Lane.

As stated in the survey text, the presence of a freshwater spring and adjacent Native American trails indicates that this study area was likely settled by Native Americans for hunting, gathering and agriculture thousands of years before colonial settlers established their farmsteads here. Recommendations include the completion of a pedestrian survey to walk potential site locations and other present day open spaces in the Historic Flatlands area. One purpose is to see if any original landscape appears to be present with artifacts on the surface or if additional field testing should be conducted in locations where visual indicators are indeterminate.

In 1973, Bert Salwen of NYU prepared the *NYSHPO Archaeological Site Form (04701.000023) for the Peter Claeson Wyckoff House* (c.1652), corner of Clarendon Road and Ralph Avenue. Subsurface testing was conducted in 1972 in the former farmyard and identified possible outbuildings associated with the 17th Century homestead. At that time, attempts were being made to stabilize the house structure, which was in a poor state of repair. After surviving a fire in the late 1970s, the house was finally restored in the 1980s. Since 2001, the house has been opened regularly as a public museum on 1.5-acre grounds. The grounds retain high archaeological potential.

3.5.2 Existing Historic Architectural Resources

3.5.2.1 Known Historical Architectural Resources

The Study Area was researched in SHPO's CRIS website to identify known resources situated within ½-mile of the IBX Corridor. Seventy-eight are located in the Borough of Brooklyn, Kings County, and 36 are located in the Borough of Queens, Queens County. These resources include National Register-listed and National Register-eligible resources protected by SHPO, and designated buildings, structures, and historic districts protected by LPC, and one National Historic Landmark. Several resources share both National Register and LPC designations. **Table 11** provides a list of the resources in Brooklyn, and **Table 12** provides a list of resources in Queens. **Figure 13** through **Figure 20** depict the location of the resources.

Figure 13: Known Historic Architectural Resources in the Study Area (1 of 8)

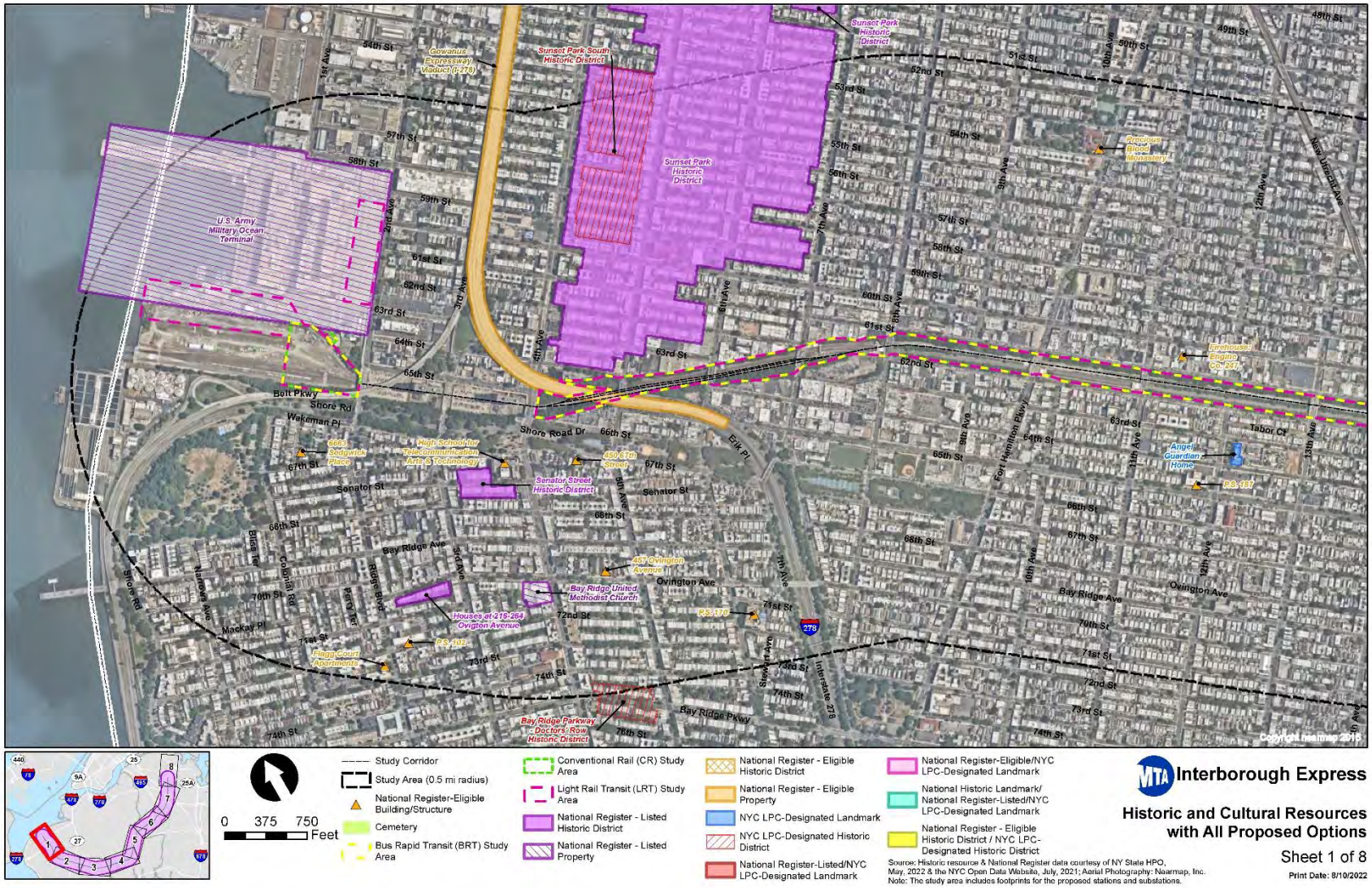

Figure 14: Known Historic Architectural Resources in the Study Area (2 of 8)

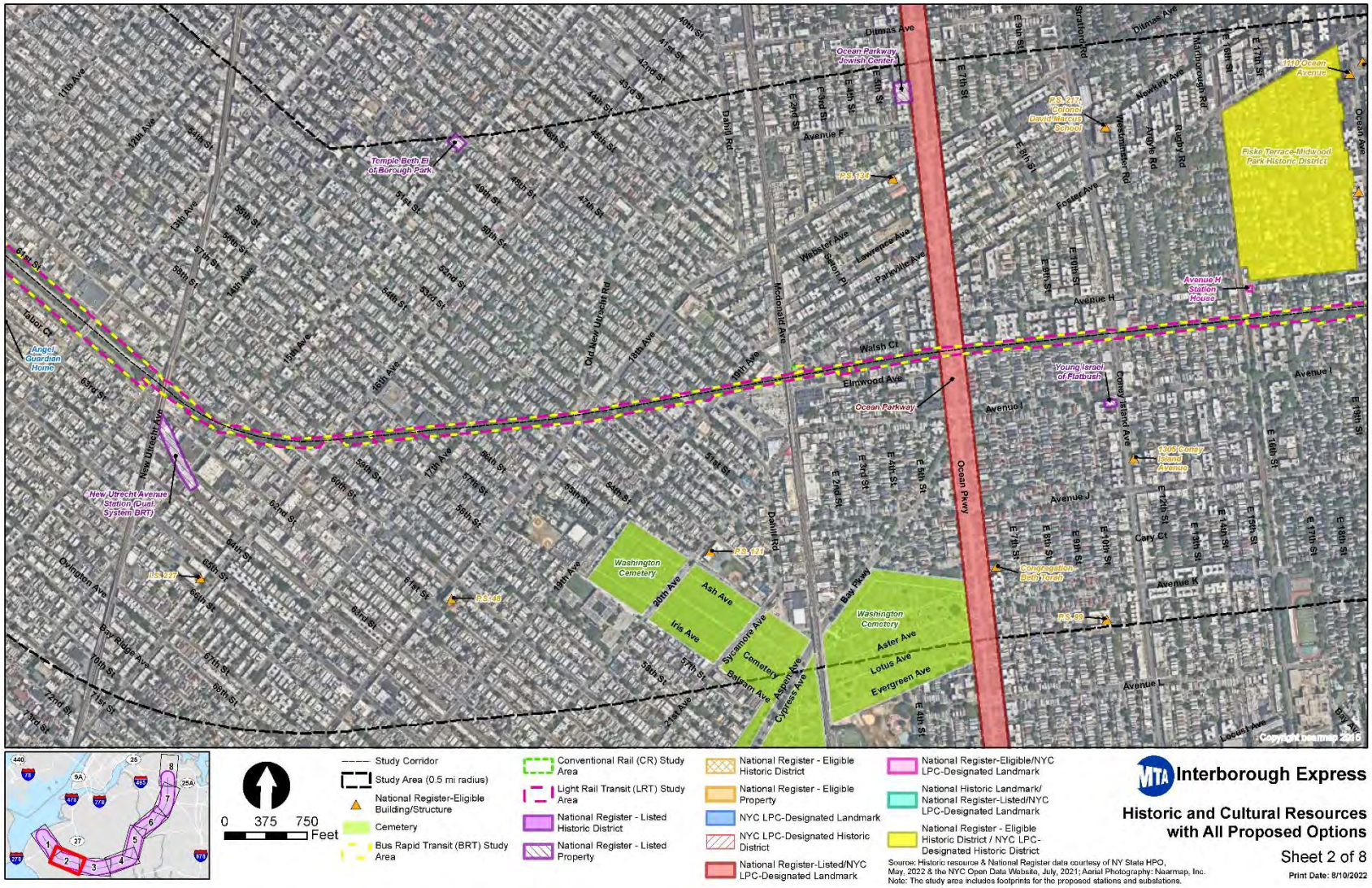

Figure 15: Known Historic Architectural Resources in the Study Area (3 of 8)

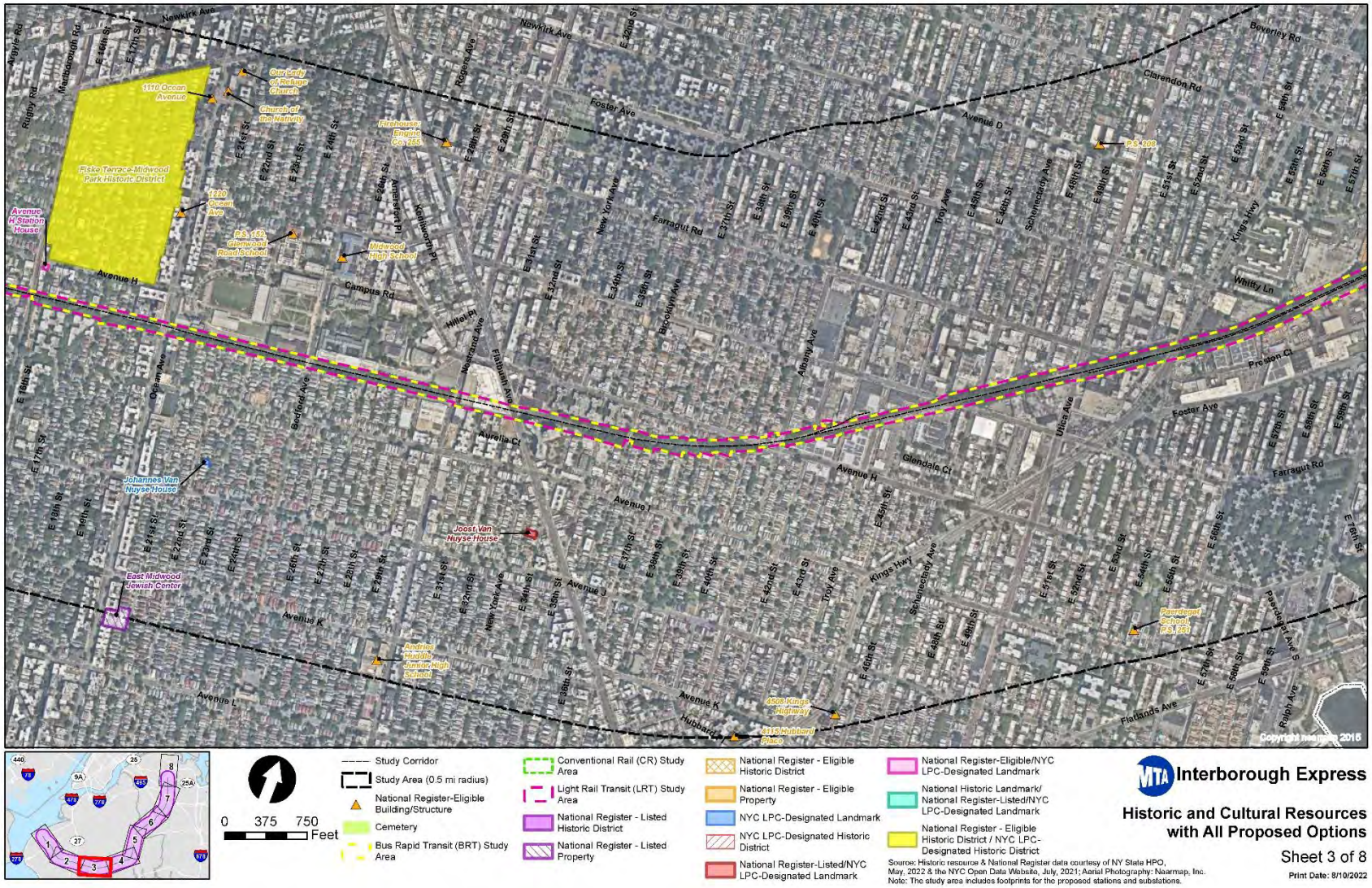

Figure 16: Known Historic Architectural Resources in the Study Area (4 of 8)

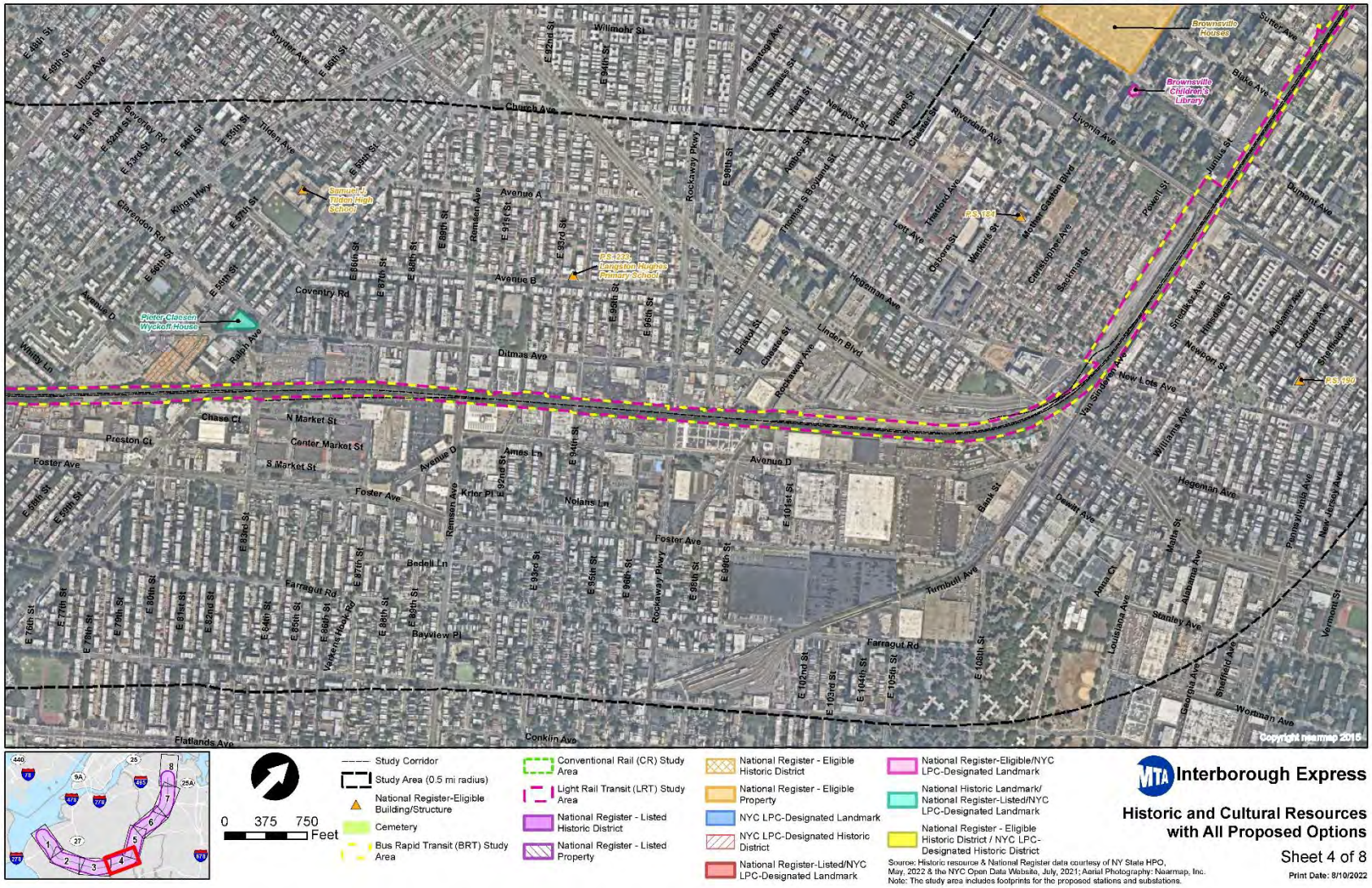

Figure 17: Known Historic Architectural Resources in the Study Area (5 of 8)

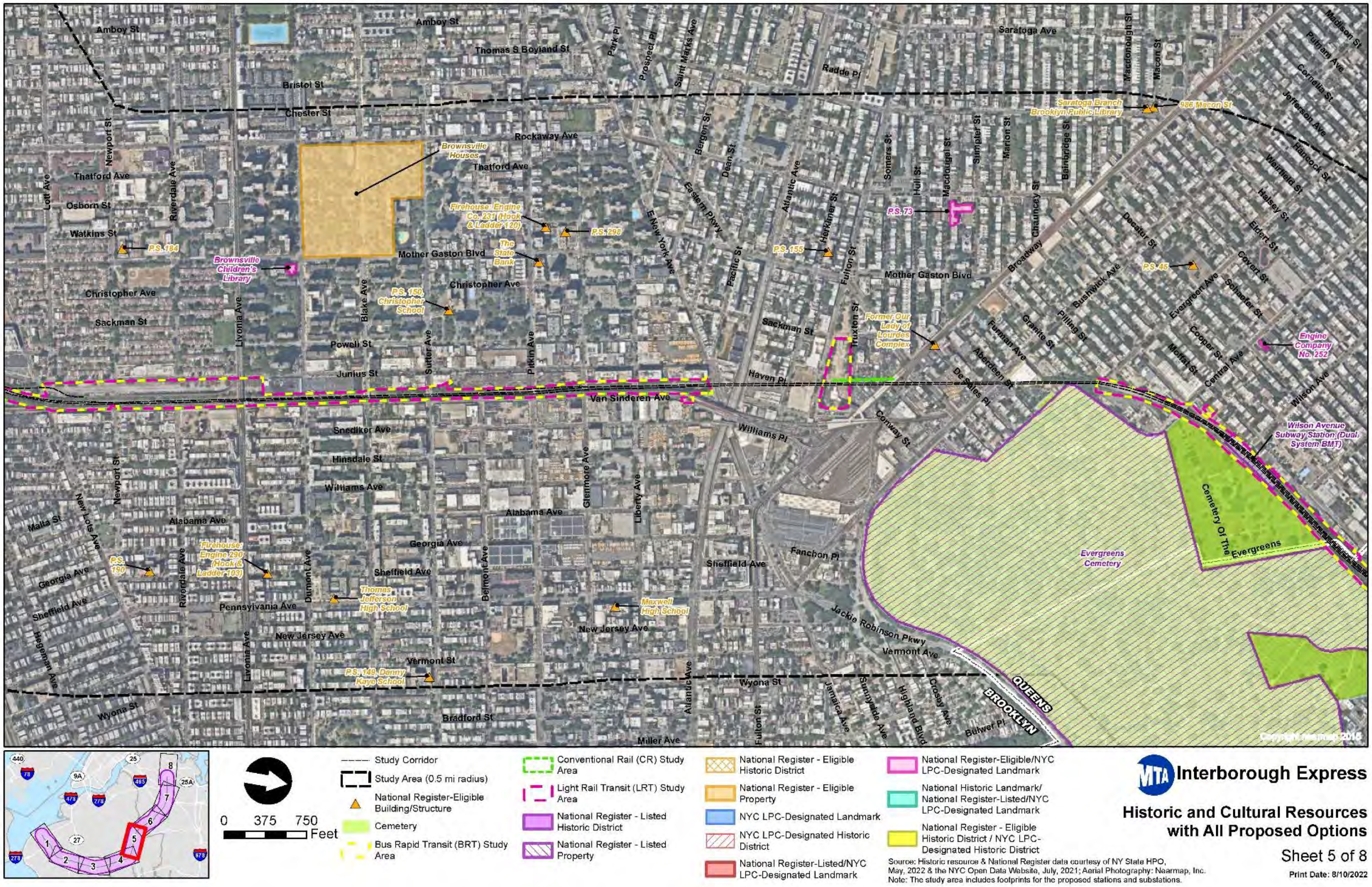

Figure 18: Known Historic Architectural Resources in the Study Area (6 of 8)

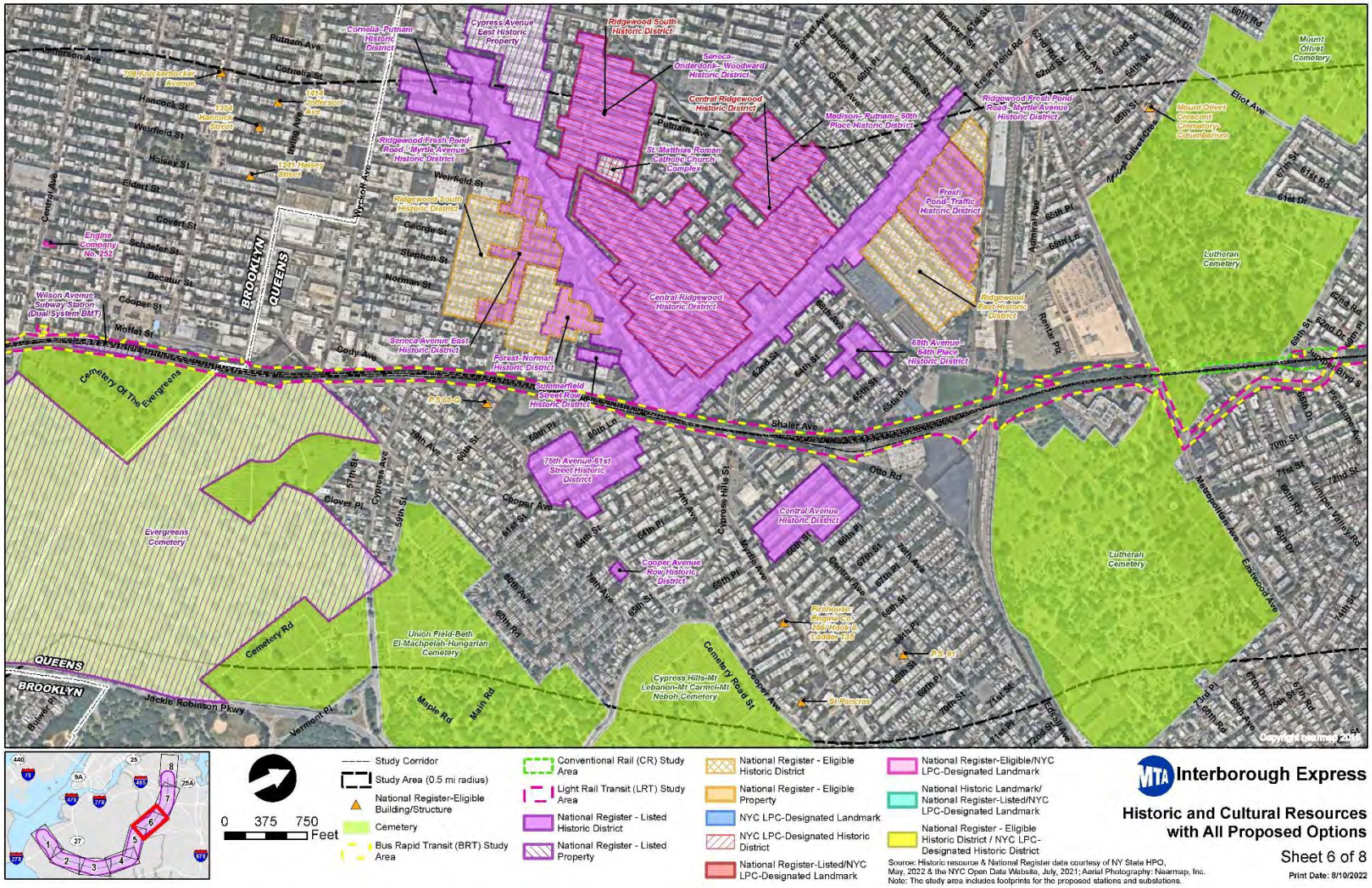

Figure 19: Known Historic Architectural Resources in the Study Area (7 of 8)

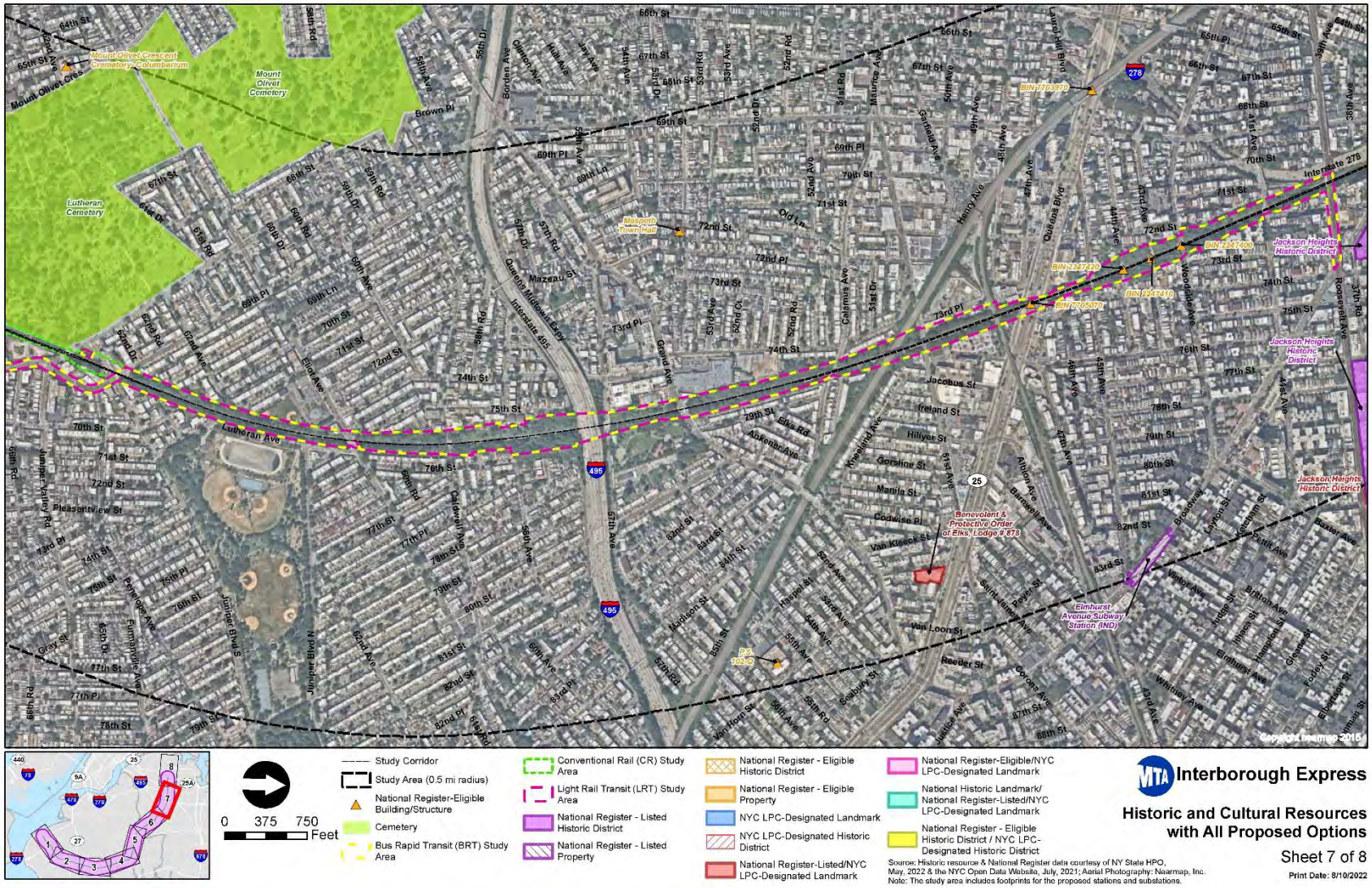

Figure 20: Known Historic Architectural Resources in the Study Area (8 of 8)

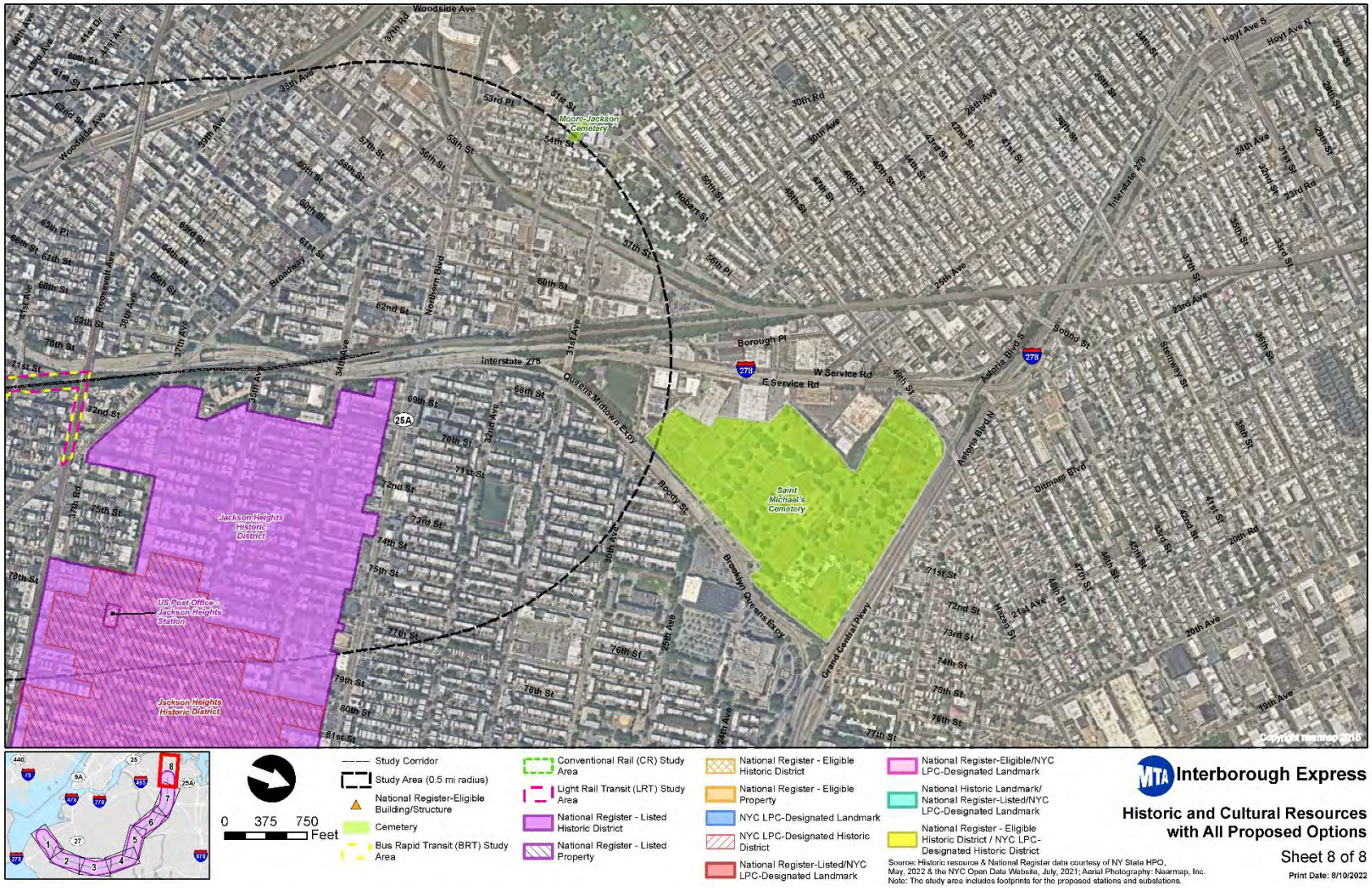

Table 11: Historic Architectural Resources in Study Area (Brooklyn, New York)

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
1100 Ocean Avenue	1100 Ocean Avenue	National Register-eligible Building	04701.023803
1220 Ocean Avenue	1220 Ocean Avenue	National Register-eligible Building	04701.023794
1241 Halsey Street	1241 Halsey Street	National Register-eligible Building	04701.015966
1305 Coney Island Avenue	1305 Coney Island Avenue	National Register-eligible Building	04701.017114
1354 Hancock Street	1354 Hancock Street	National Register-eligible Building	04701.017097
1414 Jefferson Avenue	1414 Jefferson Avenue	National Register-eligible Building	04701.017105
4115 Hubbard Place	4115 Hubbard Place	National Register-eligible Building	04701.023777
450 67th Street	450 67th Street	National Register-eligible Building	04701.018692
4508 Kings Highway	4508 Kings Highway	National Register-eligible Building	04701.023869
457 Ovington Avenue	457 Ovington Avenue	National Register-eligible Building	04701.018684
6663 Sedgwick Place	6663 Sedgwick Place	National Register-eligible Building	04701.014879
708 Knickerbocker Avenue	708 Knickerbocker Avenue	National Register-eligible Building	04701.015965
986 Macon Street	986 Macon Street	National Register-eligible Building	04701.013591
Andries Huddle Junior High School	1137 East 29th Street	National Register-eligible Building	04701.022873
Angel Guardian Home	6301 12th Avenue	LPC-Designated Landmark	LP-2613
Avenue H Station House	802 East 16th Street	National Register-eligible/LPC-designated Landmark	04701.019081/LP-02158
Bay Ridge Parkway – Doctors' Row Historic District	Along Bay Ridge Parkway between 4th and 5th Avenues	LPC-designated Historic District	LP-02631
Bay Ridge Methodist Church	7420 4th Avenue	National Register-listed Property	99NR01471
Brownsville Children's Library	581 Mother Gaston Boulevard	National Register-eligible/LPC-designated Landmark	04701.018445/LP-02568
Brownsville Houses	307 Blake Avenue	National Register-eligible Property	04701.020144
Church of the Nativity	1099 Ocean Avenue	National Register-eligible Building	04701.018488
Congregation Beth Torah	1061 Ocean Parkway	National Register-eligible Building	04701.019416
Dr. Maurice T. Lewis House	404 55th Street	LPC-designated Landmark	LP-2608
East Midwood Jewish Center	1625 Ocean Avenue	National Register-listed Property	06NR05561
Engine Company 252	617 Central Avenue	National Register-eligible/LPC-designated Landmark	04701.0001 40, LP-01931
Evergreens Cemetery	1629 Bushwick Avenue	National Register-listed Property	07NR05770

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
	Spans Brooklyn and Queens		
Firehouse: Engine 290 (Hook & Ladder 103)	480 Sheffield Street	National Register-eligible Building	04701.000142
Firehouse: Engine Co. 231 (Hook & Ladder 120)	107 Watkins Street	National Register-eligible Building	04701.000141
Firehouse: Engine Co. 247	1136 60th Street	National Register-eligible Building	04701.000152
Firehouse: Engine Co. 255	1367 Rogers Avenue	National Register-eligible Building	04701.000145
Fiske Terrace-Midwood Park Historic District	Foster Avenue to the north, Avenue H to the south, and lots along 19th Street to the east, and lots along 17th Street and cross streets to the west	National Register-eligible/LPC-designated Historic District	04701.020925/LP-02208
Flagg Court Apartments	7200 Ridge Boulevard	National Register-eligible Building	04701.018693
Former Our Lady of Lourdes Complex	1 DeSales Place	National Register-eligible Building	04701.017285
Gowanus Expressway (Interstate 278) Viaduct	Extends from 65th Street to the Prospect Expressway	National Register-eligible Property	04701.024193
High School for Telecommunications Arts & Technology	350 67th Street	National Register-eligible Building	04701.015562
Houses at 216-264 Ovington Avenue	216-264 Ovington Avenue	National Register-listed Historic District	06NR05692
I.S. 227	6500 16th Avenue	National Register-eligible Building	04701.015524
Johannes Van Nuyse House	150 Amersfort Place	LPC-designated Landmark	LP-00175
Joost Van Nuyse House	1128 East 34th Street	National Register-listed/LPC-designated Landmark	05NR05555/LP-0176
Maxwell High School	145 Pennsylvania Avenue	National Register-eligible Building	04701.013521
Midwood High School	2502 Glenwood Road	National Register-eligible Building	04701.000524
New Utrecht Avenue Station	Between New Utrecht Avenue and 5th Avenue	National Register-listed Property	04NR05367

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
Ocean Parkway • **Ocean Parkway Bridge over LIRR Bayridge Branch (BIN 2243439) has not been evaluated for individual National Register eligibility; bridge is situated within historic Ocean Parkway**	Between Church Avenue to the north and Seabreeze Avenue to the south	National Register-listed/LPC-designated Scenic Landmark	90NR01303/LP-0871
Ocean Parkway Jewish Center	550 Ocean Parkway	National Register-listed Property	09NR06023
Our Lady of Refuge Church	1087 Ocean Avenue	National Register-eligible Building	04701.023802
Paerdegat School, P.S. 251	1037 East 54th Street	National Register-eligible Building	04701.017343
Pieter Claesen Wyckoff House	5816 Clarendon Road	National Historic Landmark/National Register-listed/LPC-designated Landmark	90NR01350/LP-0001
Precious Blood Monastery	5400 Fort Hamilton Parkway	National Register-eligible Building	04701.017148
P.S 73	251 MacDougal Street	LPC-designated Landmark	04701.013735/LP-01289
P.S. 102	211 72nd Street	National Register-eligible Building	04701.01634
P.S. 121	5301 20th Avenue	National Register-eligible Building	04701.020232
P.S. 134	4001 18th Avenue	National Register-eligible Building	04701.015602
P.S. 149, Danny Kaye School	700 Sutter Avenue	National Register-eligible Building	04701.016472
P.S. 150, Christopher School	364 Sackman Street	National Register-eligible Building	04701.019127
P.S. 152, Glenwood Road School	2310 Glenwood Road	National Register-eligible Building	04701.012848
P.S. 155	1355 Herkimer Street	National Register-eligible Building	04701.01544
P.S. 170	7109 6th Avenue	National Register-eligible Building	04701.018697
P.S. 184	273 Newport Street	National Register-eligible Building	04701.013531
P.S. 187	1171 65th Street	National Register-eligible Building	04701.015021
P.S. 190	590 Sheffield Avenue	National Register-eligible Building	04701.013516
P.S. 208	4801 Avenue D	National Register-eligible Building	04701.017397
P.S. 217, Colonel David Marcus School	1100 Newkirk Avenue	National Register-eligible Building	04701.011211
P.S. 233, Langston Hughes Primary School	9301 Avenue B	National Register-eligible Building	04701.014775
P.S. 298	85 Watkins Street	National Register-eligible Building	04701.016339
P.S. 45	84 Schaefer Street	National Register-eligible Building	04701.024786

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
P.S. 48	6015 18th Avenue	National Register-eligible Building	04701.016613
P.S 99	1120 East 10th Street	National Register-eligible Building	04701.017391
Samuel J. Tilden High School	5800 Tilden Avenue	National Register-eligible Building	04701.015002
Saratoga Branch, Brooklyn Public Library	8 Hopkinson Avenue	National Register-eligible Building	04701.012898
Senator Street Historic District	North and south sides of Senator Street between 3rd and 4th Avenues	National Register-listed Historic District	02NR04905
Sunset Park Historic District	Bounded by 39th Street to the north; 64th Street to the south; west of 7th Avenue to the east, and 4th Avenue to the west	National Register-Listed Historic District	90NR01310
Sunset Park Historic District	Within larger National Register-listed historic district; bounded by 54th Street to the north; 59th Street to the south; 5th Avenue to the east; and 4th Avenue to the west	LPC-designated Historic District	LP-02622
Temple Beth El of Borough Park	4802 15th Avenue	National Register-listed Property	09NR06084
The State Bank	1789-1797 Pitkin Avenue	National Register-eligible Building	04701.016702
Thomas Jefferson High School	400 Pennsylvania Avenue	National Register-eligible Building	04701.015083
U.S. Army Military Ocean Terminal (Brooklyn Army Terminal)	140 58th Street	National Register-listed Property	90NR01314
Wilson Avenue Subway Station	Northeast of Cemetery of the Evergreens	National Register-listed Property	04NR05364
Young Israel of Flatbush	1012 Avenue I	National Register-listed Property	09NR06066

Table 12: Historic Architectural Resources in Study Area (Queens, New York)

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
Benevolent and Protective Order Of Elks, Lodge #878	82-10 Queens Boulevard	National Register-listed/LPC-designated Landmark	14NR06579/LP-2086
Bridge Identification Number (BIN) 2247400	Carries Woodside Avenue over CSX Transportation/CPR&P&W Railroad	National Register-eligible Structure	08101.011985
BIN 2247410	Carries 43rd Avenue over over CSX Transportation/CPR&P&W Railroad	National Register-eligible Structure	08101.011986
BIN 2247420	Carries 44th Avenue over CSX Transportation/CPR&P&W Railroad	National Register-eligible Structure	08101.011987
BIN 77003970	Carries LIRR Main Line over Queens Boulevard	National Register-eligible Structure	08101.009222
BIN 7705070	Carries NY Connecting Railroad over Queens Boulevard	National Register-eligible Structure	08101.009643
Cooper Avenue Row Historic District	South side of Cooper Avenue	National Register-listed Historic District	90NR01597
Elmhurst Avenue Subway Station	Corner of Elmhurst Avenue/45th Avenue and Broadway	National Register-listed Property	04NR05377
Firehouse: Rescue Engine No. 4/Engine Co. 292	64-18 Queens Boulevard	National Register-eligible Building	08101.000114
Firehouse: Engine Co. 286/Hook & Ladder 135	66-44 Myrtle Avenue	National Register-eligible Building	08101.000119
Jackson Heights Historic District	Bounded by Northern Boulevard to the north; Roosevelt Avenue to the south; 90th Street to the east; and 69th Street and Broadway to the west	National Register-listed Historic District	98NR01367

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
Jackson Heights Historic District	Within larger National Register-listed historic district; bounded by 34th Avenue and Northern Boulevard to the north; north of Roosevelt Avenue to the south; 88th Street to the east; and 76th Street to the west	LPC-designated Historic District	LP-01831
Maspeth Town Hall	53-37 72nd Street	National Register-eligible Building	08101.012436
Mount Olive Crescent Crematory – Columbarium	61-40 Mt. Olive Crescent	National Register-eligible Structure	08101.006129
P.S. 68-Q	59-09 St. Felix Avenue	National Register-eligible Building	08101.009787
P.S. 102-Q	55-24 Van Horn Street	National Register-eligible Building	08101.011186
P.S. 91	68-10 Central Avenue	National Register-eligible Building	08101.009204
St. Matthias Roman Catholic Church Complex	5815 Catalpa Avenue	National Register-listed Property	12NR06354
St. Pancras	72-30 68th Street	National Register-eligible Building	08101.011205
U.S. Post Office – Jackson Heights Station	78-02 37th Avenue	National Register-listed Property	90NR01616

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
Ridgewood Neighborhood Historic Districts			
75th Avenue-61st Street Historic District	Sixteen adjacent historic districts with separate boundaries. These districts are generally situated along Myrtle Avenue, Cypress Avenue, Fresh Pond Road, Onderdonk Avenue, Seneca Avenue, Central Avenue, 60th Lane, 60th Place, 61st Street, 65th Place, 69th Avenue, 70th Avenue, 71st Avenue, 75th Avenue, Putnam Avenue and Madison Street. Three districts are situated close to the IBX Project alternatives: • Ridgewood Fresh Pond Road-Myrtle Avenue Historic District is situated just west of IBX Corridor. • 75th Avenue-61st Street Historic District is situated just east of IBX Corridor • Central Avenue Historic District is situated just east of IBX Corridor	National Register-listed Historic District	90NR01594
Central Avenue Historic District		National Register-listed Historic District	90NR01595
Central Ridgewood Historic District		National Register-listed Historic District	90NR01596
Central Ridgewood Historic District		LPC-designated Historic District	LP-02448
Cornelia-Putman Historic District		National Register-listed Historic District	90NR01598
Cypress Avenue Historic District		National Register-listed Historic District	90NR01599
Forest-Norman Historic District		National Register-listed Historic District	90NR01601
Fresh Pond-Traffic Historic District		National Register-listed Historic District	90NR01602
Madison-Putnam-60th Place Historic District		National Register-listed Historic District	90NR01604
Ridgewood East Historic District		National Register-eligible Historic District	08101.013218
Ridgewood Fresh Pond Road-Myrtle Avenue Historic District		National Register-listed Historic District	21NR00067
Ridgewood South Historic District		National Register-eligible Historic District	08101.013219
Ridgewood South Historic District		LPC-designated Historic District	LP-02348
Seneca-Onderdonk-Woodward Historic District		National Register-listed Historic District	90NR01606

Resource Name	Location	Historic Status	SHPO Number (Unique Site Number or National Register Number) LPC Number (LP Number)
Seneca Avenue East Historic District		National Register-listed Historic District	90NR01605
Summerfield Street Row Historic District		National Register-listed Historic District	90NR01607

Source: Cultural Resource Information System https://cris.parks.ny.gov/Login.aspx?ReturnUrl=%2f

3.5.2.2 Bridges and Other Structures in the IBX Corridor

Over 100 bridges are situated within the ½-mile Study Area, and 82 bridges are within the IBX Corridor. Five bridges in the Study Area, including four within the IBX Corridor, have been determined National Register-eligible in Queens as indicated in **Table 12.**

Seventy-six of the 82 bridges in the IBX Corridor have assigned bridge identification numbers (BINs). Six of the 82 bridges have no assigned BINS. Forty of the bridges have been determined ineligible for listing in the National Register according to New York State Department of Transportation (NYSDOT) statewide inventory of historic bridges. The survey was undertaken by NYSDOT, in cooperation with Federal Highway Administration (FHWA) and SHPO, between 1999 and 2002. The survey identified and evaluated bridges erected prior to 1961. As noted above, four within the IBX Corridor in Queens have been determined National Register-eligible. Thirty-eight of the 82 bridges have not been evaluated for National Register eligibility to date.

Table 13 provides a list of 82 bridges with designated BINs, if applicable, and their year of construction based on the New York State Bridges geographic information system (GIS) point layer available through the GIS.NY.GOV website. In some cases, two construction dates have been provided where the construction date in NYSDOT BIN layer in CRIS conflicts with New York state Bridges GIS. The table also indicates the National Register evaluation status according to 2002 NYSDOT statewide inventory of historic bridges and CRIS, as applicable.

In addition to the 82 bridges, the East New York Tunnel is situated within the IBX Corridor in Brooklyn. The ½-mile long tunnel, constructed between 1914 and 1918, begins south of Liberty Avenue, and terminates east of the Evergreen Avenue/Pilling Street intersection. To date, the tunnel has not been surveyed or evaluated for National Register eligibility, and is not documented on SHPO's online CRIS

In April 2022, a route video was created to document the existing conditions of the Bay Ridge Branch portion of the IBX corridor. Images of each of the overhead structures along the Bay Ridge Branch annotated with their BINs have been included in **Appendix A.**

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Table 13: Bridges within the IBX Corridor

West (South) to East (North)	BIN	Crossing/ Borough	Year Built	National Register Evaluation Status According to 2002 NYSDOT Bridge Survey and CRIS Website
1	2243310	2nd Avenue over Railroad (RR) /Brooklyn	1912	Not evaluated in 2002 because situated near National Register-listed Brooklyn Army Terminal/Unevaluated
2	2243320	3rd Avenue over RR/Brooklyn	1914	Not eligible
3	Not applicable	Bay Ridge Towers Overbuild between 3rd and 4th Avenues/Brooklyn	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
4	2243330	4th Avenue over RR/Brooklyn	1919	Not eligible
5	2243580	5th Avenue over RR/Brooklyn	1914	Determined not eligible on 8/10/2021; bridge was not evaluated in 2002 survey because of its close proximity to the National Register-listed Sunset Park Historic District
6	2243590	6th Avenue over RR/Brooklyn	1927 (CRIS) 1912 (NYS Bridge GIS)	Not eligible
7	2243600	7th Avenue over RR/Brooklyn	1909	Not eligible
8	Not applicable	N Train/8th Avenue/ Brooklyn	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
9	2243610	8th Avenue over RR/Brooklyn	1912	Not eligible
10	2243620	Fort Hamilton Parkway over RR/Brooklyn	1984	Not included in 2002 survey; erected after 1961 cut-off date/Unevaluated
11	2243630	11th Avenue over RR/Brooklyn	1906	Not eligible
12	2243640	13th Avenue over RR/Brooklyn	1930	Not eligible
13	2243650	14th Avenue over RR/Brooklyn	1927 (CRIS) 2004 (NYS Bridge GIS; bridge likely replaced in 2004)	Not eligible
14	2243660	New Utrecht Avenue over RR/Brooklyn	1905	Not eligible
15	2243340	15th Avenue over RR/Brooklyn	1907	Not eligible
16	2243350	60th Street over RR/ Brooklyn	1907	Not eligible

West (South) to East (North)	BIN	Crossing/ Borough	Year Built	National Register Evaluation Status According to 2002 NYSDOT Bridge Survey and CRIS Website
17	2243360	16th Avenue over RR/Brooklyn	1909	Not eligible
18	2243370	17th Avenue over RR/Brooklyn	1906	Not eligible
19	2243380	18th Avenue over RR/Brooklyn	1908	Not eligible
20	2243390	52nd Street over RR/ Brooklyn	1906	Not eligible
21	2243400	50th Street over RR/ Brooklyn	1927	Not eligible
22	2243410	McDonald Avenue over RR/Brooklyn	1907	Not eligible
23	2243420	East 3rd Street over RR/Brooklyn	1906	Not eligible
24	2243439	Ocean Parkway over RR/Brooklyn	1894	Not evaluated in 2002 because situated in National Register-listed/LPC-designated Ocean Parkway/Unevaluated
25	2243440	Coney Island Avenue over RR/ Brooklyn	1908	Not eligible
26	2243450	East 14th Street over RR/Brooklyn	1908	Not eligible
27	2243460	East 15th Street over RR/Brooklyn	1920	Not eligible
28	Not applicable	NYCT B/Q Lines over RR/ Brooklyn	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
29	2243480	Ocean Avenue over RR/Brooklyn	1908	Not eligible
30	2243490	Bedford Avenue over RR/Brooklyn	1916	Not eligible
31	2243500	Nostrand Avenue over RR/Brooklyn	1909	Not eligible
32	2243510	Flatbush Avenue over RR/Brooklyn	1908	Not eligible
33	2243520	Brooklyn Avenue over RR/Brooklyn	1908	Not eligible
34	2243530	Albany Avenue over RR/Brooklyn	1906	Not eligible
35	7702770	RR over Glenwood Avenue/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated

West (South) to East (North)	BIN	Crossing/ Borough	Year Built	National Register Evaluation Status According to 2002 NYSDOT Bridge Survey and CRIS Website
36	7702760	RR over Utica Avenue/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
37	7702750	RR over Kings Highway/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
38	7702740	RR over Ralph Avenue/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
39	7702730	RR over East 83rd Street/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
40	7702720	RR over Remsen Avenue/Brooklyn	1907	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
41	7702710	RR over East 92nd Street/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
42	7702700	RR over East 94th Street/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
43	7702680	RR over Rockaway Avenue/Brooklyn	1906	Not evaluated in 2002 survey; excluded because it is RR bridge/Unevaluated
44	7702670	RR over Linden Boulevard/Brooklyn	1930	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
45	7702662	RR over New Lots Avenue/Brooklyn	1906	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
46	Not applicable	NYCT Yard Lead adjacent to L-Train/ Brooklyn	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
47	Not applicable	NYCT #3 Line/Brooklyn	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
48	2243900	Blake Avenue over RR/Brooklyn	1909	Not eligible
49	2243890	Sutter Avenue over RR/Brooklyn	1909	Not eligible
50	2243870	Pitkin Avenue over RR/Brooklyn	1915	Not eligible
51	2243860	Glenmore Avenue over RR/Brooklyn	1930	Not eligible
52	2243850	Liberty Avenue over RR/Brooklyn	1909	Not eligible
53	7702691	RR over Central Avenue/Brooklyn	1925	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated

West (South) to East (North)	BIN	Crossing/ Borough	Year Built	National Register Evaluation Status According to 2002 NYSDOT Bridge Survey and CRIS Website
54	7705190	RR over Cooper Avenue/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/Unevaluated
55	7705180	RR over Cypress Avenue/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
56	7705170	RR over Seneca Avenue/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
57	7705160	RR over Forest Avenue/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
58	7705150	RR over Myrtle Avenue/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
59	7705140	RR over Cypress Hills Street/Queens	1913	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
60	7703632	RR over 65th Street/ Queens	1917	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
61	7703631	RR over 65th Street/ Queens	1917	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
62	Not applicable	CSX RR Bridge over Lower Montauk Secondary/Queens	Unknown	Not included in 2002 survey because it has no BIN/Unevaluated
63	2247500	Metropolitan Avenue over RR/Queens	1916	Not evaluated in 2002 survey because it is a tunnel/Unevaluated
64	2247510	Cemetery Road over RR/Queens	1917	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
65	2247490	69th Street over RR/Queens	1917	Not eligible
66	2247480	Juniper Boulevard S over RR/Queens	1916	Not eligible
67	2247470	Eliot Avenue over RR/Queens	1938	Not eligible
68	2247460	Caldwell Avenue over RR/Queens	1916	Not eligible
69	1065873	I-495 over RR/Queens	1988	Not included in 2002 survey; erected after 1961 cut-off date/Unevaluated
70	1065872	I-495 over RR/Queens	1954	Not included in 2002 survey/Unevaluated
71	1065871	I-495 over RR/Queens	1988	Not included in 2002 survey; erected after 1961 cut-off date/Unevaluated

West (South) to East (North)	BIN	Crossing/ Borough	Year Built	National Register Evaluation Status According to 2002 NYSDOT Bridge Survey and CRIS Website
72	2247450	57th Avenue over RR/Queens	1916	Not eligible
73	2247440	Grand Avenue over RR/Queens	1916	Not eligible
75	7705090	RR over Calamus Avenue/Queens	1916	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
74	7705080	RR over 51st Avenue/Queens	1916	Not evaluated in 2002 survey; excluded based on ownership/ Unevaluated
75	7705070	RR over Queens Boulevard/Queens	1916	Not evaluated in 2002 survey; SHPO determined Eligible in 2014
76	2247430	45th Avenue over RR/Queens	1916	Not eligible
77	2247420	44th Avenue over RR/Queens	1916	Eligible
79	2247410	43rd Avenue over RR/Queens	1918	Eligible
80	2247400	Woodside Avenue over RR/Queens	1916	Eligible
81	2247390	41st Avenue over RR/Queens	1916	Not included in 2002 survey/Unevaluated/ Unevaluated
82	2247380	Roosevelt Avenue over RR/Queens	1916	Not included in 2002 survey/Unevaluated

Source: Cultural Resource Information System https://cris.parks.ny.gov/Login.aspx?ReturnUrl=%2f

3.5.3 Historic and Cultural Resources Evaluation Criteria

Historic and cultural resources can be directly and indirectly impacted by undertakings, such as the IBX Project. Direct impacts to historic and cultural resources include, but are not limited to, physical damage or destruction of all or part of a property; physical alterations; moving or realigning a historic property; and/or isolating a property from its setting. Direct impacts may also include acquisitions of portions of property that do not include buildings or large-scale structures, but may include small-scale features such as fences, portions of driveways and sidewalks, and landscaping.

This section identifies and describes the evaluation criteria that were used to evaluate the three alternatives. Quantitative as well as qualitative criteria were developed to compare the alternatives. The criteria were based on data presented in the IBX Feasibility Study and the additional engineering, operational, environmental, and capital cost considerations developed during the PEL Study.

3.5.3.1 Archaeological Resources Evaluation Criteria

Known and potential archaeological resources are most often subject to direct impacts as a result of construction activities. Archaeological resources usually need to be assessed for projects that would result in any in-ground disturbance. In-ground disturbance is any disturbance to an area not previously excavated, including new excavation that is deeper and/or wider than previous excavation on the same site. Examples of projects that typically require assessment are:

- Above-ground construction resulting in in-ground disturbance, including construction of temporary roads and access facilities, grading, or landscaping.
- Below-ground construction, such as installation of utilities or excavation, including that for footings or piles.

For example, direct impacts to archaeological resources could occur where disturbance to potentially sensitive strata could result from construction of new track, installation of catenary structures, construction of passenger stations, construction of substations, alterations/construction of maintenance and storage yards, excavation to widen the below street grade ROW for additional track installation, alterations to existing embankments, construction of retaining walls, movement of abutments to accommodate alterations to street crossing alignments, and construction of new tunnels. Depending on the chosen tunneling construction method, direct impacts to archaeological resources could occur where tunnel boring machines would physically impact potentially sensitive strata to construct portions of new tunnels.

Proposed Changes to IBX Corridor Conditions

The existing rail corridor lies in a cut approximately 20-feet below street level for a total of 8.1 miles, on an embankment approximately 15 feet above street level and on a viaduct 20 to 30-feet above street level for a total of 5.1 miles, and within a tunnel for 1.3 miles. Changes are proposed for all three transportation alternatives, which would result in additional subsurface disturbances that have the potential to impact archaeological resources.

Vertical and Horizontal Clearances

CR and LRT construction would require laying of two additional tracks alongside the existing freight tracks. The LRT double track would also require installation of a physical barrier or intrusion detection system between the freight tracks and the LRT tracks pursuant to federal regulations. For many of the existing overhead bridge crossings, the vertical and/or horizontal clearances are inadequate to accommodate the new tracks and barrier. To remedy the lack of adequate space at many of the overhead bridge locations, both vertical and horizontal excavation would be required. For the most

part, the excavation required to provide adequate vertical clearance is not an archaeological concern, as the original excavation of the cut to install the track and overhead bridge has already extensively disturbed the soils below the tracks. However, excavation to provide additional horizontal clearance would affect the existing sides of the cut that have not been previously disturbed and is of archaeological concern.

Substandard minimum vertical clearance is less than 22'-0" above top of rail. Overhead bridges which cannot accommodate at least 2 tracks with 14'-0" track centers and 8'-6" horizontal clearance are considered insufficient to add additional track. The list of **Table 14** existing overhead bridges that require alterations due to insufficient horizontal clearances is below.

Table 14: Potential Actions for CR and LRT at Overhead Bridges

West to East	BIN #	Bridge Name	Street Crossing/ Borough	Potential Actions: CR	Potential Actions: LRT
1	2243310	2nd Avenue	Over RR/ Brooklyn	Replace Bridge; wall and support buttresses in way on outside bay	Replace Bridge; wall and support buttresses in way on outside bay
2	N/A	Bay Ridge Towers Overbuild	3rd and 4th Avenues/ Brooklyn	Replace Bridge	Replace Bridge
3	2243330	4th Avenue	Over RR/ Brooklyn	Replace Bridge	Replace Bridge
4	2243590	6th Avenue	Over RR/ Brooklyn	Replace Bridge; Not enough room for 4 tracks. Slope and pier/ abutment removals Intersection realignment	Replace Bridge; Not enough room for 4 tracks. Slope and pier/ abutment removals Intersection realignment
5	2243600	7th Avenue	Over RR/ Brooklyn	Replace Bridge; Sidewall and slope work required to fit 4 tracks Intersection realignment	Replace Bridge; Sidewall and slope work required to fit 4 tracks Intersection realignment
6	2243610	8th Avenue	Over RR/ Brooklyn	Replace Bridge; Slopes and walls to be modified Intersection realignment	Replace Bridge; Slopes and walls to be modified Intersection realignment
7	2243630	11th Avenue	Over RR/ Brooklyn	Replace Bridge; reconfigure spans to fit 4 tracks. Buckeye Utility relocation required Intersection realignment	Replace Bridge; reconfigure spans to fit 4 tracks. Buckeye Utility relocation required Intersection realignment
8	2243640	13th Avenue	Over RR/ Brooklyn	Replace Bridge; reconfigure spans to fit 4 tracks.	Replace Bridge; reconfigure spans to fit 4 tracks.
9	2243650	14th Avenue	Over RR/ Brooklyn	Replace Bridge; reconfigure spans to fit 4 tracks.	Replace Bridge; reconfigure spans to fit 4 tracks.
10	2243340	15th Avenue	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks	Replace Bridge to fit 4 tracks
11	2243350	60th Street	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks	Replace Bridge to fit 4 tracks
12	2243360	16th Avenue	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks. Slopes to be cut back. Buckeye Utility line also within ROW	Replace Bridge to fit 4 tracks. Slopes to be cut back. Buckeye Utility line also within ROW

West to East	BIN #	Bridge Name	Street Crossing/ Borough	Potential Actions: CR	Potential Actions: LRT
13	2243370	17th Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
14	2243380	18th Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
15	2243390	52nd Street	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
16	2243400	50th Street	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
17	2243420	East 3rd Street	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
18	2243439	Ocean Parkway	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
19	2243440	Coney Island Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
20	2243450	East 14th Street	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes Intersection realignment
21	2243460	East 15th Street	Over RR/ Brooklyn	Replace pedestrian bridge to fit 4 tracks; cut back slopes. Intersection realignment	Replace pedestrian bridge to fit 4 tracks; cut back slopes. Intersection realignment
22	N/A	NYCT B/Q Lines	Over NYCT/ Brooklyn	Replace overhead structure to fit 4 tracks; cut back slopes.	Replace overhead structure to fit 4 tracks; cut back slopes.
23	2243480	Ocean Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment
24	2243490	Bedford Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment	Replace bridge to fit 4 tracks. Cut back slopes. Intersection realignment
25	2243500	Nostrand Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes.	Replace bridge to fit 4 tracks. Cut back slopes.
26	2243510	Flatbush Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes.	Replace bridge to fit 4 tracks. Cut back slopes.
27	2243520	Brooklyn Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes; Buckeye Utility within ROW.	Replace bridge to fit 4 tracks. Cut back slopes; Buckeye Utility within ROW.
28	2243530	Albany Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes.	Replace bridge to fit 4 tracks. Cut back slopes.
29	N/A	NYCT #3 Line	Over NYCT/ Brooklyn	Replace bridge to fit 4 tracks.	Replace bridge to fit 4 tracks.
30	N/A	NYCT Yard Lead	Adjacent to L-Train/ Brooklyn	Replace bridge to fit 4 tracks. Cut back slopes.	Replace bridge to fit 4 tracks. Cut back slopes.

West to East	BIN #	Bridge Name	Street Crossing/ Borough	Potential Actions: CR	Potential Actions: LRT
31	2243900	Blake Avenue	Over RR/ Brooklyn	Replace Bridge to fit 4 tracks. Cut back slopes; develop new bridge spans over tracks.	Replace Bridge to fit 4 tracks. Cut back slopes; develop new bridge spans over tracks.
32	2243890	Sutter Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Develop new bridge spans over tracks.	Replace bridge to fit 4 tracks. Develop new bridge spans over tracks.
33	2243870	Pitkin Avenue	Over RR/ Brooklyn	Replace bridge to fit 4 tracks. Develop new bridge spans over tracks.	Replace bridge to fit 4 tracks. Develop new bridge spans over tracks.
34	7705190	Cooper Avenue	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Cooper Avenue	Alter bridge to accommodate potential widening of trackage over Cooper Avenue
35	7705180	Cypress Avenue	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Cypress Avenue	Alter bridge to accommodate potential widening of trackage over Cypress Avenue
36	7705170	Seneca Avenue	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Seneca Avenue	Alter bridge to accommodate potential widening of trackage over Seneca Avenue
37	7705160	Forest Avenue	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Forest Avenue	Alter bridge to accommodate potential widening of trackage over Forest Avenue
38	7705150	Myrtle Avenue	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Myrtle Avenue	Alter bridge to accommodate potential widening of trackage over Myrtle Avenue
39	7705140	Cypress Hills Street	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over Cypress Hills Street	Alter bridge to accommodate potential widening of trackage over Cypress Hills Street
40	7703632	65th Street	Under RR/ Queens	Alter bridge to accommodate potential widening of trackage over 65th Street	Alter bridge to accommodate potential widening of trackage over 65th Street
41	2247490	69th Street	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
42	2247480	Juniper Boulevard S	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks

West to East	BIN #	Bridge Name	Street Crossing/ Borough	Potential Actions: CR	Potential Actions: LRT
43	2247470	Eliot Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
44	2247460	Caldwell Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
45	2247450	57th Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
46	2247440	Grand Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
47	2247430	45th Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
48	2247420	44th Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
49	2247410	43rd Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
50	2247400	Woodside Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks
51	2247390	41st Avenue	Over RR/ Queens	Reconstruct abutments to widen and fit two additional tracks	Reconstruct abutments to widen and fit two additional tracks

Source: AECOM, 2022

Alterations at these bridges would require the removal of existing abutments and the construction of new abutments in areas that may be undisturbed. Cutting back of the slopes within the existing cut to provide adequate horizontal clearances may occur in previously undisturbed areas which could impact archaeological resources if present.

Potential Station Construction

Nineteen passenger stations are proposed for the IBX Project; these stations would be similar for each alternative. Construction of each station has the potential to impact archaeological resources because of the ground disturbance that would be required to build footings and foundations.

CR and LRT Substation Construction

Fifteen substations would be required along the IBX Corridor. Each proposed substation measures 50-feet by 100-feet. Eleven substation locations would fit within the existing ROW and four substation locations would need to be acquired beyond the ROW. The total acreage for the four locations beyond the ROW is 2.62 acres. The four locations are:

- McDonald Avenue Station
- Albany Avenue
- East New York Avenue
- Central Avenue

The construction of the substations associated with the CR and LRT alternatives both within and beyond the ROW has the potential to impact archaeological resources that may be present at the proposed locations.

Property Acquisitions

The evaluation of impacts to archaeological resources also considered the potential for property acquisitions for the IBX Project, which are reported in Section 3.2 of this report.

Catenary Installation

The LRT alternative requires installation of a catenary system for its power source. The installation of the catenary support poles would create subsurface disturbance and has the potential to directly impact archaeological resources that could be present.

Embankment Expansion/Retaining Walls

Widening of existing embankments to accommodate the horizontal clearance needed to install two CR or LRT tracks or the BRT busway would require construction of new retaining walls to hold the embankment in place. This has the potential to directly impact archaeological resources that could be present.

Horizontal Expansion of Existing Cut

Excavation into the sides of the existing freight line cut to accommodate the horizontal clearance required to install two CR or LRT tracks in the freight rail corridor has the potential to directly impact archaeological resources that could be present.

Tunnel Construction

As mentioned above, direct impacts to archaeological resources could occur where tunnel construction methods utilized would physically impact potentially sensitive strata to construct portions of new tunnels. The proposed depth of the tunnel excavation is a factor for evaluating potential impacts to archaeological resources that could be present. The chosen tunneling method is also a factor in evaluating potential impacts. For example, a cut and cover tunnel excavation would create far greater impacts than the use of a tunnel boring machine.

3.5.3.2 Historic Architectural Resources Evaluation Criteria

As indicated in Section 3.5.2, the Study Area was researched in SHPO's CRIS website to identify known historic architectural resources situated within a ½-mile of the IBX Corridor. Seventy-eight resources are located in the Borough of Brooklyn, Kings County, and 36 resources are located in the Borough of Queens, Queens County. These resources include National Register-listed and National Register-eligible resources protected by SHPO, and designated buildings, structures, and historic districts protected by LPC, and one National Historic Landmark. Several resources share both National Register and LPC designations. **Table 11** provides a list of the resources in Brooklyn, and **Table 12** provides a list of resources in Queens. **Figure 13** through **Figure 20: Known Historic Architectural Resources in the Study Area (8 of 8)** depict the location of the resources.

In addition, as indicated in Section 3.5.2, 82 bridges are situated within the IBX Corridor. **Table 13** provides a list of the bridges, including the four National Register-eligible bridges in Queens (see also Table 12), 40 ineligible bridges, and 38 unevaluated bridges.

The evaluation criteria is related to the number of known historic architectural resources directly impacted by the CR, LRT, and BRT alternatives. As indicated in Section 3.5.3, direct impacts include, but are not limited to, physical damage or destruction of all or part of a property; physical alterations;

moving or realigning a historic property; and/or isolating a property from its setting. Direct impacts may also include acquisitions of portions of property that do not include buildings or large-scale structures, but may include small-scale features such as fences, portions of driveways and sidewalks, and landscaping.

3.5.4 Alternatives Evaluation for Archaeological Resources

Four previously identified archaeological sites were identified within the ½-mile Study Area surrounding the existing freight rail corridor during the CRIS search. The sites are discussed in **Table 10**. Areas of Archaeological Sensitivity surrounding the four sites were also noted in CRIS. However, it is unlikely that the four previously identified sites would be directly impacted by the IBX Project, as the site locations do not appear to be within, or intersect with, the ROW.

Additional Areas of Archaeological Sensitivity were noted within the Study Area. These areas are described in Section 3.5.1 and **Table 10.** The sensitivity areas noted in CRIS are based on proximity to previously identified, nearby precontact and/or historic sites. The sensitivity areas were developed by SHPO to provide information for project planning purposes as a warning that the areas could contain intact archaeological resources that might prove to be National Register eligible. Phase 1 archaeological surveys are often recommended by SHPO when a proposed project footprint is located within or adjacent to an Area of Archaeological Sensitivity.

In order to evaluate the potential for direct impacts to archaeological resources posed by the IBX Project, the proposed components associated with each alternative were examined and listed in the **Table 15** to display similarities and differences between each alternative.

Table 15: Potential Impacts to Archaeological Resources by Alternative Component

Project Component	Potential Direct Impacts to Archaeological Resources		
	CR	LRT	BRT
Two-track installation	Yes	Yes	N/A*
Catenary system installation	N/A	Yes	N/A
Station construction	19	19	19
Embankment alterations/retaining walls	Yes	Yes	Yes
Cutting back slopes of existing cut	Yes	Yes	N/A
Abutment relocations	Yes	Yes	Yes
Taller viaduct construction/retaining walls	Yes	Yes	N/A
Maintenance and storage yard construction/alterations	Yes	Yes	Yes
New tunnel construction under All Faiths Cemetery	Yes	N/A	N/A
Substation construction; four outside ROW	15	15	N/A
Bridge alterations	51+	51+	N/A
Property acquisitions	352	329	315

Project Component	Potential Direct Impacts to Archaeological Resources		
	CR	LRT	BRT
Removal of adjacent encroaching structures	Yes	Yes	?
Busway Construction	N/A	N/A	Yes
Existing MTA maintenance garage updates	N/A	N/A	Yes
***=Not applicable**			

Source: AECOM, 2022.

No clear differentiators between the three alternatives in terms of potential impacts to archaeological resources can be discerned through review and comparison of the project components. However, the BRT alternative would likely create less subsurface disturbance across its length, as a catenary system, 15 substations, and a new tunnel under All Faiths Cemetery would not be required.

3.5.5 Alternative Evaluation for Historic Architectural Resources

Known historic architectural resources in the Study Area may be directly impacted by construction of the CR, LRT, and BRT alternatives; substation construction; and maintenance and storage yard construction. **Figure 13** through **Figure 20** depict the alternatives in relation to known historic architectural resources in the Study Area.

The discussion in this section describes the potential for impacts on known historic architectural resources, and the potential for impacts on bridges and other transportation structures.

3.5.5.1 Impacts on Known Historic Architectural Resources

Six known historic architectural resources may be impacted by the IBX Project, including three resources in Brooklyn, and two resources in Queens. Potential impacts of alignment construction, substation construction, and maintenance and storage yard construction are described below.

Alignment Construction

Brooklyn

Three resources in Brooklyn that may be impacted by alignment construction include the following:

- National Register-listed U.S. Army Military Ocean Terminal
- National Register-eligible Gowanus Expressway
- National Register-listed Wilson Avenue Station

Potential CR, LRT, or BRT stations may be erected at the west end of the Study Area within the National Register boundary of the U.S. Military Ocean Terminal, commonly known as the BAT. Station construction could be considered a potential direct impact.

National Register-listed Gowanus Expressway Viaduct is located at the west end of the Study Area. Construction of the proposed Fourth Avenue Station associated with the CR alternative may have the potential to impact the viaduct. Specifically, the proposed station, which would be built within the railroad ROW, may be situated partially below the historic viaduct where no station currently exists. The proposed station is also situated in close proximity to the BRT and LRT alternatives, but unlike the CR alternative, the eastern edges of the BRT and LRT station platforms would be situated below the National Register-eligible Gowanus Expressway Viaduct. Therefore, this action is considered a potential direct impact.

National Register-listed Wilson Avenue Station is a historic subway station located in Brooklyn roughly between Wilson Avenue and Knickerbocker Street. The station is situated underground, and is accessed via a street-level station building on the west side of the railroad ROW. The proposed Wilson Avenue Station associated with CR, LRT, and BRT alternatives may be in close proximity to the historic subway station, and has the potential to result in a direct impact.

Queens

Two resources in Queens that may be impacted by alignment construction include the following:

- National Register-listed Evergreens Cemetery
- National Register-listed Ridgewood-Fresh Pond Road-Myrtle Avenue Historic District

National Register-listed Evergreens Cemetery spans Brooklyn and Queens. Its official address is 1629 Bushwick Avenue in Brooklyn, but the portion of the cemetery near the proposed alignment is situated in Queens. The CR, LRT, and BRT alternatives may be constructed within the railroad ROW immediately west of the National Register boundary of the historic cemetery between Irving and Wyckoff avenues. Construction of each alternative construction has a potential to impact this portion of the cemetery, which is primarily covered in mature trees in this area.

National Register-listed Ridgewood-Fresh Pond Road-Myrtle Avenue Historic District is located on the east side of the railroad ROW along Myrtle Avenue in Queens. Construction of the proposed Myrtle Avenue Station associated with the CR alternative may occur adjacent to the eastern edge of the historic district. In addition, nine contributing resources within the historic district along Fresh Pond Road and Myrtle Avenue may be subject to acquisition under the CR, LRT, and BRT alternatives. These include contributing 61-01, 71-27, 71-25, and 71-01 Fresh Pond Road, and 60-80, 60-82, 60-84, 60-86, and 60-88 Myrtle Avenue. Therefore, the CR, LRT, and BRT alternatives may have the potential to directly impact the National Register-listed Ridgewood-Fresh Pond Road-Myrtle Avenue Historic District.

Potential Station Construction

Nineteen potential passenger station may be constructed as part of the IBX Project. Of these, three potential stations may impact three historic architecture resources in Brooklyn; and one potential station may impact one resource in Queens as described above. Because the potential stations would be similar for each of the alternatives, the effects of potential station on historic architecture resources would be similar among the alternatives.

Substation Construction

Fifteen proposed substations associated with the CR and LRT alternatives may be constructed as part of the IBX Project. As previously mentioned, the substations would be approximately 50-feet by 100-feet, and situated within the existing railroad ROW. One proposed substation in Brooklyn, and one proposed substation in Queens would be in close proximity to known historic architectural resources: 65th Street Yard Substation #1, and Myrtle Avenue Substation #12.

The 65th Street Yard Substation may be situated near the southern edge of National Register-listed U.S. Army Military Ocean Terminal in Brooklyn. Myrtle Avenue Substation #12 would be situated north of the northwest corner of the National Register-listed Central Avenue Historic District in Queens. Therefore, these two substations have the potential to directly affect the resources.

Maintenance and Storage Yards

Maintenance and storage yards would be required for CR, LRT, and BRT alternatives. A new yard is proposed for maintenance and storage of any of the three alternatives near the terminal station at the BAT.

Two options within the Study Area have been proposed for the LRT yard as depicted in **Figure 13.** The first option would be located at the southern edge of the 65th Street Yard, near an area occupied by the NYPD Harbor Unit at the southern edge of the National Register-listed U.S. Army Military Ocean Terminal, also known as BAT. The second option would be located along the east side of the National Register-listed BAT in an area currently occupied by a parking lot situated on the west side of Second Avenue between 63rd Street, and the area between 59th and 60th Streets. Neither option would impact operations of the 65th Street Float Yard. However, both options could constitute a direct impact to BAT.

3.5.5.2 Impacts on Bridges and Other Transportation Structures

Eighty-two bridges are situated along the IBX Corridor, including 53 in Brooklyn and 29 in Queens. As previously indicated, four bridges in Queens have been determined National Register-eligible. Forty bridges have been determined ineligible, and 38 have not been evaluated to date. Implementation of the IBX Project has the potential to impact the majority of bridges along the freight rail corridor. **Table 14** documents how the CR, LRT, and BRT alternatives would impact the 82 bridges, irrespective of their National Register status.

In addition, one transportation structure in Brooklyn that is not included in **Table 14** may be impacted by the IBX Project: the East New York Tunnel (constructed between 1914 and 1918). To date, it has not been evaluated for National Register eligibility.

3.5.6 Conclusions and Next Steps

Archaeological Resources

It is noted that most sections of the IBX Corridor have not been the subject of previous archaeological studies. While sections of the IBX Corridor were subjected to previous ground disturbance as a result of transportation infrastructure construction and maintenance, additional archaeological evaluation would be necessary to determine whether areas of archaeological sensitivity may exist within these areas, including the existing ROW and those areas beyond the existing ROW that may be subject to ground disturbance as a result of the IBX Project.

Architectural Resources

Summary of Direct Impacts on Known Historic Architectural Resources

Table 16 provides a summary of direct impacts of the CR, LRT, and BRT alternatives, proposed substations, and maintenance and storage yards on the six known historic architectural resources. Impacts of the CR, LRT, and BRT alternatives would generally be the same in Brooklyn. In Queens, the impacts would also be the same between the three alternatives, with the exception of a potential CR/LRT substation that may be near a historic district. Therefore, the BRT alternative may have less impacts to known resources overall.

Upon selection of a Locally Preferred Alternative and initiation of the environmental review process, SHPO may request that a historic architectural resources survey be undertaken to identify additional resources within the IBX Corridor that may qualify as National Register eligible. Therefore, the number of known resources impacted by the IBX Project may increase as the environmental review process proceeds.

Summary of Direct Impacts on Bridges in Brooklyn

CR Alternative

Thirty bridges slated for replacement to accommodate the CR alignment have been determined ineligible. Slight modifications may also be made to two ineligible bridges to accommodate the CR alternative. In addition, one unevaluated bridge would be retained, and 19 unevaluated bridges may be replaced (seven bridges) or altered (12 bridges) to accommodate the CR alternative. The unevaluated bridge that carries the National Register-listed/LPC-designated Ocean Parkway over the IBX Corridor would be replaced under the CR alternative. It was constructed in 1894 and was not individually evaluated by NYSDOT during its 1999 to 2002 statewide survey of historic bridges because it is situated within boundaries of historic Ocean Parkway. The Ocean Parkway National Register nomination form and LPC designation report do not identify the bridge as a contributing resource, and therefore, its National Register eligibility status would have to be determined as part of the NEPA environmental review process that would be undertaken for the IBX Project.

In addition, three potential stations may be erected partially beneath three unevaluated bridges to be altered, and two potential stations may be erected partially beneath two unevaluated bridges to be replaced. Finally, two potential substations may be erected near two unevaluated bridges that would be replaced or altered, respectively. Potential impacts are summarized in **Table 16**.

LRT Alternative

Impacts of the LRT alternative would be the same as the CR alternative because the LRT would be in the same location as the CR. However, one proposed station would be erected near an unevaluated bridge to be widened, and one proposed station may be erected near an unevaluated bridge to be replaced. Finally, two potential substations may be erected near two unevaluated bridges that would be replaced or altered, respectively. Potential impacts are summarized in **Table 16**.

BRT Alternative

Impacts of the BRT alternative are similar to the LRT alternative, with the exception that one proposed station may be erected near an unevaluated bridge to be altered, and one proposed station may be erected near an unevaluated bridge to be replaced. Because substations are not required by BRT, no potential impacts on resources are anticipated, and therefore, BRT has the least potential impacts of all three alternatives. Potential impacts are summarized in **Table 16**.

Summary of Direct Impacts on Bridges in Queens

CR Alternative

The CR alternative would require replacement of one National Register-eligible bridge, and modification of abutments to three eligible bridges in Queens. In addition, three unevaluated bridges would be replaced, eight unevaluated bridges would be altered, and seven unevaluated bridges would remain intact. Five ineligible bridges would be altered by the CRT alternative, and two ineligible bridges would remain intact. With respect to the proposed long tunnel beneath All Faiths Cemetery, no bridges would be impacted because the tunnel ROW would be underground, far-removed from the surface road and rail network. Three potential stations may be erected partially beneath four unevaluated bridges; three of the bridges are slated for alteration, and one bridge would remain intact. A potential substation may also be erected near one unevaluated bridge to be altered. Potential impacts are summarized in **Table 16.**

LRT Alternative

Impacts of the LRT alternative would generally be the same as the CR alternative, with the exception of proposed street operations between Metropolitan Avenue and Juniper Valley Road, east of All Faiths Cemetery. Street-level operations in this area are not anticipated to impact known historic

architectural resources, and the bridge that may be impacted by the transition of street operations to the railroad cut has been determined ineligible. In addition, while it is not anticipated that proposed stations would impact bridges, a proposed substation may be erected near an unevaluated bridge to be altered. Potential impacts are summarized in **Table 16**.

BRT Alternative

Impacts of the BRT alternative would be the same as the LRT alternative. However, unlike the LRT alternative, no substations are required, and therefore, would have no potential impacts. Therefore, BRT has the least potential impacts of all three alternatives. Potential impacts are summarized in **Table 16**.

Table 16: Summary of Potential Direct Impacts on Known Historic Architectural Resources

Potentially Impacted Property	CR	LRT	BRT	Proposed CRT/LRT Substation	Maintenance & Storage Yard
Brooklyn					
National Register-listed U.S. Army Military Ocean Terminal	Potential station within National Register boundary	Potential station within National Register boundary	Potential station within National Register boundary	65th Street Yard Substation #1 may be erected near the southern edge of U.S. Military Ocean Terminal National Register boundary.	LRT Yard may be located at southern edge of the 65th Street Yard, and encroach upon southern section of U.S. Army Military Ocean Terminal within National Register boundary Other option would be located on east side of Army terminal National Register boundary in an area occupied by a parking lot situated on the west side of Second Avenue between 63rd Street, and the area between 59th and 60th Streets.
National Register-eligible Gowanus Expressway Viaduct (I-278)	Fourth Avenue Station partially beneath viaduct	Fourth Avenue Station platform edges partially beneath viaduct	Fourth Avenue Station platform edges partially beneath viaduct	Not applicable	Not applicable

Potentially Impacted Property	CR	LRT	BRT	Proposed CRT/LRT Substation	Maintenance & Storage Yard
National Register-listed Wilson Avenue Station	Wilson Avenue Station for IBX may impact historic subway station	Wilson Avenue Station for IBX may impact historic subway station	Wilson Avenue Station for IBX may impact historic subway station	Not applicable	Not applicable
Queens					
National Register-listed Evergreens Cemetery (address in Brooklyn; spans Brooklyn and Queens; impact in Queens).	Alignment would be immediately west of National Register boundary	Alignment would be immediately west of National Register boundary	Alignment would be just west of National Register boundary	Not applicable	Not applicable
National Register-listed Ridgewood-Fresh Pond Road-Myrtle Avenue Historic District	Nine contributing resources within historic district may be subject to acquisition; also, proposed Myrtle Avenue Station may be situated adjacent to eastern edge of district	Nine contributing resources within historic district may be subject to acquisition	Nine contributing resources within historic district may be subject to acquisition	Not applicable	Not applicable
National Register-listed Central Avenue Historic District	Not applicable	Not applicable	Not applicable	Myrtle Avenue Substation #12 would be near northwest corner of district	Not applicable

Source: AECOM 2022

3.6 Urban Design and Visual Resources

According to the FTA, some types of urban mass transit projects have visual impacts on their surrounding environment while others, primarily those that do not involve physical changes, generally would have no impact. The following types of projects generally would require an assessment of its visual impacts on the environment: new fixed guideway systems and extensions; projects involving construction that may affect historic sites; projects requiring extensive remodeling of buildings or their surrounding area that may not be compatible with the character of the area; and most elevated guideway projects.

This section discusses the potential impacts to views of aesthetic and visual resources that may result from the alternatives. While a comprehensive visual impact assessment would be conducted as part of the environmental review process, the following section examines only the elements of the alternatives that may constitute a visual change or obstruct existing views of aesthetic and visual resources. As such, this section assesses only the elements of the alternatives that may be visible to a viewer at the grade of publicly-accessible viewing locations. Therefore, elements of the alternatives that are below the street grade would not be visible to a viewer and would not constitute a visual change or obstruct existing views.

3.6.1 Regulatory Context

3.6.1.1 New York State Department of Environmental Conservation

The New York State Department of Environmental Conservation's (NYSDEC) *Assessing and Mitigating Visual Impacts* (DEP-00-2) provides guidance on assessing impacts on aesthetic and visual resources.

NYSDEC has developed a methodology for assessing and mitigating visual effects (NYSDEC, 2019). This policy was developed for NYSDEC review of projects and defines visual and aesthetic effects, describes when a visual assessment is necessary and how to review a visual effect assessment, differentiates state and local concerns, and defines avoidance, mitigation and offset measures that eliminate, reduce, or compensate for negative visual effects. The methodology and effect assessment criteria established by the policy are comprehensive and can be used by other state and local agencies to assess potential effects.

According to DEP-00-2, certain variables can affect a viewer's perception of an object or project and the visibility of the landscape (existing vegetation, buildings, and topography), size perspective (reduction of apparent size of objects as distance increases), and atmospheric perspective.[6] Consequently, according to the NYSDEC guidance, an "impact" would occur when there is a detrimental effect on an aesthetic resource that interferes with or reduces the public's enjoyment of a resource and when the mitigating[7] effects of perspective, such as vegetation, distance, and

[6] DEP-00-2 describes "atmospheric perspective" as follows: Even on the clearest of days, the sky is not entirely transparent because of the presence of atmospheric particulate matter. The light scattering effect of these particles causes atmospheric or aerial perspective, the second important form of perspective. In this form of perspective there is a reduction in the intensity of colors and the contrast between light and dark as the distance of objects from the observer increases. Contrast depends upon the position of the sun and the reflectance of the object, among other items. The net effect is that objects appear "washed out" over great distances.

[7] DEP-00-2 uses the term "mitigating" or "mitigation" to refer to design parameters that avoid or reduce potential visibility of a project. This should not be confused with the use of the term "mitigation" with respect to mitigation of significant adverse environmental effects as required by SEQR and CEQR.

atmospheric perspective or other designed mitigation, do not reduce the visibility of a project to insignificant levels. Beauty plays no role in this concept. Further, a visual impact may also be considered in the context of contrast. Thus, objects that may be visible but are of a similar color or reflectance to background forms, would not constitute a visual impact. NYSDEC provides further definition of an "aesthetic impact," which occurs when there is a detrimental effect on the perceived beauty of a place or structure. Mere visibility, even startling visibility of a project proposal, should not be the threshold for decision making. Instead, a project, by virtue of its visibility, must clearly interfere with or reduce the public's enjoyment and/or appreciation in the appearance of an inventoried resource.

Therefore, while the construction of the IBX Project may be visible from certain vantage points, visibility alone is not a threshold of significance. A determination of significance depends on several factors: presence of designated historic or scenic resources within the viewshed of a project, distance between the viewer and a project, general characteristics of the surrounding landscape, and the extent to which the visibility of a project interferes with the public's enjoyment or appreciation of the resource. A significant adverse visual impact would only occur when the effects of design, distance, and intervening topography and vegetation minimize the visibility of an object and the visibility significantly detracts from the public's enjoyment of a resource (e.g., a cooling tower plume blocks a view from a State Park overlook, resulting in a diminishment of the public enjoyment and appreciation of the State Park or an impairment of the character or quality of such a place).

DEP-00-2 provides guidance for identifying scenic and aesthetic resources of statewide significance from one or more of the following categories:

- Properties on or eligible for inclusion in the National Register of Historic Places or State Register of Historic Places;
- State Parks;
- New York State Heritage Areas (formerly Urban Cultural Parks);
- State Forest Preserves;
- National Wildlife Refuges, State Game Refuges, and State Wildlife Management Areas;
- National Natural Landmarks;
- Sites on the National Park System, including Recreation Areas, Seashores, and Forests;
- National or State Wild, Scenic, or Recreational Rivers;
- Sites, areas, lakes, reservoirs, or highways designated or eligible for designation as scenic;
- Scenic Areas of State-wide Significance (SASS);
- State or federally designated trails, or those proposed for designation;
- Adirondack Park Scenic Vistas;
- State Nature and Historic Preserve Areas;
- Palisades Park;
- Bond Act Properties purchased under Exceptional Scenic Beauty or Open Space Category; and
- National Heritage Areas.

This section does not constitute an inventory of visual resources that would be included in a visual impact assessment.

3.6.1.2 CEQR Technical Manual Guidelines

As defined in the *CEQR Technical Manual*, urban design is the totality of components that may affect a pedestrian's experience of public space. These components include the following:

- Streets – the arrangement and orientation of streets define location, flow of activity, street views, and create blocks on which buildings and open spaces are arranged. Other elements, including sidewalks, plantings, streetlights, curb cuts, and street furniture, also contribute to an area's streetscape.
- Buildings – a building's size, shape, setbacks, pedestrian and vehicular entrances, lot coverage, and orientation to the street are important urban design components that define the appearance of the built environment.
- Visual Resources – visual resources include significant natural or built features, including important view corridors, public parks, landmarks, structures or districts, or otherwise distinct buildings.
- Open Space – open space includes public and private areas that do not include structures, including parks and other landscaped areas, cemeteries, and parking lots.
- Natural Features – natural features include vegetation, and geologic and aquatic features that are natural to the area.

The *CEQR Technical Manual* suggests that a preliminary assessment of urban design is needed when a project may have an effect on one or more of the elements that contribute to the pedestrian experience described above. Because the potential maintenance yard locations for the LRT and CR alternatives may be located near the Upper New York Bay waterfront in the vicinity of the BAT and along city streets near All Faiths Cemetery, a preliminary assessment would need to be conducted. Following the methodology of the *CEQR Technical Manual*, urban design impacts are determined "by considering the degree to which a project would result in a change to a built environment's arrangement, appearance, or functionality such that the change would negatively affect a pedestrian's experience of the area." In assessing the significance of a visual resource impact, key considerations include "whether the project obstructs important visual resources and whether such obstruction would be permanent, seasonal, or temporary; how many viewers would be affected; whether the view is unique or do similar views exist; or whether it can be seen from many other locations."

3.6.2 Alternative Evaluation Results

A visual impact assessment was conducted to assess the potential visual impacts resulting from the IBX Project that may constitute a visual change or obstruct existing views of aesthetic and visual resources from publicly-accessible viewing positions. This evaluation examined the elements of the alternatives that would be at-grade on the street level and would be visible from a publicly-accessible viewing position.

The CR alternative would be within the existing ROW, except for the portions of the alignment at McDonald Avenue and Ocean Avenue. The existing freight rail corridor lies in the 20-foot cut below street level for a total of 8.2 miles, on an embankment approximately 15 feet above street level and on a viaduct 20 to 30 feet above street level for a total of 5.1 miles, and within a tunnel for 1.3 miles. Of the 19 potential stations, 13 would be in the cut and not visible at street level in the CR alternative. No street operations are proposed for the CR alternative. A new yard is proposed for maintenance and storage near the terminal station at the BAT.

The LRT alternative would also be within the existing ROW, except for the portions of the alignment at McDonald Avenue and Ocean Avenue. These portions of the alignment would be within the existing freight rail corridor, which lies in a cut approximately 20 feet below street level. Of the 19 potential stations, 12 would be in the cut and not visible at street level for the LRT alternative. Street operations are proposed for the LRT alternative between Metropolitan Avenue and Juniper Valley Road around All Faiths Cemetery. A new maintenance facility would be required for the LRT alternative in the vicinity of the BAT and the existing 65th Street Float Yard. In addition, an overhead catenary system would

provide LRT with a power source. The catenary system would include vertical catenary support poles and cables connected to the support poles.

The BRT alternative would also be within the existing freight rail corridor, except for the portions of the alignment at McDonald Avenue and Ocean Avenue. The portion of the alignment in the existing freight rail corridor would be a cut approximately 20 feet below street level. Of the 19 potential stations, 11 would be in the cut and not visible at street level for the BRT alternative. Street operations are proposed for the BRT alternative between Metropolitan Avenue and Juniper Valley Road around All Faiths Cemetery.

Table 17 summarizes the potential visual impacts of the CR, LRT, and BRT alternatives along the IBX Corridor. The BRT alternative would not require new at-grade elements on the street level that may constitute a visual change or obstruct existing views of aesthetic and visual resources from publicly-accessible viewing positions. Even though the BRT would have street operations in the vicinity of All Faiths Cemetery, bus operations would blend into existing vehicle traffic on local roadways.

Each of the alternatives would include a new maintenance and storage yard in the vicinity of the BAT or at the existing 65th Street Float Yard. Both locations would be at-grade and visible to a viewer from publicly-accessible viewing positions. Potential aesthetic and visual resources in this area include the BAT, Owl's Head Park, the Upper New York Bay Waterfront, and Leif Ericson Park. The LRT alternative would also include a vertical catenary system to provide a power source along the IBX Corridor. These new vertical elements would be visible, particularly in the vicinity of All Faiths Cemetery. Potential aesthetic and visual resources in this area include All Faiths Cemetery and Juniper Valley Park.

Table 17: Potential Visual Impacts by Alternative

New At-Grade Alternative Element	CR	LRT	BRT	Potential Aesthetic and Visual Resources Impacted
Number of Potential Stations	6	7	8	Potential stations visible to surrounding area
Maintenance and Storage Yard	X	X	X	Brooklyn Army Terminal Owl's Head Park Upper New York Bay Waterfront Leif Ericson Park
Catenary System		X		All Faiths Cemetery Juniper Valley Park

Source: AECOM 2022

3.6.3 Conclusions and Next Steps

Each alternative would include elements that may constitute a visual change or obstruct existing views of aesthetic and visual resources from publicly-accessible viewing positions. Of the 19 potential stations, each alternative would have some stations (6 to 8 depending on the alternative) that are not in the cut and would be visible to the surrounding area. Each alternative would Each alternative would include a new maintenance and storage yard either in the vicinity of the BAT or the 65th Street Float Yard. LRT would require a catenary system along the entire IBX Corridor. These proposed elements would be new visual features near aesthetic and visual resources identified using NYSDEC DEP-00-2 and *CEQR Technical Manual* guidance; therefore, a preliminary assessment for aesthetic and visual impacts would be required.

3.7 Natural Resources

This assessment identifies the natural resources located within the Study Area. Dimensions of the Assessment Areas are provided in **Table 18** below.

Table 18: Natural Resource Assessment Areas

Assessment Area	Acres	Average Width
BRT	239	160 feet*
CR	234	160 feet*
LRT	255	160 feet*
Study Area	**9,952**	**0.5 miles (2,640 feet)**

**Calculated using the average of 21 measurements of width along the alignment; includes potential stations, substations and for LRT the proposed yards.*

3.7.1 Water Resources (Waterways, Floodplains and Coastal Areas)

The sources of desktop data to identify water resources include the NYSDEC for water bodies and coastal areas, and the Federal Emergency Management Agency for floodplains. For the purposes of this desktop analysis, impacts to waters and floodplains are considered as the area of each resource within the assessment area, per alternative.

3.7.1.1 Waterways

No surface waters are within the IBX Corridor. The Study Area includes approximately 40 acres of Federal waters of the Upper New York Bay (890-6), classified as Class I (best usage secondary contact recreation and fishing) saline surface waters, New York State (NYS) impaired priority organics and metals. Field survey of the assessment area would be required to confirm findings.

In tidal areas, the U.S. Army Corps pf Engineers (USACE) takes jurisdiction up to the spring high water (SHW) elevation as “waters of the United States”. The Upper Bay is regulated under Section 404 of the Clean Water Act (CWA) as a Waters of the United States. Section 404 authorizes the USACE to regulate certain activities occurring below the SHW line within the waters of the United States, such as permanent or temporary discharge of dredge or fill materials. The waters of the Upper Bay are also regulated under Section 10 of the Rivers and Harbors Act of 1899. The upland limit of Section 10 regulation is to the mean high water (MHW) elevation. Under Section 10, a permit or approval is required from the USACE prior to the accomplishment of any work (such as placement of pilings, piers, or bridge abutments) in or over navigable waters of the United States, or which affects the course, location, condition, or capacity of such waters. Although within the Study Area, the alternatives do not traverse the boundaries of waters of the United States. However, the proposed LRT 65th Street Yard is located along the shoreline of the Upper Bay.

3.7.1.2 Floodplains

The Flood Emergency Management Agency (FEMA) provides the effective 2007 Flood Insurance Rate Maps (FIRMs) and Preliminary Flood Insurance Rate Maps (PFIRMs), released in 2015 as part of a citywide flood map update. PFIRMs are the best available flood hazard data for building code and planning purposes. The maps show areas vulnerable to flooding from one percent annual chance storm, also sometimes called the Special Flood Hazard Area or 100-year floodplain. They also show today’s 0.2 percent annual chance floodplain, also known as the 500-year floodplain. The maps are divided into four zones: The V and A Zones comprise the one percent annual chance floodplain, with the V Zone having risk from waves over three feet high. The area of the A Zone seaward of the Limit of Moderate Wave Action (LiMWA) is vulnerable to waves between 1.5 and three feet and is often referred to as the Coastal A zone. The “E” in VE and AE Zones represents where base flood elevations are provided.

Under FEMA's current (effective 2007) Flood Hazard Layer and the 2015 PFIRM, the perimeter of Study Area crosses the one percent annual chance floodplain and the 0.2 percent annual chance floodplain of the Upper New York Harbor at the start of the Study Area. Only LRT, due to the location of the 65th Street Yard, is located within the effective FIRM flood hazard areas. However, the expanded PFIRM shows all of the alternatives entering into the 0.2 percent flood hazard area, but only LRT located within the PFIRM one percent flood hazard area, again due to the location of the 65th Street Yard. Additionally, according to the PFIRM, the Study Area crosses two other areas adjacent to Jamaica Bay that are within the 0.2 percent annual chance floodplain. Of these areas, only one location is within the assessment area of the alternatives and at this location the freight line is on an existing embankment, raised 20 to 25 feet above the adjacent roadway; therefore, it is above the flood elevation. See **Table 19** and **Table 20** and **Figure 21** through **Figure 24** for floodplains.

Table 19: FEMA Effective Flood Hazard Areas

Assessment Area	Flood Zone	Acres
BRT	**1% (100-year)** **0.2% (500-year)**	- -
CR	**1% (100-year)** **0.2% (500-year)**	- -
LRT	**1% (100-year)** **0.2% (500-year)**	2.3 4.0
Study Area	**1% (100-year)** AE VE **0.2% (500-year)**	 53.7 2.7 17.6

Source: FEMA 2007 Effective FIRMs.

Table 20: FEMA Preliminary Flood Hazard Areas

Assessment Area	Flood Zone	Acres
BRT	**1% (100-year)** **0.2% (500-year)**	- 1.5
CR	**1% (100-year)** **0.2% (500-year)**	- 1.5
LRT	**1% (100-year)** AE VE **0.2% (500-year)**	 3.0 0.3 7.3
Study Area	**1% (100-year)** AE VE **0.2% (500-year)**	 26.8 43.0 145.9

Source: FEMA 2015 PFIRMs

3.7.1.3 Coastal Areas

Proposed actions that are within the New York City's Coastal Zone must be reviewed and assessed for consistency with the New York City Waterfront Revitalization Program (NYCWRP), which has been approved as part of the State's Coastal Management Program. The State Coastal Area Boundary encompasses all the land and water that, if disturbed, could have a direct and significant impact on coastal waters. The Coastal Zone in New York City includes: all waterfront land up to the first upland street at least 300 feet inland; all wetlands; waterfront parks; floodplains; and other significant coastal features.

The Study Area is partially located within the Coastal Area Boundary and further designated Significant Maritime and Industrial Area (SMIAs) and Priority Marine Activity Zone (PMAZ) as assigned by the NYCWRP (**Figure 25** and **Figure 26**). SMIAs are especially valuable as industrial areas and working waterfronts, due to their location and site conditions. PMAZs are areas with concentrations of waterborne transportation uses that support the city's waterborne transportation and maritime activities. While portions of the Study Area (518 acres) and alternatives (BRT-9 acres; CR-9 acres; LRT-9 acres) are within the Coastal Zone and SMIA and PMAZ along the Upper Bay, the alternatives are not expected to physically disturb the waters of the Upper Bay, the shoreline, or the ongoing maintenance of maritime infrastructure.

Figure 21: Floodplains within the Study Area

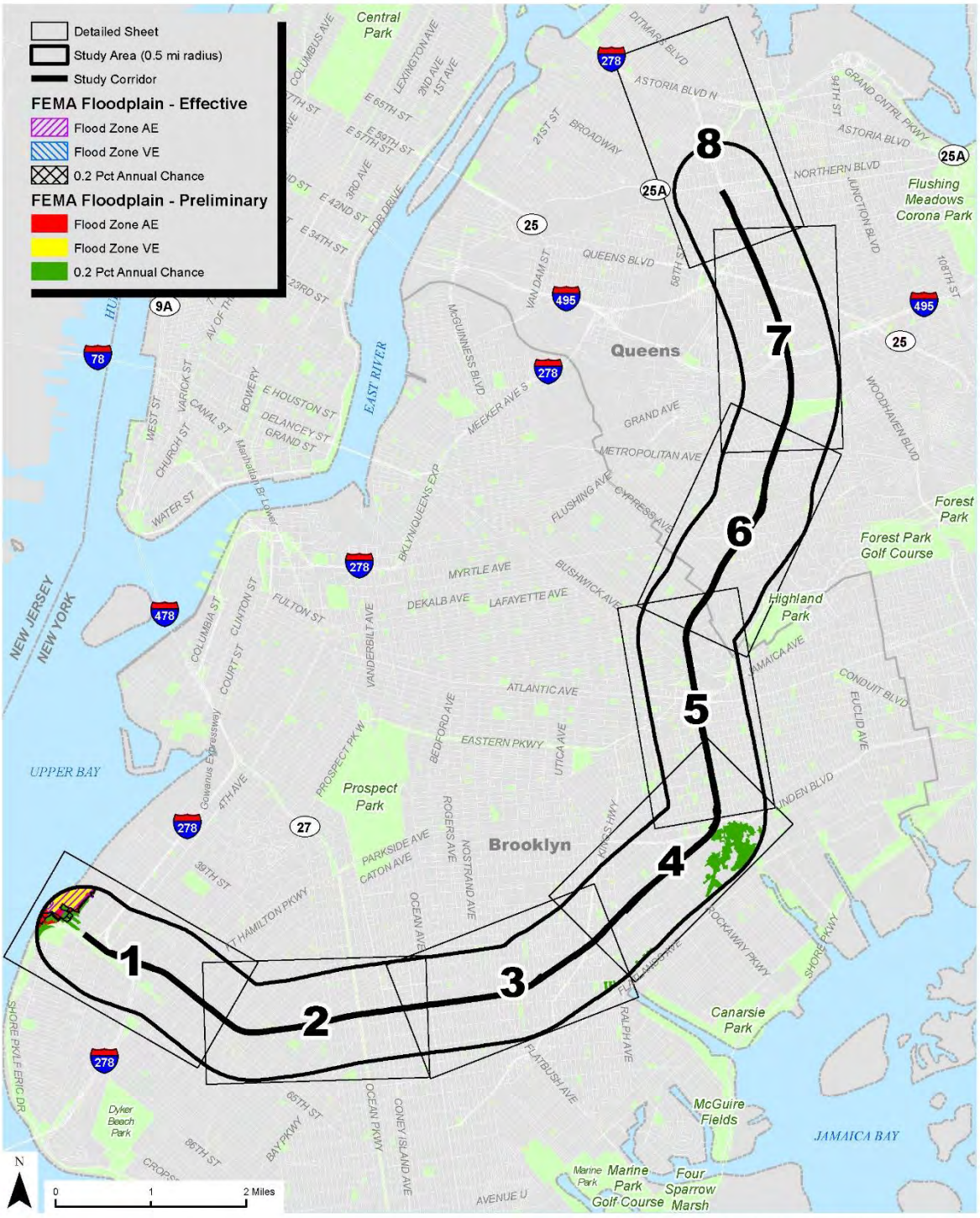


Figure 22: Floodplains within the Study Area Detail (1 of 3)

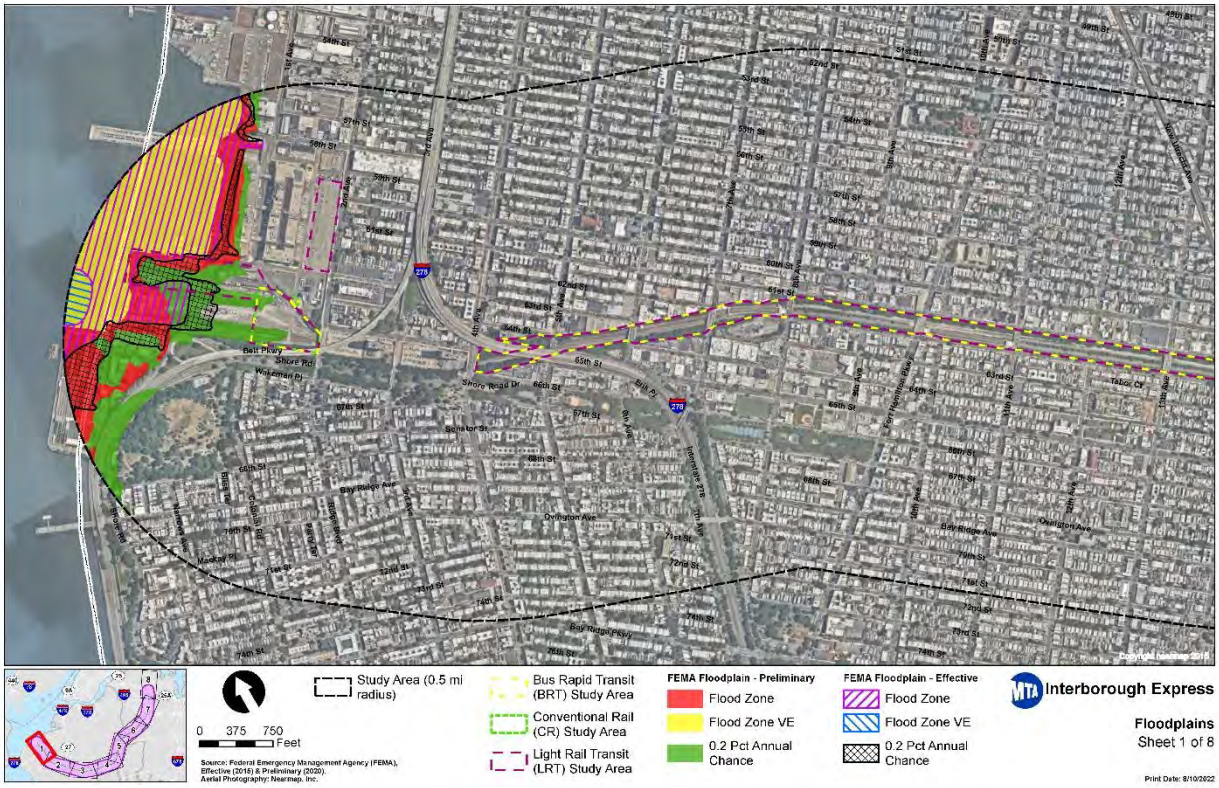


Figure 23: Floodplains within the Study Area Detail (2 of 3)

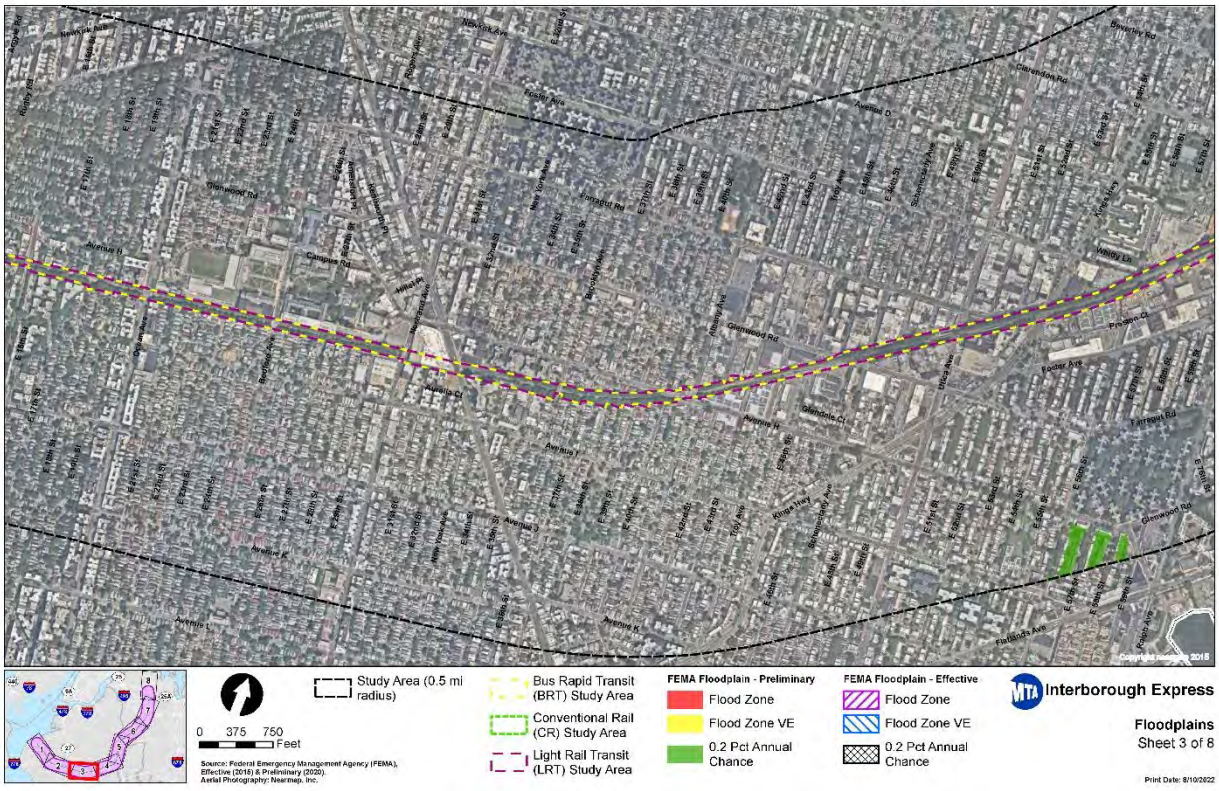
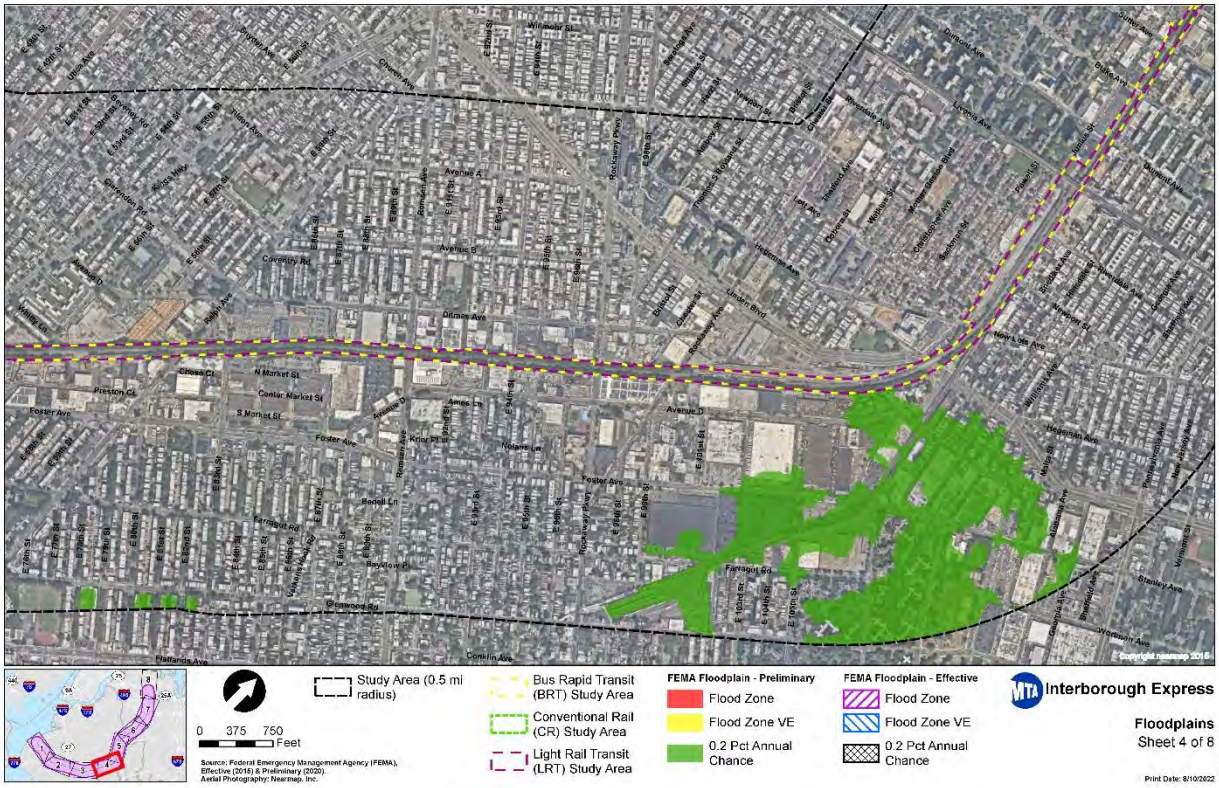


Figure 24: Floodplains within the Study Area Detail (3 of 3)



3.7.1.4 Wetland Resources

Wetland areas are of special importance as they are unique ecosystems providing important biological, physical, and chemical functions. Wetlands are often protected through federal, state, and local laws. While a desktop assessment has been conducted under the current study phase, further investigation and field survey of the assessment area would be required in future study phases to determine the extent and type of wetlands present.

Review of the U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) and NYSDEC freshwater and tidal wetland maps indicated that no mapped vegetated wetlands are located within the Study Area above the high tide line. The NWI mapper indicates that the Upper New York Bay within the Study Area and to a very minor extent within the proposed LRT maintenance facility site is classified as an estuarine and marine deepwater environment (E1UBL: Estuarine, Subtidal Unconsolidated). The New York State Tidal Wetland Maps indicate the Upper Bay in the Study Area is mapped as Littoral Zone (LZ). The LZ tidal wetland category includes all tidal waters that are not included in any other category that are less than six feet deep at mean low water (MLW). While these tidal waters occur within the Study Area, the alternatives would not affect the shoreline or the area below the high tide line (**Table 21**, **Figure 25** and **Figure 26**).

Table 21: Wetland Impacts

Assessment Area	NYSDEC Tidal Wetlands	NYSDEC Freshwater Wetlands	NWI Wetlands
BRT	0 acres	0 acres	0 acres
CR	0 acres	0 acres	0 acres
LRT	0 acres	0 acres	**E1UBL 0.06 acres**
Study Area	Littoral Zone: 37.0 acres	0 acres	E1UBL: 38.6 acres

Source: NYSDEC and NWI

Figure 25: Wetlands and Coastal Zone within the Study Area

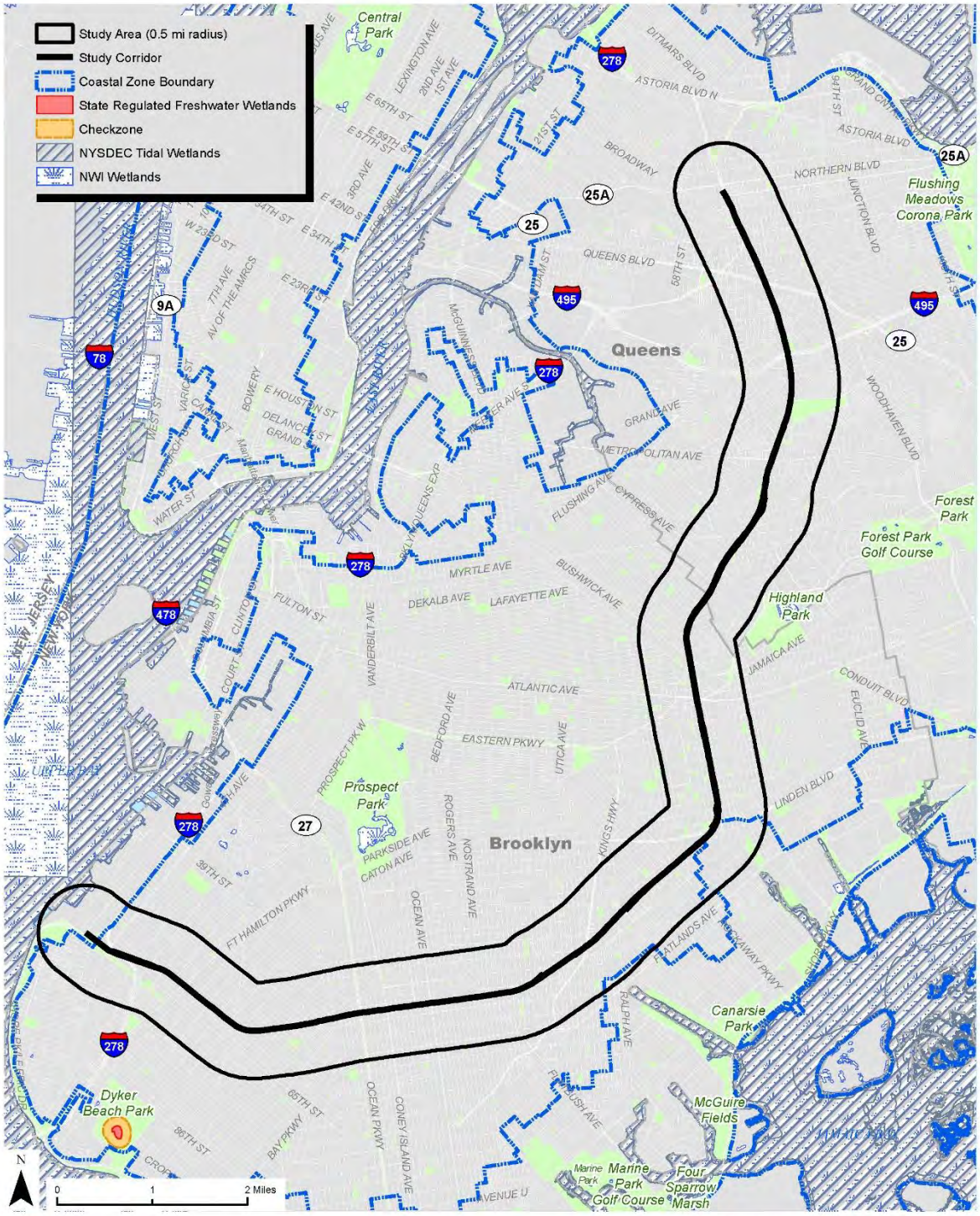
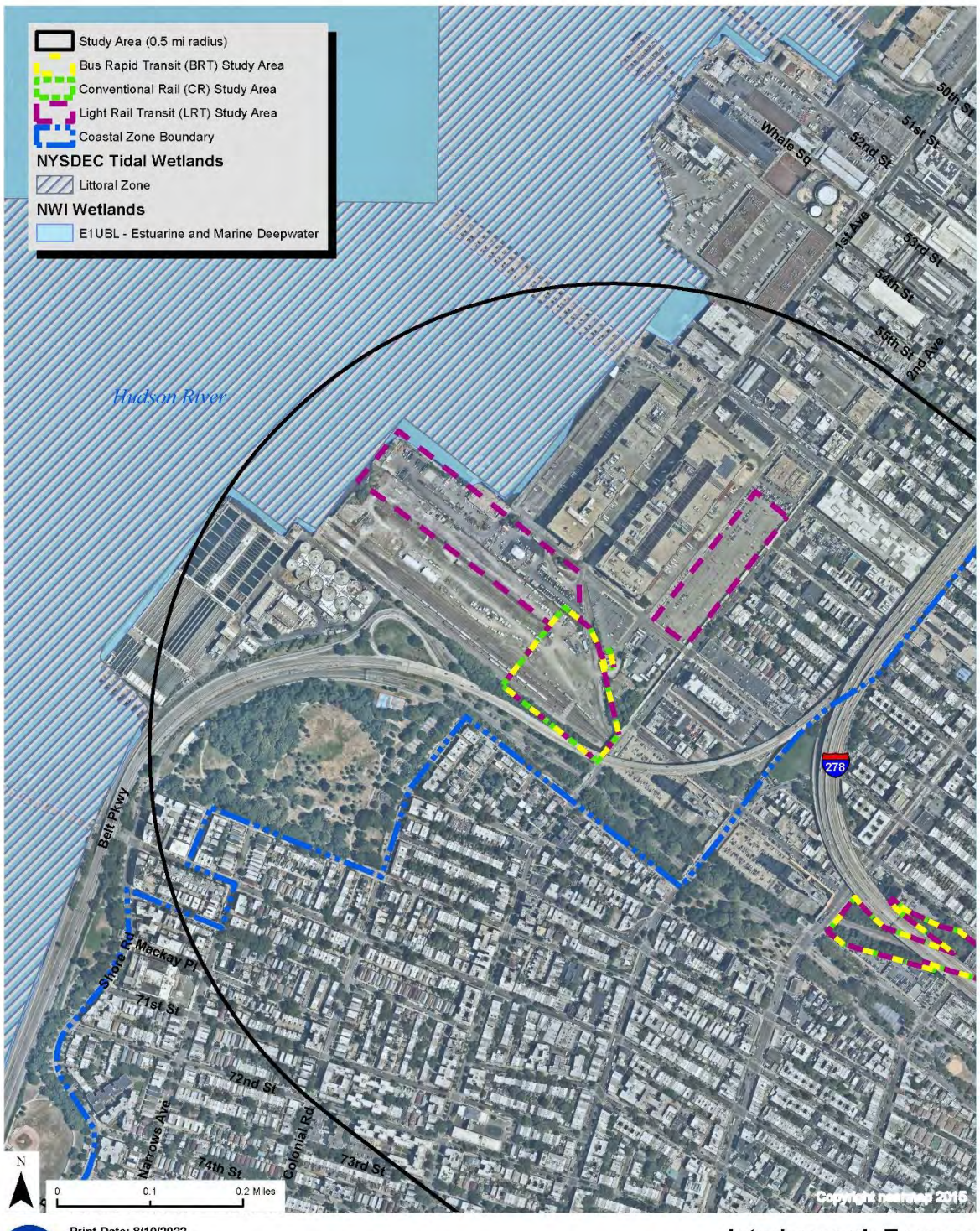


Figure 26: Wetlands and Coastal Zone Detail



Print Date: 8/10/2022

Source: Tidal Wetlands, New York State, Dec. 1974; NWI Wetlands, USFWS, Dec. 2021; WRP Coastal Zone Boundary, NYC Planning, May, 2016. Aerial Photography, Nearmap, Inc.

Interborough Express

Welands and Coastal Zone

3.7.2 Terrestrial Vegetation and Wildlife

The level of development and anthropogenic disturbance in the Study Area limits the types of vegetation and wildlife species that may be found in a natural community. Urban and developed land use types (including residential, commercial, industrial, manufacturing, public transportation, etc.) encompass approximately 87 percent of the Study Area. Urban/developed habitats have limited vegetation coverage, high amounts of impervious and routinely disturbed surfaces and tend to be areas of low ecological value. Species associated with these habitats are those common to urban areas (e.g., squirrels, house sparrows, rodents, etc.). The existing freight rail corridor serves as a contiguous line of wooded vegetation that supports urban wildlife that if completely removed could reduce urban biodiversity, in addition to other effects such as reduced shade and carbon capture. Approximately 113 acres of tree canopy occur within the freight rail corridor along the BRT alternative, 112 acres along the CR alternative, and 114 acres along the LRT alternative (**Figure 27** through **Figure 35**).

3.7.2.1 Street Trees

As much as half of New York City's tree canopy is estimated to be growing along streets and highways or on land reserved for open space and recreation. Most of these trees fall under the exclusive jurisdiction of New York City Department of Parks and Recreation (NYC Parks), which controls all trees growing in the public ROW and on land mapped as City parkland. The remaining trees grow on privately-owned land parcels or other government land and are not subject to any regulation or protection. Several laws govern the removal and replacement of trees under the jurisdiction of NYC Parks including restitution law, Local Law 3 of 2010 which requires NYC Parks to set a fee for tree replacement. A NYC Parks Tree Work Permit is needed for any work within 50 feet of a dripline of a NYC Parks tree. Tree removal requires restitution payment or replacement plantings. Trees with Critical Root Zones (CRZ) directly impacted by a project must be removed. Trees with greater than ten percent loss of CRZ would be considered too great a hazard to remain in a high-traffic area, as they would present too great a risk to fall into the busy roadway and strike a vehicle. Any tree that would be either within 50 feet of the assessment area or reasonably exposed to construction traffic would require boxing and pruning for elevation as required.

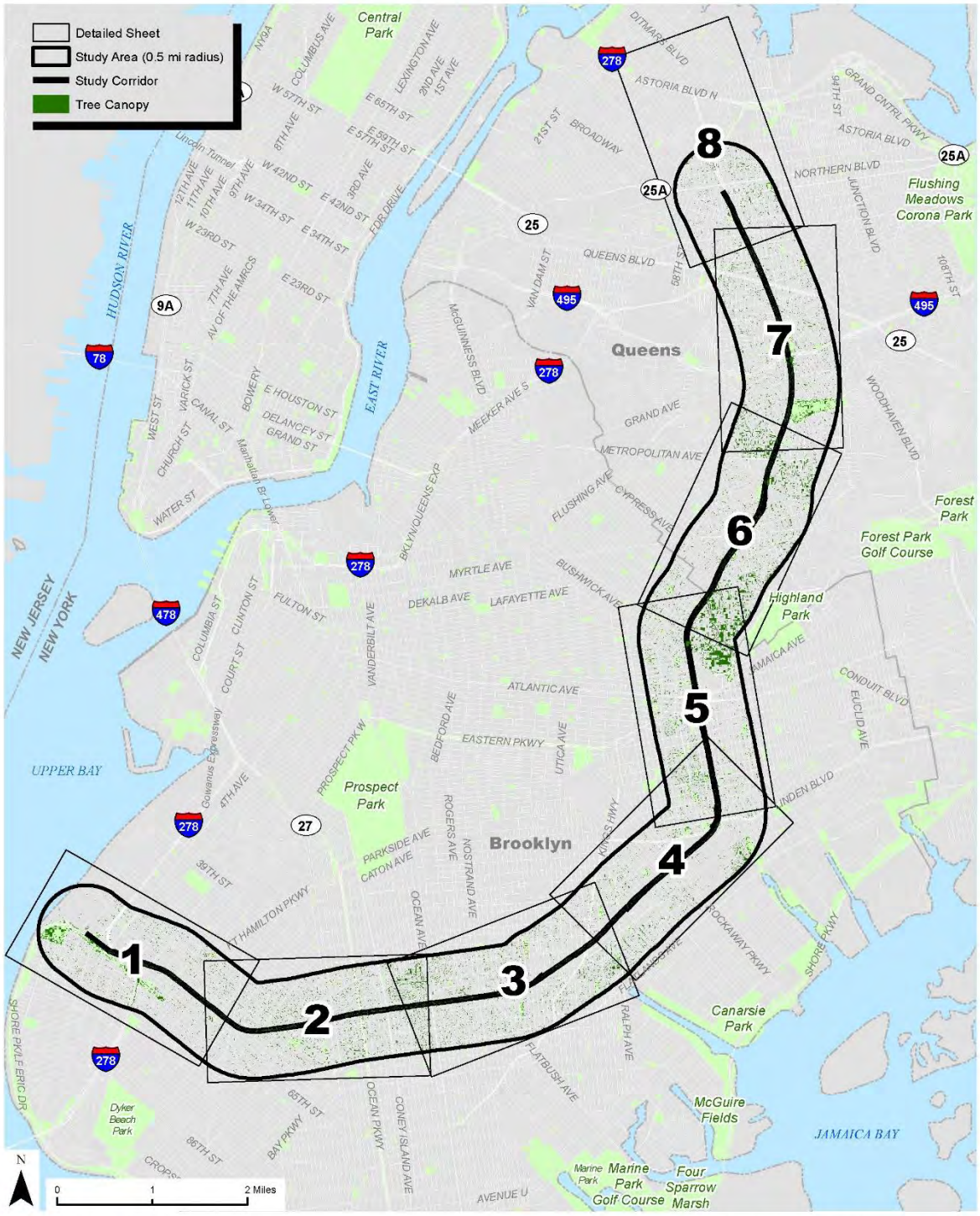
The number of trees under the jurisdiction of NYC Parks within 50 feet of the alternatives has been calculated using GIS analysis of the location of each alternative and the publicly available New York City Street Tree Map data set (**Table 22** and **Figure 36** through **Figure 44**). A total of 43,655 NYC Parks trees are within the Study Area. There are 597 NYC Parks trees within 50 feet of the BRT alternative while 523 trees are within 50 feet of the CR alternative; and 624 NYC Parks trees are within 50 feet of the LRT alternative.

Table 22: NYC Parks Street Trees

Assessment Area	NYC Parks Tree Count within 50 feet of Alternatives	Percentage Good or Fair Health
BRT	597	58
CR	523	56
LRT	624	55
Study Area	**43,655**	**75**

Source: Street Tree Census, NYC Open Data, 2015.

Figure 27: Tree Canopy



Print Date: 8/10/2022
Source: NYC Open Data. A 6-in resolution 8-class land cover dataset derived from the 2017 Light Detection and Ranging (LiDAR) data capture.

Interborough Express
Tree Canopy (2017)

Figure 28: Tree Canopy Detail (1 of 8)

Figure 29: Tree Canopy Detail (2 of 8)

Figure 30: Tree Canopy Detail (3 of 8)

Figure 31: Tree Canopy Detail (4 of 8)

Figure 32: Tree Canopy Detail (5 of 8)

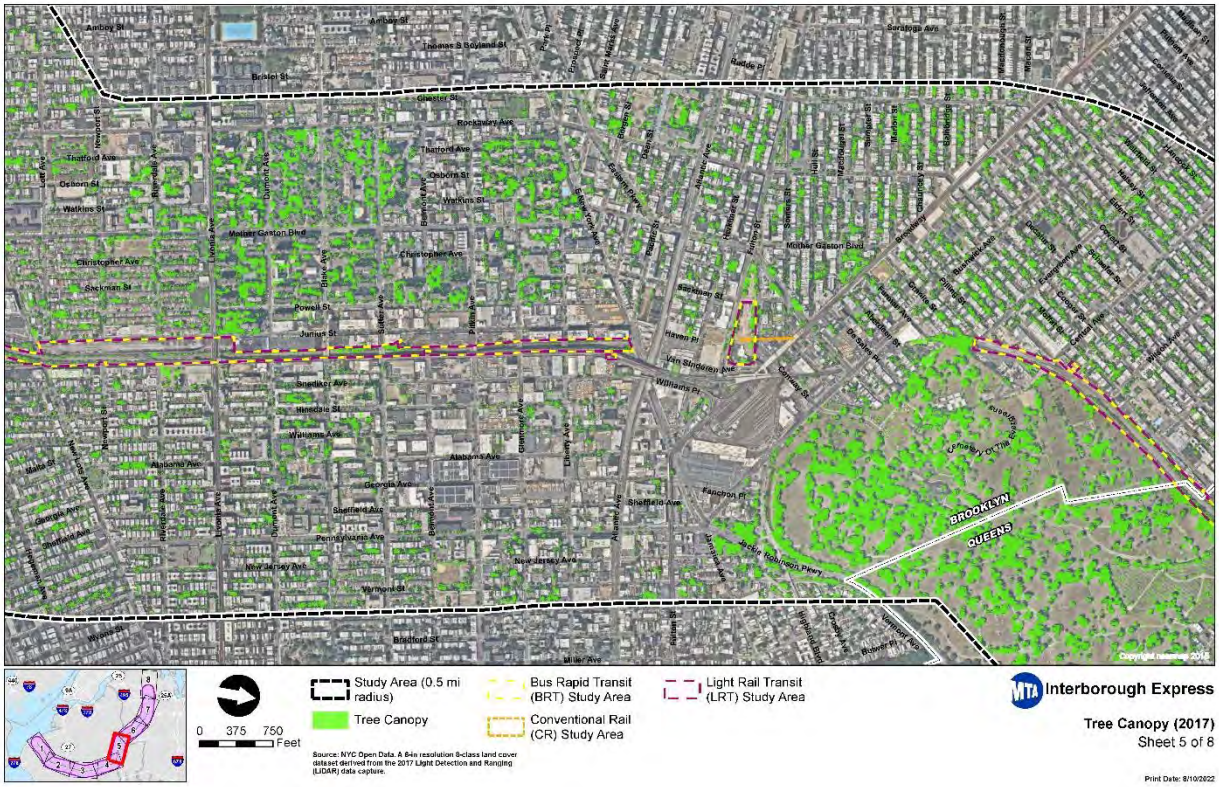


Figure 33: Tree Canopy Detail (6 of 8)

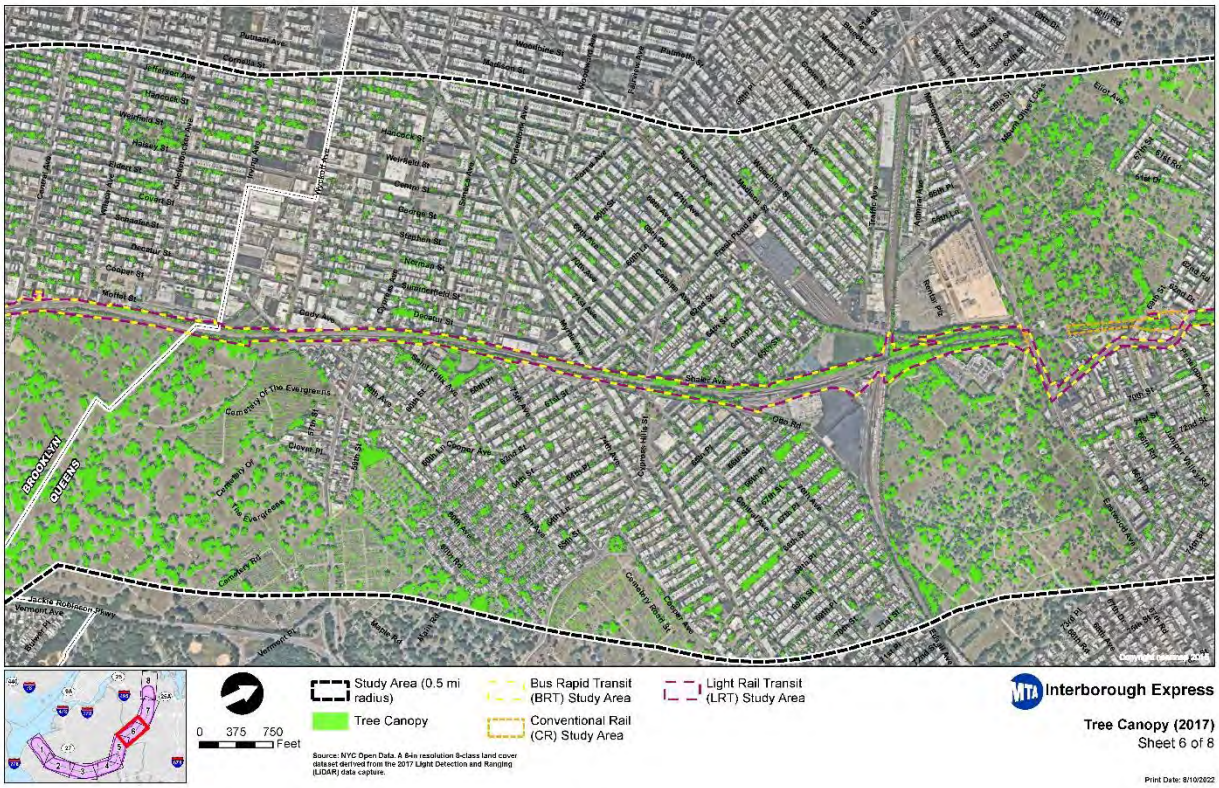


Figure 34: Tree Canopy Detail (7 of 8)

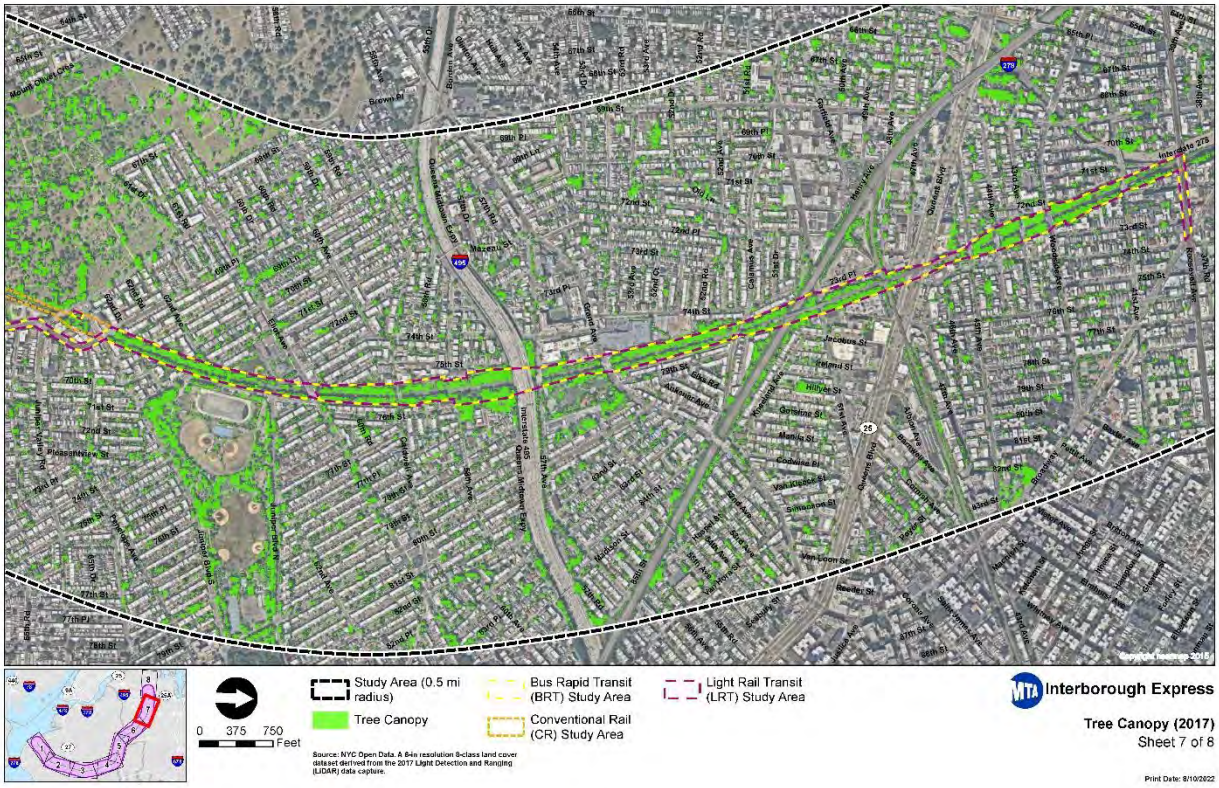


Figure 35: Tree Canopy Detail (8 of 8)

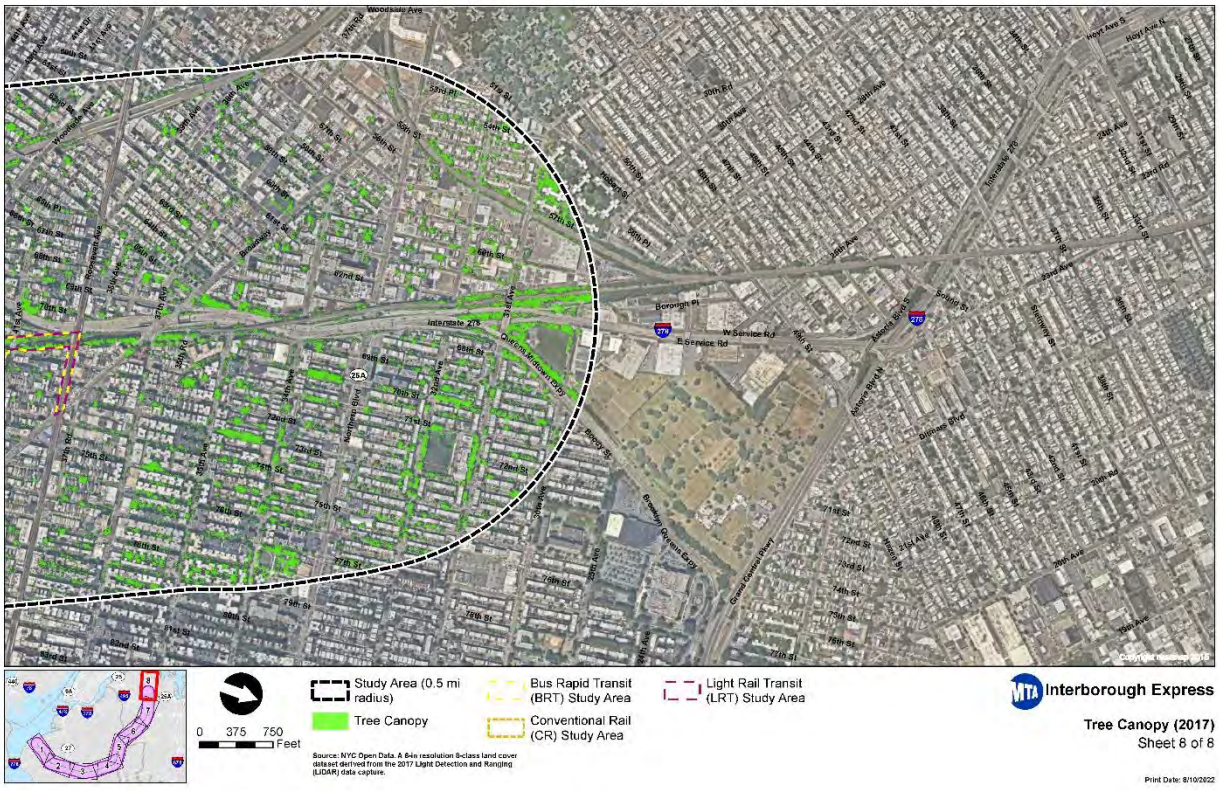
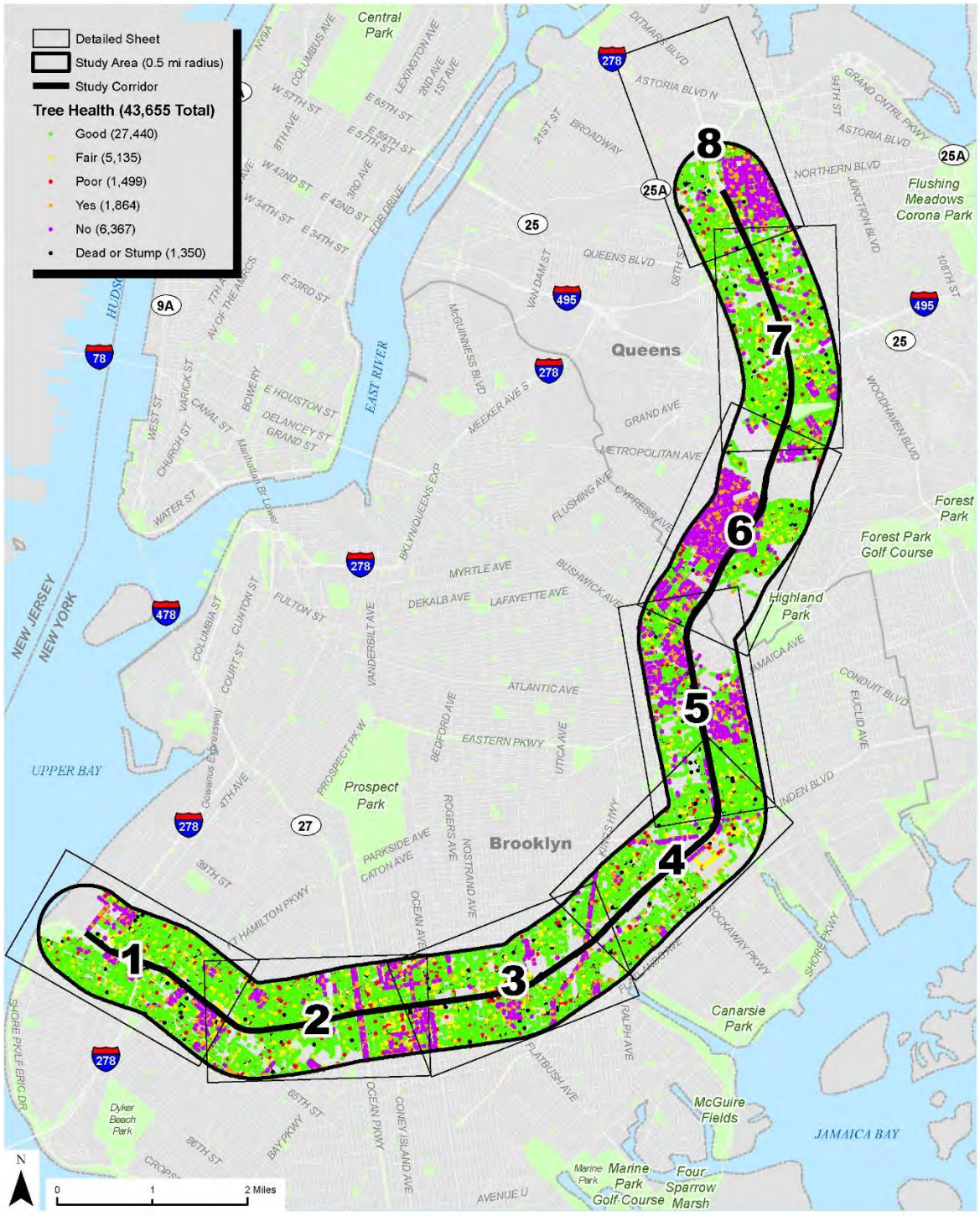


Figure 36: NYC Parks Street Tree Census



Print Date: 8/10/2022

Source: Street Tree Census, NYC Open Data, 2015.

Interborough Express

Street Tree Census (2015)

Figure 37: NYC Parks Street Tree Census Detail (1 of 8)

Figure 38: NYC Parks Street Tree Census Detail (2 of 8)

Figure 39: NYC Parks Street Tree Census Detail (3 of 8)

Figure 40: NYC Parks Street Tree Census Detail (4 of 8)

Figure 41: NYC Parks Street Tree Census Detail (5 of 8)

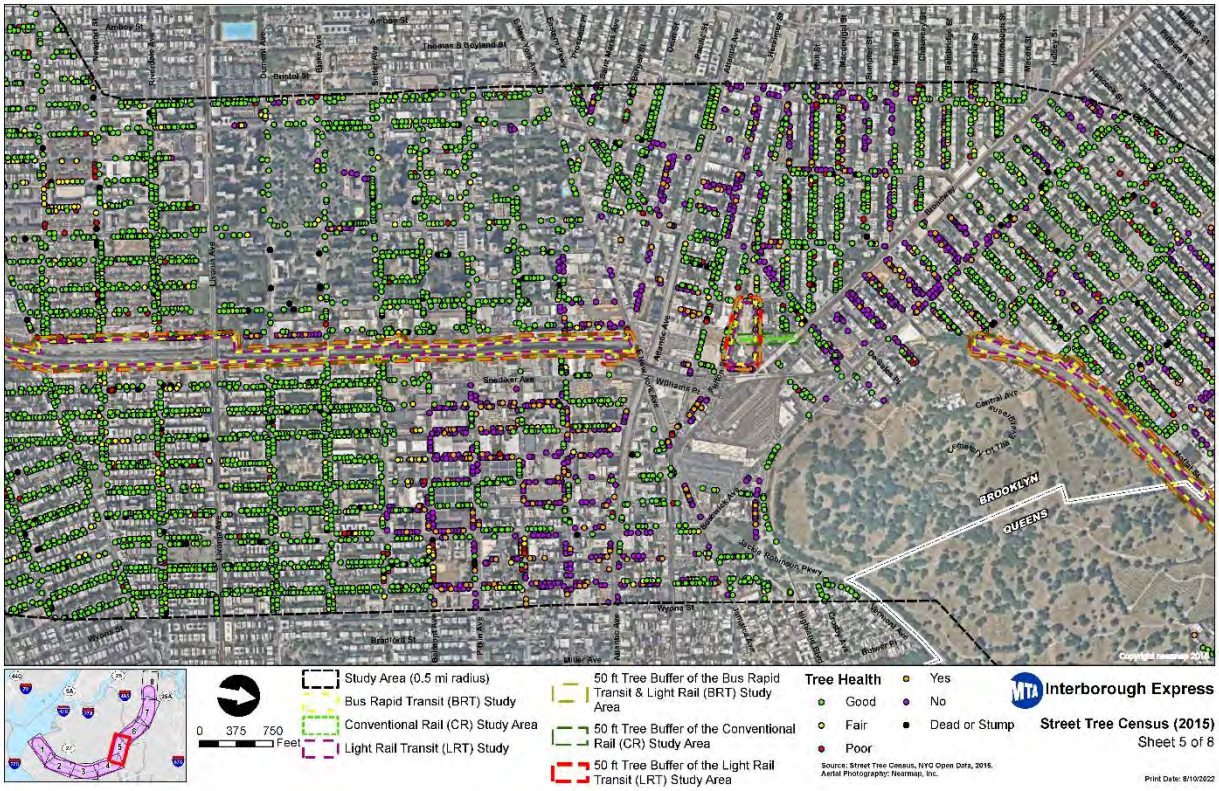


Figure 42: NYC Parks Street Tree Census Detail (6 of 8)

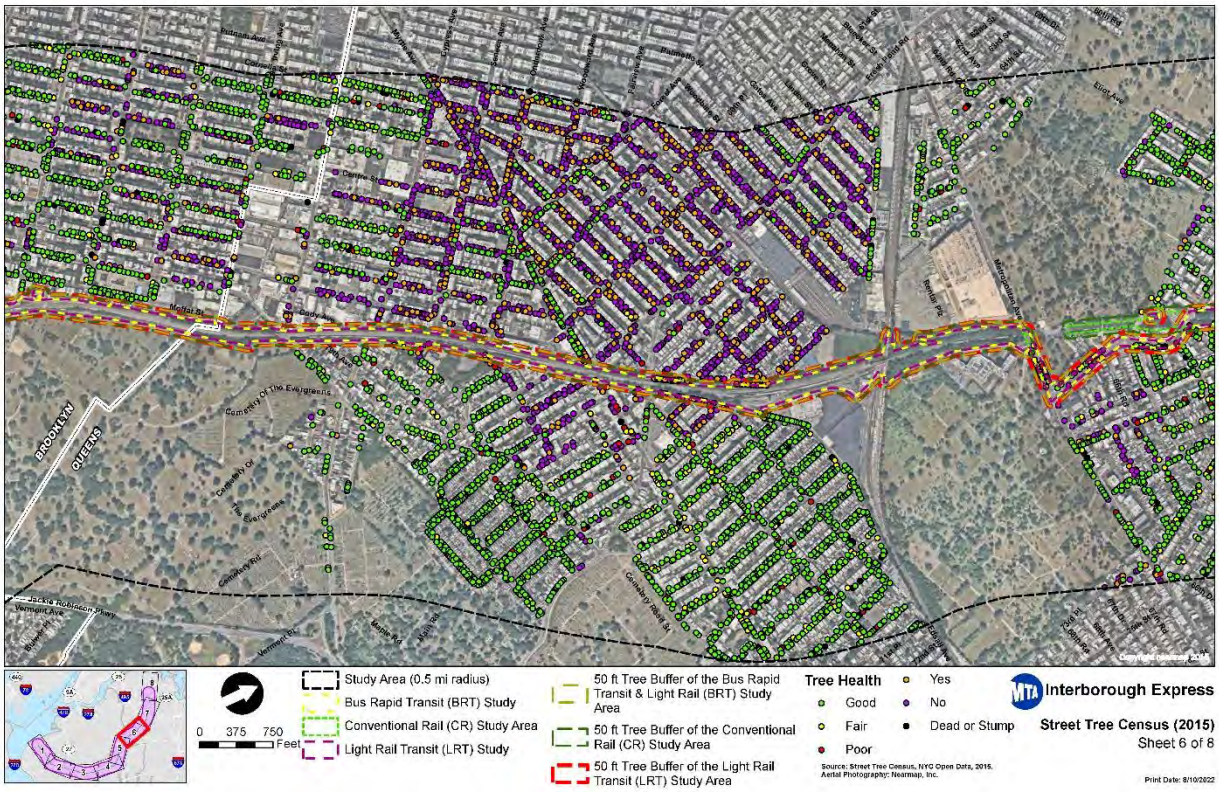
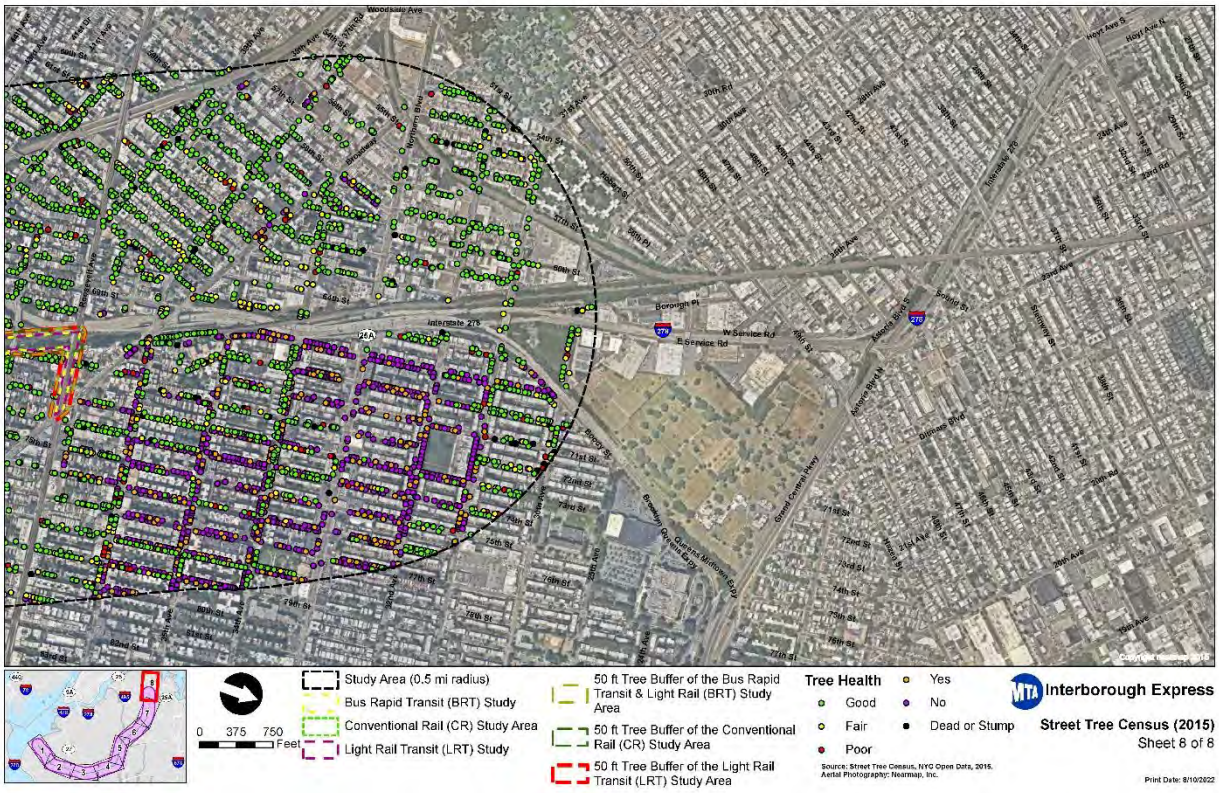


Figure 43: NYC Parks Street Tree Census Detail (7 of 8)

Figure 44: NYC Parks Street Tree Census Detail (8 of 8)



3.7.2.2 Threatened and Endangered Species

According to USFWS's Information for Planning and Consultation Trust Resource Report provided by the Long Island Ecological Services Field Office (dated April 29, 2022), while four threatened or endangered species and one candidate species are known to occur within the vicinity of the IBX Corridor, there is no critical habitat within the Study Area.[8] The species are: piping plover, red knot, roseate tern, monarch butterfly, and seabeach amaranth (described below).

The Study Area lies within King and Queens Counties in a heavily urbanized, major metropolitan area dominated by transportation infrastructure and facilities. The identified protected species are shorebirds and a plant that occurs on barrier island beaches. The hardened, bulkhead shoreline present along this section of Brooklyn's waterfront does not contain suitable habitat for piping plover, roseate tern, red knot, or seabeach amaranth. Additionally, the area likely to be disturbed by the alternatives was previously disturbed and mostly devoid of vegetation. Therefore, there is limited potential for the IBX Project to impact monarch butterfly foraging habitat.

Piping Plover (Charadrius melodus)

The piping plover is a federally listed threatened species and New York State-listed endangered species. These small shorebirds, approximately 18 centimeters in length, have a sand-colored upper body, a white underside, and orange legs. During the breeding season, adults have a black forehead, a black breast band, and an orange bill. Piping plovers use wide, flat, open, sandy beaches with very little grass or other vegetation. Nesting territories often include small creeks or wetlands. Piping plovers are migratory birds and breed during the spring and summer in northern United States and Canada. Piping plovers nest in North America along the shorelines of the Great Lakes, the shores of rivers and lakes in the Northern Great Plains, and along the Atlantic Coast.[9]

Red Knot (Calidris canutus rufa)

The *rufa* subspecies of the red knot is a federal and state-listed threatened species. It is a medium-sized shorebird (25 to 28 centimeters in length) with cinnamon-brown throat, breast, and sides of head, that breeds in the arctic tundra and winters at the tip of South America in Tierra del Fuego, in northern Brazil, throughout the Caribbean, and along the U.S. coasts from Texas to North Carolina. During migration, it is found mainly in intertidal marine habitats, particularly in coastal inlets, estuaries, and bays. They primarily feed on bivalves and terrestrial invertebrates during the majority of the year; however, migrating knots must feed at critical stopover areas where they gorge on easily digestible intertidal invertebrates such as juvenile clams and horseshoe crab eggs to fuel the long-distance flight.[10]

Roseate Tern (Sterna dougallii dougallii)

The roseate tern is a federal and state-listed endangered species. The roseate tern is approximately 40 centimeters in length, with light-gray wings and back, white body, and black cap and first several primaries. During the breeding season it has a rosy tinge on the chest and belly and orange-red legs, and black bill. They feed on small marine fish (primarily American sand lance). In New York, roseate terns nest in colonies among common terns in depressions in the sand along the Atlantic coast on salt marsh islands and beaches with sparse vegetation. In New York, the species is known to breed at only a few locations in colonies located in Long Island.[11]

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[8] USFWS. *IPaC Trust Resource Report*. https://ipac.ecosphere.fws.gov/ (April 29, 2022).
[9] USFWS. *Endangered Species Facts: Piping Plover*. https://www.fws.gov/midwest/endangered/pipingplover/pipingpl.html (April 2022)
[10] USFWS. *Endangered Species Facts: Rufa Red Knot* https://www.fws.gov/northeast/redknot/pdf/Redknot_BWfactsheet092013.pdf (April 2022)
[11] NYSDEC. Roseate Tern Fact Sheet https://www.dec.ny.gov/animals/7084.html (April 2022)

Monarch Butterfly (Danaus plexippus)
Monarch butterflies, a candidate species for listing, feed on nectar from flowers, and larvae consume milkweed (*Asclepias* spp.).[12] As a candidate species not yet listed or proposed for listing, consultation with USFWS under section 7 of the Endangered Species Act is not required, however conservation is encouraged.

Seabeach Amaranth (Amaranthus pumilus)
Seabeach amaranth is a federal and state-listed threatened species. Upon germination, the plant forms a small unbranched sprig but soon begins to branch profusely into a clump, often reaching a foot in diameter but less than a foot in height. The stems are fleshy and pink-red or reddish, with small, rounded leaves that are 1.3 to 2.5 centimeters in diameter. The plants occur on barrier island beaches between the foredune and the wrack line and also on open overwash areas behind the foredune. In New York, it is only known from Long Island, ranging from Coney Island to near the east end of the South Fork along the southern shore.[13]

The NYSDEC Environmental Resource Mapper and NYSDEC Environmental Assessment Form (EAF) Mapper (online mapping tools) were consulted to identify potential state-listed species.[14] The mapping tools indicated that no records of rare or state-listed animals or plants, or significant natural communities occur in the Study Area.

3.7.3 Alternative Evaluation Results

Though wetlands and waterbodies are present to a small extent in the Study Area, the alternatives would not impact these resources. The potential impacts of the alternatives to floodplains, coastal areas, forested areas, and street trees would not be substantively different. Additionally, there are no impacts to threatened and endangered species as no critical habitat occurs in the Study Area and suitable habitat for identified species is not present. The potential for impacts to Natural resources are summarized in **Table 23**.

[12] USFWS. Monarch Butterfly https://ecos.fws.gov/ecp/species/9743 (April 2022)
[5] NYNHP. Seabeach Amaranth https://guides.nynhp.org/seabeach-amaranth/ (April 2022)
[14] NYSDEC. Environmental Resource Mapper. https://www.dec.ny.gov/animals/38801.html (April 2022); NYSDEC. Environmental Assessment Form Mapper. https://gisservices.dec.ny.gov/eafmapper/ (April 2022).

Table 23: Summary of Natural Resource Impact Measures

Environmental Factors	Measures	BRT	CR	LRT
Natural Resources	ROW acreage in flood hazard area	1.5 (PFIRM 0.2%)	1.5 (PFIRM 0.2%)	7.3 (PFIRM 0.2%) 3.0-AE; 0.3-VE (PFIRM 1%)
		0	0	4 (FIRM 0.2%) 2.3 (FIRM (1%)
	ROW acreage in Coastal Area	9	9	25
	ROW acreage impact to Tree Canopy	113	112	114
	Number of street trees within 50' of ROW	597	523	624
	Potential for T&E impacts	None	None	None

Source: AECOM 2022

3.7.4 Conclusions and Next Steps

Going forward, a more detailed technical analysis would be required as part of the NEPA environmental review for natural resources. Anticipated impacts to floodplains, coastal areas, forested areas, and street trees show no substantive difference between BRT and CR, and only a minor increase in impacts for these measures**,** when assessing the LRT alternative due to the proposed maintenance facility**.** Additionally, there are no impacts to threatened and endangered species as no critical habitat occurs in the Study Area and suitable habitat for identified species is not present.

Further investigation via field survey is warranted to locate any wetlands and waters, confirm presence of street trees, and identify newly planted trees potentially present in the assessment areas that have not been identified during desktop assessment.

3.8 Hazardous Materials

A Preliminary Hazardous Material Screening Study was conducted for the PEL Study for the IBX Project to identify known sites with a potential to contain hazardous or contaminated materials that could impact IBX Project construction and/or operation.

The Hazardous Material Screening Study was conducted as a high-level screening through a desktop review of an environmental database report provided by EDR, Inc. The database search extended 1/8-mile from the IBX Corridor and included listings of sites with known use, storage, generation, and/or releases of hazardous and contaminated materials as reported by Federal, State, and local government agencies. A physical site inspection was not conducted. As part of the Hazardous Material Screening Study, recommendations are made for additional studies to be undertaken during the NEPA process to comply with Federal requirements and for real estate due diligence considerations for property acquisitions.

Areas of concern for hazardous materials were identified based on the desktop review. A property is considered an area of concern for hazardous materials for this study if the property meets all of the following criteria:

- Is documented to have generated, used, stored, and/or released hazardous or contaminated materials to the environment;
- Is located adjacent to or within the IBX Corridor; and
- Contamination, if present on the property, would have a reasonable potential to impact the limits of construction and property acquisition.

Table 24 lists the sites considered to be areas of concern (AOCs) for hazardous materials based on the database review. The general locations of the AOCs are provided on **Figure 45**. Additional details are available in the associated *Hazardous Material Screening Technical Report, EPM, Inc., June 2022.*

Excavation on or adjacent to the areas of concern has the potential to encounter hazardous or contaminated materials. Several of the areas of concern reportedly impacted the IBX Corridor. Some database listings such as Registered Hazardous Waste Generators and Petroleum Bulk Storage Sites having no violations or reported spills are considered a concern primarily with respect to possible fee acquisition and have less potential to impact the IBX Corridor. Other sites, such as those with reported significant subsurface contamination and undergoing investigation or remediation in Federal, State or City Programs have a greater potential to impact the limits of IBX Project construction and property acquisition. These sites considered to have a greater potential to impact the IBX Project are identified in **Table 24**. However, this is a potential to encounter contamination on or adjacent to all of the listed AOCs.

In addition to the areas of concern listed in **Table 24**, soil and ballast within the existing railroad ROW throughout the 14-mile IBX Corridor have the potential to be impacted with contaminants at levels that would require special handling and disposal if disturbed by construction due to the long history of rail operations. After the limits of excavation for the IBX Project are defined, testing of soil and ballast would be conducted in these areas to determine handling, disposal, and health and safety requirements.

An underground fuel delivery pipeline operated by Buckeye Pipe Line Company is located in close proximity to the IBX Corridor with two reported NYSDEC Spill cases (AOC 11 and AOC 18). Excavation in the vicinity of the pipeline has the potential to encounter petroleum contamination. The specific location of the Buckeye pipeline would be determined prior to construction and testing conducted within areas of excavation adjacent to the pipeline to confirm conditions.

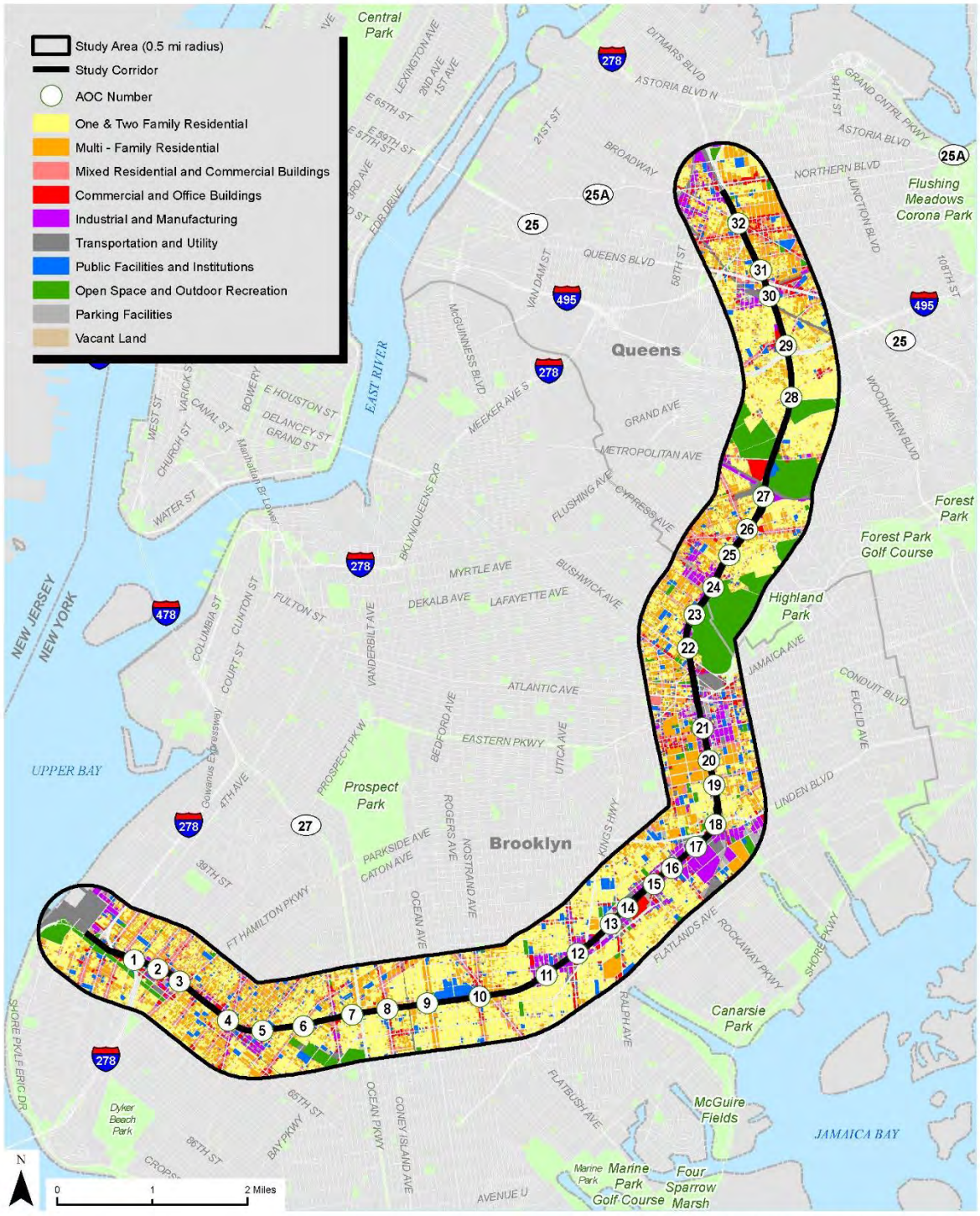
Table 24: Areas of Concern for Hazardous Materials

AOC Number	Summary of Database Findings
1	Historic Auto Shop/Gas Station at 6313 5th Ave (1971-2008) with several NYSDEC Spill cases and Petroleum Bulk Storage (PBS). Car dealership at 536 63rd Street with a NYSDEC Spill that reportedly impacted the IBX Corridor.
2	6128 8th Avenue/Block 5795, Lot 75. NYC E-Designation Site. NYCDEP violation for unsafe hazardous materials storage.
3	NYSDEC Spill at former auto repair shop at 942 62nd Street. Soil and groundwater impacted with SVOCs and metals.
4	Two Historic Auto Shops at 6120 and 6130 New Utrecht Avenue circa 1960s-2010s with NYSDEC Spill Cases.
5	Auto Repair Shop at 1530 60th Street with a NYSDEC Spill that reportedly impacted the IBX Corridor. Historic Auto Repair Shop at 5926 16th Avenue circa 1969-1975 with a NYSDEC Spill. NYC VCP site 14TMP0334K and NYC E-Designation Site at 1570 60th Street with reported SVOC, TCE, and PCE impacts to the subsurface. Property at 1514-1530 60th Street is a NYC E-Designation Site.
6	Historic Gas Station (1969-1990) / current empty lot at 5202 18th Avenue, with a NYSDEC Spill. Auto Repair Shop/Historic Gas Station (1969-2012) at 5201 18th Avenue, with a NYSDEC Spill. Historic Dry Cleaner at 1811 52nd Street (1988-2014).
7	NYSDEC Spill at FDNY Station at 126 Foster Avenue.
8	Historic Auto Shop (1982-2008) at 1169 Coney Island Avenue. Historic Auto Shop (1970-2011) at 1205 Coney Island Avenue with a NYSDEC Spill and PBS.
9	EDR Historic Auto Shop (1969-2013), NYC VCP site 15TMP0434K, NYSDEC Spill site, and NYC E-Designation Site at 1326 Ocean Avenue with VOC and SVOC impacted groundwater.
10	Four Historic Auto Shops between Nostrand Avenue and Flatbush Avenue, and north of Avenue I, operating circa 1960s-2010s listed as NYSDEC Spill site and NYS Brownfield Site at 1640 Flatbush Avenue.
11	Area of Industrial warehouses bisected by 43rd Street along Avenue H, between Albany Avenue and Troy Avenue. Several NYSDEC spills, location of Historic Drycleaners, Registered Solid Waste Facility. A NYSDEC Spill case for this site is associated with the reported 32-mile-long Buckeye Company Fuel Pipeline that reportedly is located in close proximity to the IBX Corridor.
12	EDR Historic Auto Shop/Gas Station (1969-2000) at 1437 Utica Avenue, with a NYSDEC Spill and PBS. EDR Historic Auto Shop/Gas Station (1969-2008) at 5262 Kings Highway, with a NYSDEC Spill and PBS.
13	Industrial Area along Preston Ct. between Kings Highway and Ralph Avenue. Three Solid Waste Facilities with RCRA violations, several NYSDEC Spills including at 5811 and 5601-21 Preston Court where dumping of oils and auto parts in “waste oil pits” contributed to significant soil and groundwater contamination.
14	NYSDEC Spill at 1397 Ralph Avenue with reported free-phase petroleum product on groundwater.
15	NYSDEC Spill at 807 East 92nd Street (MTA lot) with underground storage tanks reportedly leaking “along railroad slope.”
16	NYSDEC Spill/Registered Solid Waste Facility, Plakos Scrap at 769 East 95th Street. Significant soil and groundwater contamination due to crushing of vehicles and release of gasoline and automotive fluids to the ground surface.
17	Five NYSDEC Spill cases at 10101 Avenue D with impacted soil and groundwater.

AOC Number	Summary of Database Findings
18	NYSDEC Spills and USEPA Emergency Response Notifications regarding oil releases from Buckeye Pipeline.
19	Active Brownfield Site No. C224275 at 485 Sinderen Avenue. VOC impacted groundwater (PCE and chloroform).
20	U.S. Brownfield Site at 379 Van Sinderen Avenue. Historic Auto Shops/Gas Stations at 457 Blake Ave. (1969-1988) and 291 Junius Street (1997-2014). Junius Street auto shop with NYSDEC Spill of cyanide.
21	Solid Waste Facility (auto junk yard) at 1885-1888 Pitkin Avenue with NYSDEC Spill with reported impacts to the NY Atlantic Railroad (IBX Corridor).
22	NYS Brownfield Site No. C224269 at 99-101 Granite Street with reported metal impacted groundwater (chromium and lead).
23	NYSDEC Spill cases at 673 Central Avenue and abutting property (Block 3447, Lot 3). Activities reportedly included encroaching and dumping on railroad property (IBX Corridor).
24	USEPA Superfund Site Wolff-Alport Chemical Company at 1127 Irving Avenue. Operated 920s to 1954 extracting rare earth metals from monazite sand imported via rail which generated radioactive waste that was reportedly spread or buried on the property and disposed in sewers. Elevated concentrations of radiation in soil and sediment were reportedly detected along the slope of the adjacent active rail lines (IBX Corridor). VOC impacted groundwater was reported at this site. Remediation at this site is ongoing.
25	Former Drycleaner and NYS Brownfield Site No. C241194 at 18-46 Decatur Street with reported PCE impacts to groundwater.
26	Two Historic Auto Shops (circa 1973-1998) at 70-25 Cypress Hills Street and 64-01 Central Avenue Historic Drycleaner (2007-2013) at 64-17 Central Avenue
27	Nabisco Factory at 66-11 Otto Road with NYSDEC Spill case.
28	Historic Auto Shop/Gas Station (1980-2008) at 74-01 Elliot Avenue with NYSDEC Spill with VOC and SVOC impacted groundwater.
29	Former Manufactured Gas Plant (MGP), 74-16 Grand Avenue (currently Elmhurst Park). Reported contamination remains in soil and groundwater managed with a Site Management Plan.
30	Historic Auto Shop/Gas Station (1980-2010) at 74-02 Queens Boulevard and Solid Waste Facility (auto junk yard) at 50-33 73rd Place.
31	Drycleaner and Historic Drycleaner (2001-2010) at 45-12 74th Street. Historic Auto Shop (1969-2014) at 72-01 Queens Boulevard. NYC E-Designation Site, 72-12 Queens Boulevard.
32	Historic Auto Shops/Gas Stations circa 1970s to 2010s at 71-20 and 71-24 Roosevelt Avenue.

Source: EPM, Inc., June 2022

Figure 45: Areas of Concern



3.8.1 Alternative Evaluation Results

When evaluating the differences in potential for hazardous materials impacts to the three alternatives, the greatest risk for environmental and human exposure to hazardous materials would be during construction excavation in contaminated areas, such as for new foundations, tunnels, stations, and maintenance facilities. The locations of these structures and facilities have not been finalized. There is also a risk of acquiring contaminated property during fee acquisition for the IBX Project. The properties to be acquired would depend on the selected alternative. Based on a preliminary evaluation, it is expected that the CR alternative may require the most property acquisition, followed by the LRT alternative, with the BRT alternative requiring the fewest acquisitions.

Construction of the CR alternative is expected to require the most excavation, primarily due to the proposed new tunnel beneath Metropolitan Avenue and All Faiths Cemetery, as well as track-level excavations within the existing railroad ROW. The LRT alternative would require similar track-level excavation as the CR alternative, but would use the existing New York Tunnel and would not require excavation for a new tunnel, and is thus expected to require less excavation than the CR alternative. The BRT alternative would use existing tunnels and streets and is expected to require substantially less excavation when compared to the CR and LRT alternatives.

Each alternative would require a new maintenance and storage yard at the BAT. Two locations are under consideration: the BAT Parking Lot and an elevated site immediately north of the 65th Street Float Yard. These two sites are part of a Brownfield Opportunity Area and are currently owned by New York City Economic Development Corporation (NYCEDC). Although remediation is likely complete at these sites, it is possible that residual contamination remains at levels that could require special handling and health and safety measures if disturbed during construction. These sites are also likely subject to engineering and institutional controls that would need to be followed during any new site development and operation.

3.8.2 Conclusion and Next Steps

The Preliminary Hazardous Material Screening identified several AOC for hazardous materials along the IBX Corridor. The greatest potential to encounter hazardous materials during construction would be during excavation activities on or adjacent to the AOC, and within the existing railroad bed. There is also risk of acquiring contaminated properties. There are several New York City E-Designated Sites abutting the IBX Corridor that would require coordination with the New York City Mayor's Office of Environmental Remediation prior to development on these properties.

Based on this preliminary evaluation, the CR alternative is expected to have the greatest potential for hazardous material impacts, followed by LRT, with BRT expected to have the least potential.

When the Locally Preferred Alternative is selected, further evaluation of the AOC for hazardous materials would be conducted for the most likely areas of excavation and property acquisition. Complete Phase I Environmental Site Assessments in accordance with the American Society for Testing and Materials would be conducted for all properties proposed for acquisition for the IBX Project, followed by Phase II Environmental Site Investigations if warranted. Phase II Investigations would also be conducted in areas of expected excavation within the existing railroad ROW to confirm conditions in these areas. Based on the findings of the Phase II Investigations, Remediation Plans and Construction Health and Safety Plans would be prepared to describe procedures for material handling and disposal, and health and safety protocols to protect workers and the community from exposure to hazardous materials possibly disturbed by construction.

3.9 Noise and Vibration

The IBX Corridor traverses a mix of dense residential, commercial, and industrial land uses that intersect and parallel urban roadways and existing subway lines. The existing noise conditions in such an urban community are generally high due to the exposure to several different types of noise sources generally dominated by transportation sources (such as city streets, active subway tracks and freight rail corridors) but also includes light to heavy commercial and industrial manufacturing facilities.

However, because the IBX Corridor was originally designed as a passenger and freight rail conduit, much of the corridor is constructed in a deep cut with steep embankments on both sides. Because the IBX Corridor is currently used sparingly for freight rail exclusively, the communities that abut this corridor do not have the same noise exposure as others further away. Due to the light use of the IBX Corridor, residences and other noise-sensitive land uses that abut the corridor are expected to have slightly lower ambient (existing) noise levels than their nearby neighbors.

In accordance with the FTA's "Transit Noise and Vibration Impact Assessment Manual," (FTA Report No. 0123, Washington, DC, September 2018), existing noise for residences and other noise-sensitive receptors along the IBX Corridor can be estimated prior to the NEPA study when actual field measurements would be conducted. Using population densities along the IBX Corridor, existing noise exposure could be determined as a preliminary estimation as part of the PEL Study. Other factors (such as proximity to major transportation corridors) were also considered but dismissed due to the unique nature of the Brooklyn and Queens communities. Therefore, using the FTA guidance manual, existing residential noise exposure along the dense urban communities adjacent to the IBX Corridor were estimated based on population densities for various neighborhoods.

According to the FTA manual, existing day-night noise levels for residences and other noise-sensitive receptors along the IBX Corridor range from 60 dBA at residences in less dense communities to 65 dBA at residences in more densely populated communities. Using aerial mapping and GIS data for land-use and residential dwelling units from the New York City DoITT, existing noise levels estimated at residences along the IBX Corridor could be determined. As shown in **Table 25**, up to 42,000 residential dwelling units are identified within 500 feet of the IBX Corridor. Of these, almost 7,500 dwelling units in the Queens Central neighborhood are predicted to have a baseline noise level of 60 dBA while the remaining 34,500 residences are predicted to have a baseline noise level of 65 dBA.

Table 25: Existing Noise Exposure along the IBX Corridor

Superzone	2020 Population	Zone Area (sq.ft)	Zone Area (sq.mi)	Density (Pop./sq.mi)	Dwelling Units	Existing Noise Estimate
Brooklyn South	474,329	318,525,676	11.4	41,515	18,864	65
Brooklyn North	152,403	94,094,413	3.4	45,154	6,248	65
Queens Central	84,093	109,750,637	3.9	21,361	7,353	60
Queens North	188,986	119,872,333	4.3	43,952	9,396	65

Source: AECOM, June 2022.

3.9.1 Alternatives Evaluation Criteria

Noise effects from IBX Project operations were assessed in accordance with the FTA's *Transit Noise and Vibration Impact Assessment Manual* [FTA Report No. 0123, September 2018]. The FTA's guidance Manual, particularly with respect to the assessment of impact and the annoyance criteria, are based the U.S. Environmental Protection Agency's (EPA) "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety" [Report No. 550/9-74-004, Washington DC, March 1974].

FTA's Manual Section 4 presents the basic concepts, methods, and procedures for evaluating the extent and severity of noise effects from transit projects. Transit noise effects are assessed based on land use categories and sensitivity to noise from transit sources under the FTA guidelines. As part of the preliminary PEL screening assessment, noise effects from the alternatives were only assessed at residences using the day-night noise level. Noise impacts at other land uses (such as schools, libraries, religious institutions, museums and parks) would be included in a more detailed assessment as part of the NEPA process after a Locally Preferred Alternative is selected. By limiting the preliminary assessment to residences only, the focus of this analysis is on the comparison of the three alternatives rather than a comprehensive assessment of impact in the community.

Similarly, although both noise and vibration effects would be assessed as part of the full detailed analysis during the NEPA phase of the project, only noise is presented here as it represents a higher order of magnitude of potential impact compared to ground-borne vibration.

3.9.2 Methodology

Sources of noise from IBX Project operations would include moving buses (including electric motor and tire-pavement noise), moving trains (steel wheels on steel rail, air turbulence and propulsion systems), stationary buses and trains at stations (rooftop air conditioning units), stationary facilities (passenger stations, electrical substations, rail storage yard or maintenance facility) and temporary construction activities. However, for the PEL screening assessment, only moving BRT vehicles and trains were assessed to evaluate differences between the three alternatives.

Future noise levels from IBX Project operations were evaluated at select receptors that are representative of almost 7,500 residential buildings (or 42,000 dwelling units) within approximately 500 feet of the IBX Corridor. Using estimated background levels combined with preliminary Project-specific data and operating characteristics for each of the three alternatives, screening distances were developed for each of the three alternatives. The predicted screening distances (which represent the area in which the potential for adverse noise impacts could occur) were applied to compare the corridor-wide impacts estimated from each of the three alternatives.

Using Section 4.3 of FTA's Manual, Project operational noise levels were used to adjust the default FTA screening distances. For example, average daily transit operations for various periods of the day (ranging from up to 2:30-minute headways for BRT and 5:00 minutes for LRT/CR during the peak periods to 10-minute headways during the daytime off-peak periods to up to 20-minute headways during the evening off-peak periods) were used to calculate total daily noise exposure over a 24-hour period at residences. The screening distances were adjusted to reflect each alternative's reference noise level and overall level of operations. For comparison purposes, a constant speed of 30 miles per hour was applied to all three alternatives for the entire length of the corridor. Although no other adjustments were applied during this PEL screening assessment, changes in train speeds, rail gaps at track switches, ground attenuation effects, and shielding effects due to the guideway structure would be applied to the next phase of environmental review to refine the actual level of impact after the Locally Preferred Alternative is selected.

3.9.3 Alternative Evaluation Results

As shown in **Table 26**, future noise levels from each of the three alternatives are predicted to contribute to potential noise effects at varying degrees. Using preliminary operations data from each of the alternatives, potential noise effects are predicted to range from no effects under the BRT alternative, to 514 affected residences under the LRT alternative, and to 468 affected residences under the CR alternative. Except for the BRT alternative, the slight difference in the number of potential noise effects between the LRT and the CR alternative is predominantly due to alignment variations. While all alternatives would utilize the existing freight rail corridor, the LRT/BRT Alternative would utilize a short street-running section at Metropolitan Avenue/69th Street/Roosevelt Avenue. This short section of street-running alignment includes dense residential communities very close to the street resulting in a higher potential noise effects. The lack of potential noise effects predicted for the BRT alternative is due almost entirely to the deployment of electric buses, which are much quieter than diesel and even hybrid buses and are almost 15 decibels lower than the LRT and CR railcars. LRT and CR noise is primarily the result of wheel-rail interaction, as well as aerodynamic effects and onboard HVAC systems.

Table 26: Preliminary Screening Noise Effects Summary

Alternative	Number of affected residences
BRT	0
LRT	514
CR	468

AECOM, August 2022.

Due to the estimated high ambient noise exposure in the dense urban communities of Brooklyn and Queens, the threshold of noise impact for any new transit system proposed along these communities would generally be more stringent than in rural or more suburban communities. The FTA considers urban communities already exposed to high levels of ambient noise more sensitive than areas with much lower noise levels. As a result, the predicted noise effects from the LRT and CR alternatives indicate that any new rail transit system would need to consider noise reduction measures as part of their overall design to minimize additional or new noise impacts in the communities along the IBX Corridor.

3.9.4 Conclusions and Next Steps

A more detailed technical analysis would be conducted as part of the NEPA environmental review for both noise and vibration. For noise, this would include field measurements to document existing ambient background levels at residences and other noise-sensitive receptors along the IBX Corridor. For both noise and vibration, this would also include a more in-depth review and analysis of the potential impacts related to the Locally Preferred Alternative that reflects details of the alignment and the surrounding terrain. The FTA Manual includes guidance on conducting both a screening and a more detailed study with different needs and requirements for both. Although a screening assessment is more than adequate during the initial preliminary phase of the IBX Project to help compare and highlight differences between each of the three alternatives, a detailed analysis is more appropriate during the NEPA phase when details of the Locally Preferred Alternative are better understood and more advanced. The FTA's detailed analysis is also more appropriate to identify, develop, and investigate noise and vibration control measures that may be required to mitigate impacts predicted under the Preferred Alternative.

3.10 Air Quality

The EPA, under the Clean Air Act (CAA) of 1970, amended in 1977 and 1990, established National Ambient Air Quality Standards (NAAQS) for criteria pollutants including carbon monoxide, nitrogen dioxide, ozone (nitrogen oxides and volatile organic compounds as precursors), respirable particulate matter (PM_{10} and $PM_{2.5}$), sulfur dioxide, and lead to protect human health and welfare. These standards have also been adopted as the ambient air quality standards for the State of New York.

Areas that meet the NAAQS are designated as being "in attainment." Areas where criteria pollutant levels exceed the NAAQS are designated as "nonattainment." A "maintenance" area is defined as an area that has previously been designated as a nonattainment area but is still in need of efforts to maintain the improved conditions in the future. Most of the CAA rules for nonattainment areas are still applicable to a maintenance area.

For a nonattainment area, state governments must develop a specific State Implementation Plan (SIP) and implement control plans to reduce the emission level of that pollutant.

Per CAA Section 176(c), federal agencies are required to ensure that their actions conform to the SIP in nonattainment or maintenance areas for purposes of reducing the severity and number of violations of the NAAQS in an effort to achieve attainment of these standards. There are two sections of the conformity regulations in the CAA that are applicable to federal actions:

- Transportation projects funded or approved by FHWA or FTA, which are governed by the Transportation Conformity Rule (TCR).
- Non-FHWA/FTA projects or components of a FHWA/FTA transportation project requiring actions by other federal agencies such as the FRA, which are governed by the General Conformity Rule (GCR). This rule does not apply to the project since no federal agencies other than FTA are lead or corporate agencies for this federal action.

Greenhouse gas (GHG) emissions trap heat in the atmosphere and contribute to global warming. Under Section 202(a) of the CAA, the USEPA has recognized the potential risks to public health and welfare and signed an endangerment finding regarding GHG emissions. The USEPA's findings states that six key current and projected concentrations of well-mixed GHG emissions in the atmosphere threaten the public health and welfare of current and future generations. These GHG pollutants include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

The New York State Climate Leadership and Community Protection Act (CLCPA) (Chapter 106 of the Laws of 2019) and Article 75 of the Environmental Conservation Law (ECL) require NYSDEC to promulgate regulations to establish a State-wide GHG emissions limit for 2030 that is 60 percent of 1990 GHG emissions, and for 2050 that is 15 percent of 1990 GHG emissions.

Kings County and Queens County, which encompasses the IBX Project, are an attainment area for SO_2, NO_2, PM_{10}, and Pb and a nonattainment area for O_3, including its NO_x and VOCs precursors. The counties are also a maintenance area for CO and $PM_{2.5}$. The localized air quality condition along the IBX Corridor is affected by current neighborhood mobile sources including on-road traffic along local roads and expressways and stationary sources in commercial and industrial buildings.

EPA prepares the official United States Inventory of Greenhouse Gas Emissions and Sinks to comply with existing commitments under the United Nations Framework Convention on Climate Change

(UNFCCC). In 2020, the United States generated 5,222 million metric tons (MMT) GHGs[15]. The transportation sector was the single largest source of GHG emissions in 2020, accounting for 27 percent of total GHG emissions. The transportation sector was followed by the electric power and industry sectors, which account for 25 and 24 percent of the total GHG emissions, respectively.

New York City's GHG emissions[16] come almost entirely from the combustion of fossil fuels to provide energy with a 2020 inventory of 48 million metric tons of GHGs. However, this energy is delivered in many different forms. Combustion of fossil fuel in the transportation category contributed approximately 12 million metric tons of GHGs, which account for 25 percent of the total inventory.

3.10.1 Alternatives Evaluation Criteria

For a transportation project in a nonattainment area such as the proposed Project, the transportation conformity rule requires the analysis of project-related air emissions to show that the project would not cause or contribute to any new violations of the NAAQS and is in conformance with the corresponding SIP. There are two levels of transportation conformity:

- Regional conformity: The regional conformity determination must show that the total emissions from on-road travel on the region's transportation system are within the mobile source emission budget outlined in the SIP and are consistent with the goals for air quality found in the SIP. The regional emissions analysis responsible for Metropolitan Planning Organization (MPO) must include all federally funded projects; non-federally funded projects that are considered regionally significant projects; and non-federally funded and/or non-regionally significant projects that will affect vehicle travel in the area.

- Project-level conformity: The conformity determination must show that the individual project is consistent with the regional conformity determination and that potential localized and mesoscale emission impacts are consistent with goals for air quality found in the SIP. The state or local transportation agency is responsible for the project-level conformity determination.

Detailed localized and mesoscale effects on ultimate alternatives to be selected through this evaluation would be assessed as part of the full detailed analysis during the NEPA environmental review. Therefore, the evaluation criteria discussed in this document represents only a high-level assessment.

For purposes of providing an alternatives evaluation at current early planning stage, a consideration of potential emissions burden on a mesoscale under each alternative was made. Because these mesoscale emissions are directly proportional to the energy consumptions, i.e., the electricity required under each alternative, the energy consumption in terms of the level of British Thermal Unit (BTU) per passenger-mile was used as a criterion in this alternatives evaluation.

Because each alternative considered would be powered by electricity resulting in no localized pollutant emissions, there are no discernible differences in potential air quality impacts among the three alternatives to the neighborhood along the IBX corridor. However, the selection and location of a new maintenance and storage yard for each alternative could result in different localized air quality impacts to the neighborhood immediately adjacent to these facilities.

[15] EPA. Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2020. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks-1990-2020
[16] NYC Mayor's Office of Sustainability: Inventory of New York City Greenhouse Gas Emissions. https://nyc-ghg-inventory.cusp.nyu.edu/

3.10.2 Alternative Evaluation Results

An evaluation of the three alternatives was conducted using the criterion described above. Implications for the energy consumption per passage mile and likely associated proportional criteria pollutants and GHG emissions related to CR, BRT, and LRT maintenance operations and electricity to be produced from energy plants in the region were considered. The comparison results are summarized for each alternative in **Table 27**. BRT tends to have greater impacts than LRT and CR according to the operational energy required for the same passage miles traveled. Additionally, the buses under BRT would generate fugitive dust emissions from tire wear and road surface. No significant differences to air quality conditions are anticipated among the alternatives in terms of their potential to reduce fuel consumption as compared to current travel conditions (i.e., the use of personal vehicles or the subway running on longer routes between the two boroughs). However, the BRT alternative would result in the least air quality benefit as compared to CR or LRT alternative.

Table 27: Energy Consumption Comparison among Alternatives

Alternative	2019 Average BTU/passenger-mile[1]	Comparison to BRT
BRT	4,634	100%
LRT	1,307	28%
CR	1,589	34%

[1]: Transportation Energy Data Book, Edition 40, Oak Ridge National Laboratory, 2022.

With respect to localized air quality impacts potentially resulting from the IBX Project operations within maintenance and storge yards, each alternative would use the BAT parking lot as the potential location of a new maintenance and storage yard. As a result, each alternative would have impacts under both construction and operational conditions to the immediately adjacent sensitive land uses along 2nd Avenue.

3.10.3 Conclusions and Next Steps

BRT would have greater air quality impacts than LRT and CR according to the operational energy required for the same passage miles traveled. Additionally, the BRT buses would generate fugitive dust emissions from tire wear and road surface. No significant differences to air quality conditions are anticipated among the alternatives in terms of their potential to reduce fuel consumption as compared to current travel conditions (i.e., the use of personal vehicles or the subway running on longer routes between the two boroughs). Detailed localized and mesoscale effects on ultimate alternatives to be selected through this evaluation would be assessed as part of the full detailed analysis during the NEPA phase of the IBX Project.

Appendix A: Bay Ridge Branch Overhead Structures

Photographs contained in this appendix depict overhead structures along the Bay Ridge Branch traveling westward from Fresh Pond Junction, Queens, to Bay Ridge, Brooklyn. Bridge names and numbers correspond with the rows of **Table 13**.

BIN: 2243850
Name: 52. Liberty Avenue

BIN: 2243860
Name: 51. Glenmore Avenue

BIN: 2243870
Name: 50. Pitkin Avenue

BIN: 2243890
Name: 49. Sutter Avenue

BIN: 2243900
Name: 48. Blake Avenue

BIN: N/A
Name: 47. NYCT 3 Line

BIN: N/A
Name: 46. NYCT Yard Lead adjacent to L Train

BIN: 2243530
Name: 34. Albany Avenue

BIN: 2243520
Name: 33. Brooklyn Avenue

BIN: N/A
Name: Parking Overbuild East of Flatbush Avenue

BIN: N/A
Name: Parking Overbuild East of Flatbush Avenue

BIN: 2243510
Name: 32. Flatbush Avenue

BIN: N/A
Name: Overbuild b/w Flatbush and Nostrand Avenues

BIN: 2243500
Name: 31. Nostrand Avenue

BIN: 2243490
Name: 30. Bedford Avenue

BIN: 2243480
Name: 29. Ocean Avenue

BIN: N/A
Name: 28. NYCT B/Q Lines

BIN: 2243460
Name: 27. East 15th Street

BIN: 2243450
Name: 26. East 14th Street

BIN: 2243440
Name: 25. Coney Island Avenue

BIN: 2243439
Name: 24. Ocean Parkway

BIN: 2243420
Name: 23. East 3rd Street

BIN: 2243410
Name: 22. McDonald Avenue

BIN: 2243400
Name: 21. 50th Street

BIN: 2243390
Name: 20. 52nd Street

BIN: 2243380
Name: 19. 18th Avenue

BIN: 2243370
Name: 18. 17th Avenue

BIN: 2243360
Name: 17. 16th Avenue/59th Street

BIN: 2243350
Name: 16. 60th Street

BIN: 2243340
Name: 15. 15th Avenue

BIN: 2243660
Name: 14. New Utrecht Avenue

BIN: 2243650
Name: 13. 14th Avenue

BIN: 2243640
Name: 12. 13th Avenue

BIN: 2243630
Name: 11. 11th Avenue

BIN: 2243620
Name: 10. Fort Hamilton Parkway

BIN: 2243610
Name: 9. 8th Avenue

BIN: N/A
Name: 8. NYCT N Train

BIN: 2243600
Name: 7. 7th Avenue

BIN: 2243590
Name: 6. 6th Avenue

BIN: 2243580
Name: 5. 5th Avenue/Gowanus Expressway

BIN: 2243330
Name: 4. 4th Avenue

BIN: N/A
Name: 3. Bay Ridge Towers Overbuild

BIN: 2243320
Name: 2. 3rd Avenue

BIN: N/A
Name: Bay Ridge Air Rights Overbuild

BIN: 2243310
Name: 1. 2nd Avenue

Appendix 1.15 Development of Final Evaluation Screening Criteria

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

1 Introduction

This Technical Memorandum documents the process of developing measures for comparing transit alternatives being studied in a Planning and Environmental Linkages (PEL) Study[1] being undertaken by the Metropolitan Transportation Authority (MTA) for the Interborough Express (IBX) Project. The purpose of the PEL Study is to further evaluate the transit alternatives that MTA is carrying forward from the 2021 *Feasibility Study and Alternatives Analysis*[2] (Feasibility Study) for the IBX and to arrive at the Locally Preferred Alternative (LPA) that will be used in future phases of the Project.

2 Identification of Measures to Compare Alternatives

2.1 Universe of Measures

In the PEL Study, MTA is using measures to evaluate the transit alternatives, including the IBX Project purpose and need, goals and objectives, engineering factors, transit planning considerations, and public input. **Table A-1 (Attachment A)** presents the universe of measures MTA identified in the PEL Study. In addition, **Table A-1 (Attachment A)** presents the results of the analysis for each of the three alternatives: Bus Rapid Transit (BRT), Light Rail Transit (LRT), and Conventional Rail (CR). More detail about the results of the analysis is provided in the PEL Study report.

What is a measure?

A measure is a standard for estimating the value, quality, or effect of an alternative. Applying the same measure to each alternative enables the performance of the alternatives to be directly compared.

2.2 Measures Indicating Key Benefits and Challenges

MTA then examined and filtered the universe of measures in **Table A-1 (Attachment A)** to focus on those measures that indicate the key benefits and challenges among the alternatives. **Table 1** below lists the 10 key benefits and challenges and the relative evaluation scores for each alternative. The 10 measures are the following:

- **Meets project purpose and need** – Is there potential for transfers between stations at Roosevelt Avenue (ease of transfer)? Would the alternative connect to existing subway and bus lines in the corridor? Would the alternative improve access and connections to and among communities and job centers in the corridor?

- **Meets forecasted 2045 ridership demand** – Would the alternative have vehicle capacity to meet the forecasted 2045 ridership demand? Is vehicle operating headway sufficient to meet projected ridership demand?

- **Provides reliable passenger service** – Would the alternative provide reliable passenger service connecting Brooklyn and Queens?

- **Capital cost estimate** – What would be the capital cost of the alternative? Would the alternative provide cost-effective transit service improvements based on preliminary cost estimates?

[1] https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1/pel.cfm
[2] *Bay Ridge Connector Feasibility Study and Alternatives Analysis*, 2021. Prepared by the MTA and AECOM.

- **Avoids construction of a new tunnel under All Faiths Cemetery** – Can the alternative be built without requiring a new tunnel under the cemetery?

- **Ability to provide a terminal station on Roosevelt Avenue** – What is the ability of the alternative to provide a terminal station on Roosevelt Avenue?

- **Does not impact roadway operations on Roosevelt Avenue** - Does the alternative require operations on Metropolitan Avenue, 69th Street, and Roosevelt Avenue? What is the potential for the alternative to disrupt roadway operations on Roosevelt Avenue?

- **Ability to expand service in future** – What is the ability of the alternative to expand service in the future?

- **Requires special equipment and operations in tunnels** – Would the alternative require special operations in tunnels (i.e., mechanical guidance and signalized crossings)? Is there a risk to the operating schedule because of tunnel operating complexity? Is there are need for a new class of vehicle not in use by other MTA services?

- **Avoids or minimizes environmental issues** - Would parks, recreation areas, and open space properties need to be acquired for additional right of way? How many historic architectural resources would be directly impacted within existing right of way or within additional right of way? How many potential archaeological sites may be directly impacted? Could the project cause a visual change? How much of the right of way would be in adopted flood hazard areas? Is there potential for operational noise impacts to residences? Is there potential for permanent loss of on-street parking for businesses?

Table 1 displays the following codes in a scoring system for the alternatives that is used in the PEL Study. More detail on the scoring system and the performance of the alternatives may be found in the PEL Study report. Briefly, the codes are defined as follows:

- Best (Green) – The alternative performs at the highest level compared to the other alternatives for the measure.

- Moderate (Yellow) – The alternative does not perform as well as the Best (Green) performing alternative, but it performs better than the alternative with the Least best (Red) score.

- Least best (Red) – The alternative performs at the lowest level compared to the other alternatives for the measure.

Table 1: Key Benefits and Challenges of the Alternatives

	LRT	CR	BRT
1. Meets project purpose and need			
2. Meets forecasted 2045 ridership demand			
3. Provides reliable passenger service			
4. Capital cost estimate			
5. Avoids construction of a new tunnel under All Faiths Cemetery			
6. Ability to provide a terminal station at Roosevelt Avenue			
7. Potential to disrupt roadway operations on Roosevelt Avenue			
8. Ability to expand service in future			
9. Standard operation of equipment in tunnels			
10. Avoids or minimizes environmental issues			

Best
Moderate
Least best

2.3 Key Differentiating Measures

Using the 10 key measures in **Table 1**, MTA then identified the five measures that are the key differentiators among the alternatives. These five measures provide a distinction between the alternatives from operating, cost, and construction perspectives. By highlighting the differences in the performance of the alternatives, the relative merits and disadvantages of each alternative can be clearly compared. In the PEL Study, the five measures guided MTA's selection of the Preferred Alternative. The five key differentiating measures are shown in **Table 2** and are described as follows:

- **Capacity** – Would the alternative have vehicle capacity to meet the forecasted 2045 ridership demand? Is vehicle operating headway sufficient to meet projected ridership demand?

- **Reliability** – Would the alternative meet the project purpose and need by providing reliable passenger service connecting Brooklyn and Queens? Would the alternative require special operations in tunnels (i.e., mechanical guidance and signalized crossings)? Is there a risk to the operating schedule because of tunnel operating complexity?

- **Constructability** – Can the alternative be built without requiring a new tunnel under All Faiths Cemetery?

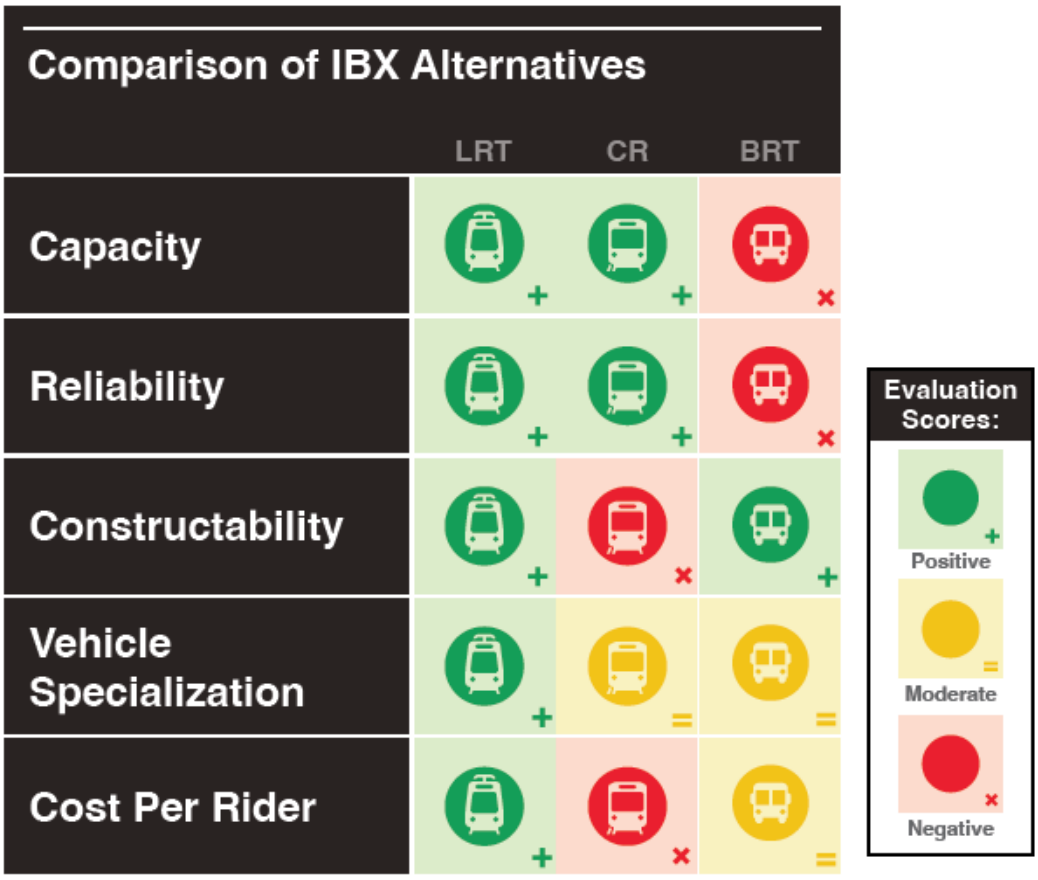
- **Vehicle specialization** – Is there are need for a new class of vehicle not in use by other MTA services? Or is special equipment and operations required?

- **Relative cost** – What would be the capital cost of the alternative? Would the alternative provide cost-effective transit service improvements based on preliminary cost estimates?

Table 2 displays the following codes in a scoring system for the alternatives that is used in the PEL Study. More detail on the scoring system and the performance of the alternatives may be found in the PEL Study report. Briefly, the codes are defined as follows:

- Positive (Green) – The alternative meets the measure.
- Moderate (Yellow) – The alternative partially meets the measure.
- Negative (Red) – The alternative does not meet the measure.

Table 2: MTA's Five Key Differentiating Measures



Attachment A – Table A-1: Universe of Measures for Comparing Alternatives

Criteria	Measures	PEL Study Findings		
		BRT	LRT	Conventional Rail
Purpose and Need				
Need for efficient, direct, and reliable transit service connecting Brooklyn and Queens	Potential for transfers between stations at Roosevelt Avenue (ease of transfer)	Yes – Free transfer between IBX and Jackson Heights Hub, but with roadway congestion and service reliability issues	Yes –Free transfer between IBX and Jackson Heights Hub	Yes – Free transfer between IBX and Jackson Heights Hub
	Would provide reliable passenger service?	No	Yes	Yes
Need to connect to existing subway and transit systems that serve Brooklyn and Queens	Would the alternative connect to existing subway and transit systems in the corridor?	Will connect with up to 17 existing transit lines	Will connect with up to 17 existing transit lines	Will connect with up to 17 existing transit lines
Need to improve access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services	Would the alternative improve access and connections to and among communities and job centers in the corridor?	Yes – 940,679 study area population and 272,150 study area jobs in 2045	Yes – 940,679 study area population and 272,150 study area jobs in 2045	Yes – 940,679 study area population and 272,150 study area jobs in 2045
Goals and Objectives				
Support the economic health and development of local communities	Potential to conflict with proposed development plans	No – Alternative does not preclude or conflict with proposed developments	No – Alternative does not preclude or conflict with proposed developments	No – Alternative does not preclude or conflict with proposed developments
Maximize the development of proposed new transit services within the existing freight railroad alignment	Can the new transit service operate in the existing freight railroad corridor?	Yes	Yes	Yes
	Would additional right of way (ROW) be needed to provide required separation from freight operations?	No – Existing freight rail ROW should be sufficient to provide necessary separation when use of a cyclone fence and intrusion detection system is provided between the freight tracks and transit lanes	No – Existing freight rail ROW should be sufficient to provide necessary separation when use of a cyclone fence and intrusion detection system is provided between the freight tracks and transit tracks	No – Existing freight rail ROW should be sufficient to provide necessary separation when use of a cyclone fence and intrusion detection system is provided between the freight tracks and transit tracks if non-FRA compliant; otherwise not needed
Accommodate transit and freight systems within the existing freight railroad corridors	Can new transit service and existing freight railroad service be accommodated in the existing freight rail corridor?	Yes	Yes	Yes
	Would intrusion of freight rail operations be required to operate transit service?	Yes – Potential access to active rail siding will require crossing transit. Transit will require use of crossing gates and track lockout to provide necessary safety	Yes – Potential access to active rail siding will require crossing transit. Transit will require use of crossing gates and track lockout to provide necessary safety	Yes – Full interlocking may be required as well as FRA compliant vehicles having positive train control. Non-FRA compliant vehicles would use protocols outlined for LRT alternative plus cab-signaling at the crossing
	Alternative would require relocation of freight tracks (CSX versus others) or other infrastructure	Yes – Lateral relocation of freight tracks will be necessary in locations	Yes – Lateral relocation of freight tracks will be necessary in locations	Yes – Lateral relocation of freight tracks will be necessary in locations

Criteria	Measures	PEL Study Findings		
		BRT	LRT	Conventional Rail
Avoid or minimize environmental issues	Number or acreage of parks, recreation areas, and open space properties potentially acquired for additional ROW	0	0	0
	Number of historic architectural resources directly impacted within the existing ROW, or within additional ROW	57 resources	57 resources	57 resources
	Number of potential archaeological sites that may be directly impacted by subsurface disturbance in existing ROW and in additional ROW	352+ sites	329+ sites	315+ sites
	Would at-grade or above ground infrastructure be added that could potentially be considered a visual change (e.g., overhead catenary, substation)?	No	Yes, visible on embankment but not in the cut	Yes, Substations visible on embankment but not in the cut
	ROW acreage in adopted 2007 FIRM flood hazard area	0 acres	0 acres	0 acres
	Potential for operational noise impacts to residences	0 residences potentially impacted by BRT; BRT vehicles similar to existing buses	More residences potentially impacted by LRT compared to BRT; rail vehicle noise primarily where operating in-street	Similar rail vehicle operating noise level as LRT, but no in-street operations
	Potential for permanent loss of on-street parking for businesses	Yes, Roosevelt Avenue/Broadway during peak hours	No, in the cut with in-street option	No, in the cut
Provide cost-effective transit service improvements	Comparative capital cost for project (2022$)	~$4 billion	~$6 billion	~$8 billion
	Comparative O&M costs for project (2022$)	~$49 million	~$67 million	~$64 million
	Capital cost per rider (annualized) (2022$)	~$176	~$183	~$229
	O&M cost per rider (annualized) (2022$)	~$2.14	~$1.93	~$1.77
Engineering Factors				
Tunnel Requirements	Would the alternative's vehicle operate in the existing tunnels?	Yes – Would require special operations, including mechanical guidance using a guidewheel and signalized crossings. Would require a reverse operation in the tunnel controlled by signals at both ends and crossover of buses at each end	Yes – LRT vehicles would meet the width requirements of the tunnel	Yes – Would require a narrow vehicle no wider than 9.0 feet. Available in both FRA (PATH P5) and Non-FRA (NYCT Division A) vehicles
	Would avoid construction of a new tunnel under All Faiths Cemetery	Yes	Yes	No
Street Operations in Queens	Would require operations on Roosevelt Avenue/Broadway/75th Street	Yes	No	No
	Potential to disrupt roadway operations on Roosevelt Avenue	Yes, with roadway congestion and service reliability issues	Not applicable, would not operate in-street	Not applicable, would not operate in-street
Terminal Location	Ability to provide a terminal station at Roosevelt Avenue	Yes – Would terminate at curbside on Broadway near Roosevelt Avenue, but with roadway congestion and service reliability issues	Yes – Terminal in the rail cut and free transfer to transit rail connections by dedicated passenger corridor elevated above the street	Yes – Terminal in the rail cut and free transfer to transit rail connections by dedicated passenger corridor elevated above the street

Criteria	Measures	PEL Study Findings		
		BRT	LRT	Conventional Rail
Transit Planning				
Ridership	Would meet forecasted annual 2045 ridership demand (millions)	22.8 million	34.6 million	36.1 million
	Is the operating headway sufficient to meet projected ridership demand?	No	Yes	Yes
Safety	What operating aspects could affect public perception of safety?	Visibility/Security of station platforms below street grade	Visibility/Security of station platforms below street grade	Visibility/Security of station platforms below street grade
Interoperability with existing MTA transit services	What modes in MTA's existing transit services could operate on the proposed alignment?	None	None	None
	Is the alternative's mode currently operating in any of MTA's existing systems?	Yes	No	Yes
Operational complexity and risk	Would require special equipment and operations in tunnels (i.e., mechanical guidance and signalized crossings)	Yes	No	No
	Risk of special operations in tunnels to the operating schedule	Yes – Potential for delay or failure of the signal system controlling bus access to the tunnel would delay the schedule. Failure of the mechanical guidance to properly deploy would disable the bus and cause delay in schedule in order to remove the vehicle or repair it	No	No
Use of Existing MTA Facilities	Can the vehicles be maintained at the existing MTA maintenance facility?	No	No	Yes
Public Input				
Future expansion of IBX service	Ability to expand service in the future	No	Yes	Yes
	Is alternative adaptable to increased travel demand?	No	Yes	Yes
Potential to interline with existing transit systems	Alternative can potentially interline (operate on a different line) with existing rail services: Metro-North, LIRR, and subway	No	No	No

Source: AECOM, 2022.

Appendix 1.16 Alignment Plan and Profile Drawings

PREPARED FOR:

NY Metropolitan Transportation Authority

PREPARED BY:

The AECOM Team

OCTOBER 2022

Volume 1

IBX

MTA INTERBOROUGH EXPRESS

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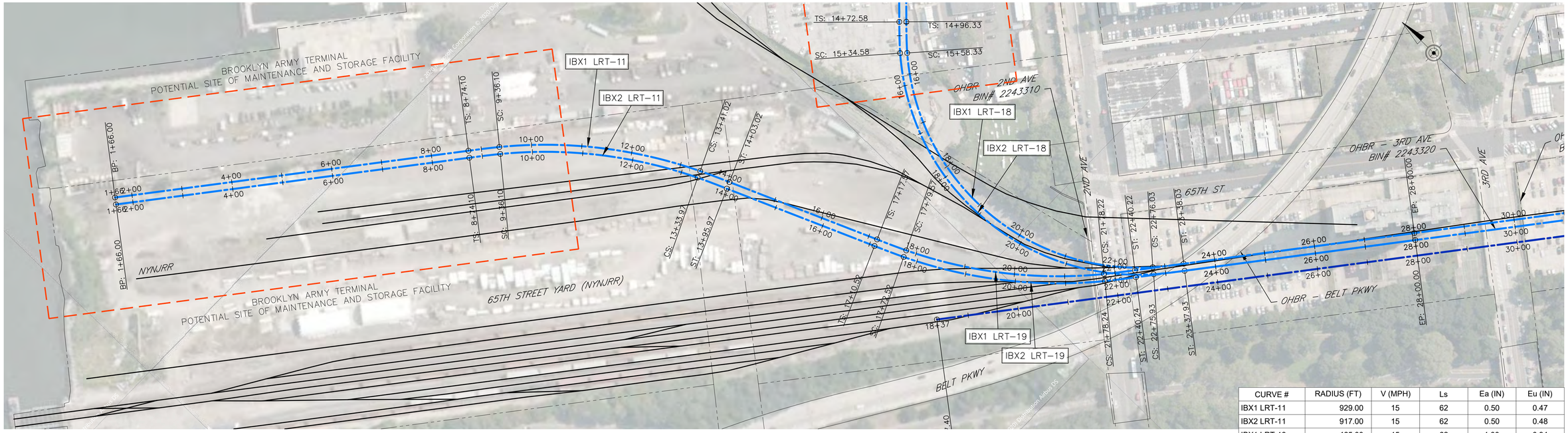

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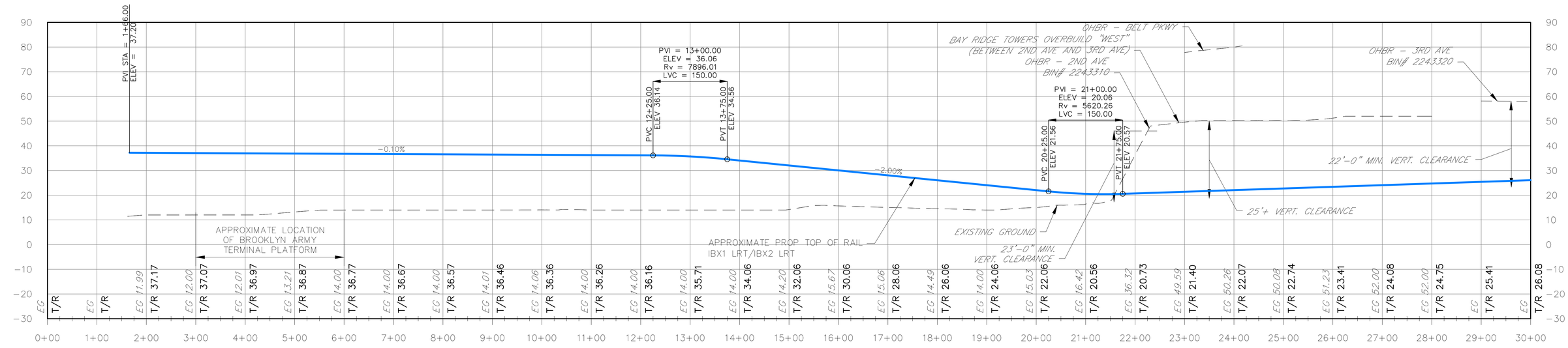
IBX1 LRT-18	465.00	15	62	1.00	0.94
IBX2 LRT-18	466.00	15	62	1.00	0.94
IBX1 LRT-19	917.00	15	62	0.50	0.48
IBX2 LRT-19	929.00	15	62	0.50	0.47



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- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

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02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

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DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

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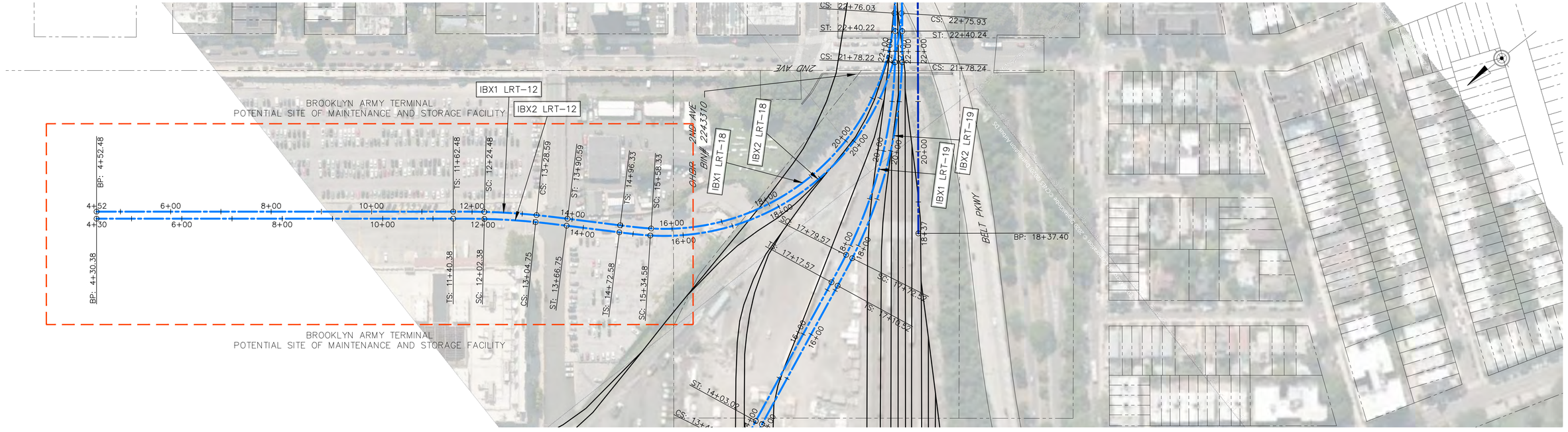

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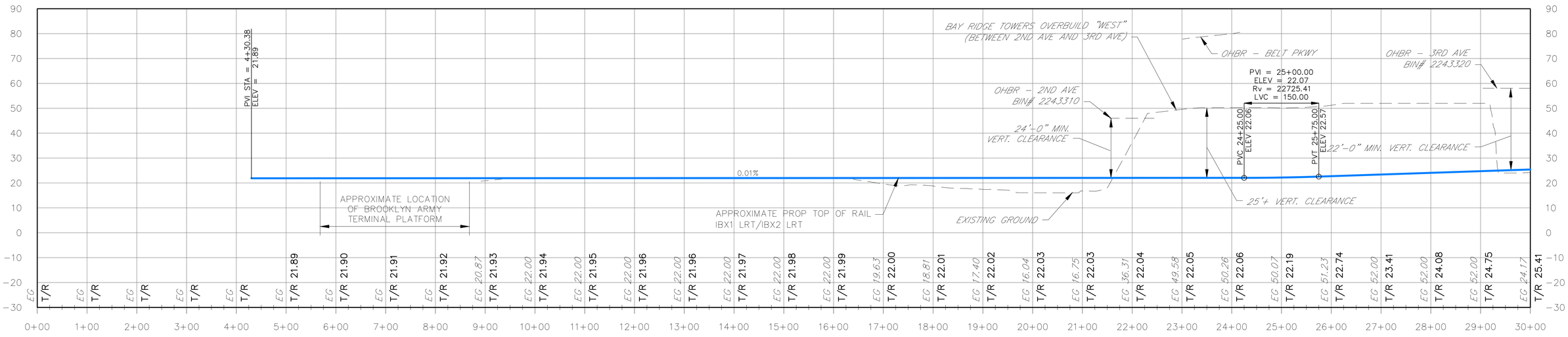
IBX2 LRT-18	466.00	15	62	1.00	0.94



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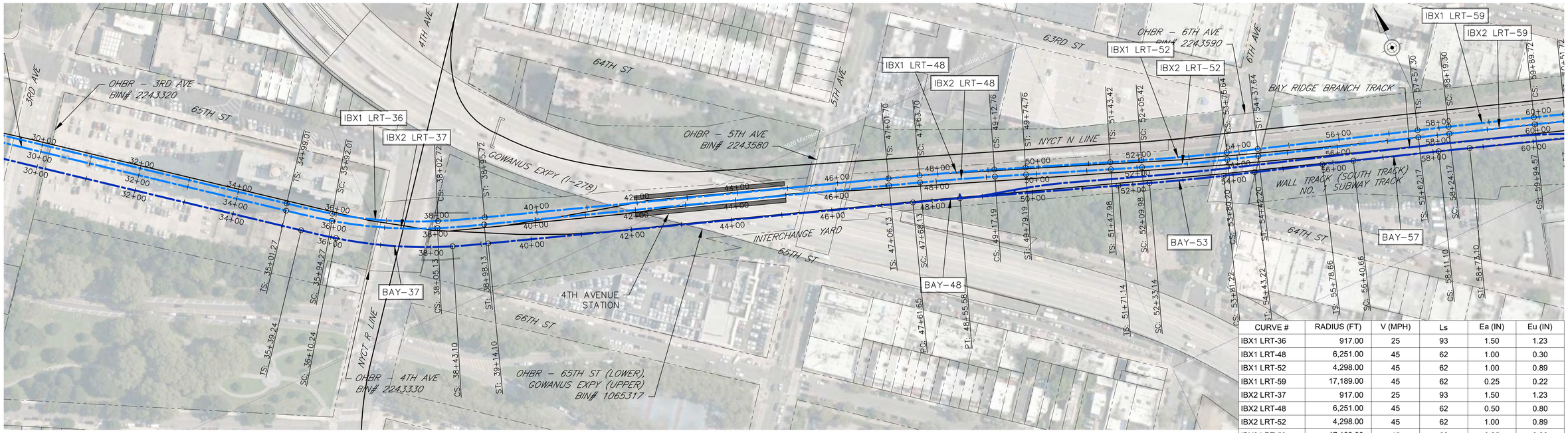

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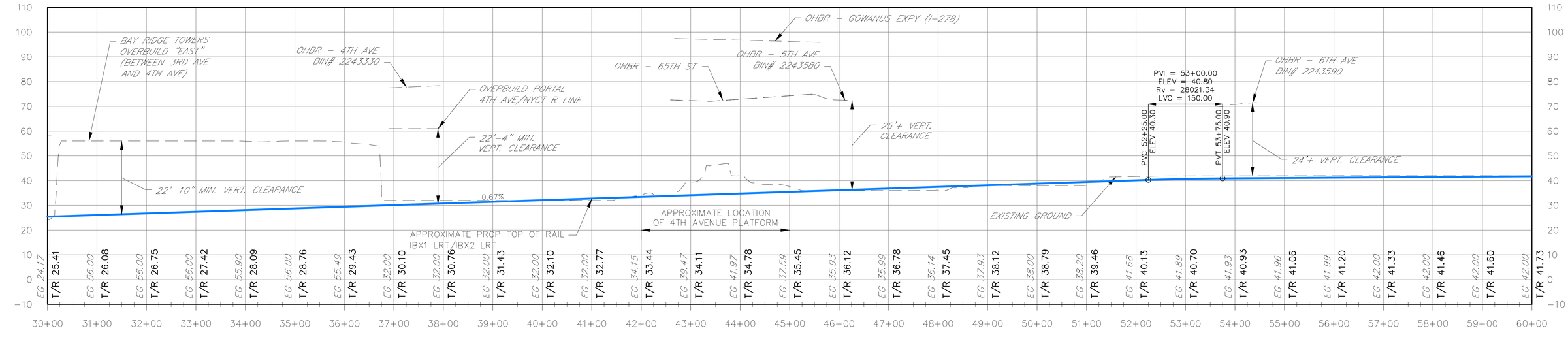
IBX1 LRT-52	4,298.00	45	62	1.00	0.89
IBX1 LRT-59	17,189.00	45	62	0.25	0.22
IBX2 LRT-37	917.00	25	93	1.50	1.23
IBX2 LRT-48	6,251.00	45	62	0.50	0.80
IBX2 LRT-52	4,298.00	45	62	1.00	0.89
IBX2 LRT-59	17,189.00	45	62	0.25	0.22
BAY-37	917.00	25	93	1.50	1.23
BAY-48	5,280.00	35	62	0.50	0.36
BAY-53	5,280.00	45	62	1.00	0.42
BAY-57	17,189.00	45	62	0.25	0.22



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- EXISTING TRACKS

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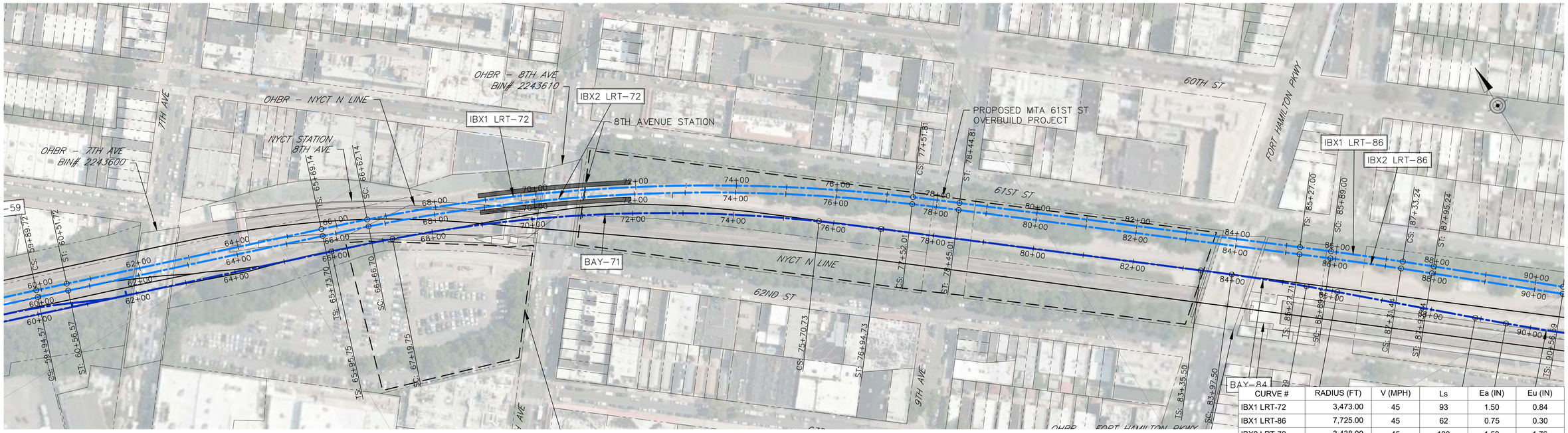

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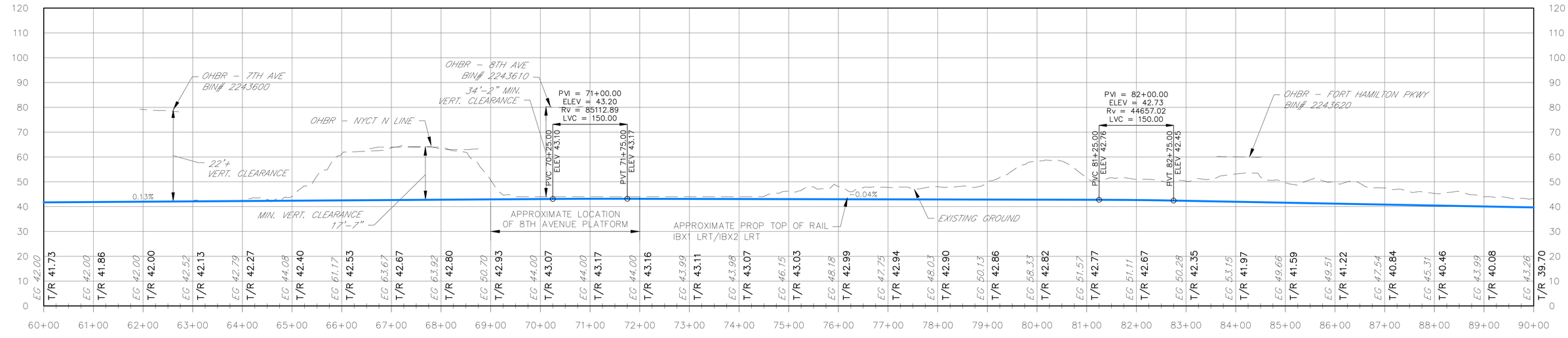
IBX2 LRT-86	7,640.00	45	62	0.75	0.31
BAY-71	1,495.00	35	124	1.00	0.72
BAY-84	3,820.00	35	62	1.00	0.29
BAY-90	3,820.00	35	62	1.00	0.29



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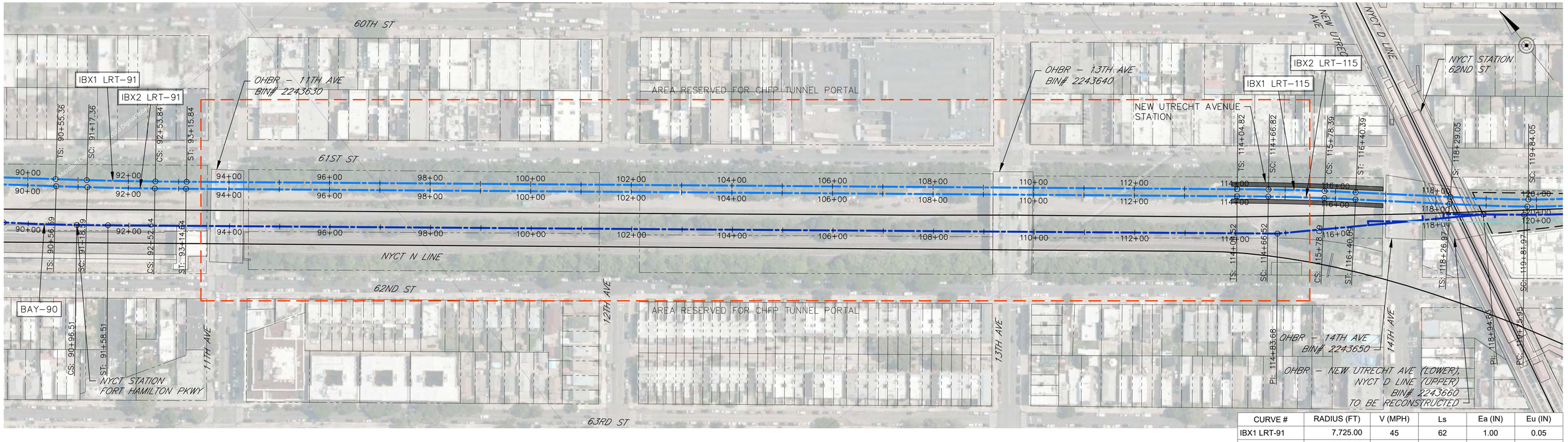

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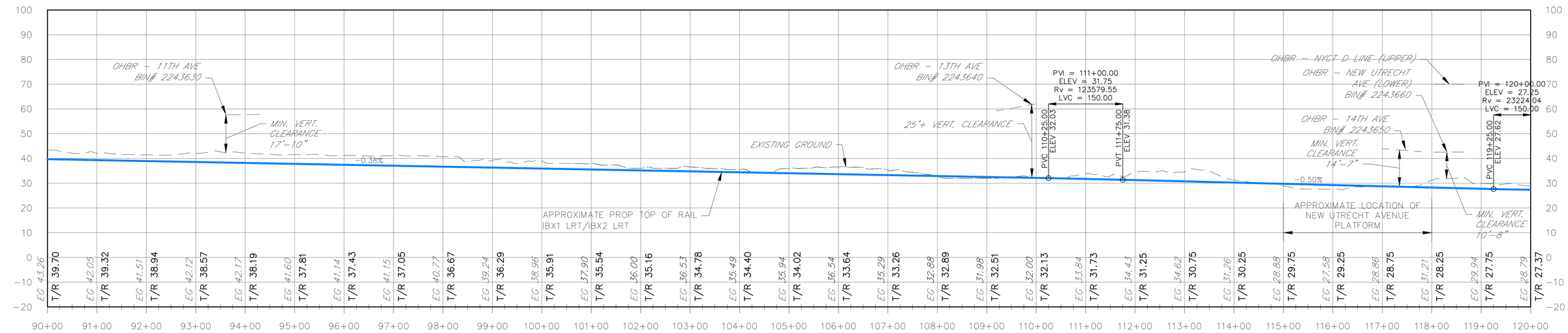
IBX1 LRT-115	4,298.00	45	62	1.00	0.89
IBX2 LRT-115	4,298.00	45	62	1.00	0.89
BAY-90	3,820.00	35	62	1.00	0.29



LEGEND:
- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

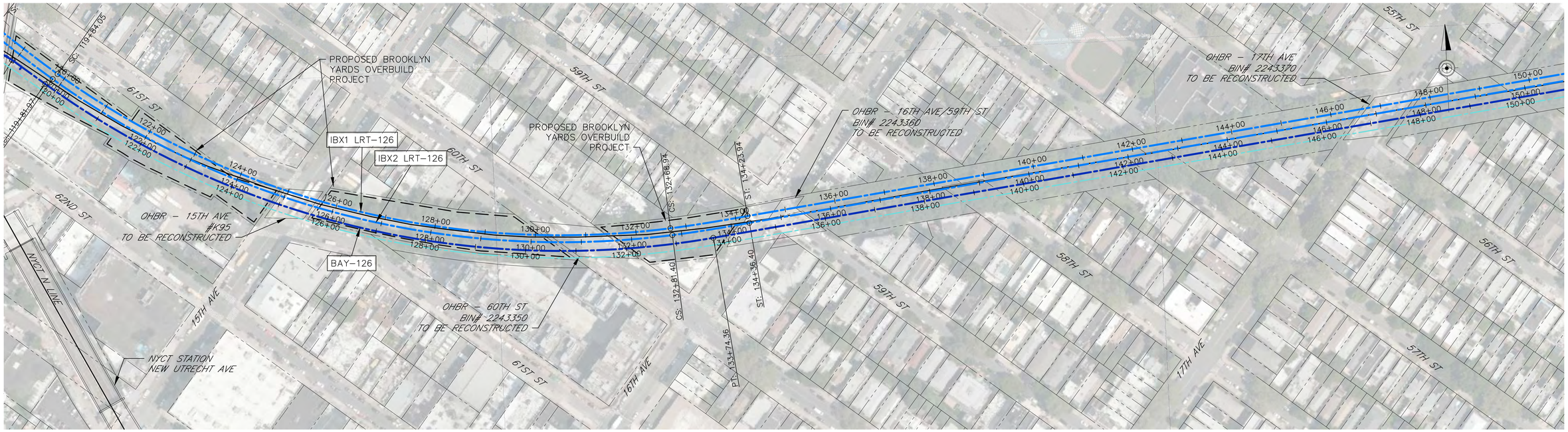
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

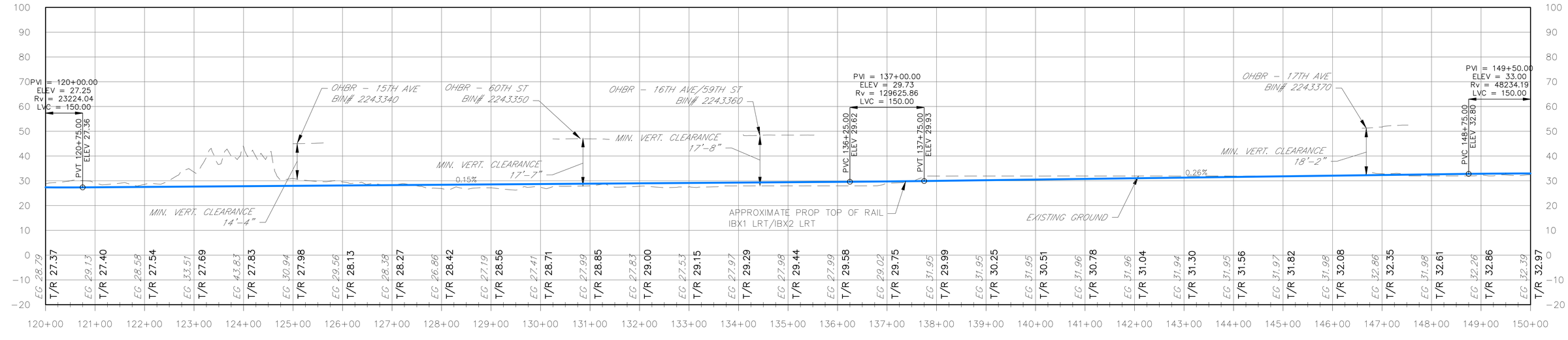
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **05** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-126	1,910.00	45	155	2.50	1.75
IBX2 LRT-126	1,910.00	45	155	2.50	1.75
BAY-126	1,910.00	45	155	2.50	1.66



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

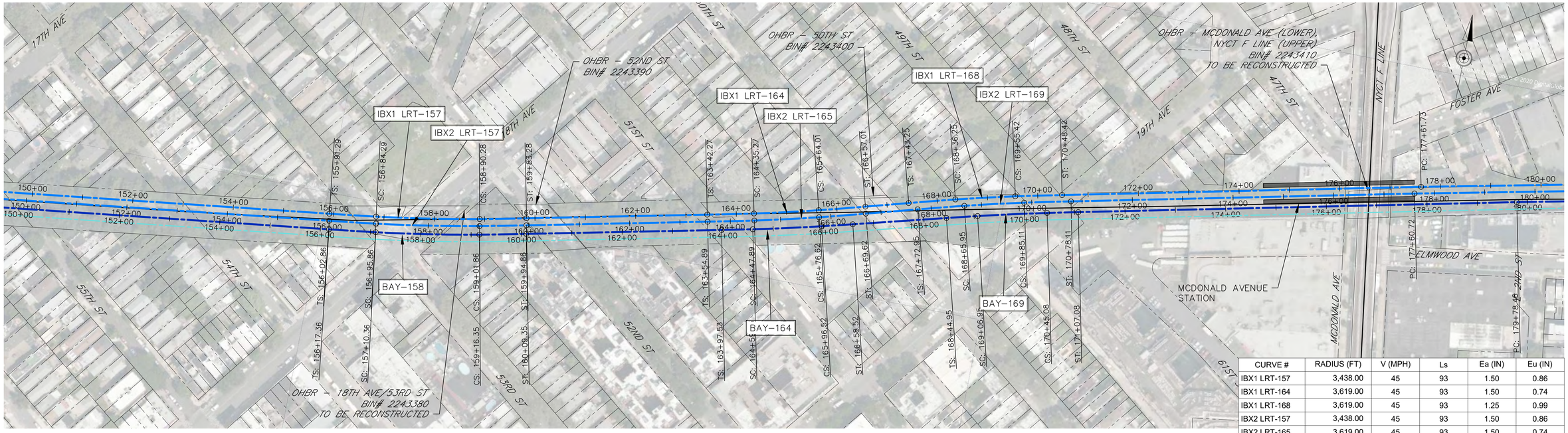
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

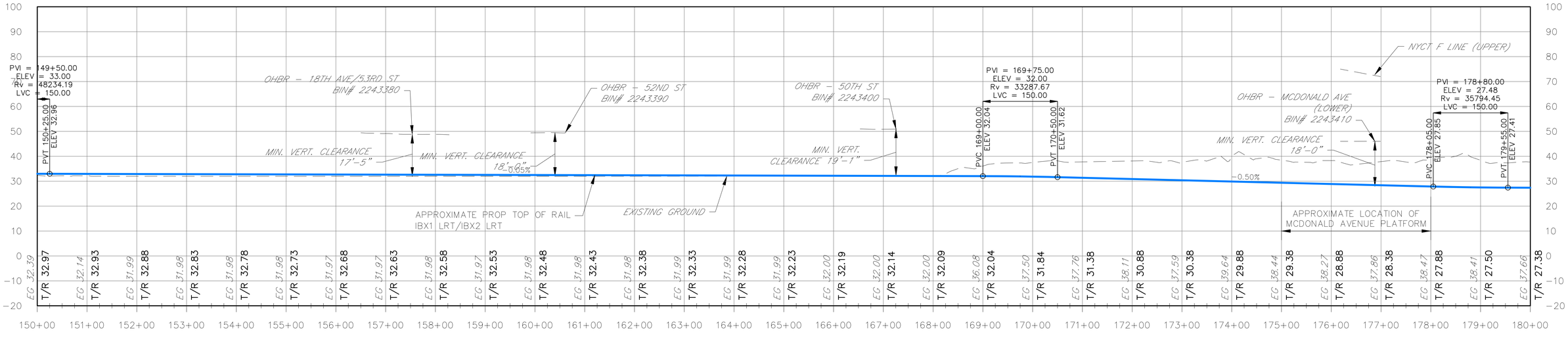
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 06 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-157	3,438.00	45	93	1.50	0.86
IBX1 LRT-164	3,619.00	45	93	1.50	0.74
IBX1 LRT-168	3,619.00	45	93	1.25	0.99
IBX2 LRT-157	3,438.00	45	93	1.50	0.86
IBX2 LRT-165	3,619.00	45	93	1.50	0.74
IBX2 LRT-169	3,619.00	45	93	1.25	0.99
BAY-158	3,438.00	45	93	1.50	0.86
BAY-165	4,044.00	45	62	1.00	1.01
BAY-169	4,584.00	45	62	1.00	0.77



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

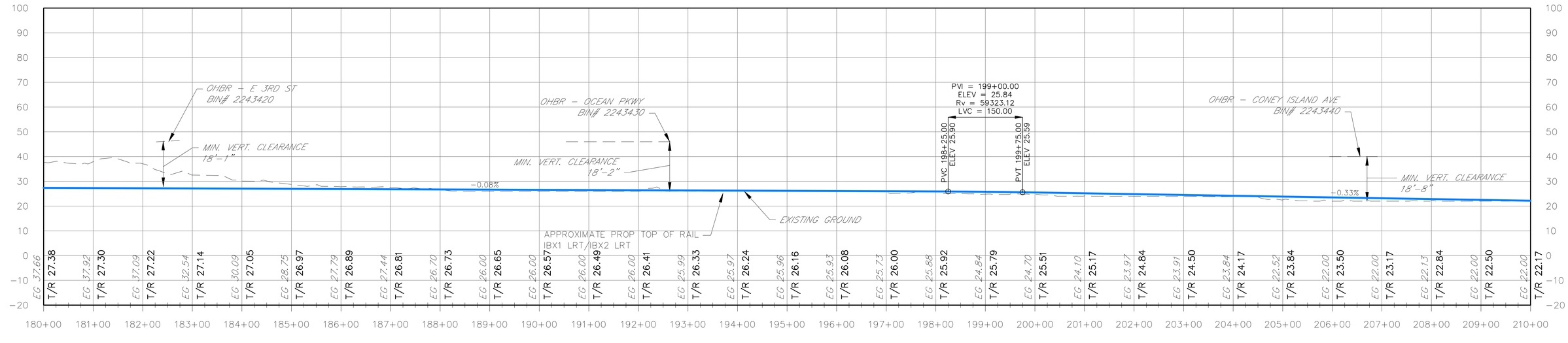
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 07 OF 28

CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-185	20,222.00	45	0	0.00	0.40
IBX2 LRT-185	20,222.00	45	0	0.00	0.40
BAY-186	17,189.00	45	0	0.00	0.47



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

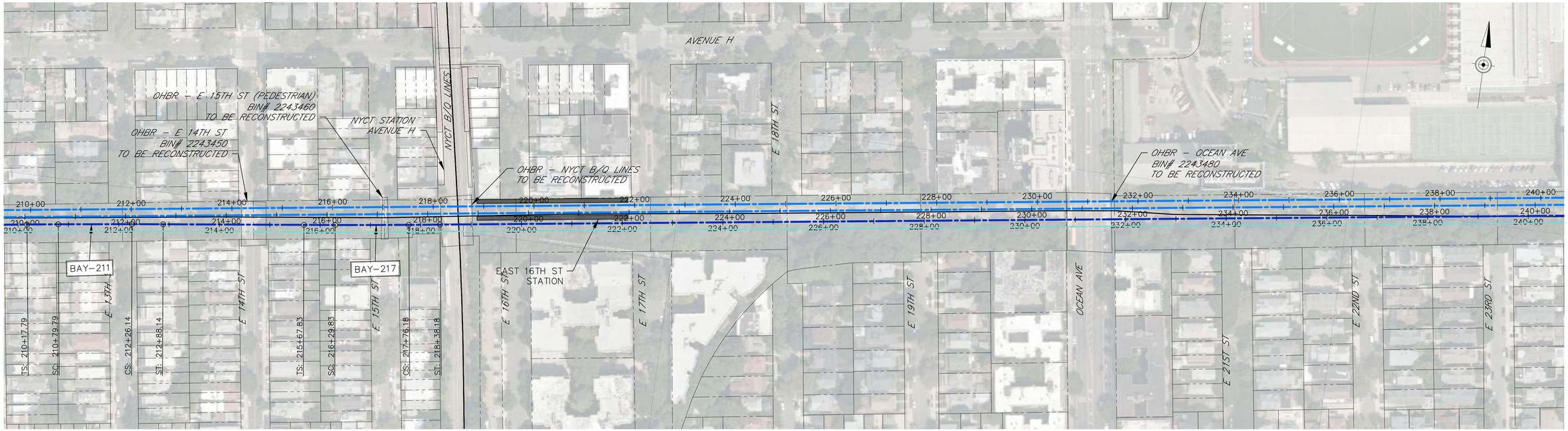
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

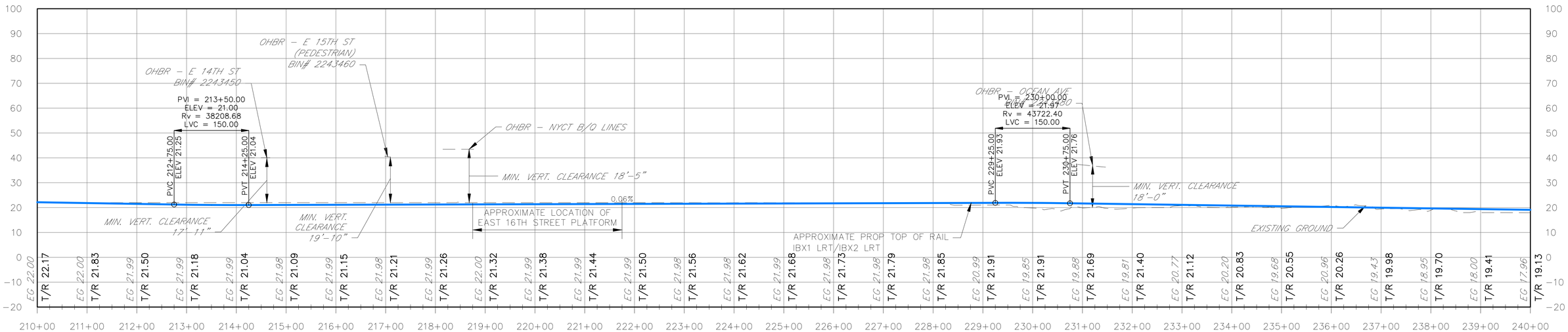
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **08** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
BAY-211	17,189.00	45	62	0.25	0.22
BAY-217	17,189.00	45	62	0.25	0.22



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

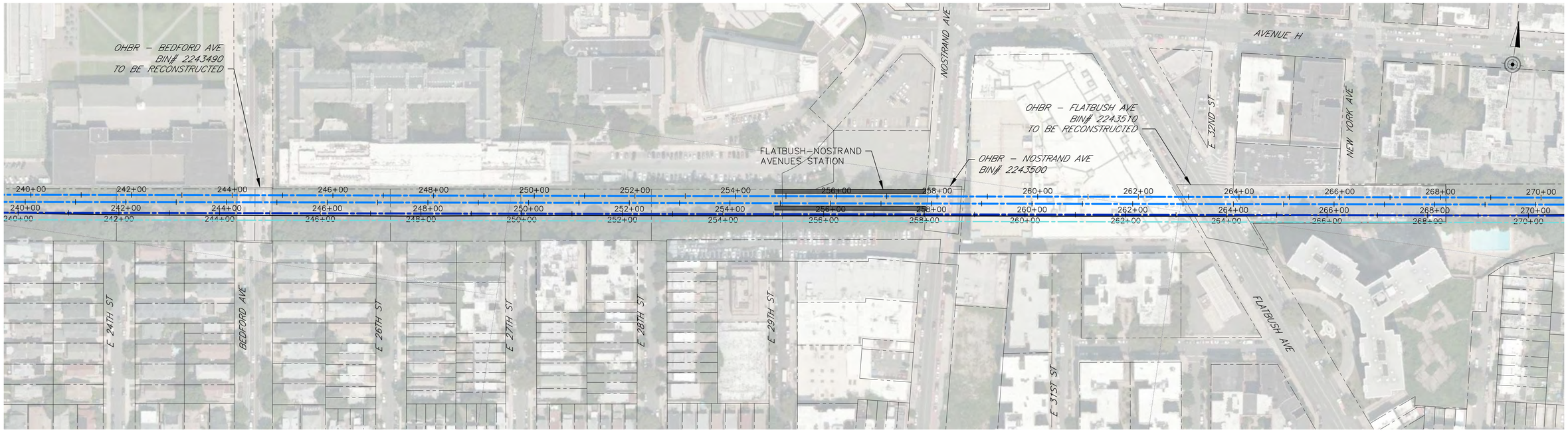
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

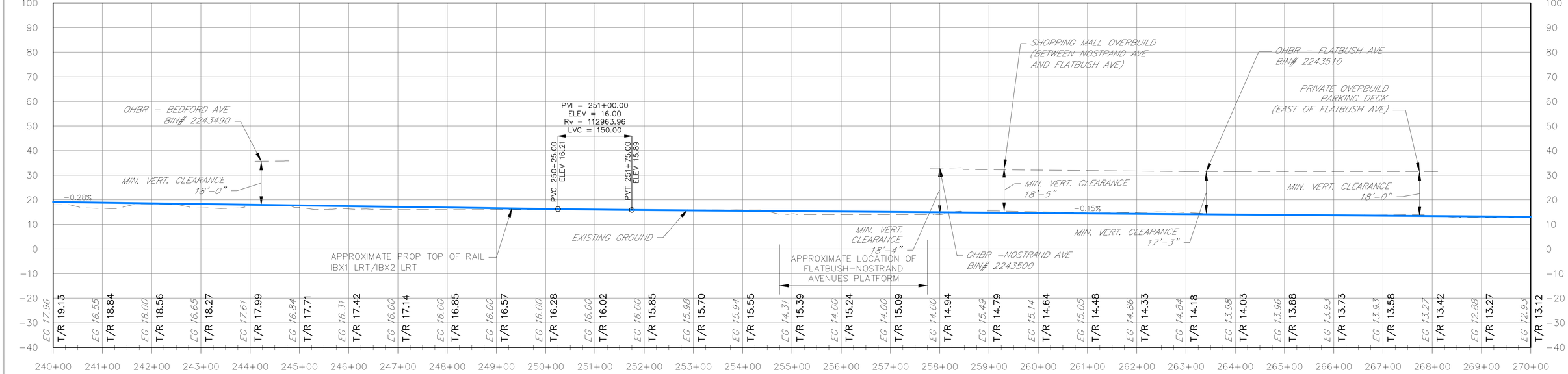
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **09** OF **28**





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

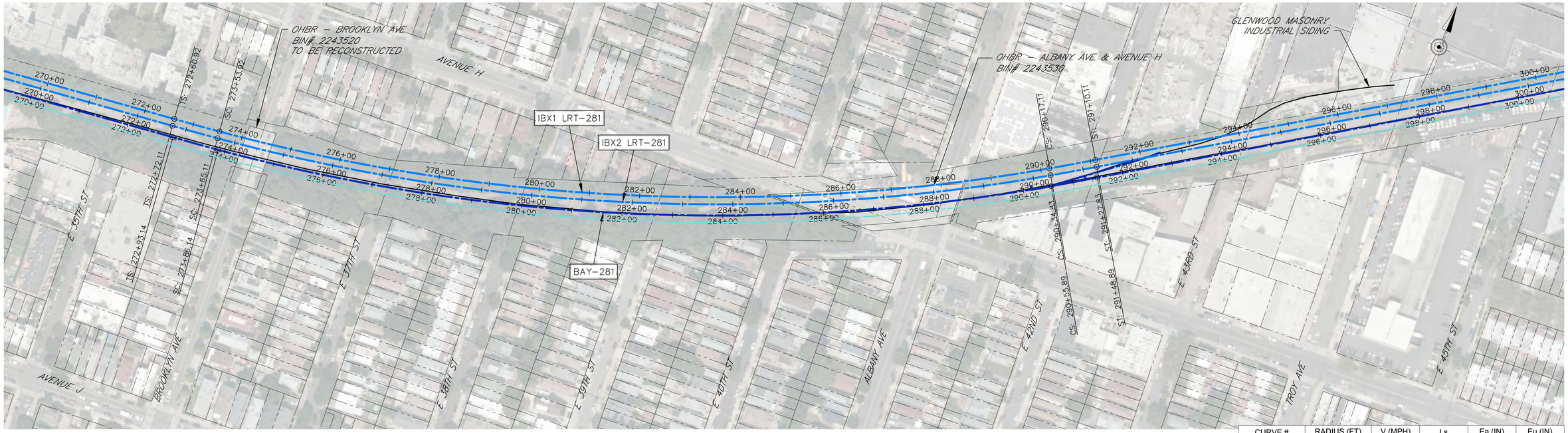
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

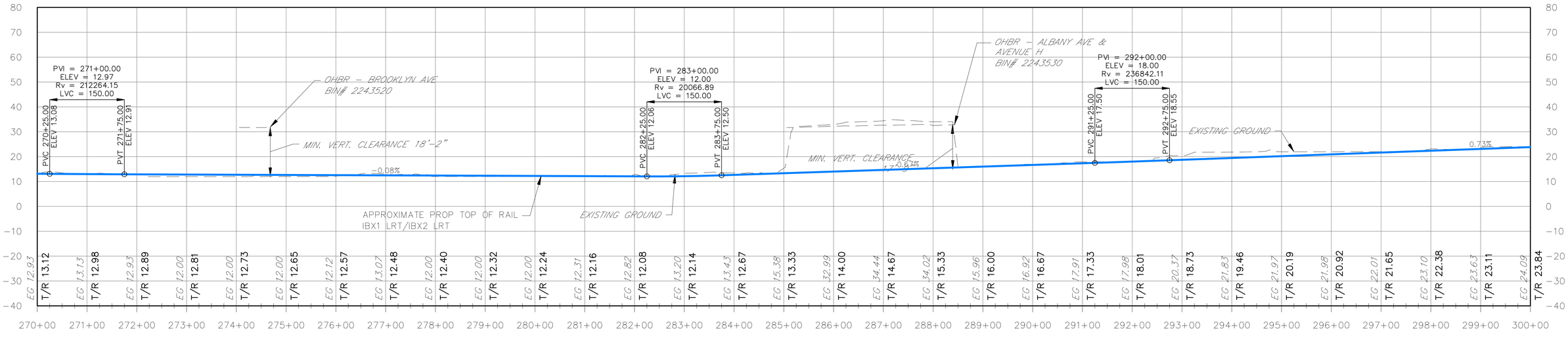
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **10** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-281	3,820.00	45	93	1.50	0.63
IBX2 LRT-281	3,834.00	45	93	1.50	0.62
BAY-281	3,820.00	45	93	1.25	0.88



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

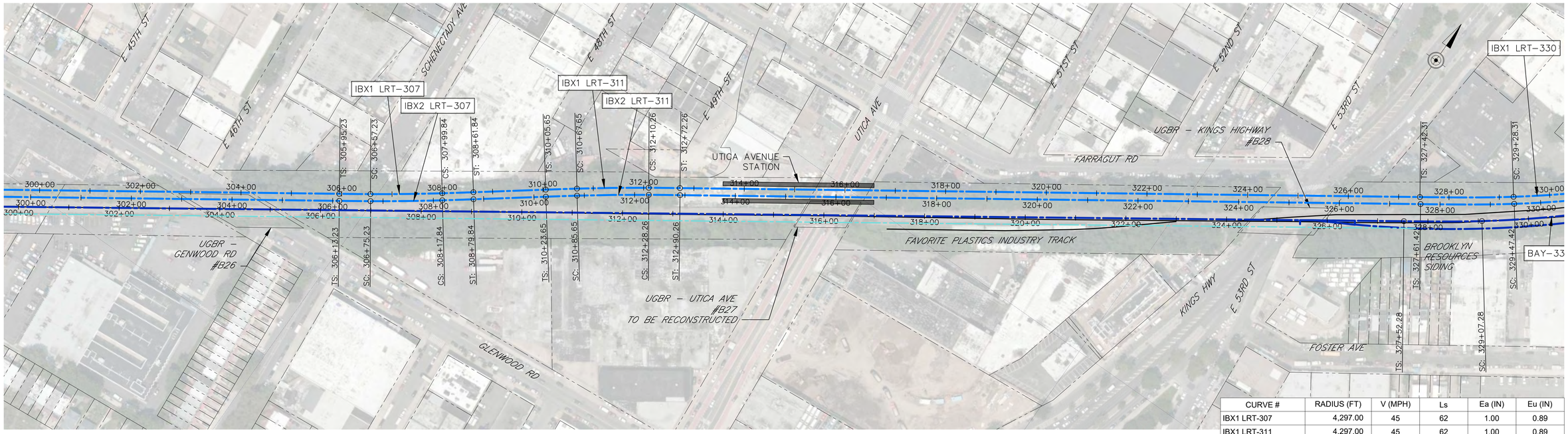
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

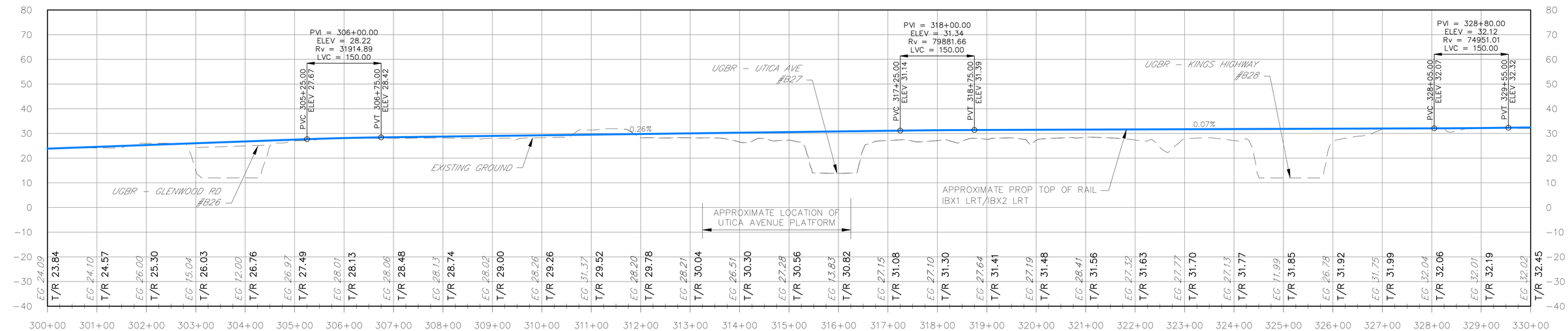
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 11 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-307	4,297.00	45	62	1.00	0.89
IBX1 LRT-311	4,297.00	45	62	1.00	0.89
IBX2 LRT-307	4,297.00	45	62	1.00	0.89
IBX2 LRT-311	4,297.00	45	62	1.00	0.89
IBX1 LRT-330	2,084.00	45	186	3.00	0.90
BAY-300	2,084.00	45	155	2.50	1.40



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

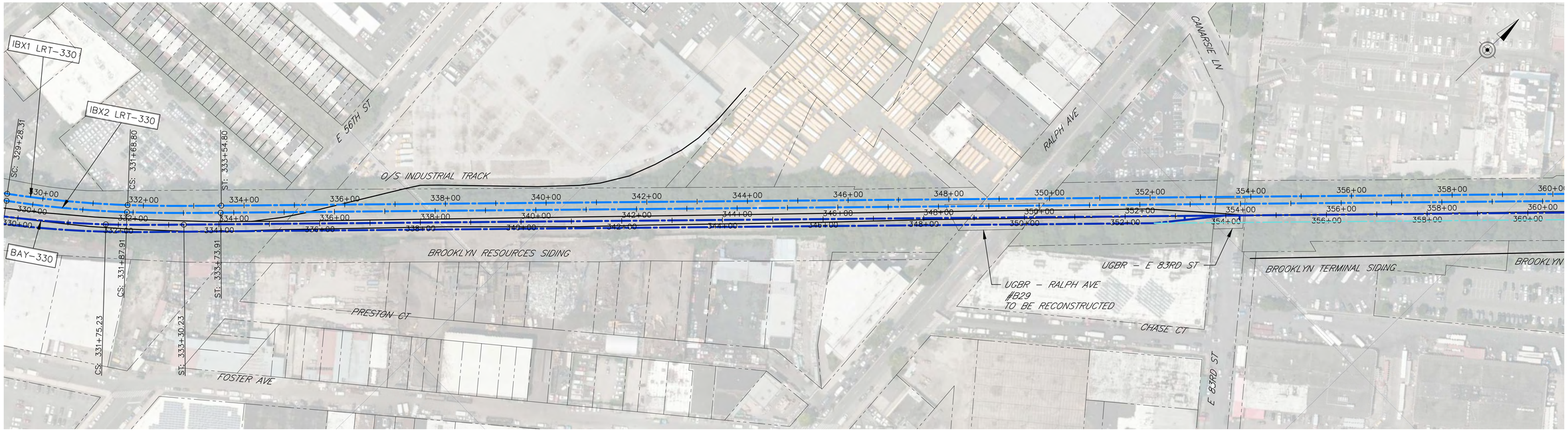
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

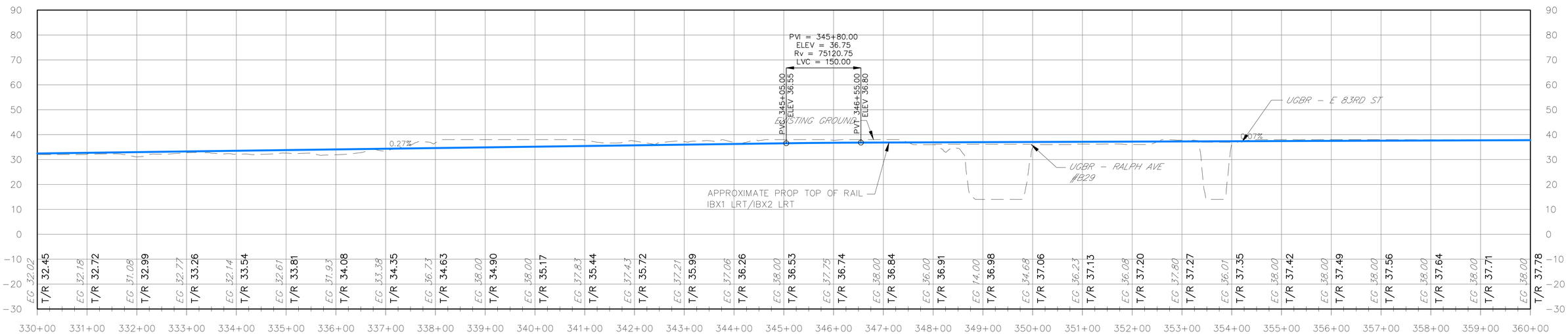
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 12 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-330	2,084.00	45	186	3.00	0.90
IBX2 LRT-330	2,084.00	45	186	3.00	0.90
BAY-330	2,084.00	45	155	2.50	1.40



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

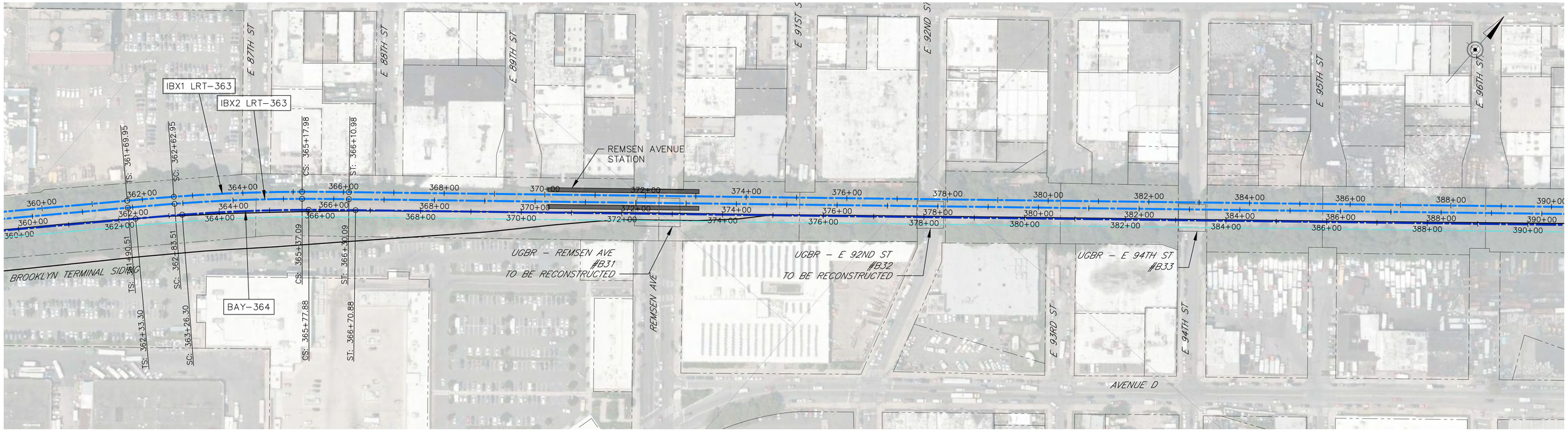
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

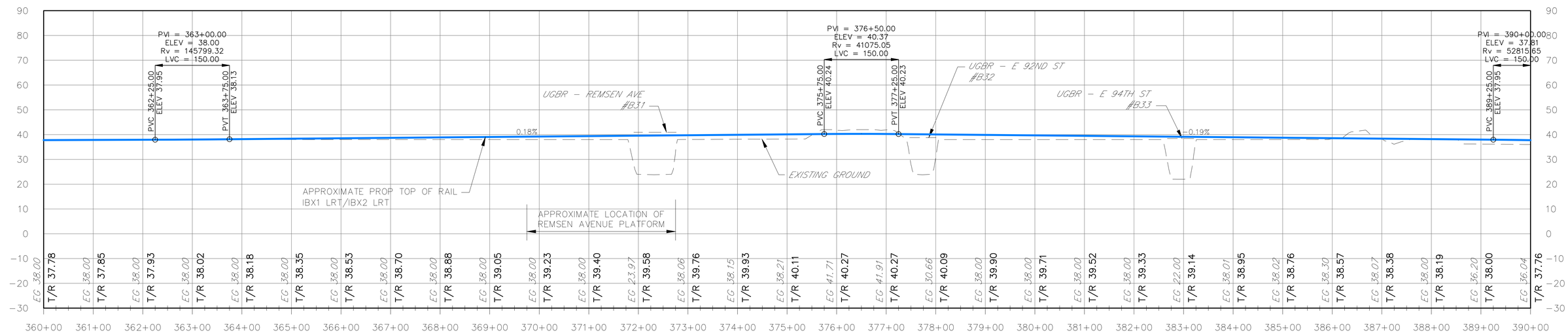
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 13 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-363	3,438.00	45	93	1.50	0.86
IBX1 LRT-363	3,438.00	45	93	1.50	0.86
BAY-364	3,404.00	45	93	1.50	0.89



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

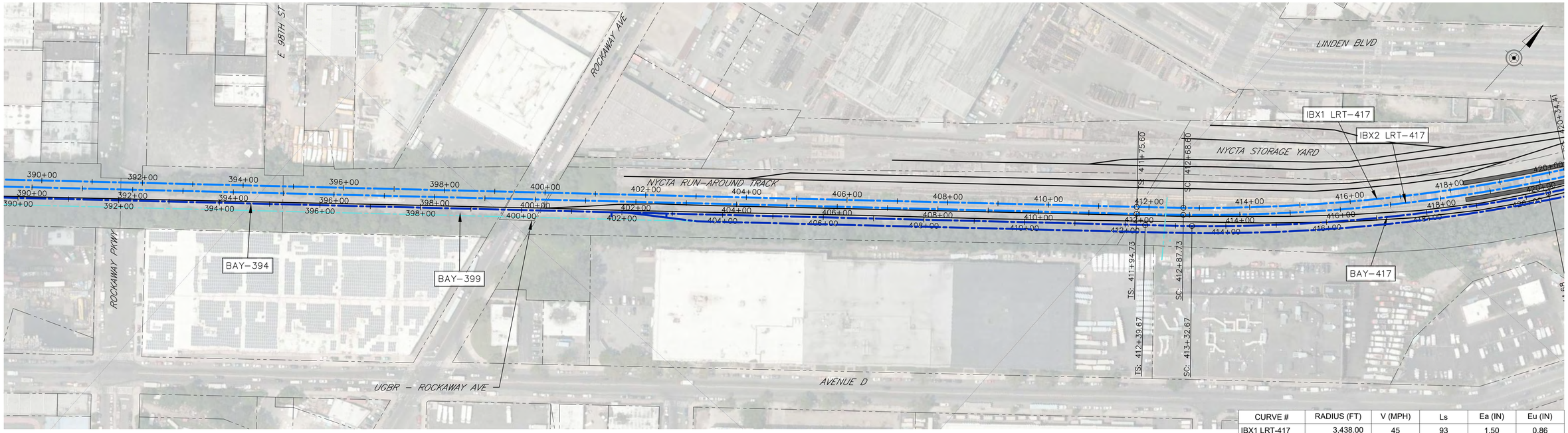
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

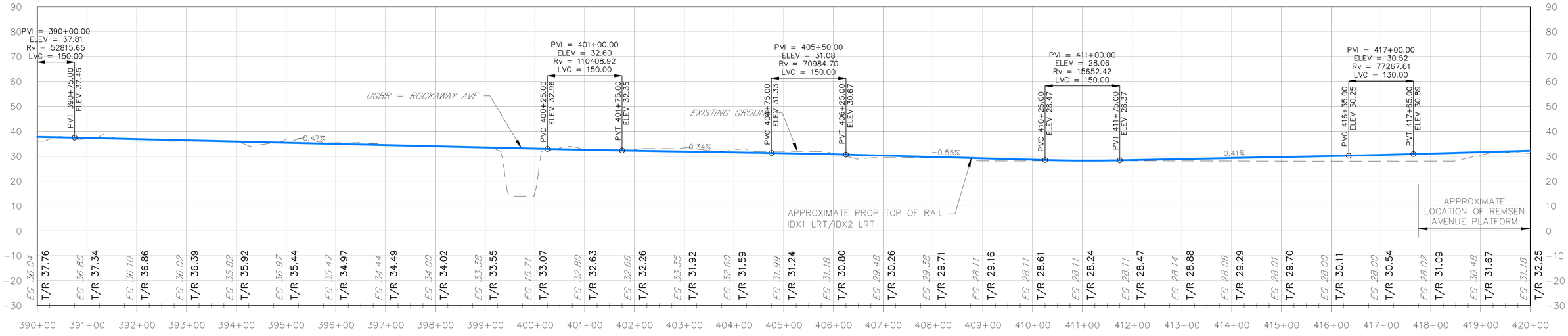
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **14** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-417	3,438.00	45	93	1.50	0.86
IBX2 LRT-417	3,452.00	45	93	1.50	0.85
BAY-417	3,438.00	45	93	1.50	0.86



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

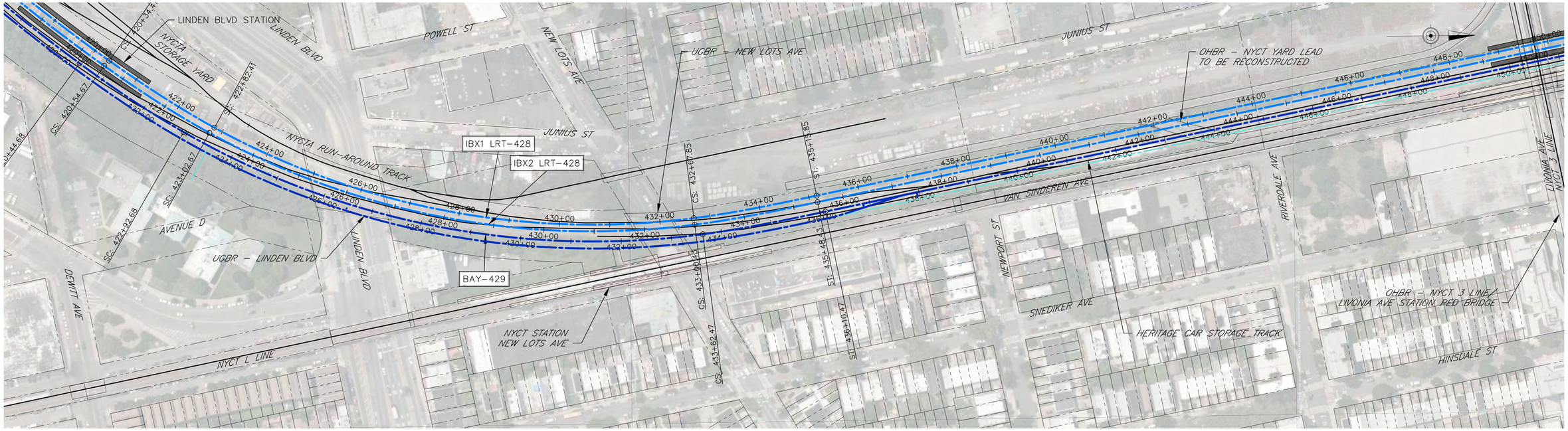
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

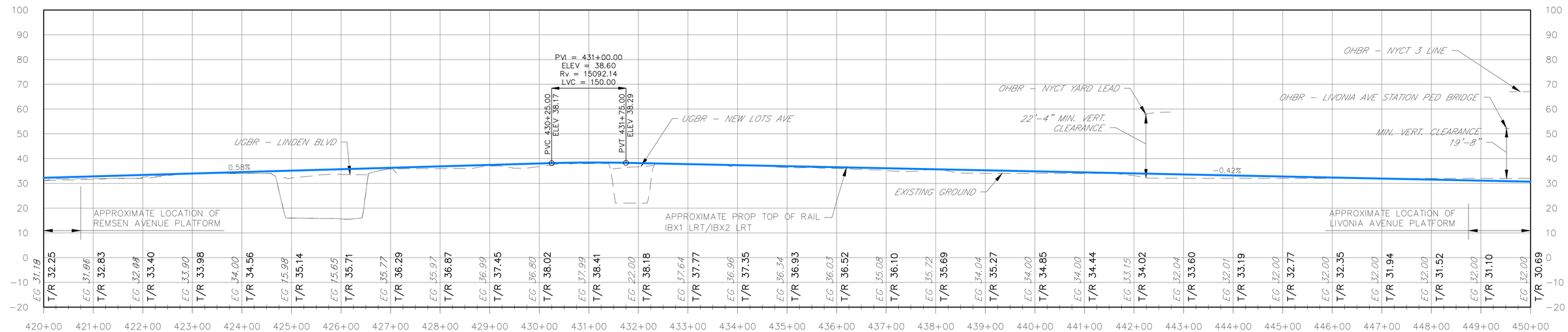
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 15 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-428	1,563.00	45	248	4.00	1.20
IBX2 LRT-428	1,577.00	45	248	4.00	1.15
BAY-429	1,637.00	45	248	4.00	0.96



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

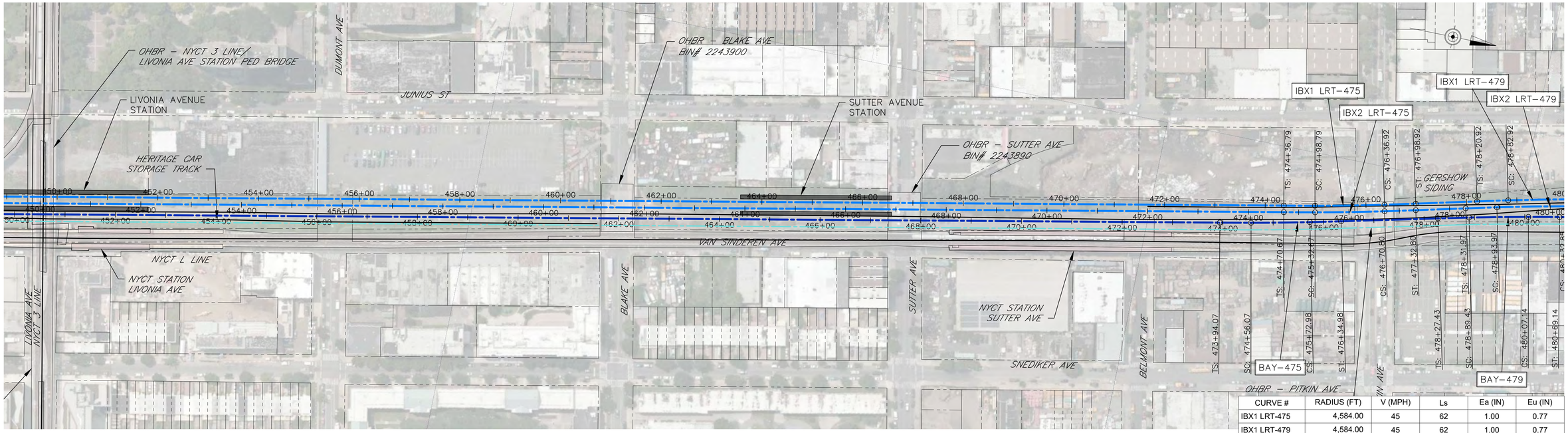
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

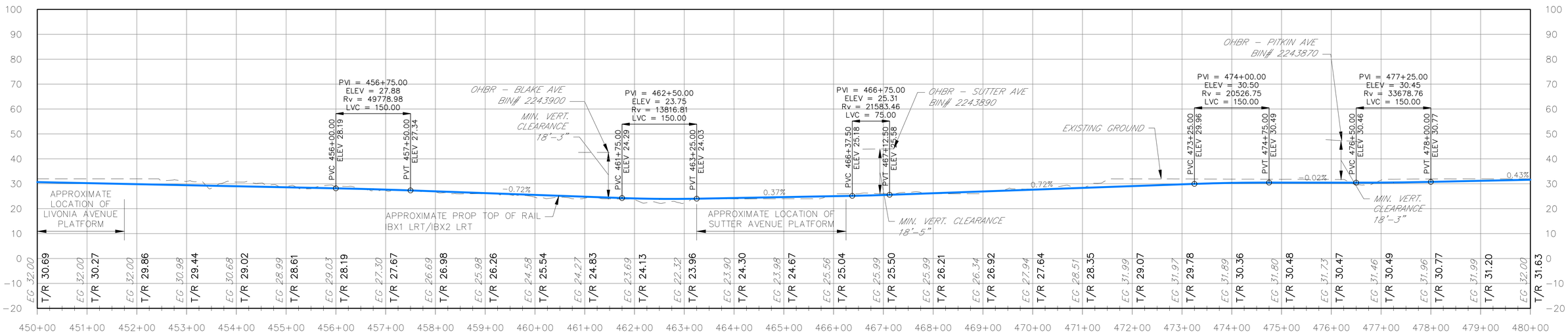
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **16** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-475	4,584.00	45	62	1.00	0.77
IBX1 LRT-479	4,584.00	45	62	1.00	0.77
IBX2 LRT-475	4,584.00	45	62	1.00	0.77
IBX2 LRT-479	4,584.00	45	62	1.00	0.77
BAY-475	4,911.00	45	62	1.00	0.65
BAY-479	4,911.00	45	62	1.00	0.65



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

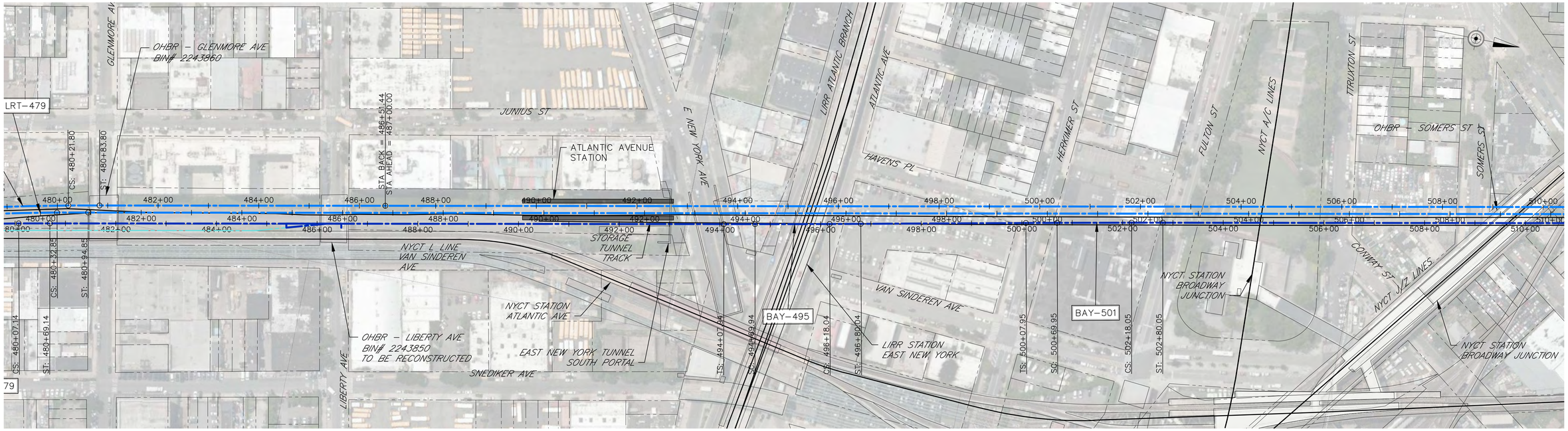
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

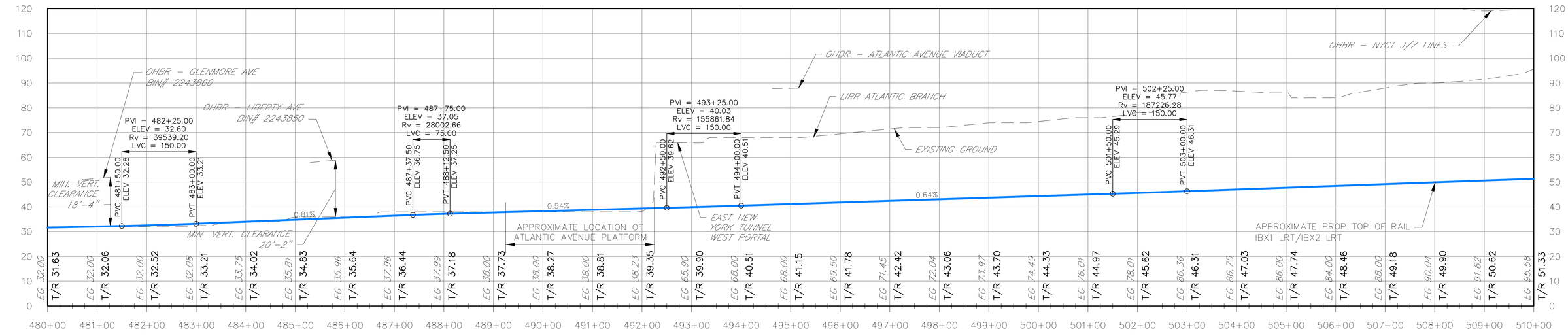
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 17 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
BAY-495	34,378.00	20	0	0.00	0.05
BAY-501	34,378.00	20	0	0.00	0.05



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

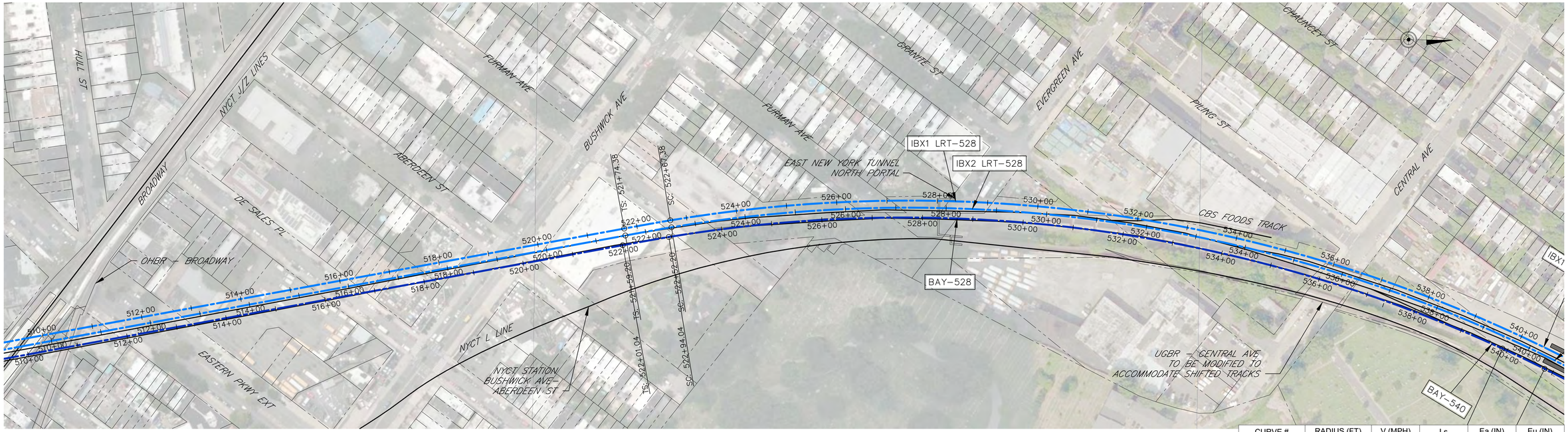
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

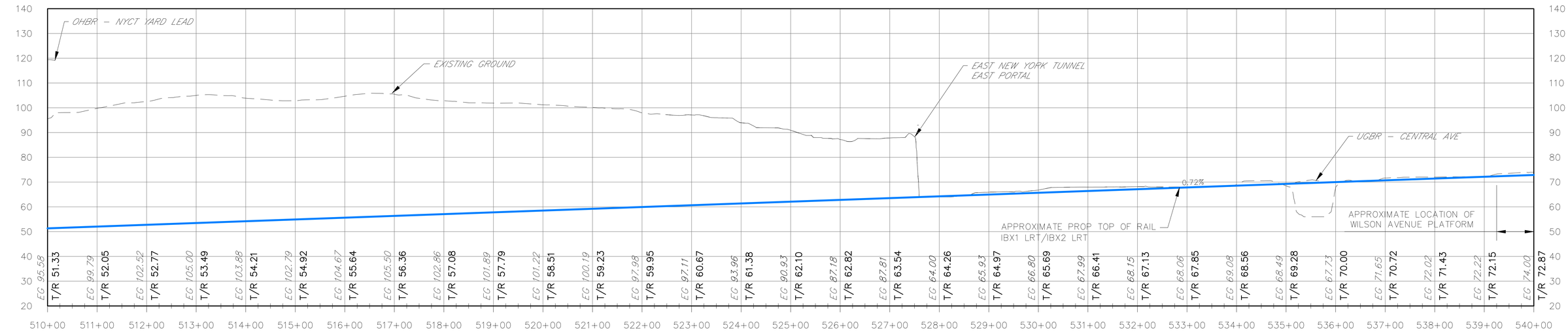
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 18 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-528	2,879.00	45	93	1.50	1.32
IBX2 LRT-528	2,865.00	45	93	1.50	1.34
BAY-528	2,843.00	45	93	1.50	1.36



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

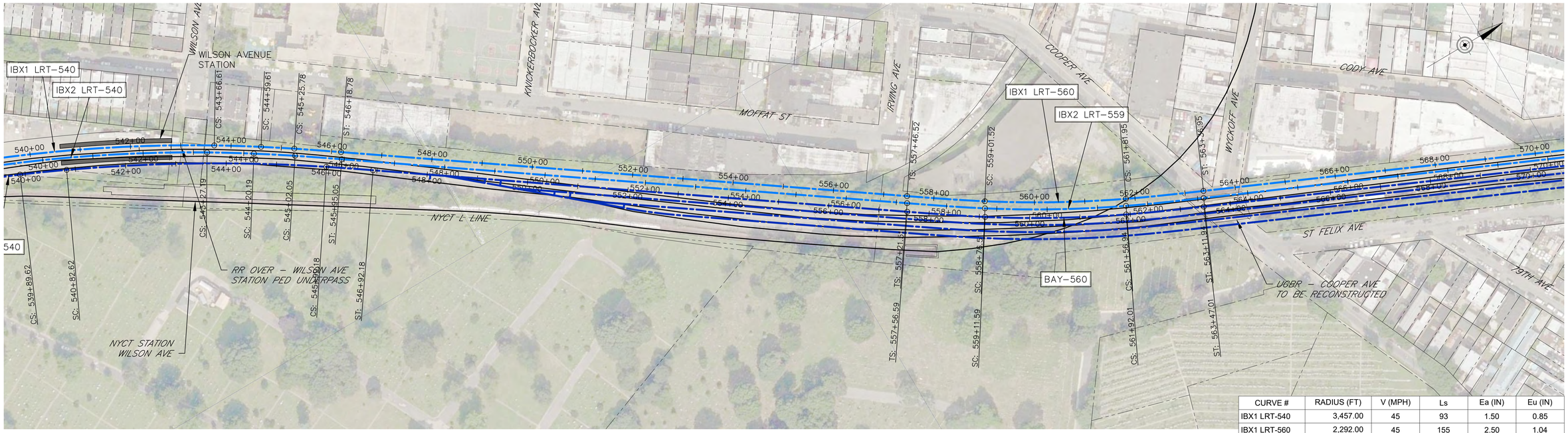
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

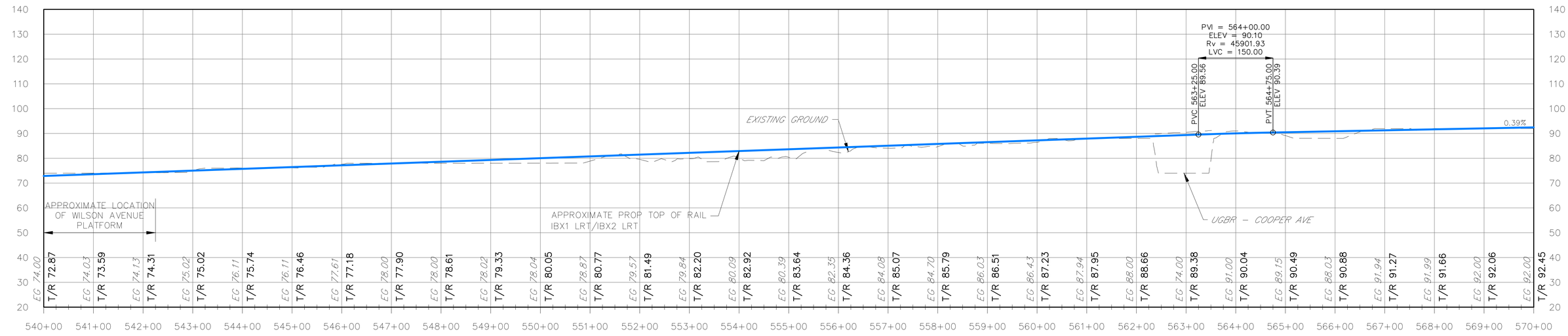
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 19 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-540	3,457.00	45	93	1.50	0.85
IBX1 LRT-560	2,292.00	45	155	2.50	1.04
IBX2 LRT-540	3,444.00	45	93	1.50	0.85
IBX2 LRT-559	2,292.00	45	155	2.50	1.04
BAY-540	3,416.00	45	93	1.50	0.88
BAY-560	2,292.00	45	155	2.50	1.04



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

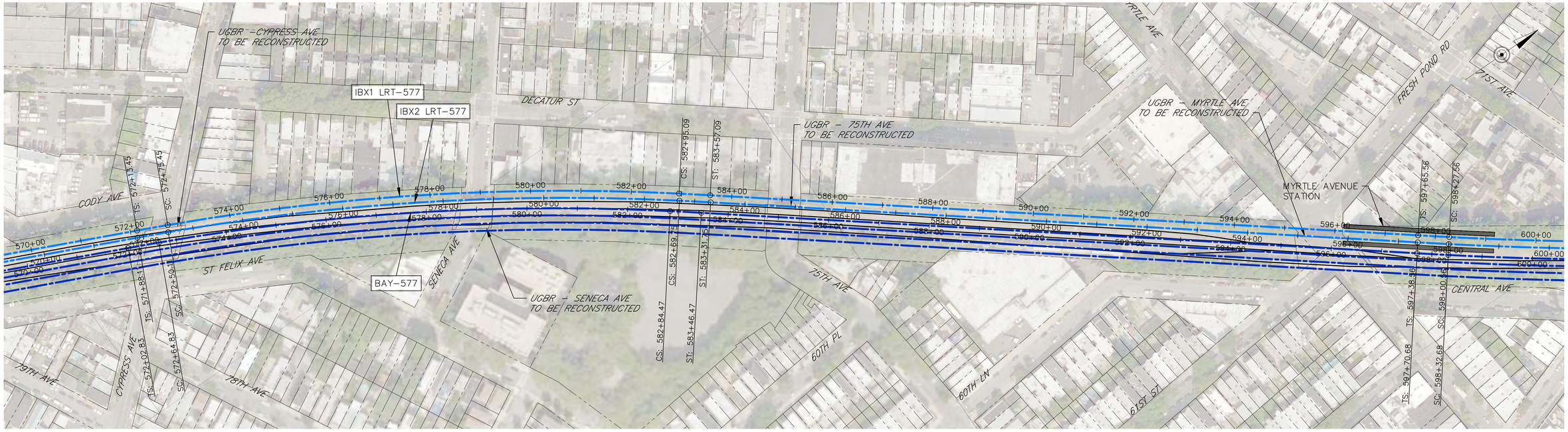
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

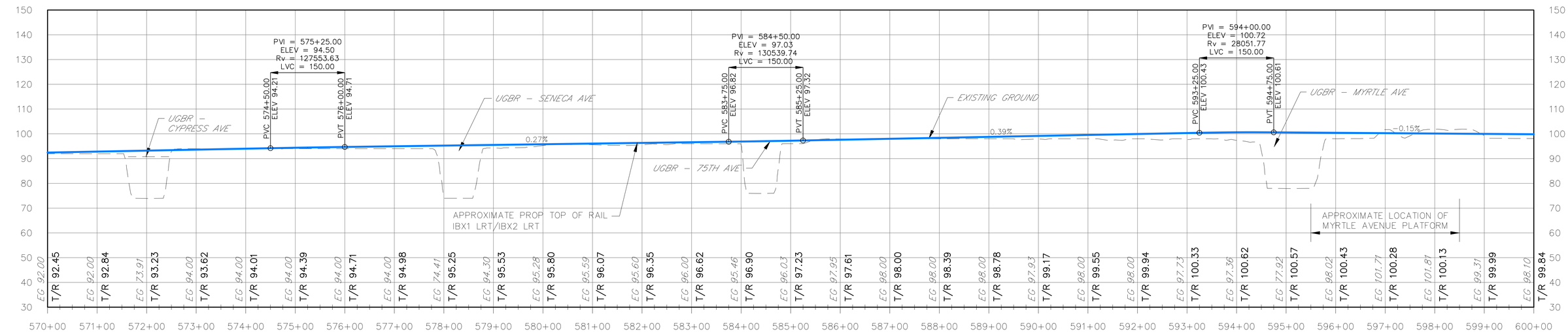
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **20** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-577	4,584.00	45	62	1.00	0.77
IBX2 LRT-577	4,584.00	45	62	1.00	0.77
BAY-577	4,584.00	45	65	1.00	0.77



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

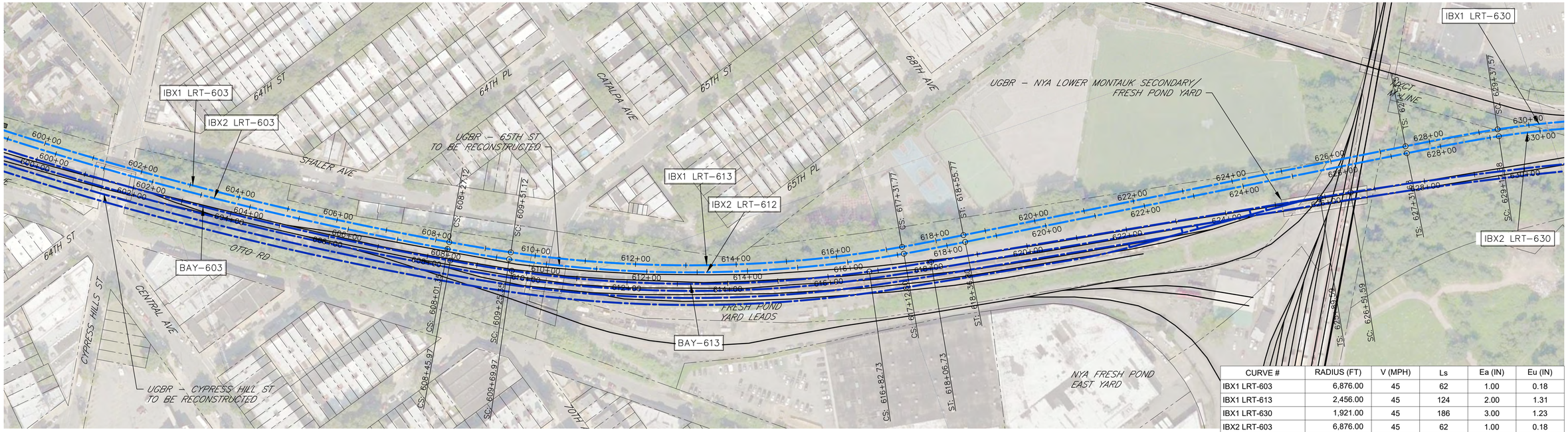
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

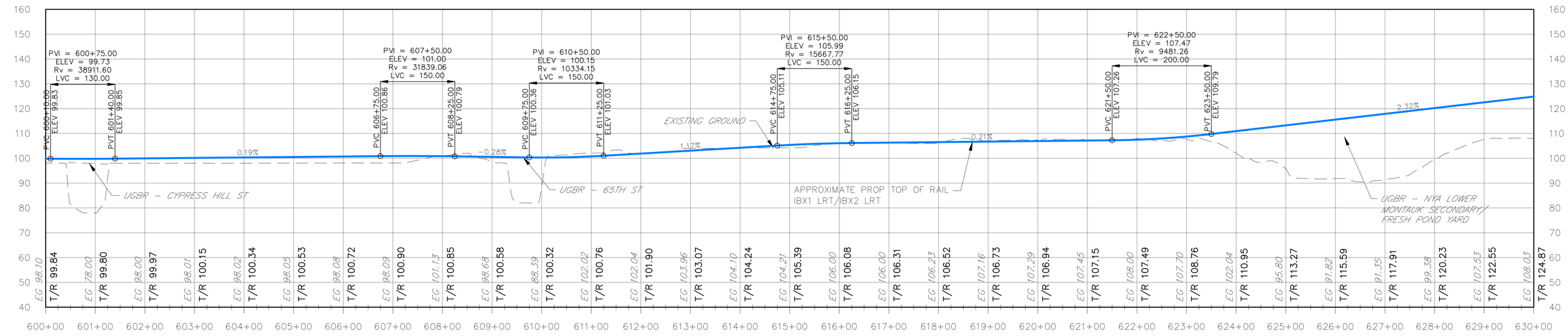
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 21 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-603	6,876.00	45	62	1.00	0.18
IBX1 LRT-613	2,456.00	45	124	2.00	1.31
IBX1 LRT-630	1,921.00	45	186	3.00	1.23
IBX2 LRT-603	6,876.00	45	62	1.00	0.18
IBX2 LRT-612	2,473.00	45	124	2.00	1.28
IBX2 LRT-630	1,910.00	45	186	3.00	1.25
BAY-603	1,288.00	45	341	5.50	0.81
BAY-613	3,951.00	45	93	1.50	0.56



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

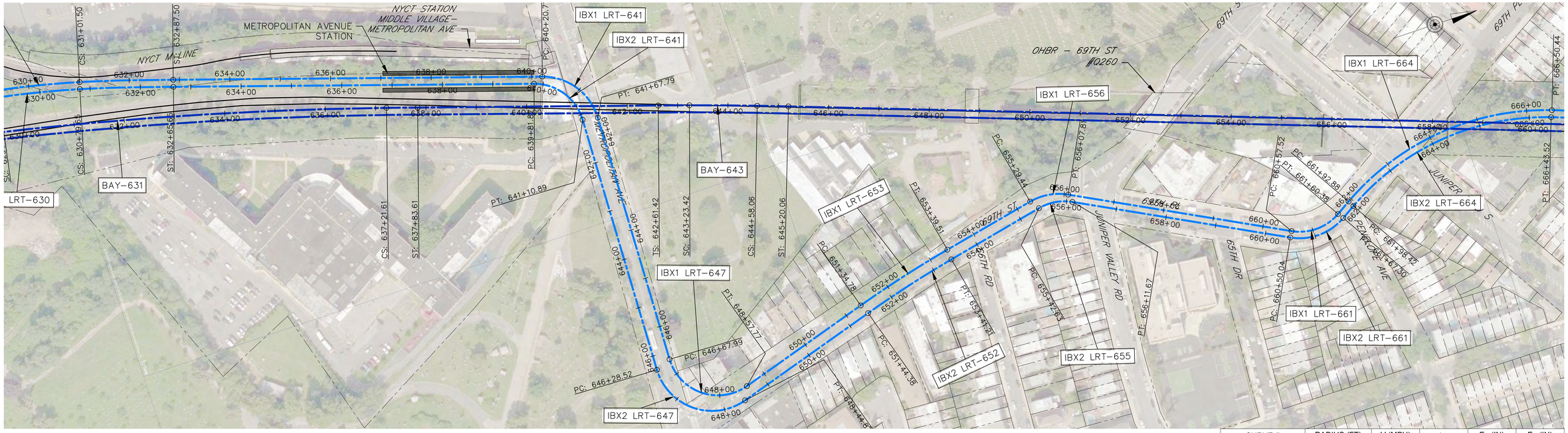
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

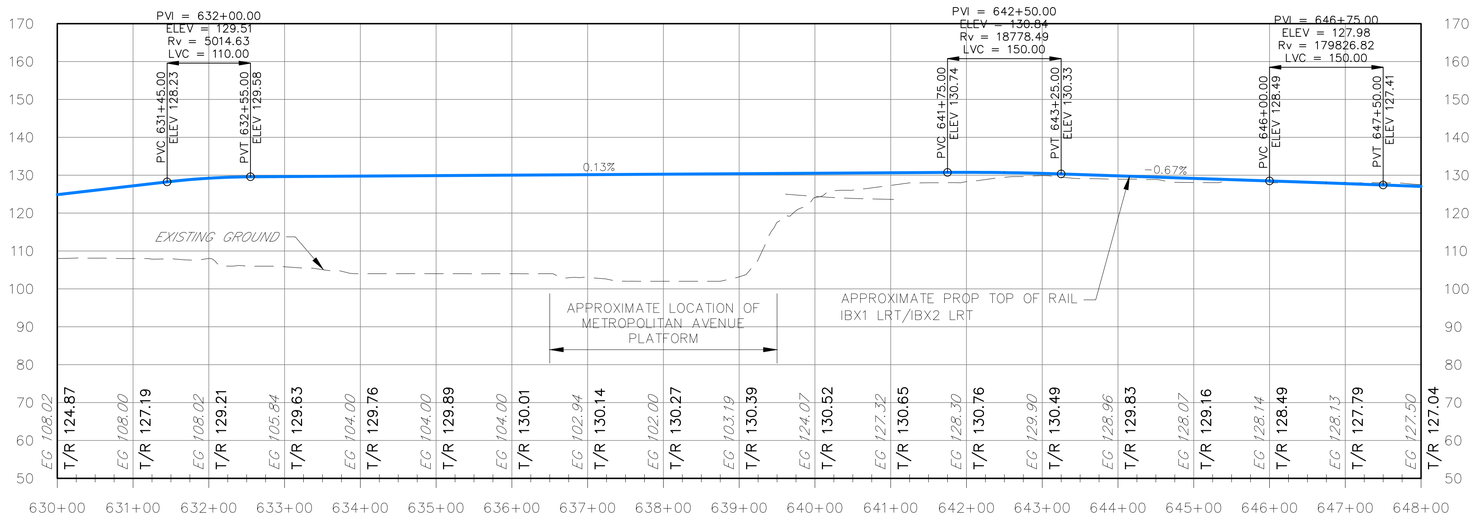
LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **22** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-641	114.00	35			
IBX1 LRT-647	100.00	35			
IBX1 LRT-653	2,264.00	35			
IBX1 LRT-656	114.00	35			
IBX1 LRT-661	100.00	35			
IBX1 LRT-664	514.00	35			
IBX2 LRT-641	100.00	35			
IBX2 LRT-647	114.00	35			
IBX2 LRT-652	2,250.00	35			
IBX2 LRT-656	100.00	35			
IBX2 LRT-661	114.00	35			
IBX2 LRT-664	500.00	35			
BAY-631	7,640.00	45	62	1.00	0.31
BAY-643	6,251.00	45	62	1.00	0.30

PROFILE BELOW SHOWS HORIZONTAL ALIGNMENT LIMIT FROM STATION 630+00 TO 648+00



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

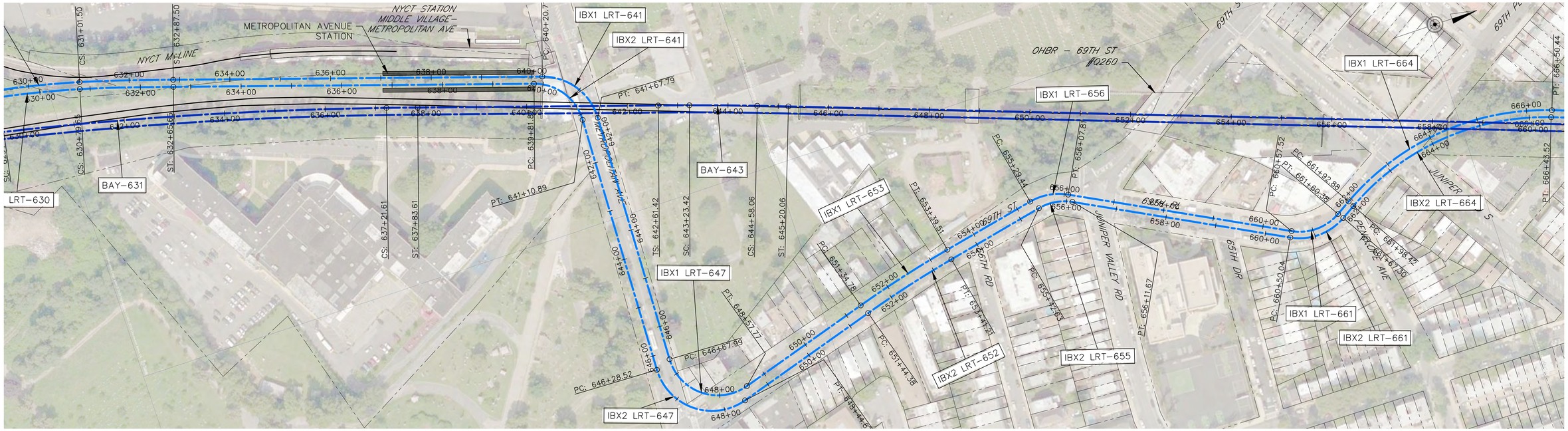
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

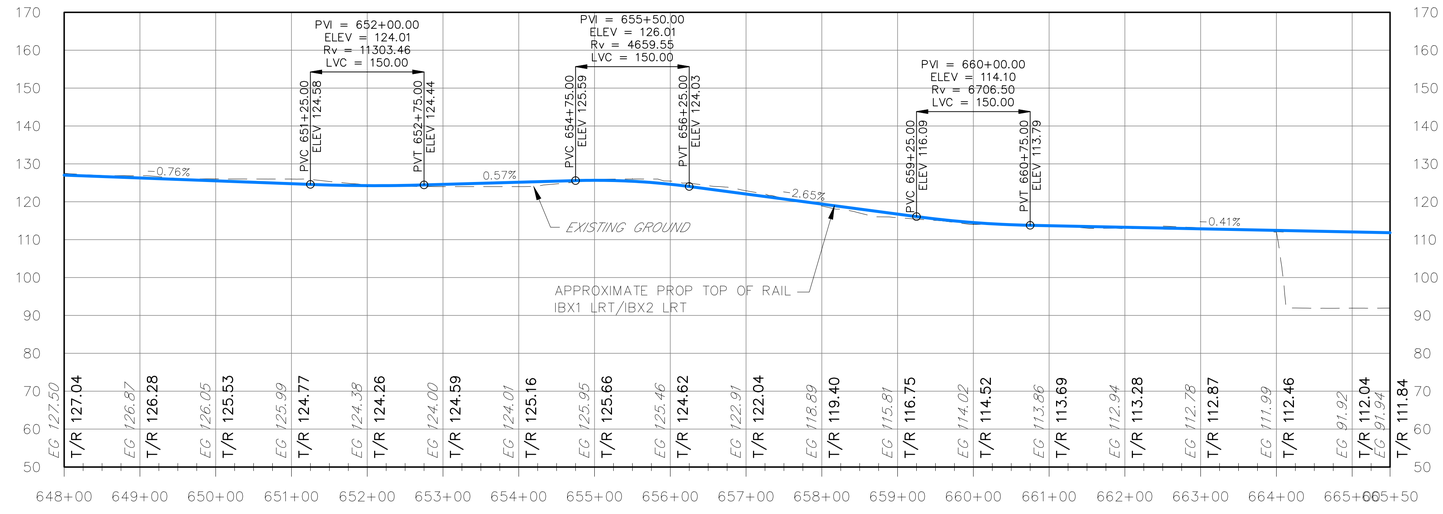
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 23 OF 28



PROFILE BELOW SHOWS HORIZONTAL ALIGNMENT LIMIT FROM STATION 648+00 TO 665+50



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-641	114.00	35			
IBX1 LRT-647	100.00	35			
IBX1 LRT-653	2,264.00	35			
IBX1 LRT-656	114.00	35			
IBX1 LRT-661	100.00	35			
IBX1 LRT-664	514.00	35			
IBX2 LRT-641	100.00	35			
IBX2 LRT-647	114.00	35			
IBX2 LRT-652	2,250.00	35			
IBX2 LRT-656	100.00	35			
IBX2 LRT-661	114.00	35			
IBX2 LRT-664	500.00	35			
BAY-631	7,640.00	45	62	1.00	0.31
BAY-643	6,251.00	45	62	1.00	0.30

LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

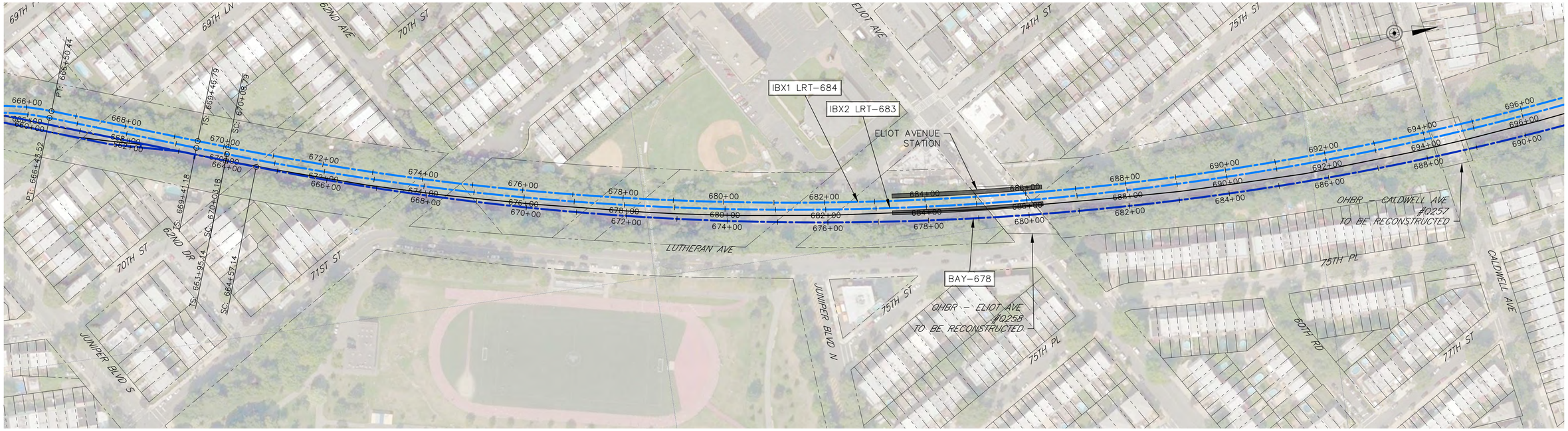
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

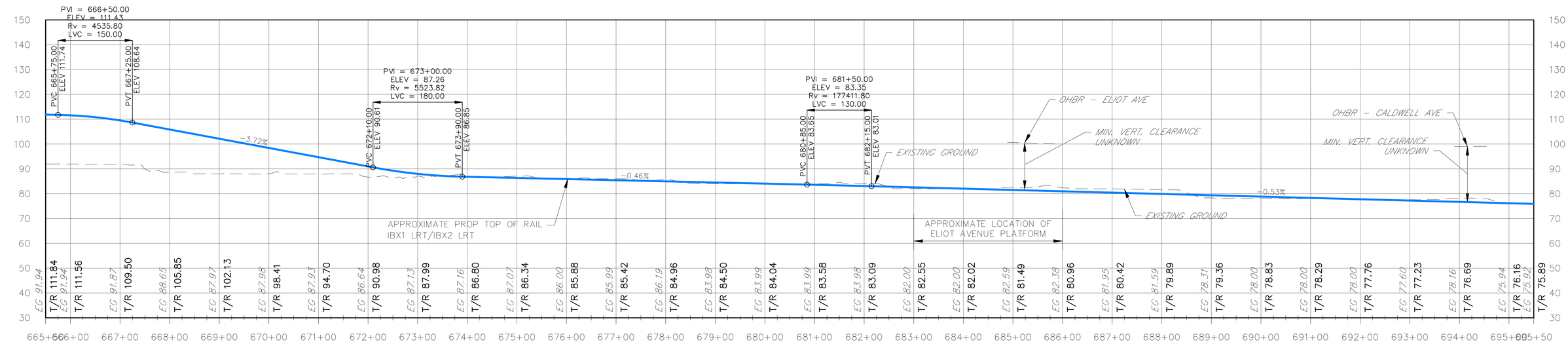
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 24 OF 28



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-684	5,730.00	45	62	1.00	0.42
IBX2 LRT-683	5,744.00	45	62	1.00	0.41
BAY-678	5,754.00	45	62	1.00	0.41



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

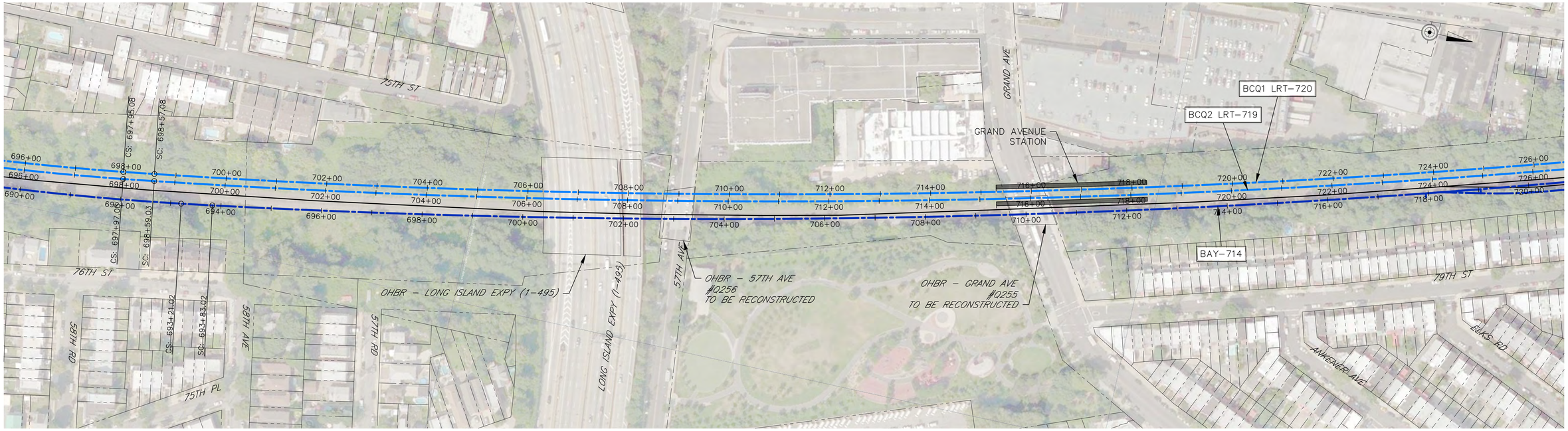
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

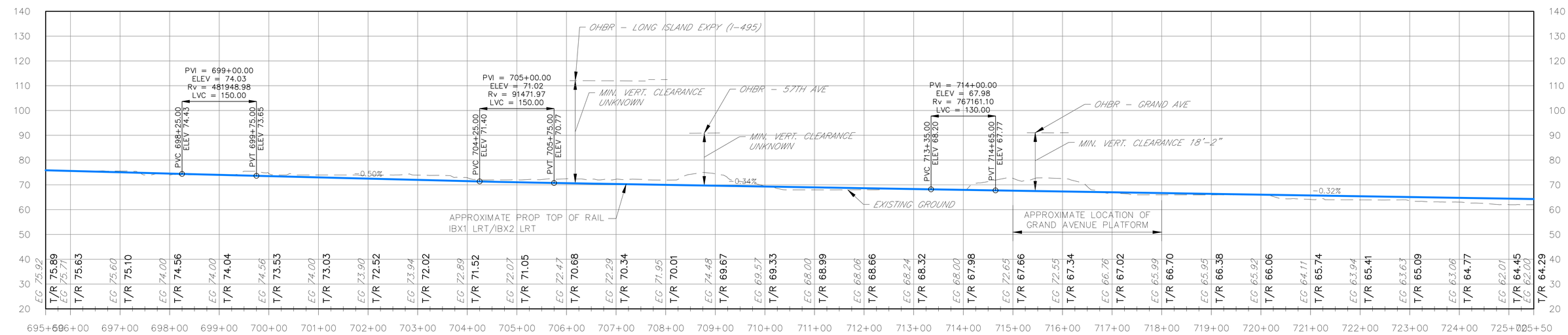
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **25** OF **28**



CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-720	19,099.00	45	62	0.00	0.43
IBX2 LRT-719	19,099.00	45	62	0.00	0.42
BAY-714	19,099.00	45	62	0.00	0.42



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

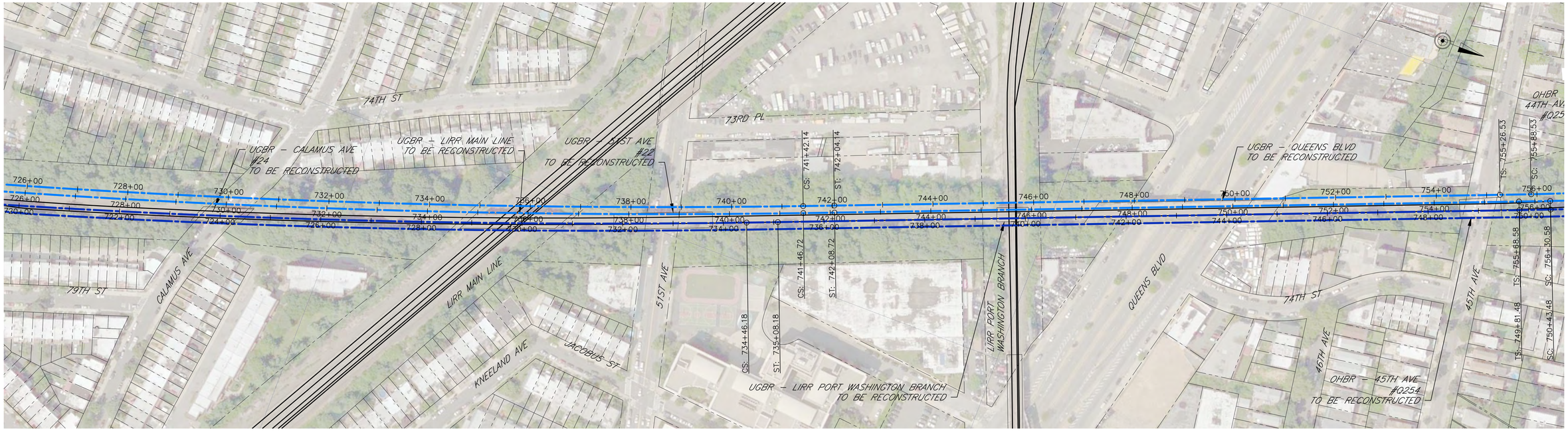
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

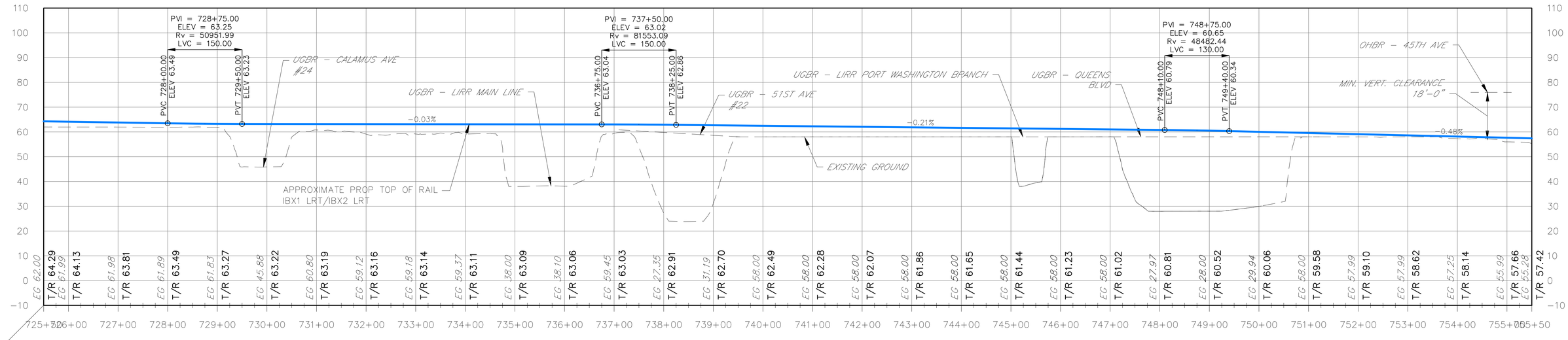
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **26** OF **28**





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

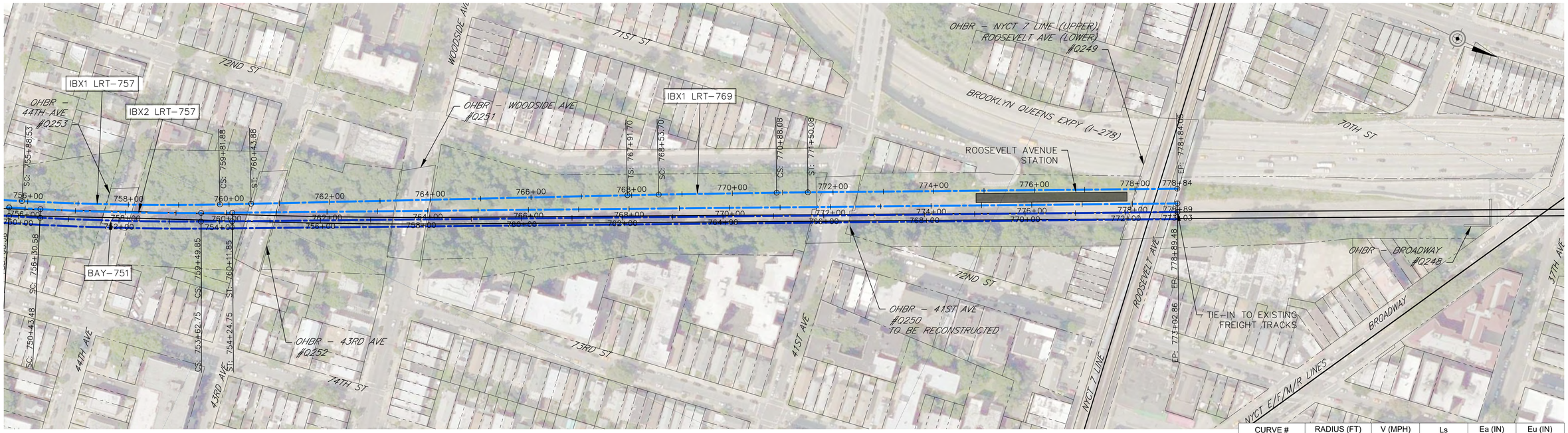
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

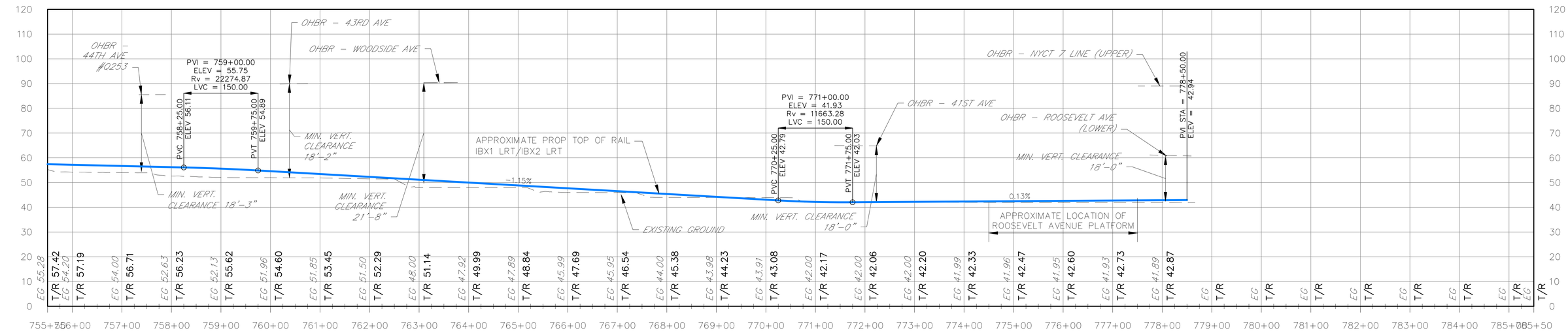
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 27 OF 28





CURVE #	RADIUS (FT)	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1 LRT-757	5,730.00	45	62	1.00	0.42
IBX1 LRT-769	22,919.00	45	0	0.00	0.35
IBX2 LRT-757	5,730.00	45	62	1.00	0.42
BAY-751	5,730.00	45	62	1.00	0.42

LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

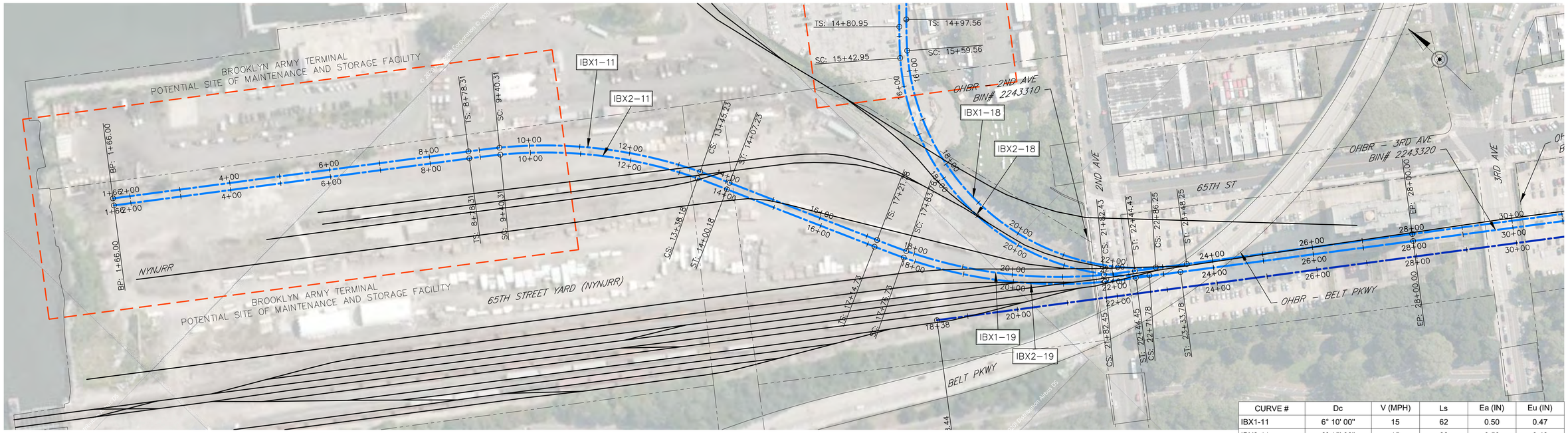
MTA INTERBOROUGH EXPRESS

LRT
TRACK PLAN AND PROFILE

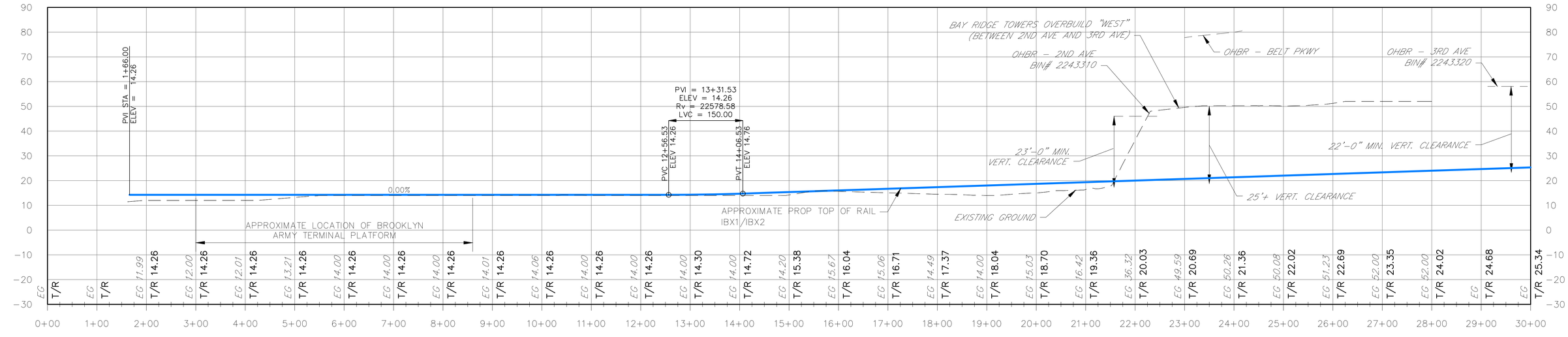
PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **28** OF **28**

MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-11	6° 10' 00"	15	62	0.50	0.47
IBX2-11	6° 15' 00"	15	62	0.50	0.48
IBX1-18	12° 20' 00"	15	62	1.00	0.94
IBX2-18	12° 18' 00"	15	62	1.00	0.94
IBX1-19	6° 15' 00"	15	62	0.50	0.48
IBX2-19	6° 10' 00"	15	62	0.50	0.47



LEGEND:
- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

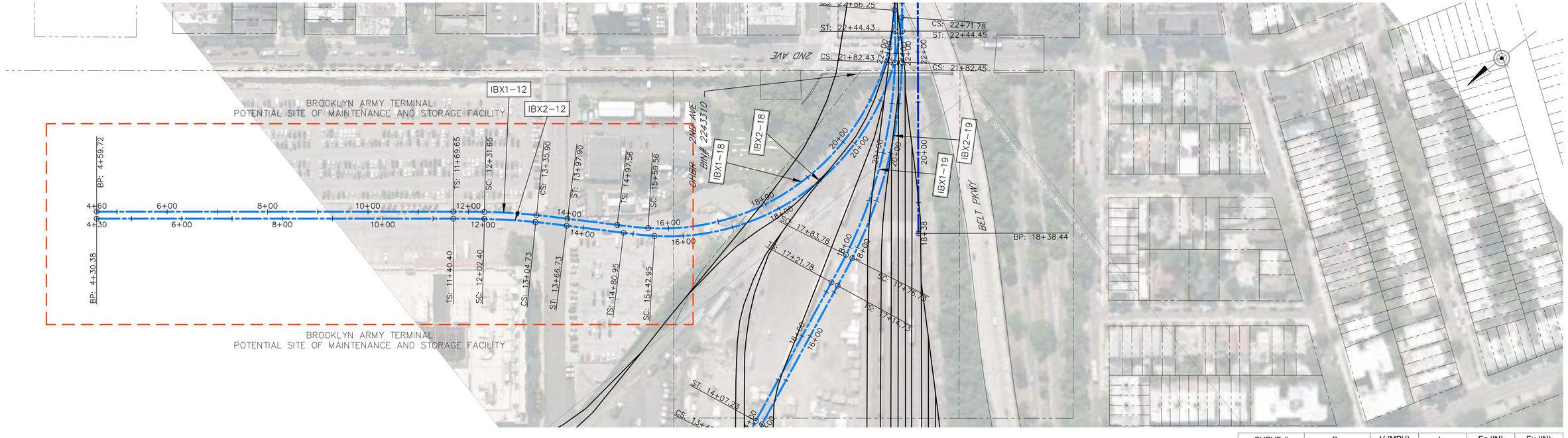
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

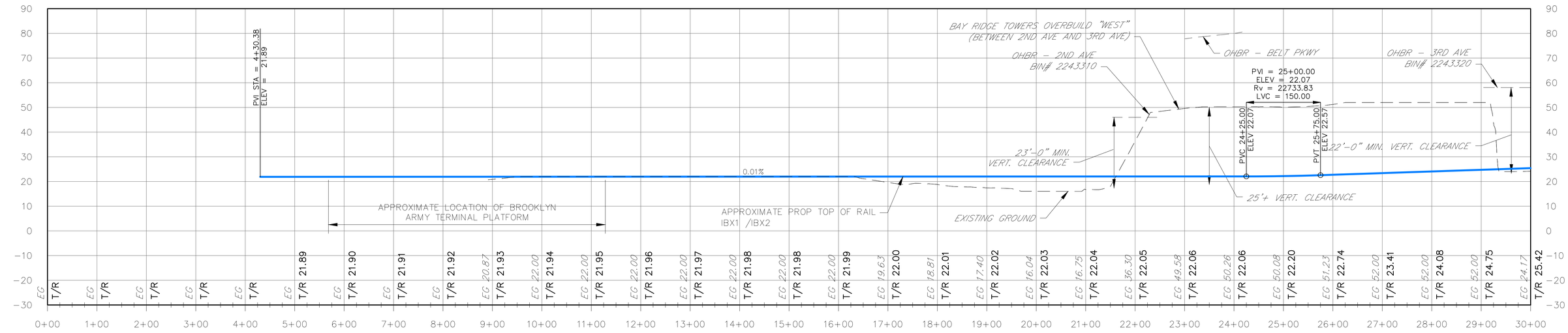
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 01 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-12	4° 17' 00"	15	62	0.50	0.18
IBX2-12	4° 20' 00"	15	62	0.50	0.18
IBX1-18	12° 20' 00"	15	62	1.00	0.94
IBX2-18	12° 18' 00"	15	62	1.00	0.94



LEGEND:
- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

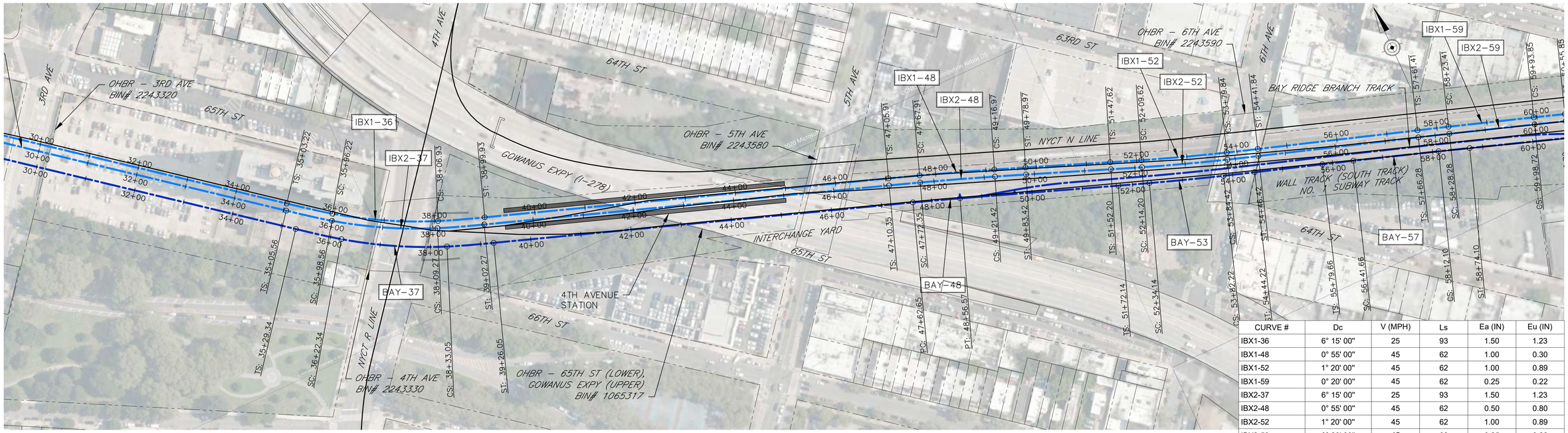
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

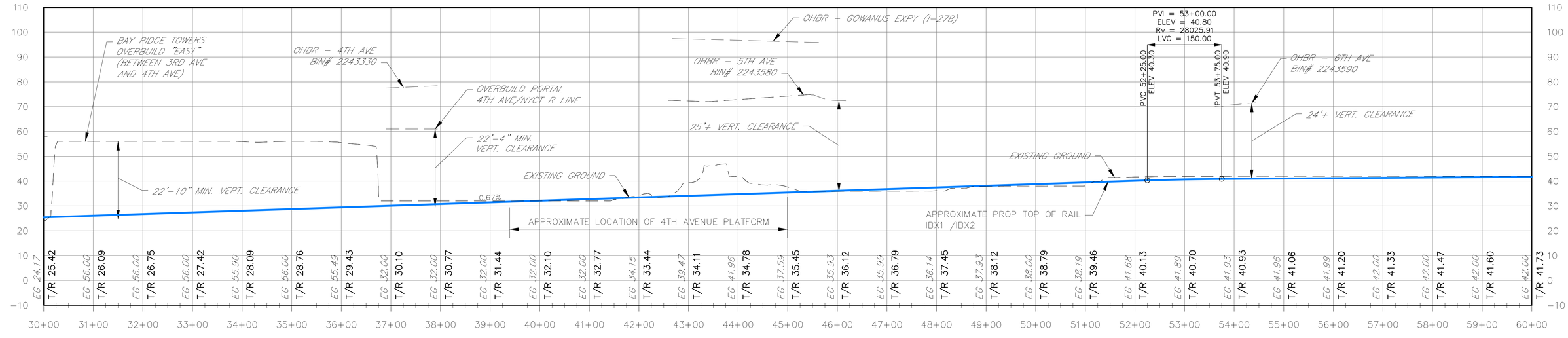
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 02 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-36	6° 15' 00"	25	93	1.50	1.23
IBX1-48	0° 55' 00"	45	62	1.00	0.30
IBX1-52	1° 20' 00"	45	62	1.00	0.89
IBX1-59	0° 20' 00"	45	62	0.25	0.22
IBX2-37	6° 15' 00"	25	93	1.50	1.23
IBX2-48	0° 55' 00"	45	62	0.50	0.80
IBX2-52	1° 20' 00"	45	62	1.00	0.89
IBX2-59	0° 20' 00"	45	62	0.25	0.22
BAY-37	6° 15' 00"	25	93	1.50	1.23
BAY-48	1° 00' 00"	35	62	0.50	0.36
BAY-53	1° 00' 00"	45	62	1.00	0.42
BAY-57	0° 20' 00"	45	62	0.25	0.22



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

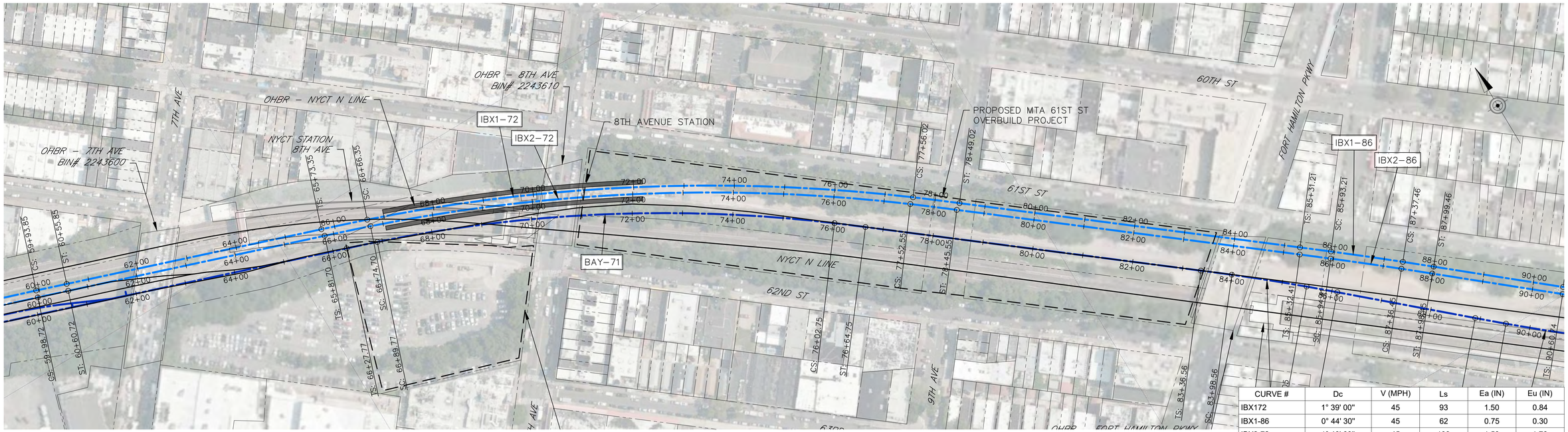
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

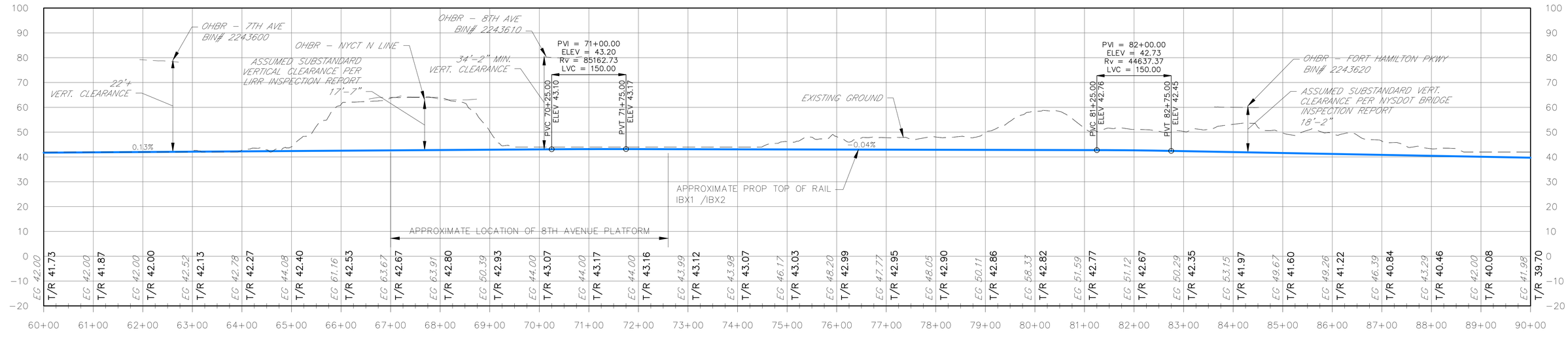
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 03 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX172	1° 39' 00"	45	93	1.50	0.84
IBX1-86	0° 44' 30"	45	62	0.75	0.30
IBX2-72	1° 40' 00"	45	100	1.50	1.76
IBX2-86	0° 45' 00"	45	62	0.75	0.31
BAY-71	3° 50' 00"	35	124	1.00	0.72
BAY-84	1° 30' 00"	35	62	1.00	0.29
BAY-90	1° 30' 00"	35	62	1.00	0.29



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

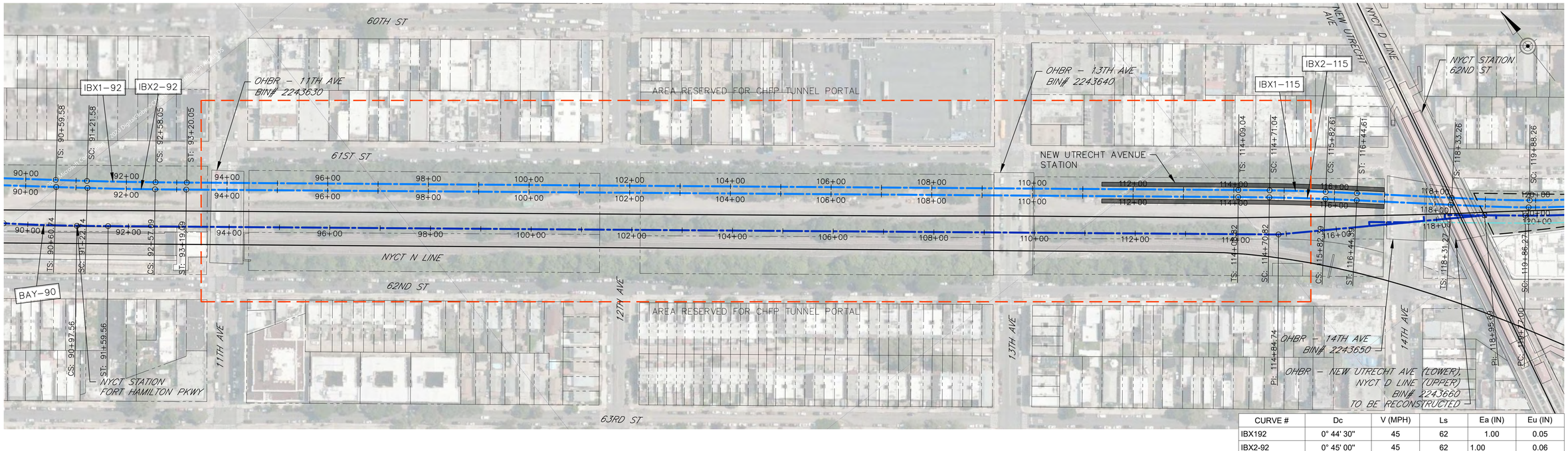
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

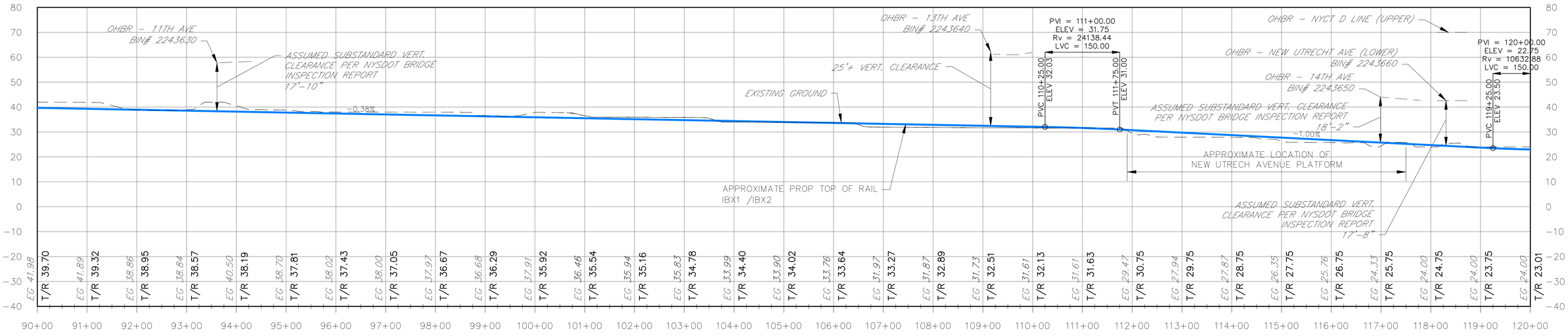
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 04 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX192	0° 44' 30"	45	62	1.00	0.05
IBX2-92	0° 45' 00"	45	62	1.00	0.06
IBX1-115	1° 20' 00"	45	62	1.00	0.89
IBX2-115	1° 20' 00"	45	62	1.00	0.89
BAY-90	1° 30' 00"	35	62	1.00	0.29



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

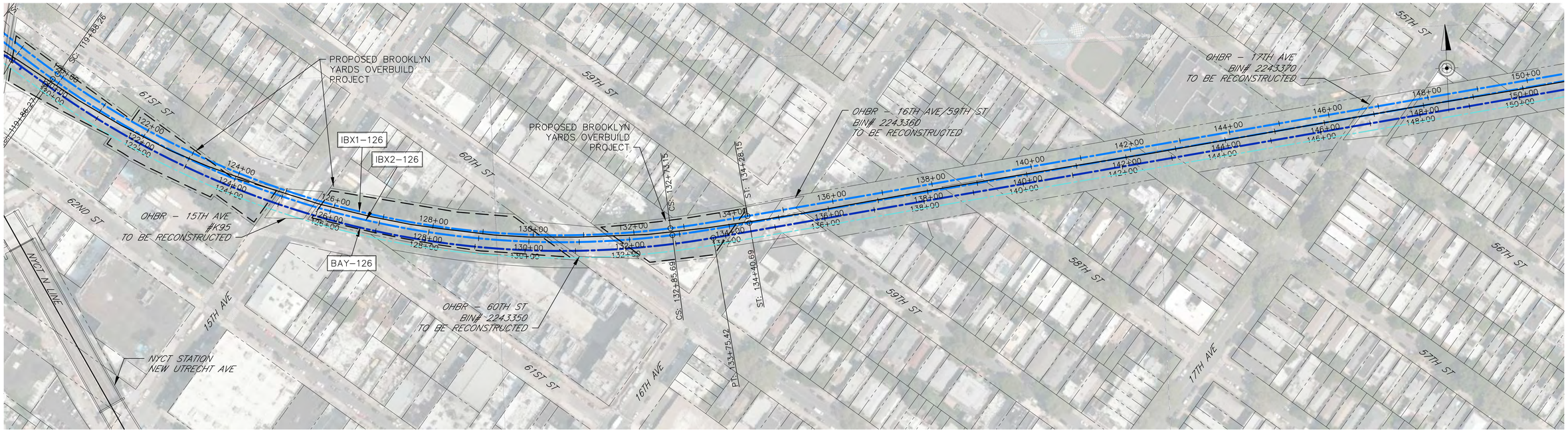
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

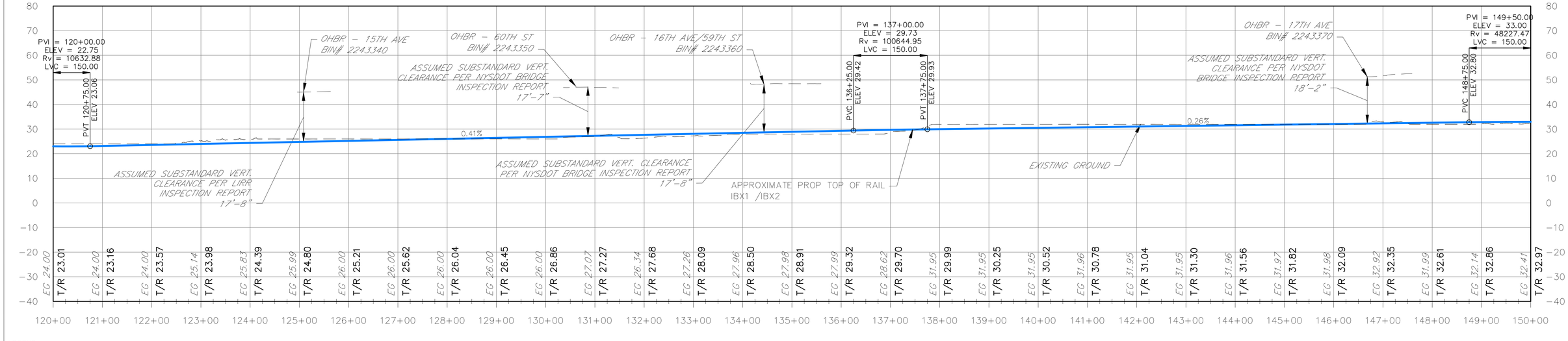
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **05** OF **27**



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-126	3° 20' 00"	45	155	2.50	2.23
IBX2-126	3° 18' 00"	45	155	2.50	2.18
BAY-126	3° 16' 00"	45	155	2.50	2.13



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

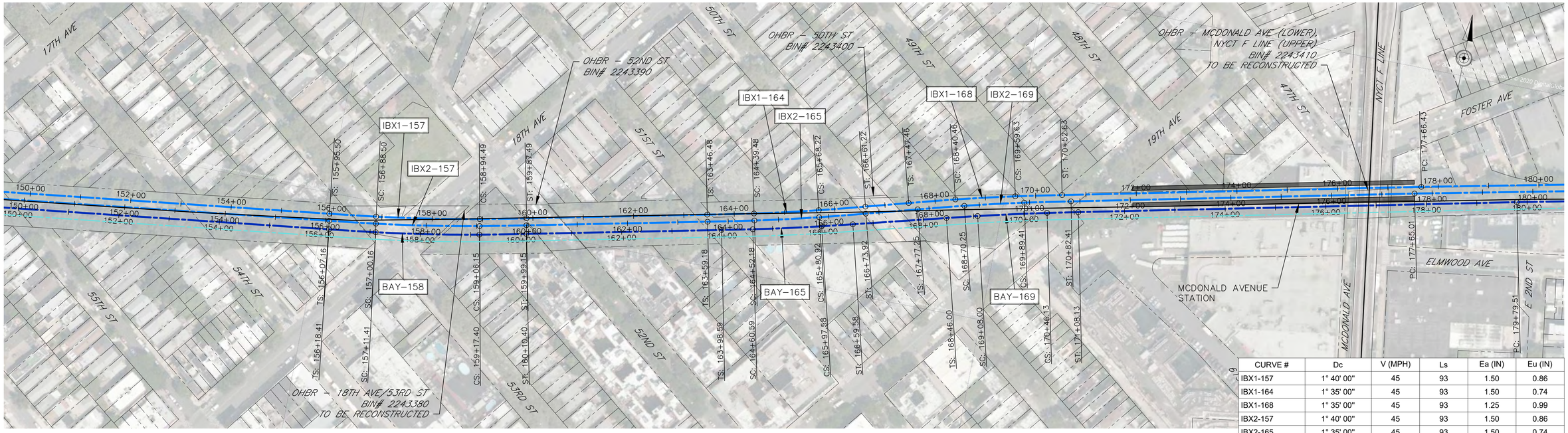
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

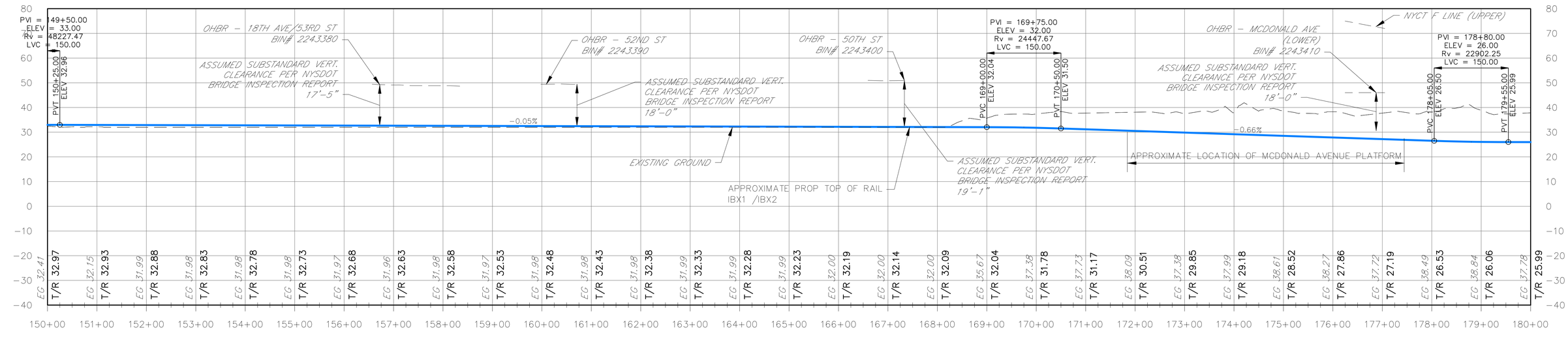
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 06 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-157	1° 40' 00"	45	93	1.50	0.86
IBX1-164	1° 35' 00"	45	93	1.50	0.74
IBX1-168	1° 35' 00"	45	93	1.25	0.99
IBX2-157	1° 40' 00"	45	93	1.50	0.86
IBX2-165	1° 35' 00"	45	93	1.50	0.74
IBX2-169	1° 35' 00"	45	93	1.25	0.99
BAY-158	1° 40' 00"	45	93	1.50	0.86
BAY-165	1° 25' 00"	45	62	1.00	1.01
BAY-169	1° 15' 00"	45	62	1.00	0.77



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

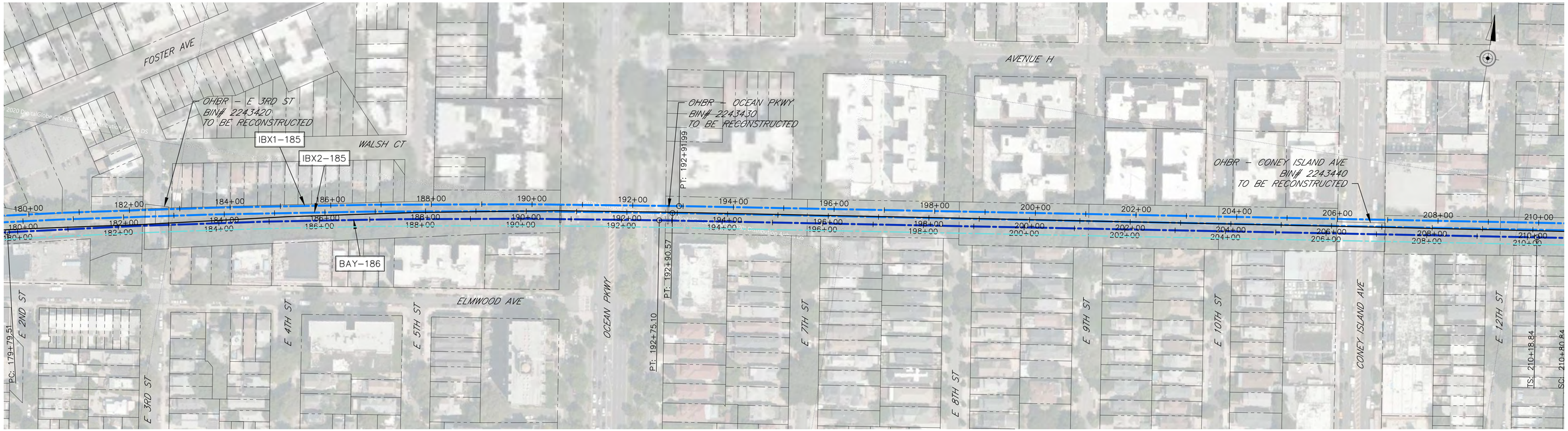
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

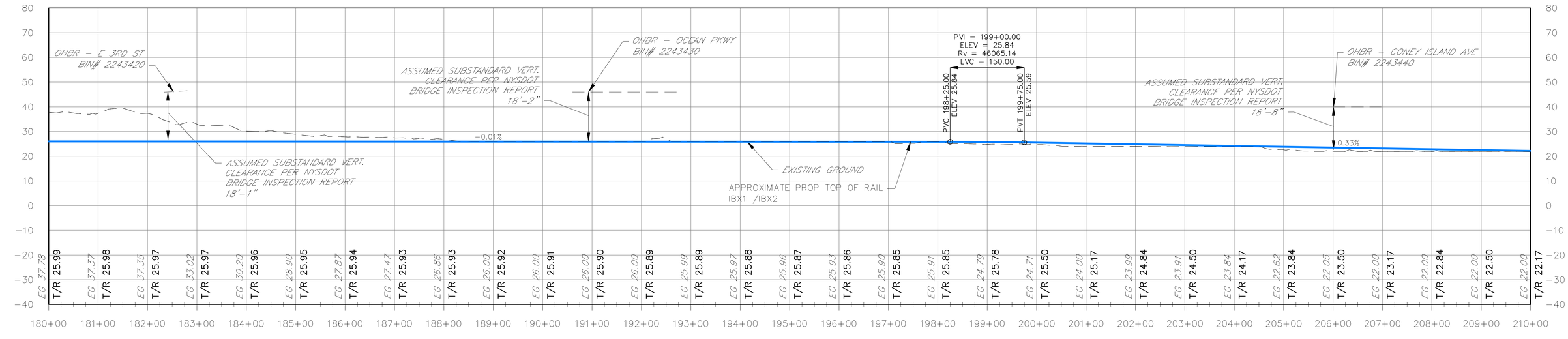
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 07 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-185	0° 17' 00"	45	0	0.00	0.40
IBX2-185	0° 17' 00"	45	0	0.00	0.40
BAY-186	0° 20' 00"	45	0	0.00	0.47



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

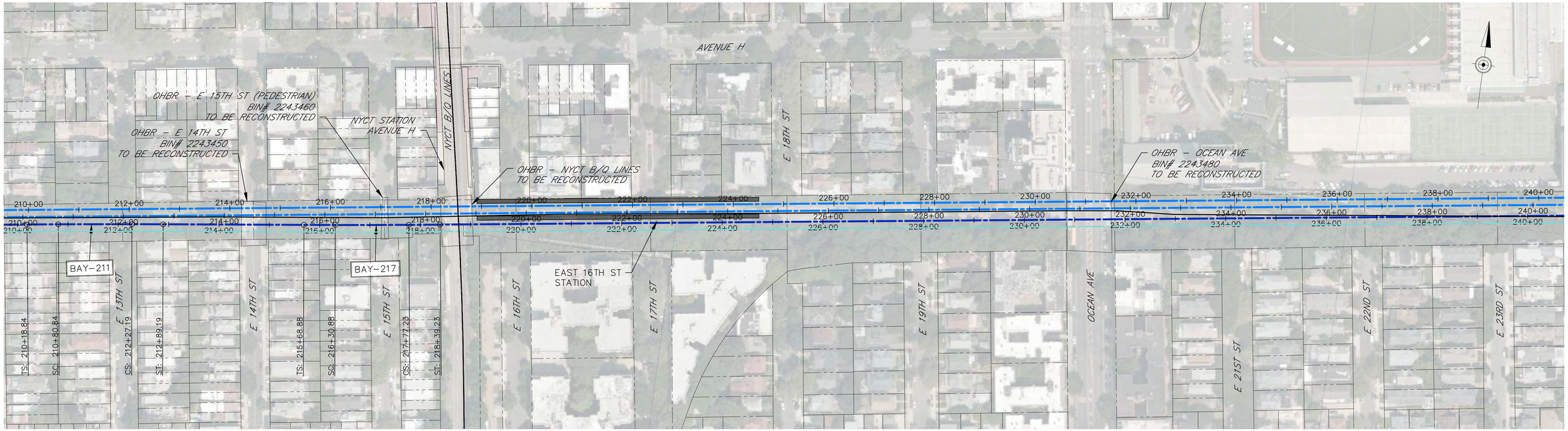
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

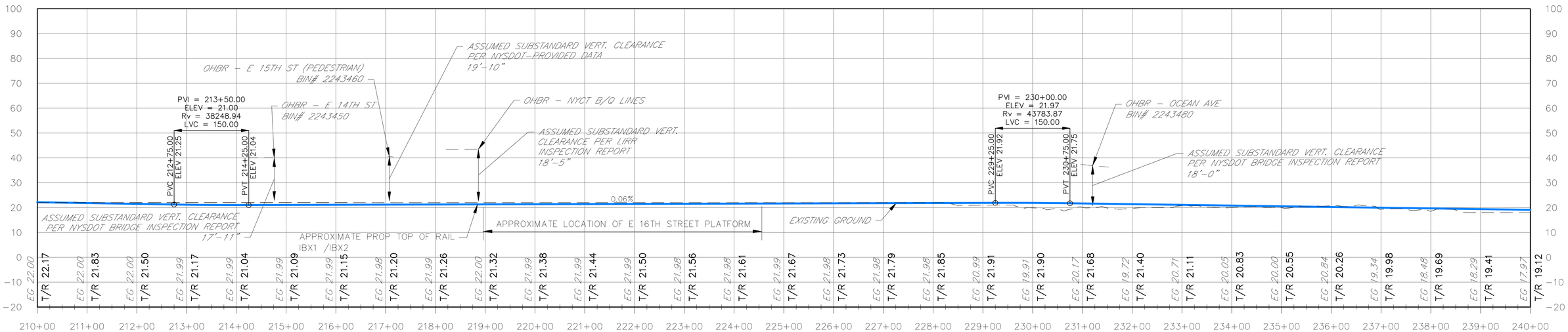
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 08 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
BAY-211	0° 20' 00"	45	62	0.25	0.22
BAY-217	0° 20' 00"	45	62	0.25	0.22



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

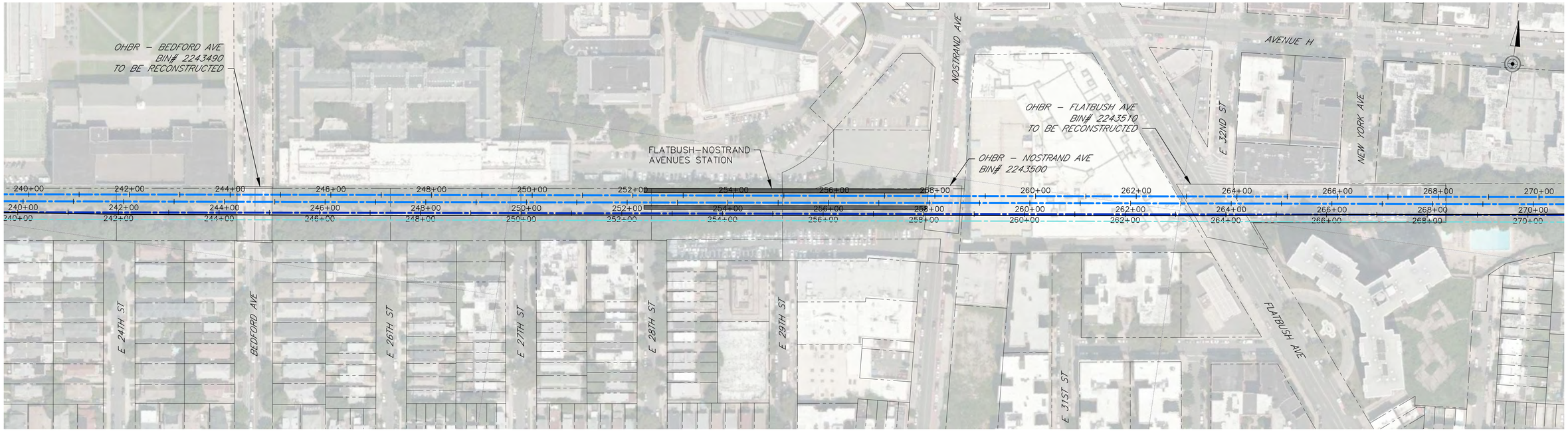
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

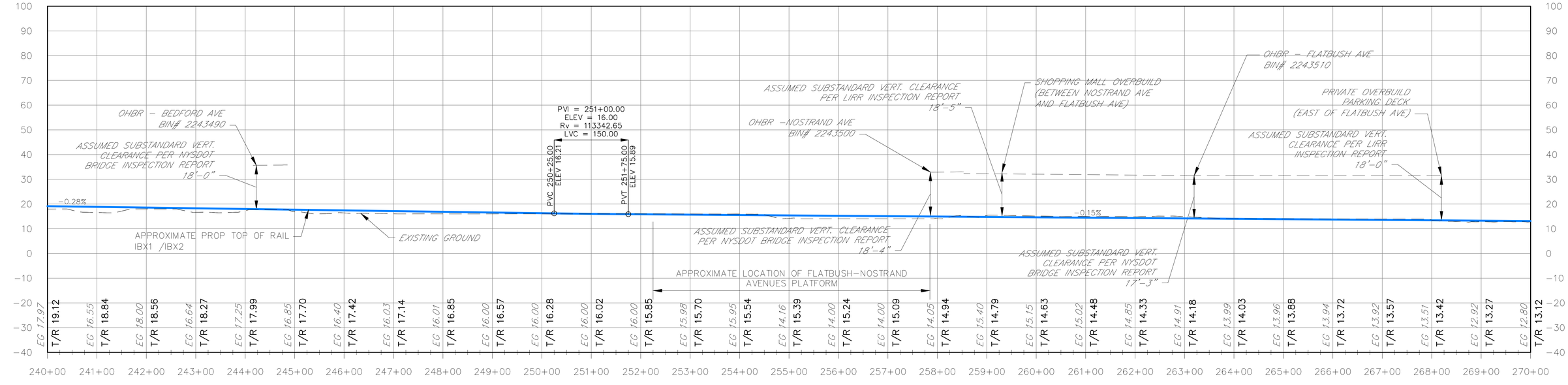
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **09** OF **27**





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

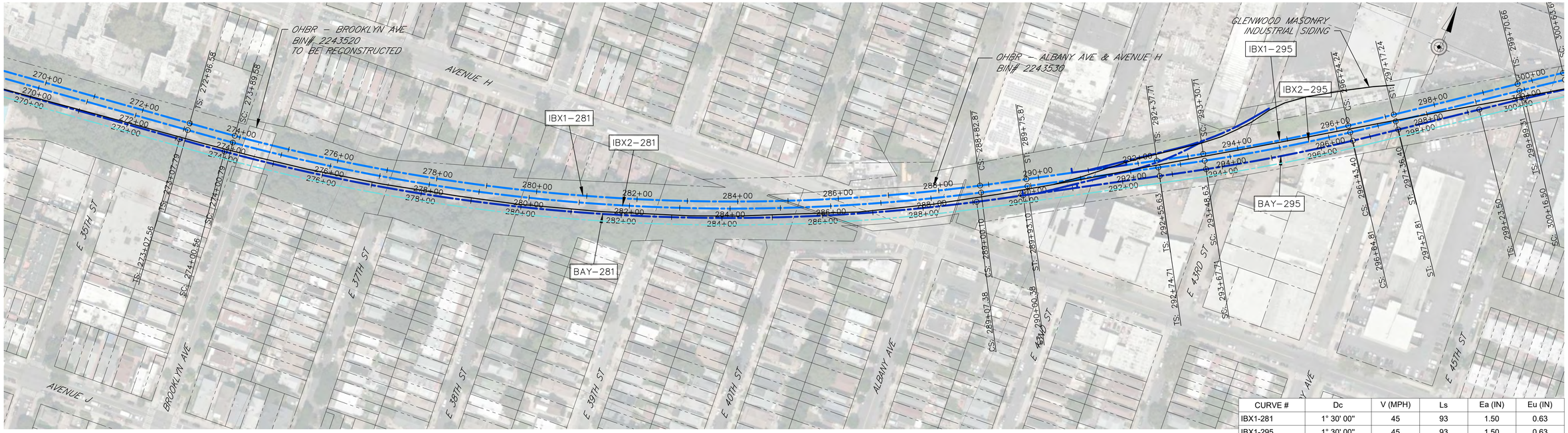
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

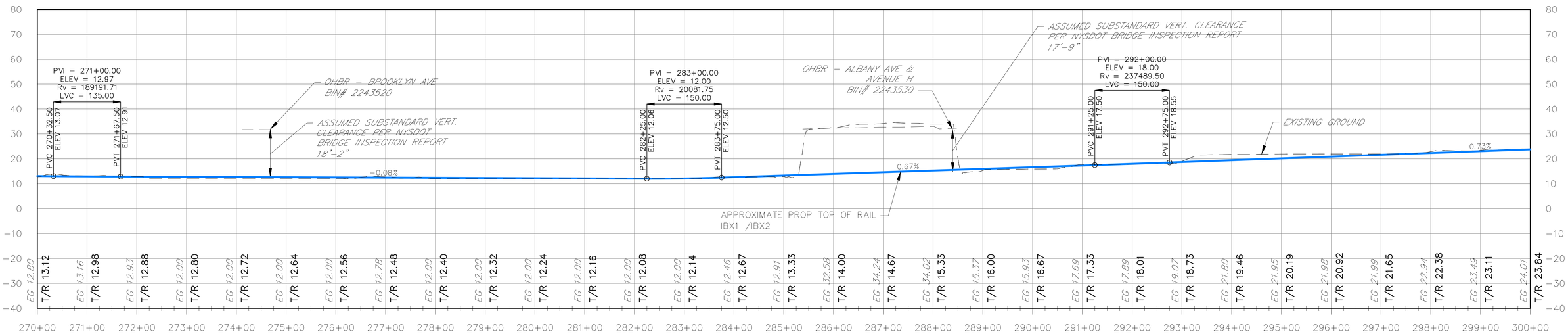
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 10 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-281	1° 30' 00"	45	93	1.50	0.63
IBX1-295	1° 30' 00"	45	93	1.50	0.63
IBX2-281	1° 29' 40"	45	93	1.50	0.62
IBX2-295	1° 29' 40"	45	93	1.50	0.62
BAY-281	1° 29' 15"	45	93	1.25	0.61
BAY-295	1° 29' 15"	45	93	1.50	0.61



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

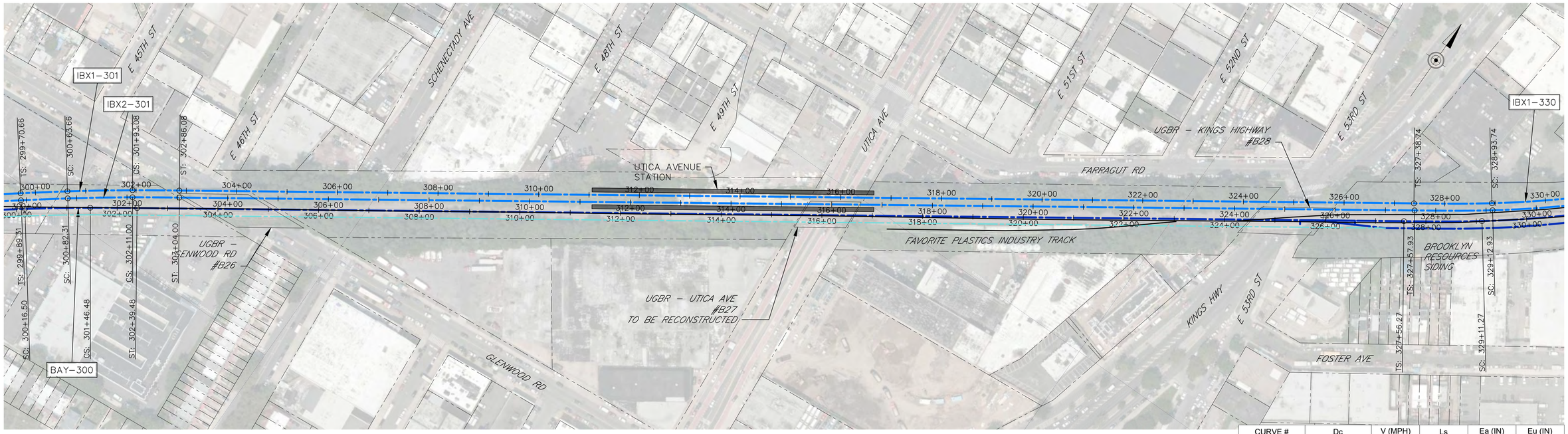
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

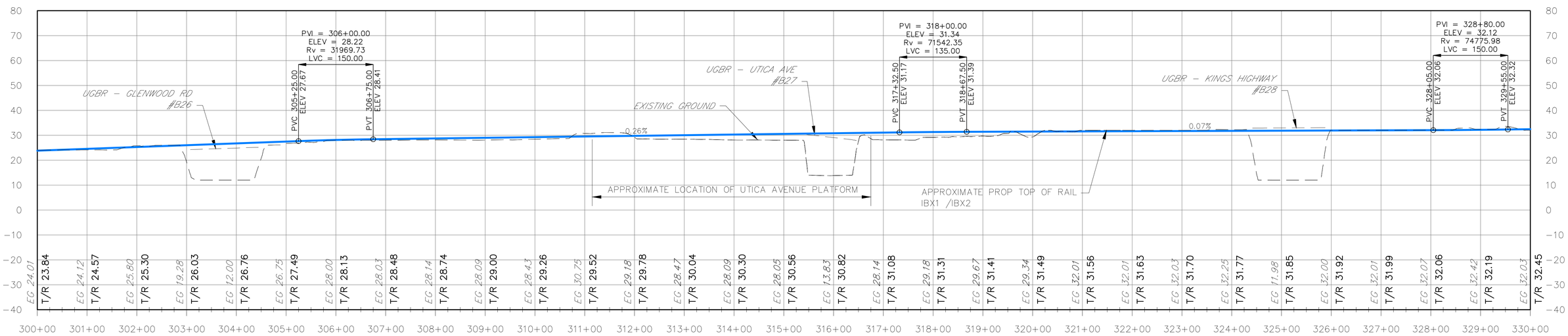
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 11 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-301	1° 25' 00"	45	93	1.25	0.76
IBX2-301	1° 25' 17"	45	93	1.25	0.76
IBX1-330	2° 45' 00"	45	155	2.50	1.40
BAY-300	1° 25' 00"	45	93	1.25	0.76



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

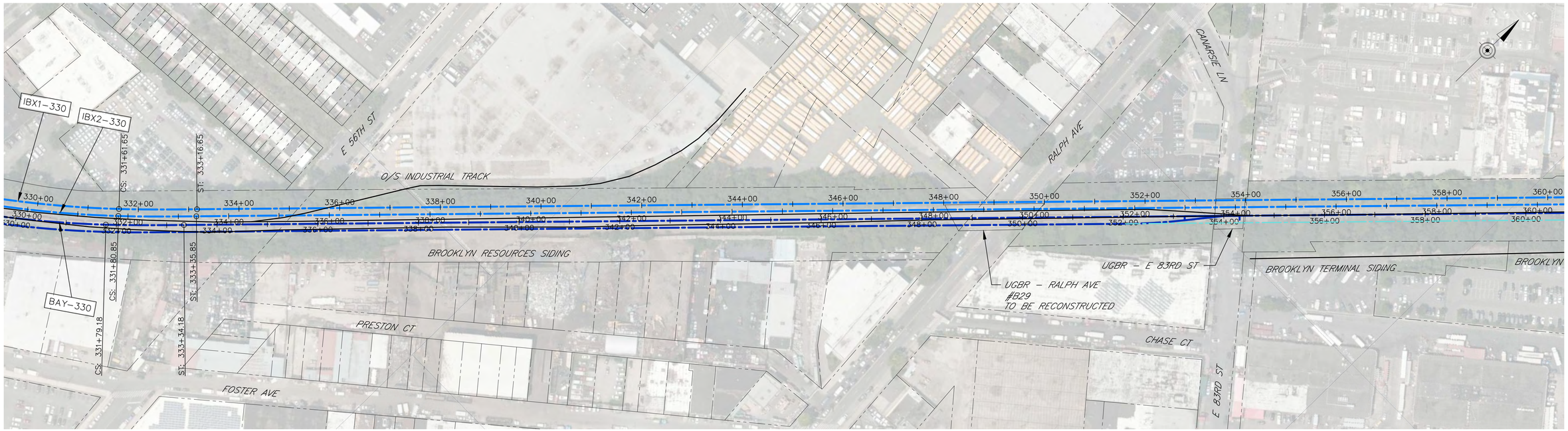
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

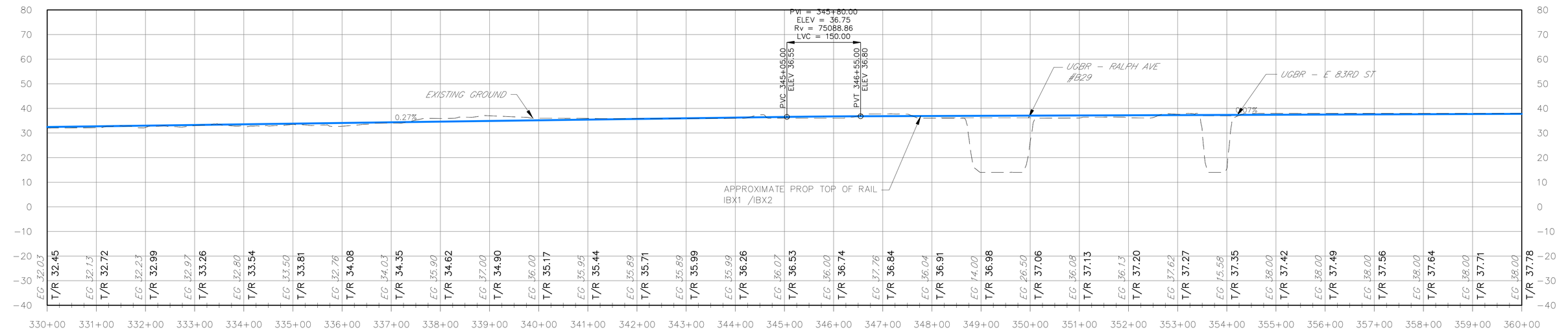
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 12 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-330	2° 45' 00"	45	155	2.50	1.40
IBX2-330	2° 45' 00"	45	155	2.50	1.40
BAY-330	2° 45' 00"	45	155	2.50	1.40



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

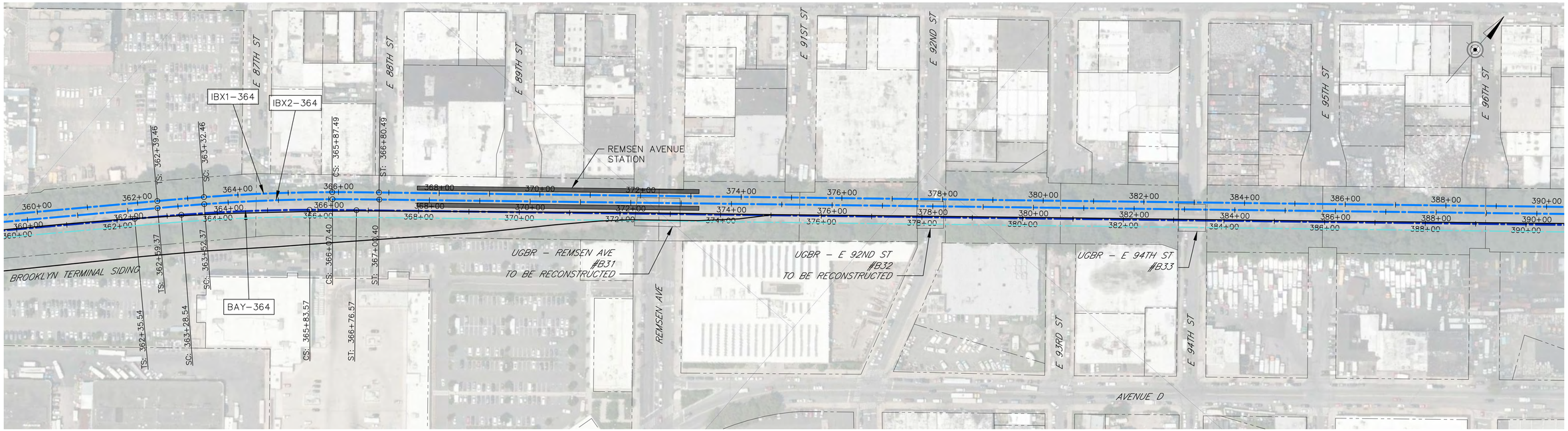
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

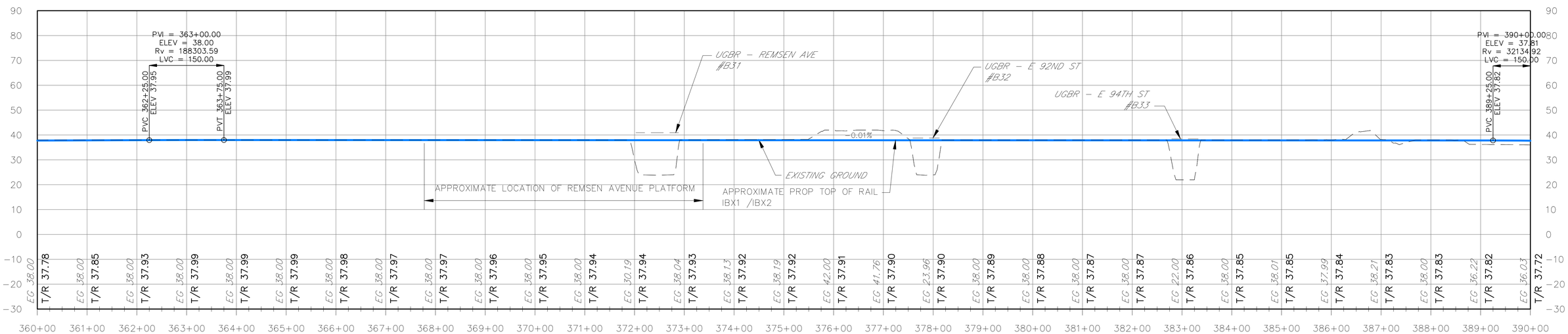
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 13 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-364	1° 40' 00"	45	93	1.50	0.86
IBX1-364	1° 40' 00"	45	93	1.50	0.86
BAY-364	1° 40' 00"	45	93	1.50	0.86



LEGEND:
- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

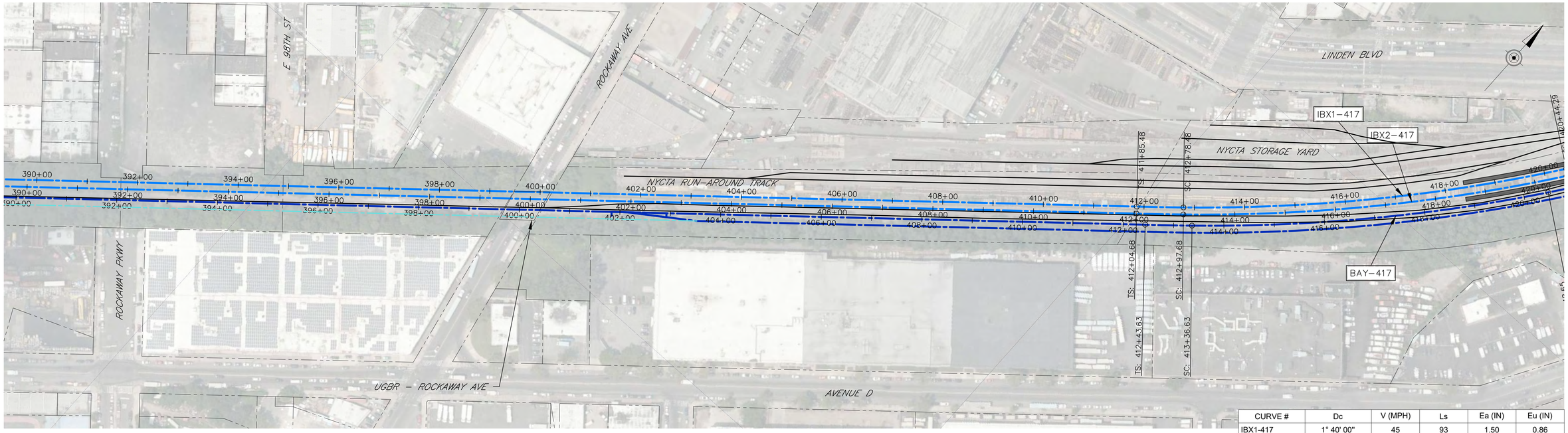
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

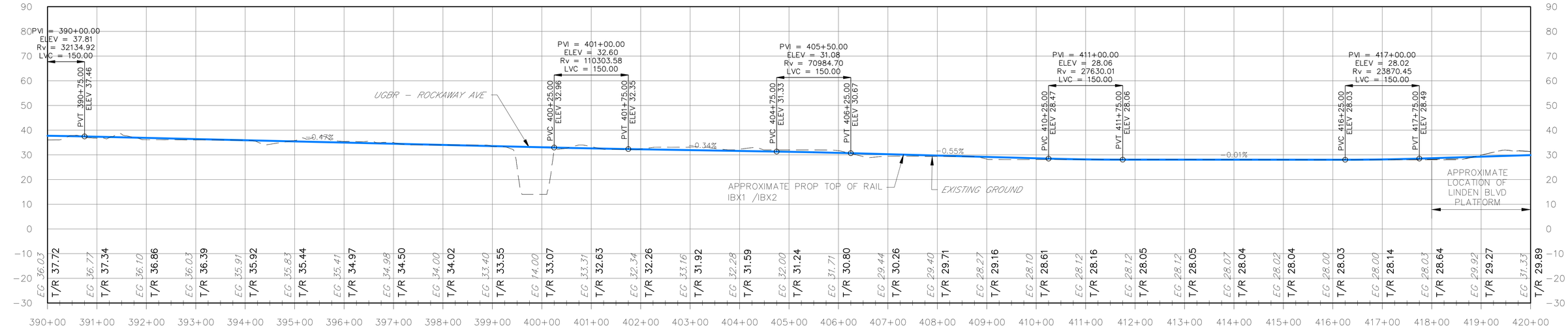
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 14 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-417	1° 40' 00"	45	93	1.50	0.86
IBX2-417	1° 39' 35"	45	93	1.50	0.85
BAY-417	1° 40' 00"	45	93	1.50	0.86



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

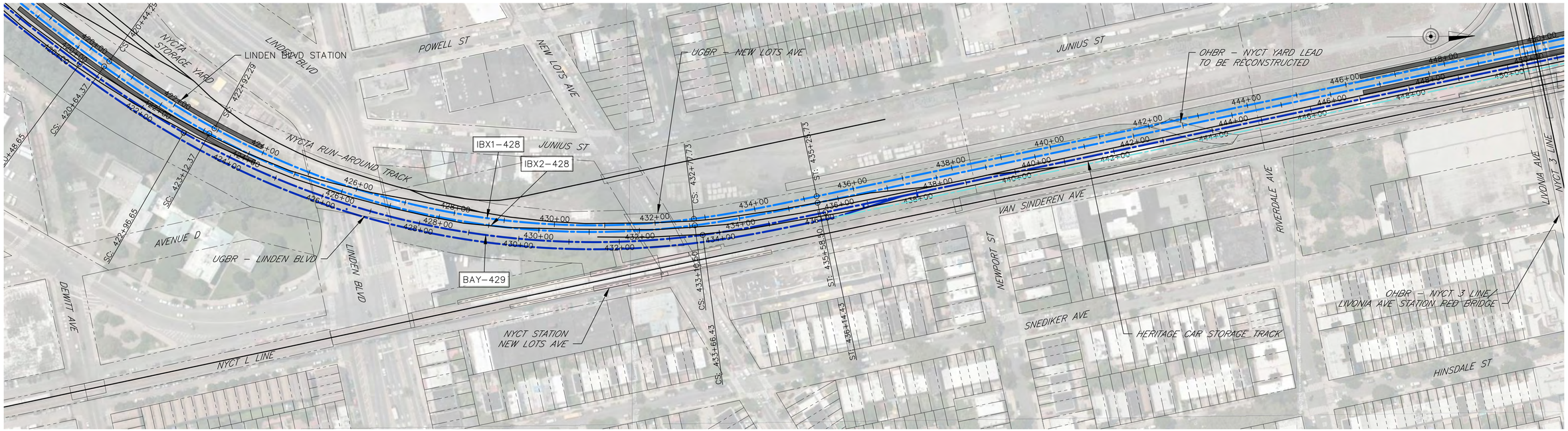
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

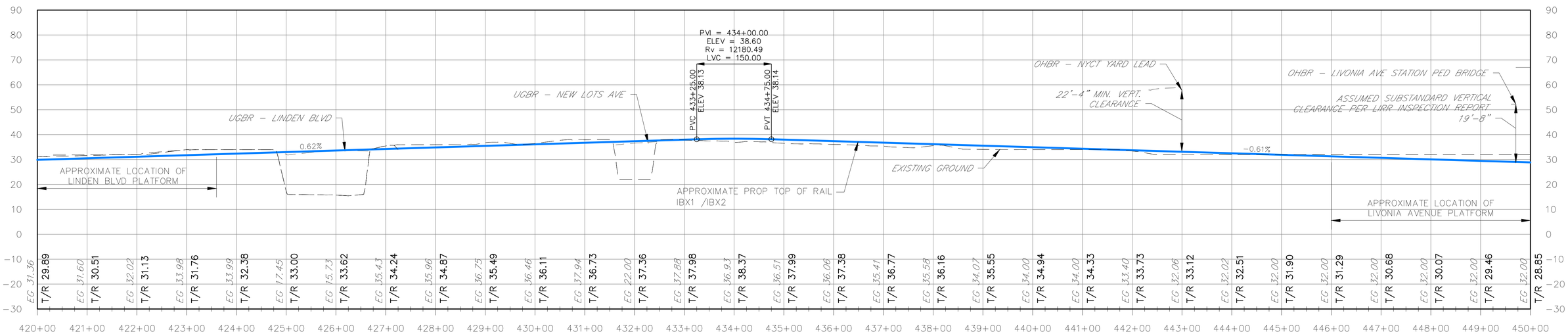
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 15 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-428	3° 40' 00"	45	248	4.00	1.20
IBX2-428	3° 38' 00"	45	248	4.00	1.15
BAY-429	3° 30' 00"	45	248	4.00	0.96



LEGEND:
- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

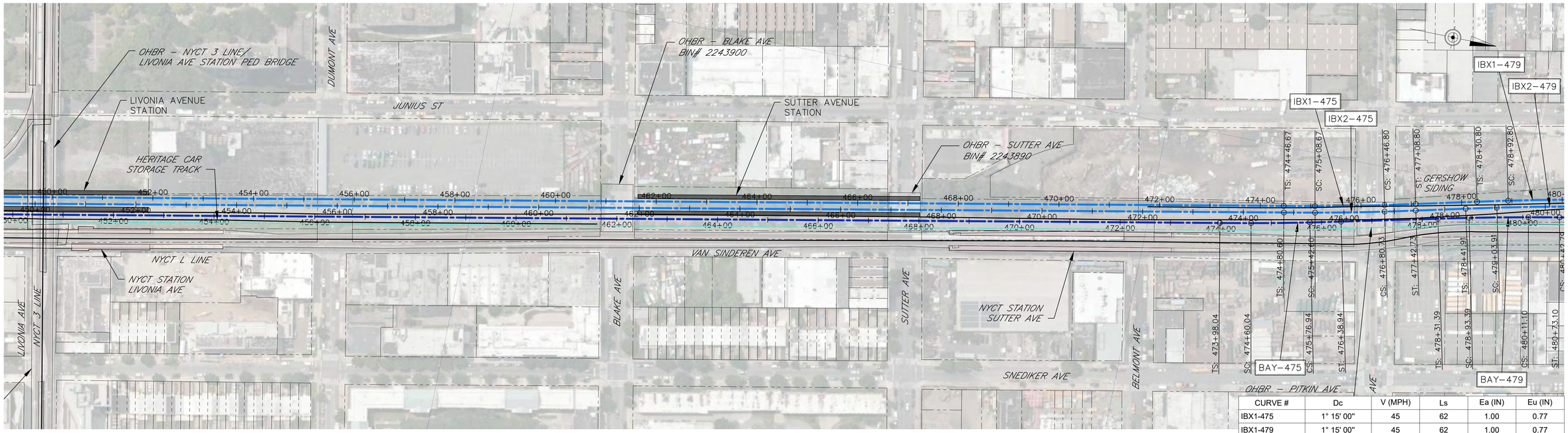
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

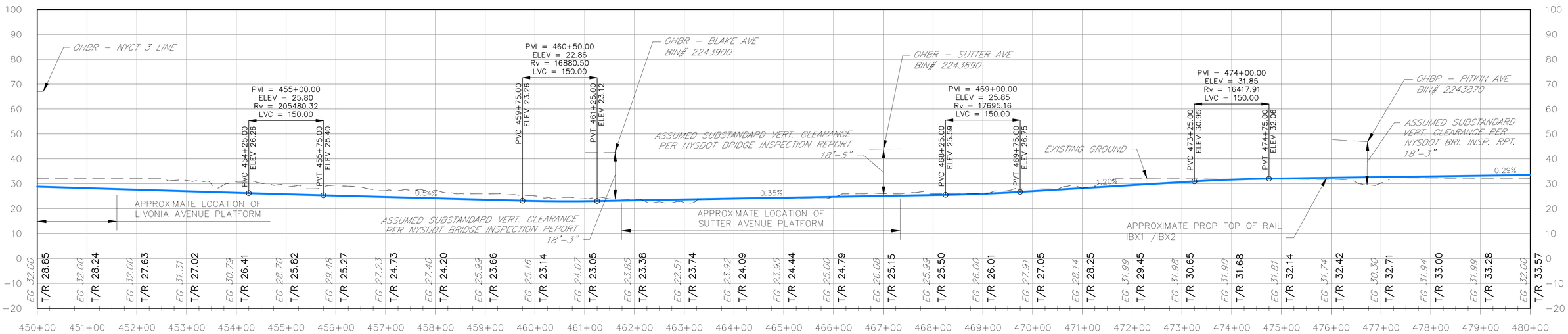
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 16 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-475	1° 15' 00"	45	62	1.00	0.77
IBX1-479	1° 15' 00"	45	62	1.00	0.77
IBX2-475	1° 15' 00"	45	62	1.00	0.77
IBX2-479	1° 15' 00"	45	62	1.00	0.77
BAY-475	1° 10' 00"	45	62	1.00	0.65
BAY-479	1° 10' 00"	45	62	1.00	0.65



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

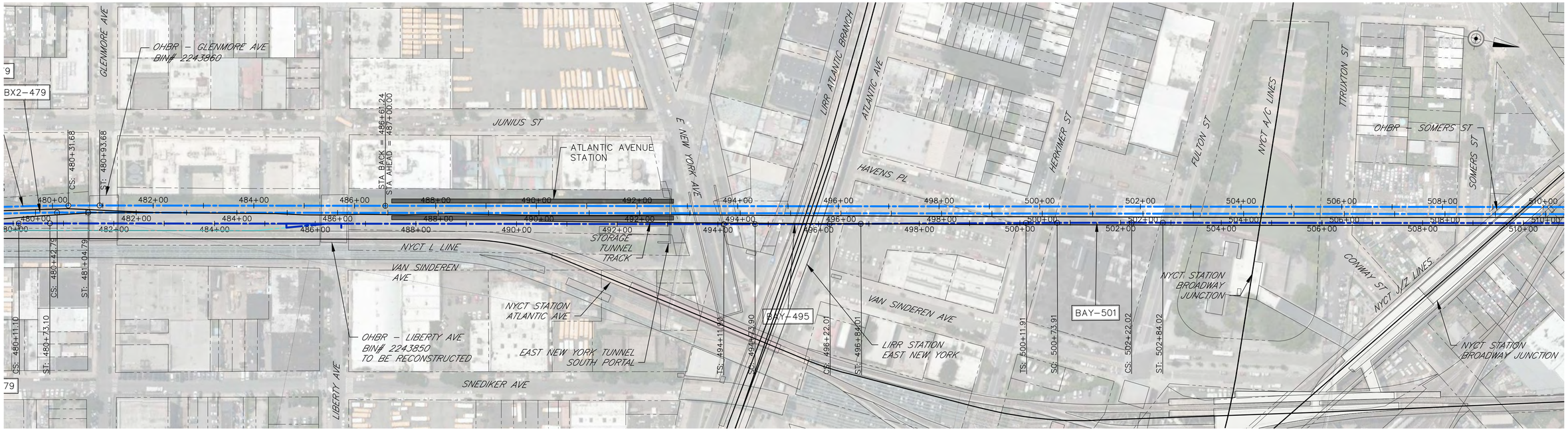
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

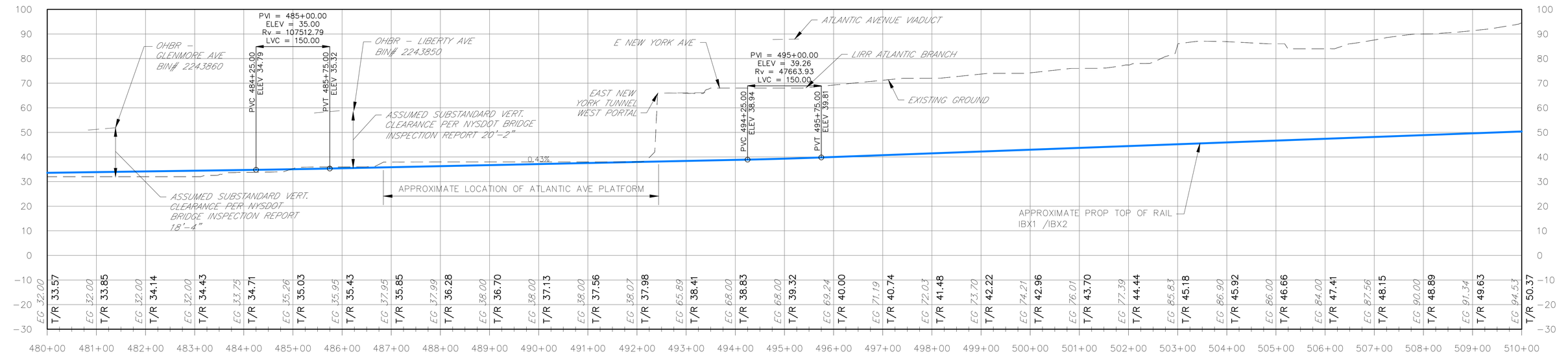
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 17 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
BAY-495	0° 10' 00"	20	0	0.00	0.05
BAY-501	0° 10' 00"	20	0	0.00	0.05



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

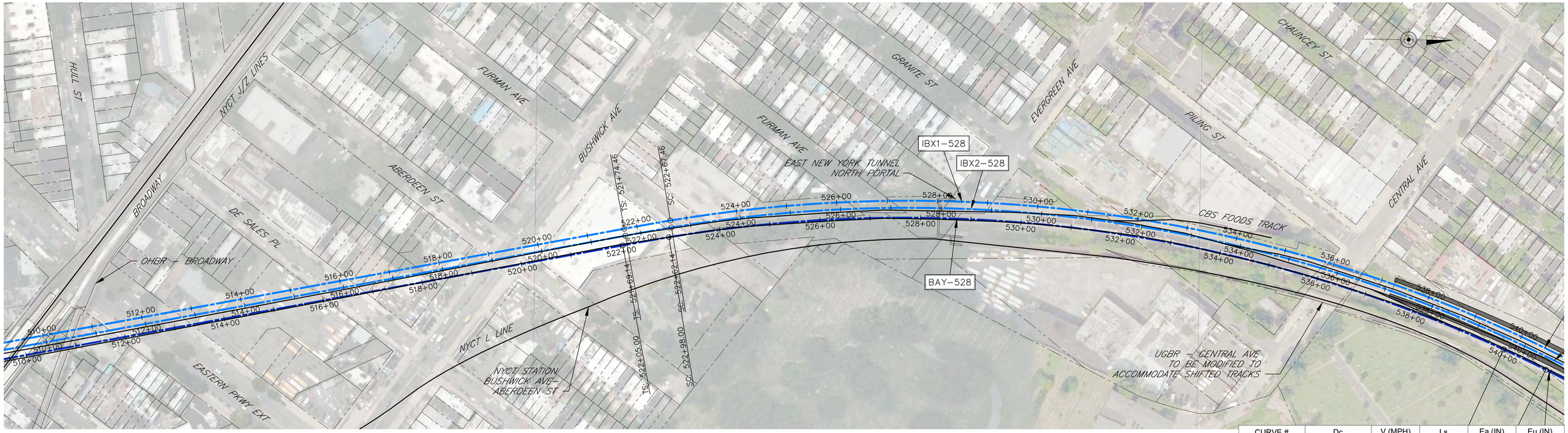
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

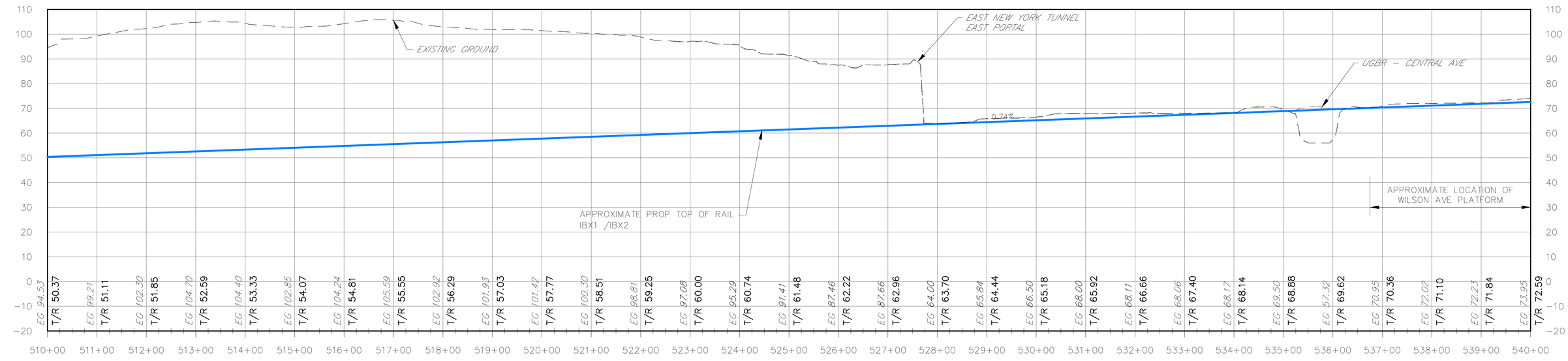
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 18 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-528	1° 59' 25"	45	93	1.50	1.32
IBX2-528	2° 00' 00"	45	93	1.50	1.34
BAY-528	2° 00' 54"	45	93	1.50	1.36



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

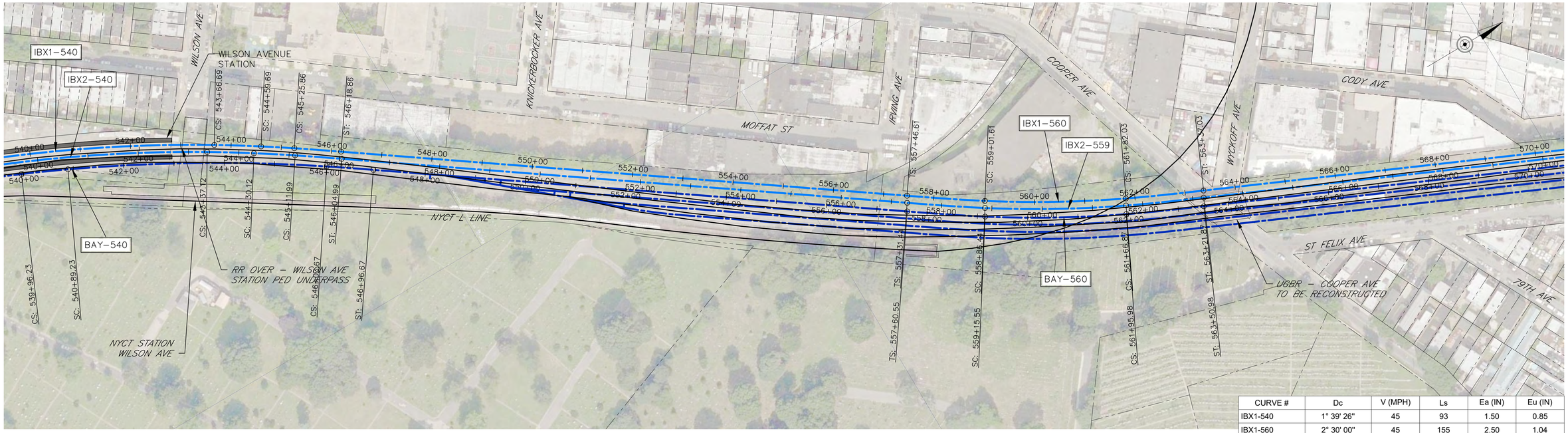
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

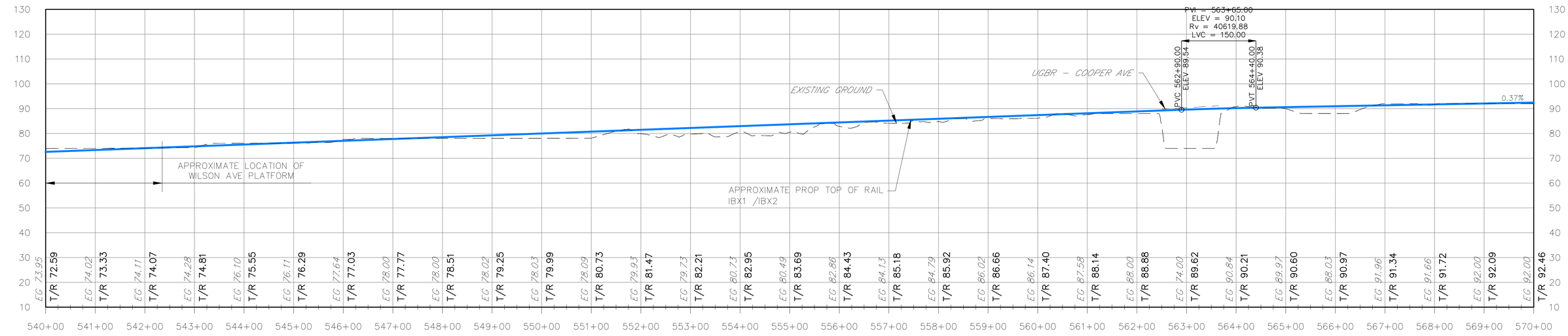
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 19 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-540	1° 39' 26"	45	93	1.50	0.85
IBX1-560	2° 30' 00"	45	155	2.50	1.04
IBX2-540	1° 39' 50"	45	93	1.50	0.85
IBX2-559	2° 30' 00"	45	155	2.50	1.04
BAY-540	1° 40' 38"	45	93	1.50	0.88
BAY-560	2° 30' 00"	45	155	2.50	1.04



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

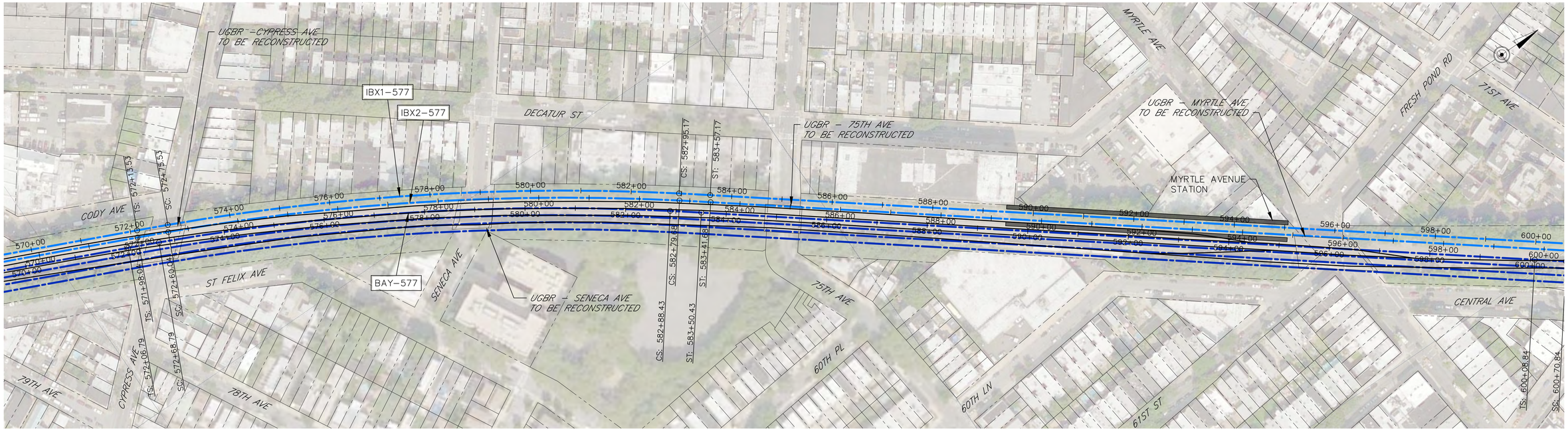
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

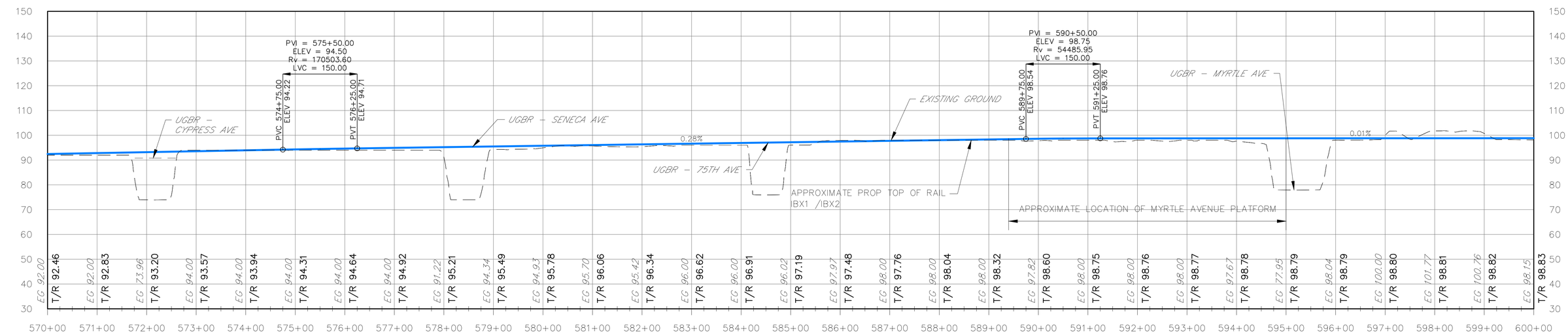
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **20** OF **27**



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-577	1° 15' 00"	45	62	1.00	0.77
IBX2-577	1° 15' 00"	45	62	1.00	0.77
BAY-577	1° 15' 00"	45	65	1.00	0.77



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

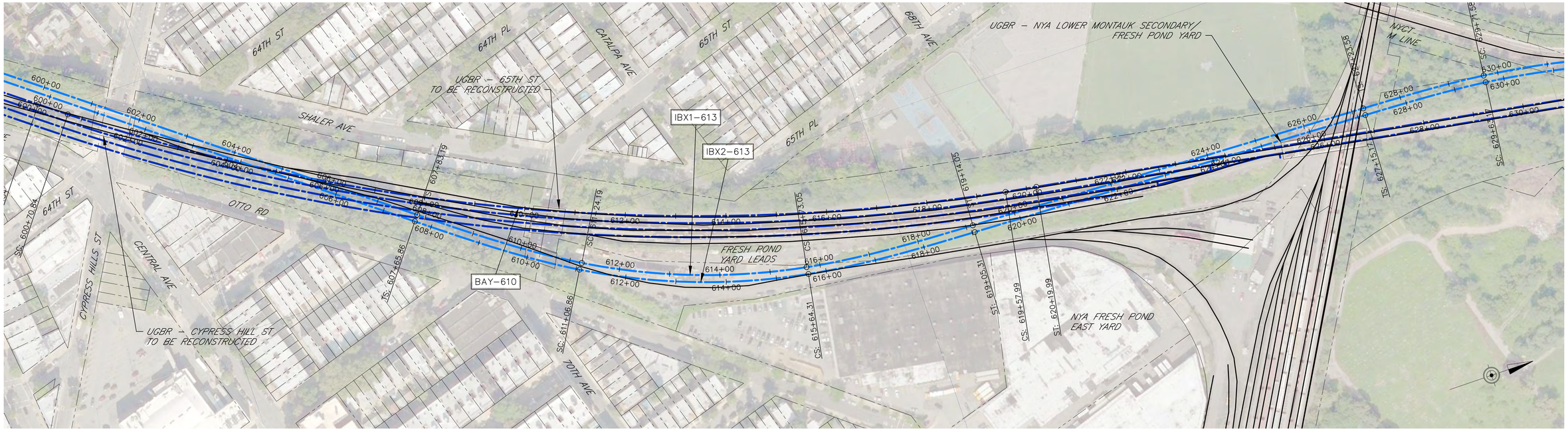
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

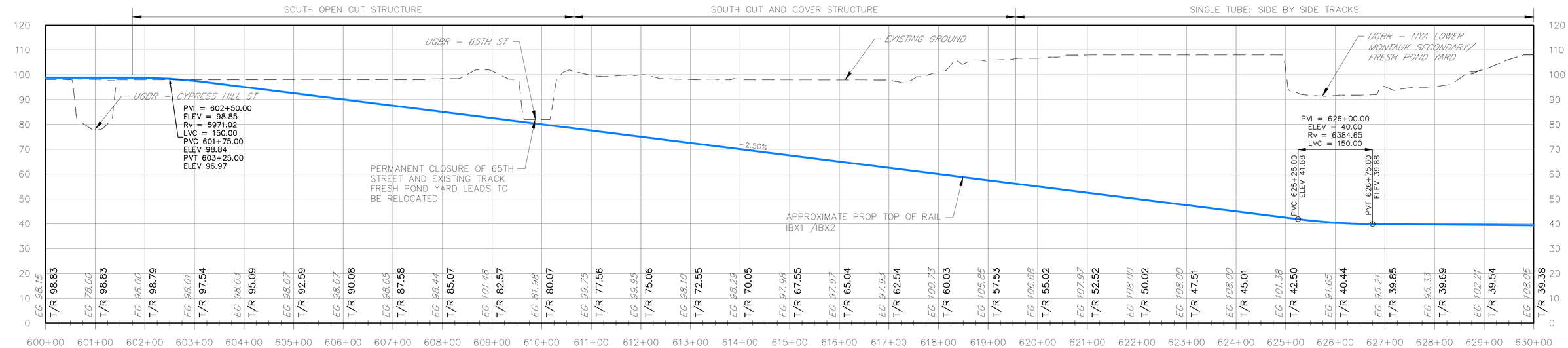
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 21 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-613	4° 30' 00"	45	341	5.50	0.88
IBX2-613	4° 27' 00"	45	341	5.50	0.81
BAY-610	1° 27' 00"	45	93	1.50	0.56



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

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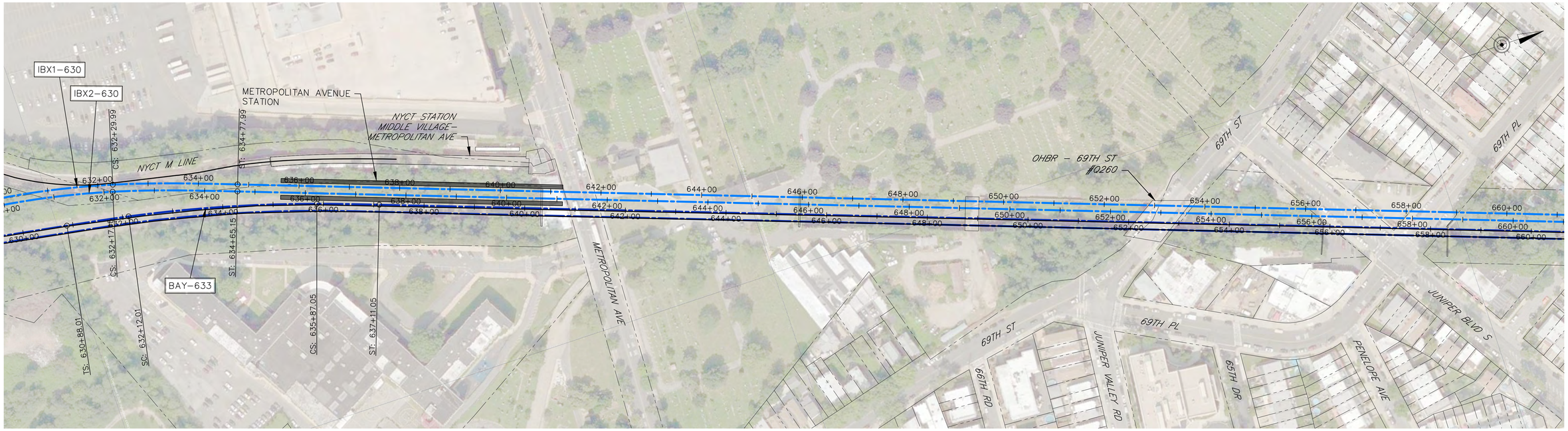
1700 MARKET STREET
PHILADELPHIA, PA 19103

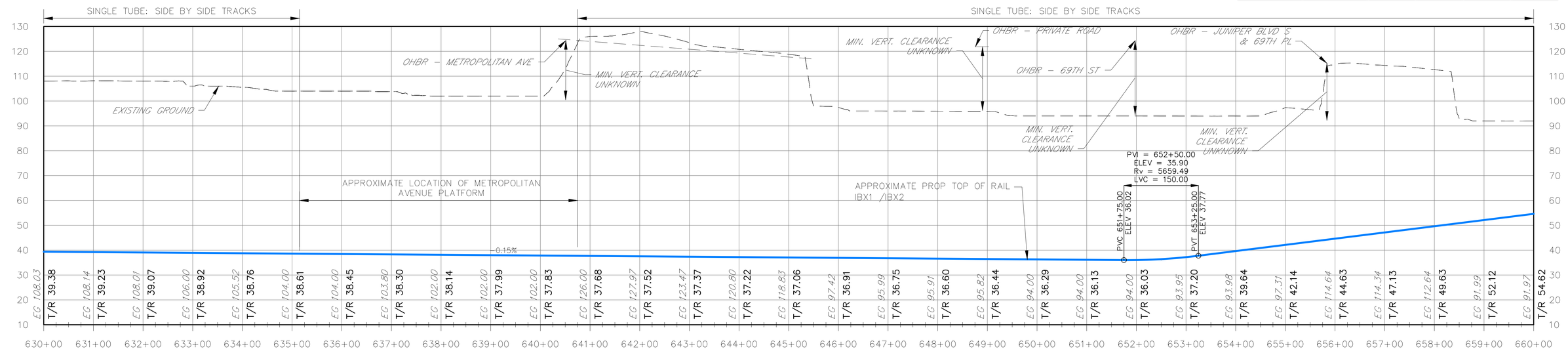
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 22 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-630	3° 28' 00"	45	248	4.00	0.91
IBX2-630	3° 30' 00"	45	248	4.00	0.96
BAY-633	2° 03' 45"	45	124	2.00	0.92



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

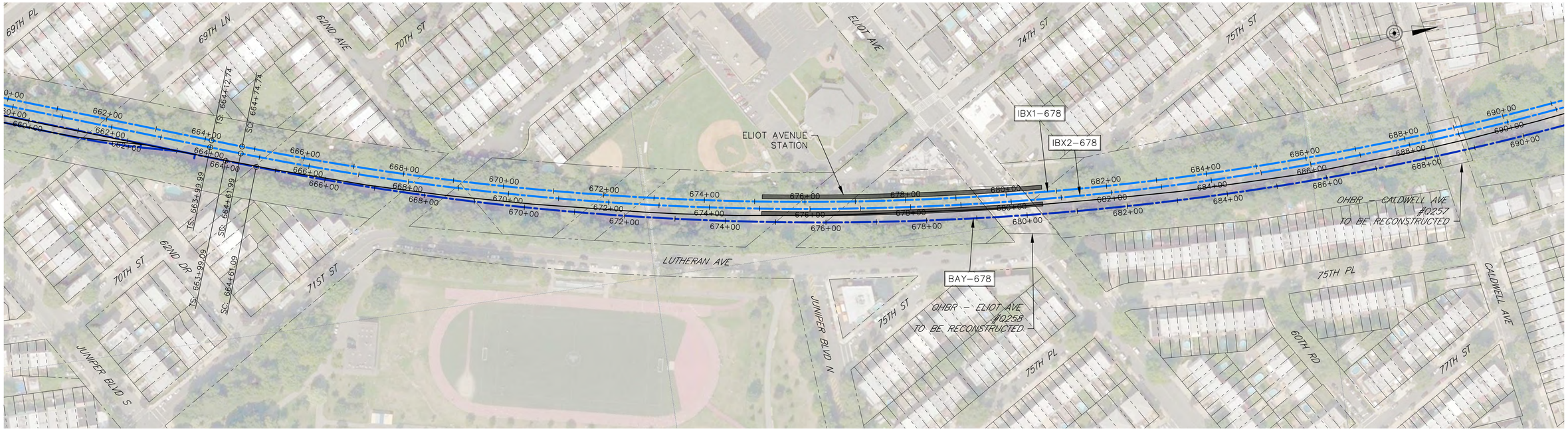
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

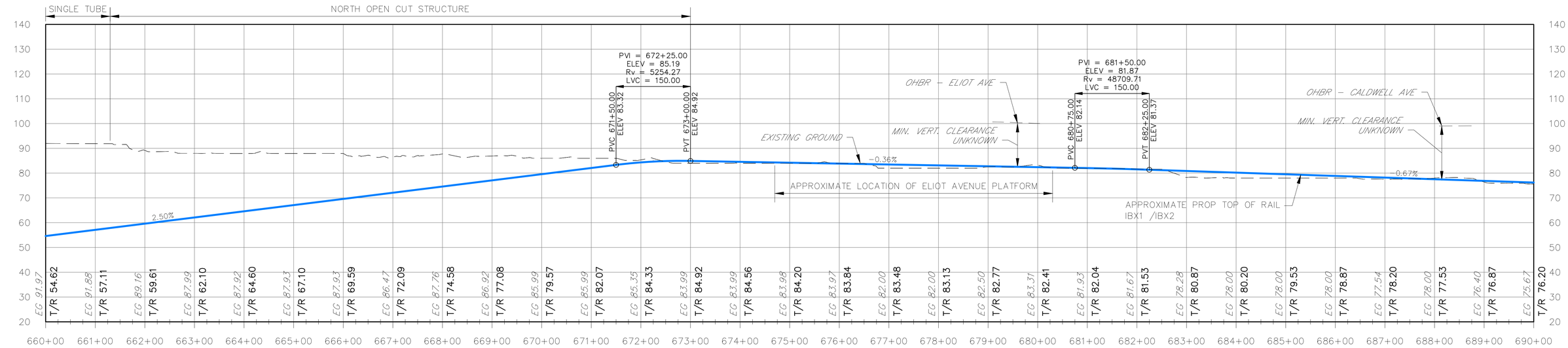
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 23 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-678	1° 00' 00"	45	62	1.00	0.42
IBX2-678	0° 59' 51"	45	62	1.00	0.41
BAY-678	0° 59' 45"	45	62	1.00	0.41



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

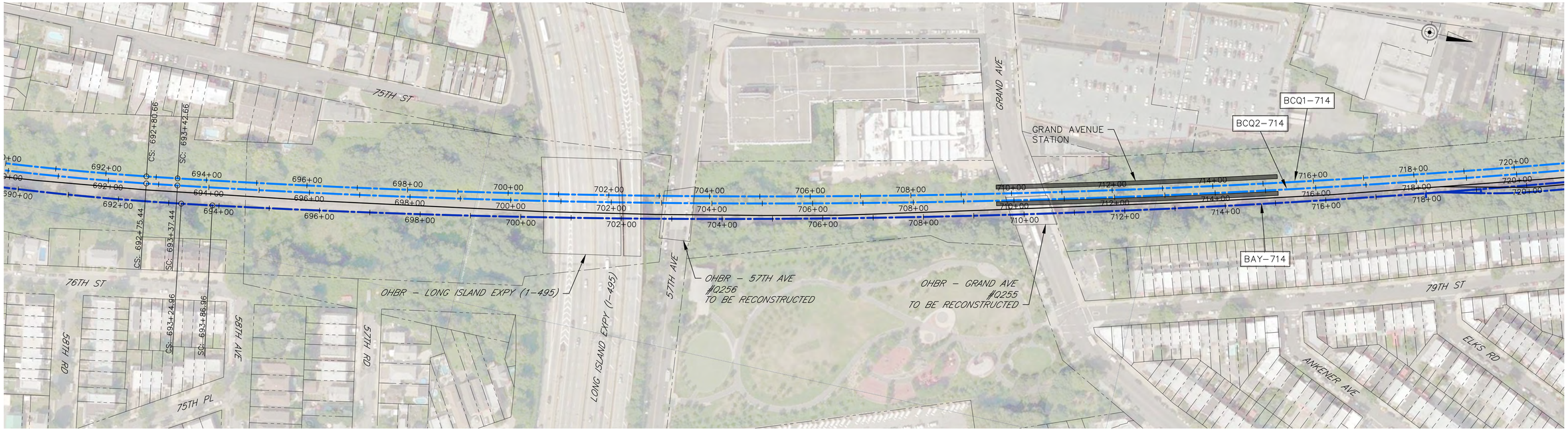
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

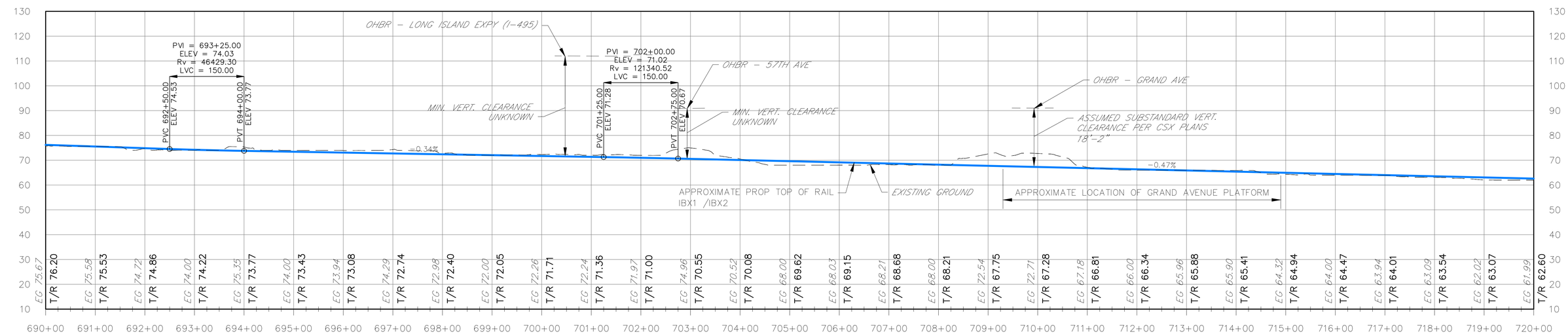
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 24 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-714	0° 18' 00"	45	62	0.00	0.43
IBX2-714	0° 18' 00"	45	62	0.00	0.42
BAY-714	0° 18' 00"	45	62	0.00	0.42



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

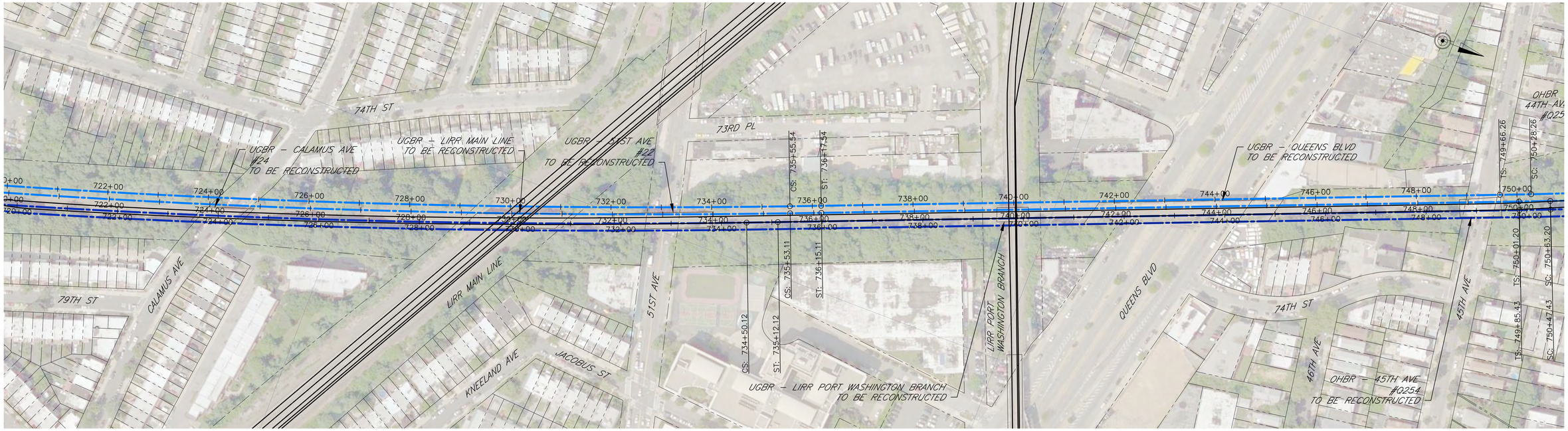
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

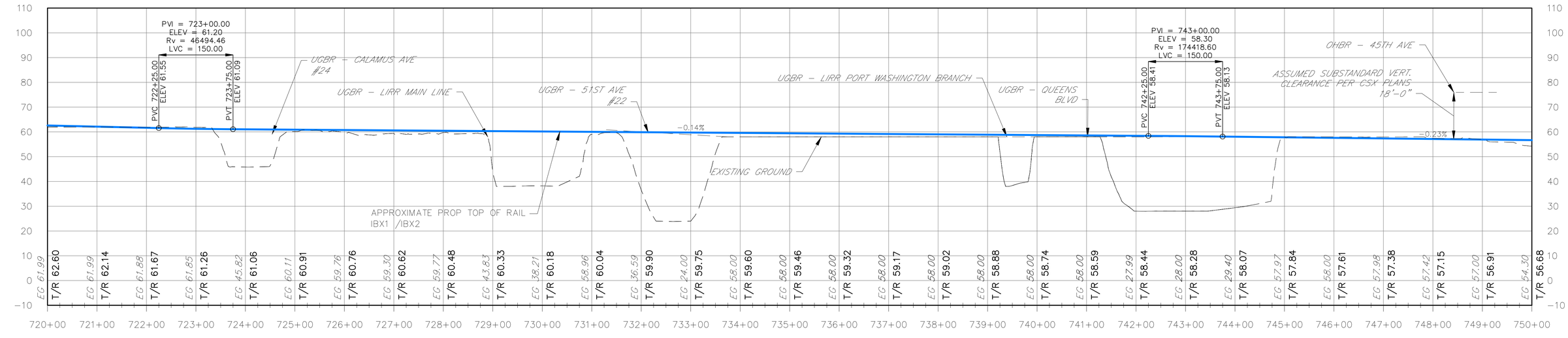
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 25 OF 27





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

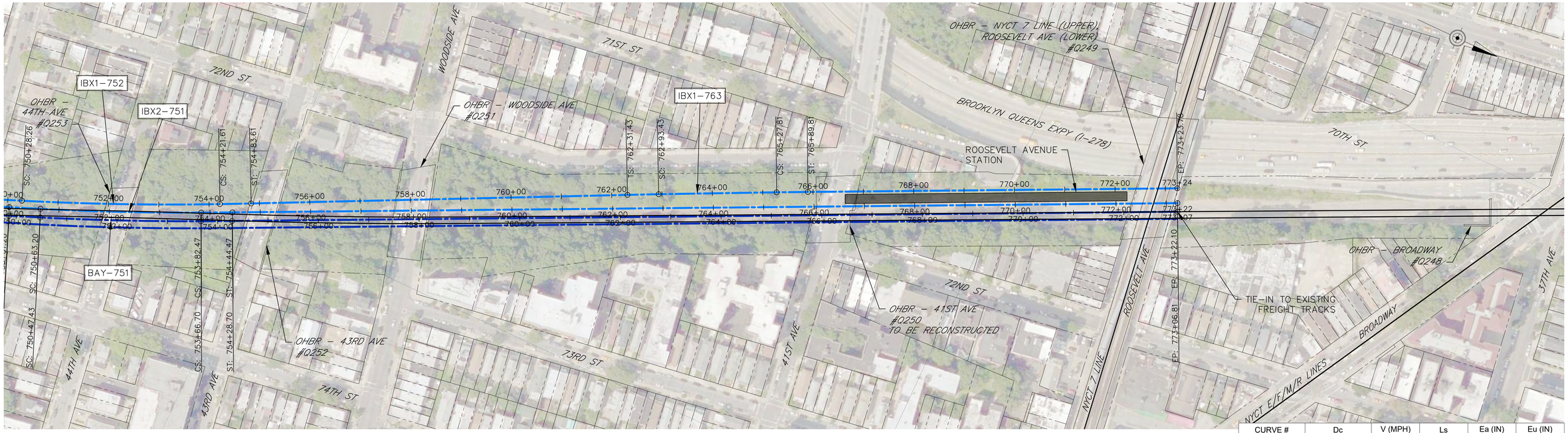
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

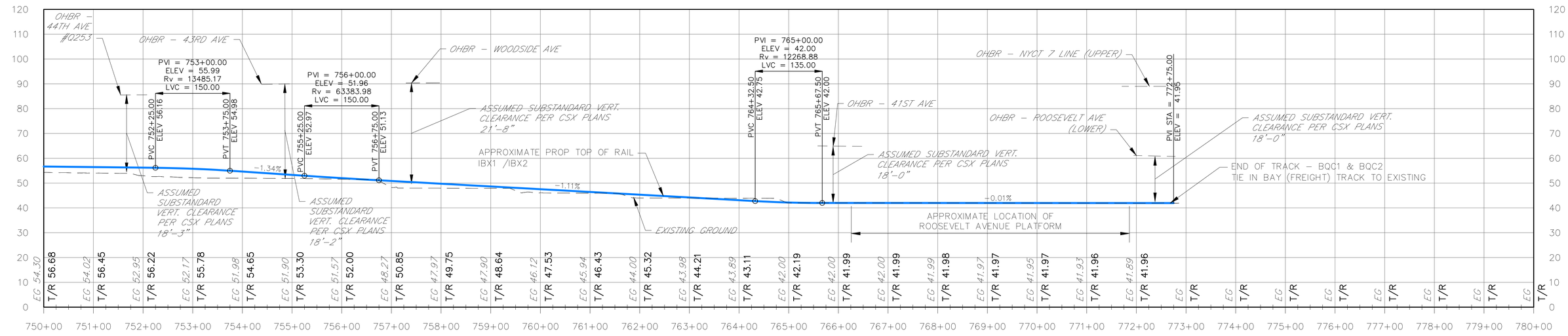
MTA INTERBOROUGH EXPRESS

CONVENTIONAL RAIL
TRACK PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 26 OF 27



CURVE #	Dc	V (MPH)	Ls	Ea (IN)	Eu (IN)
IBX1-752	1° 00' 00"	45	62	1.00	0.42
IBX2-751	1° 00' 00"	45	62	1.00	0.42
IBX1-763	0° 15' 00"	45	62	0.00	0.35
BAY-751	1° 00' 00"	45	62	1.00	0.42



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

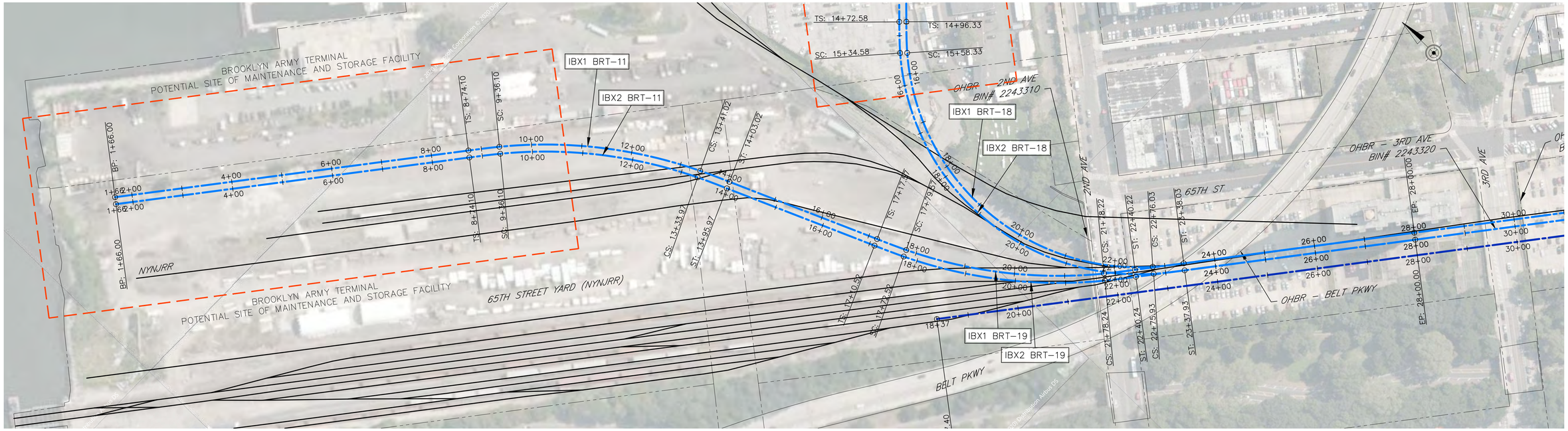
CONVENTIONAL RAIL TRACK PLAN AND PROFILE

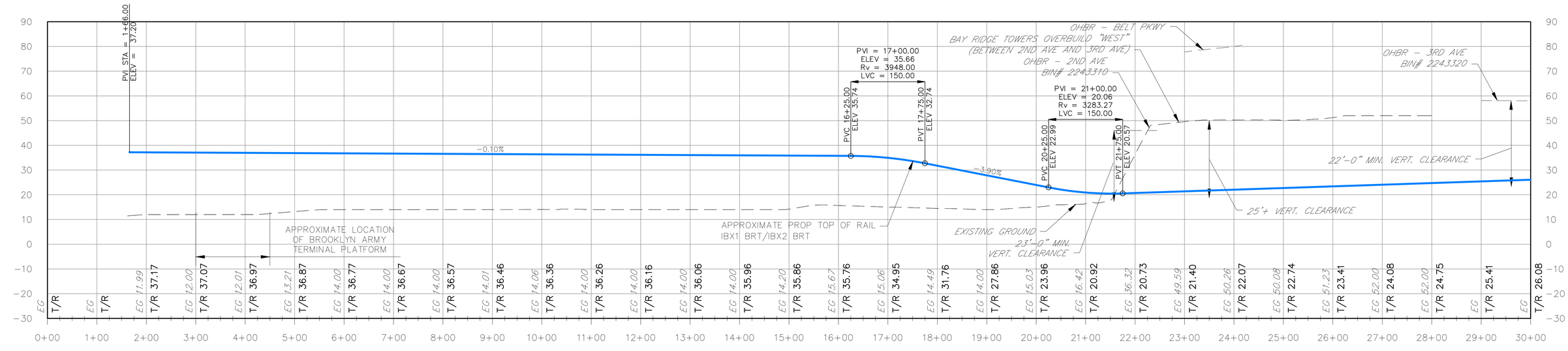
PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: **27** OF **27**

MTA INTERBOROUGH EXPRESS

BRT

TRACK PLAN AND PROFILE





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

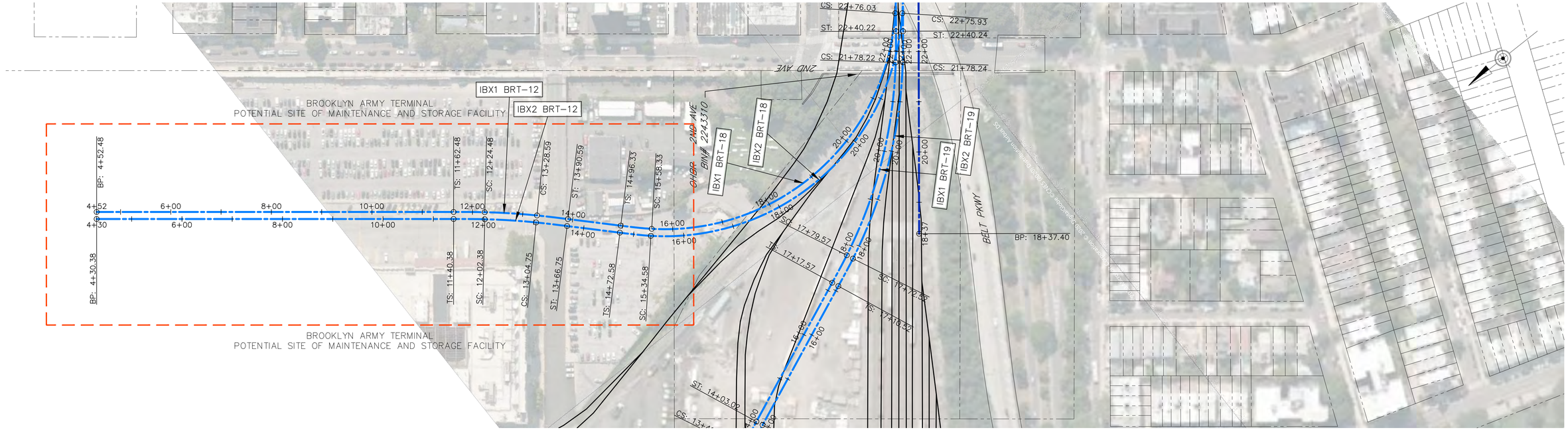
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

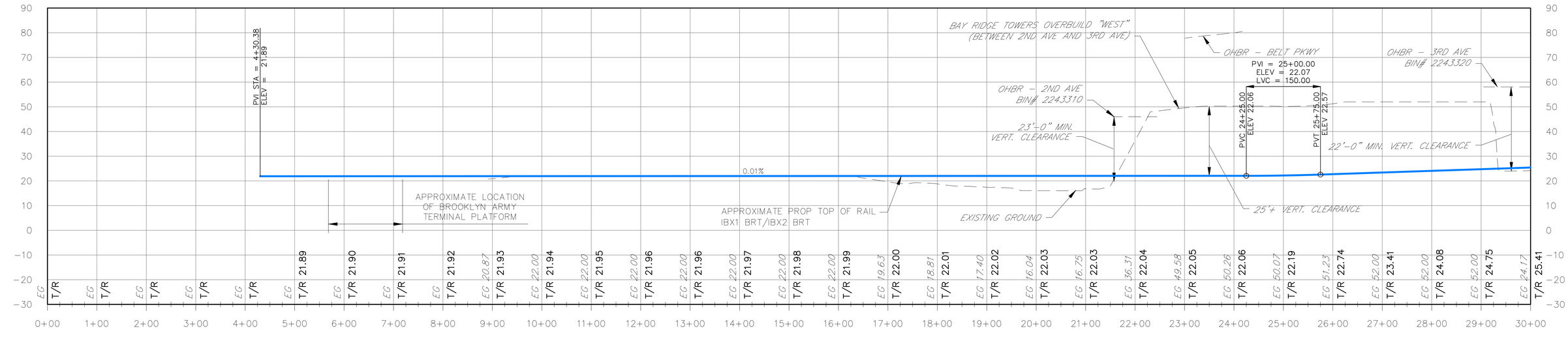
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 01 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

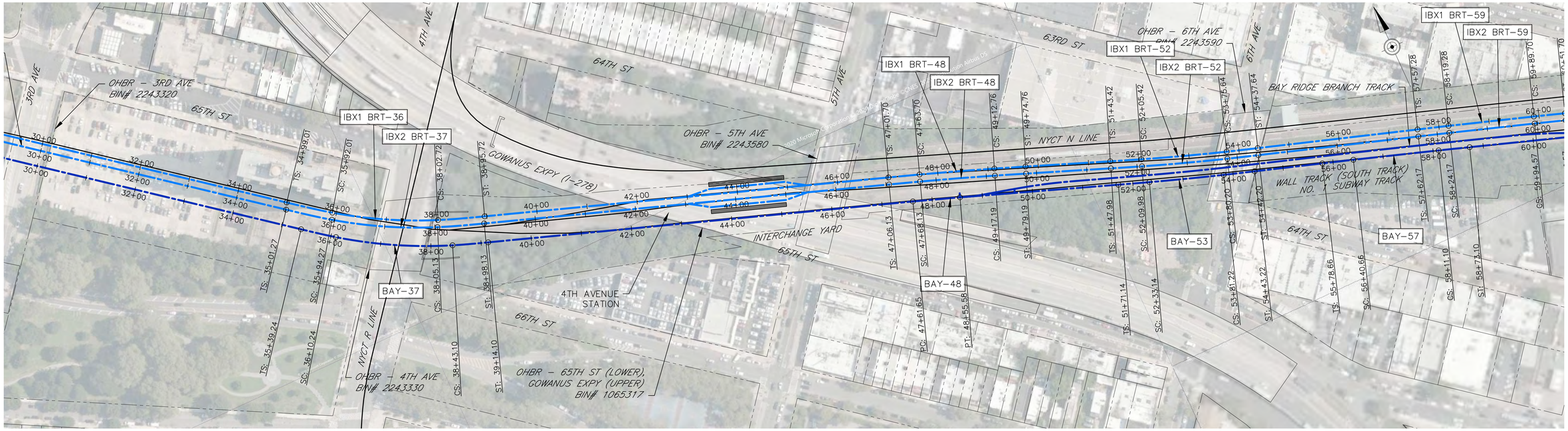
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

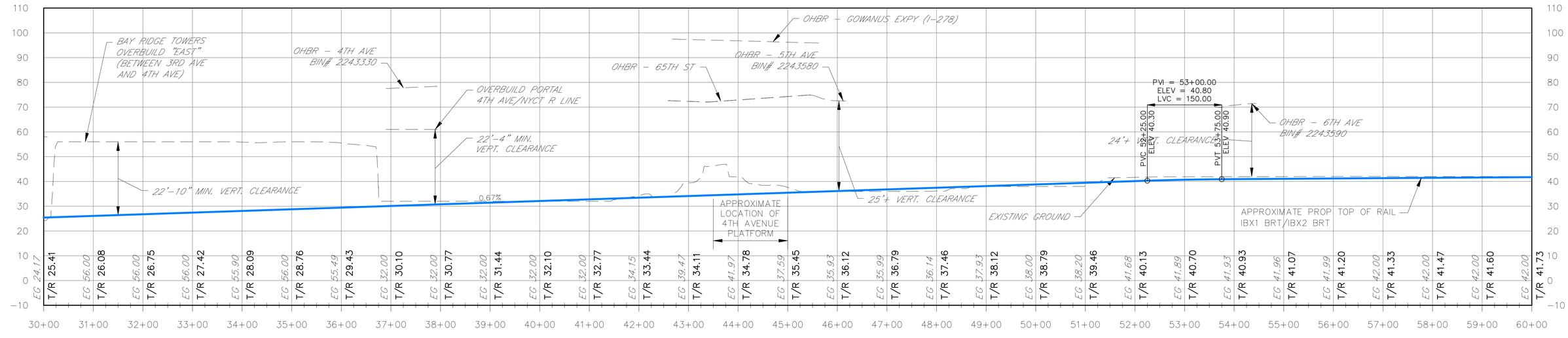
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 02 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

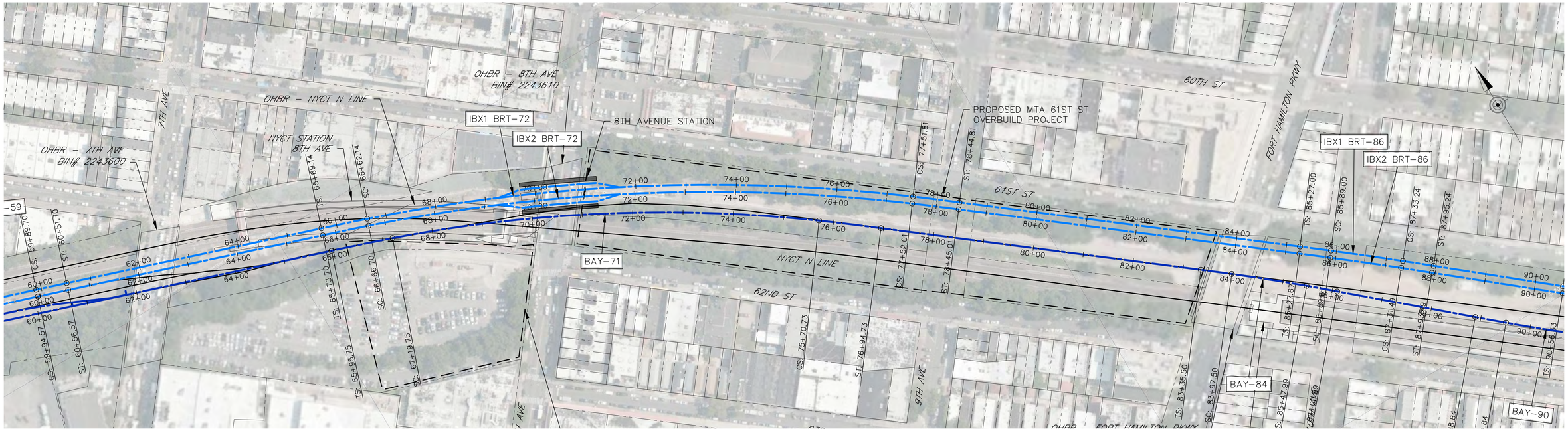
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

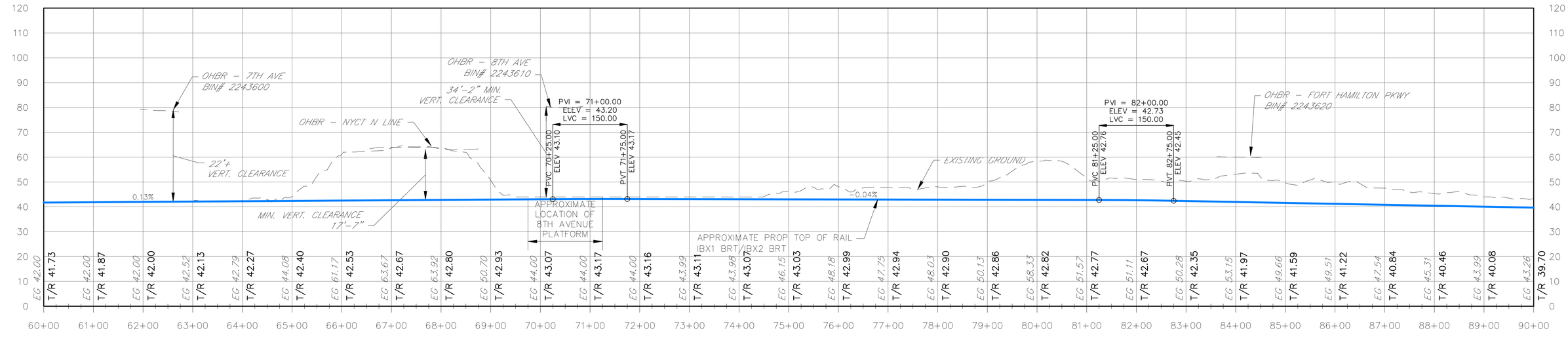
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 03 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

SCALE IN FEET

100 0 100 200 (H)
20 0 20 40 (V)

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

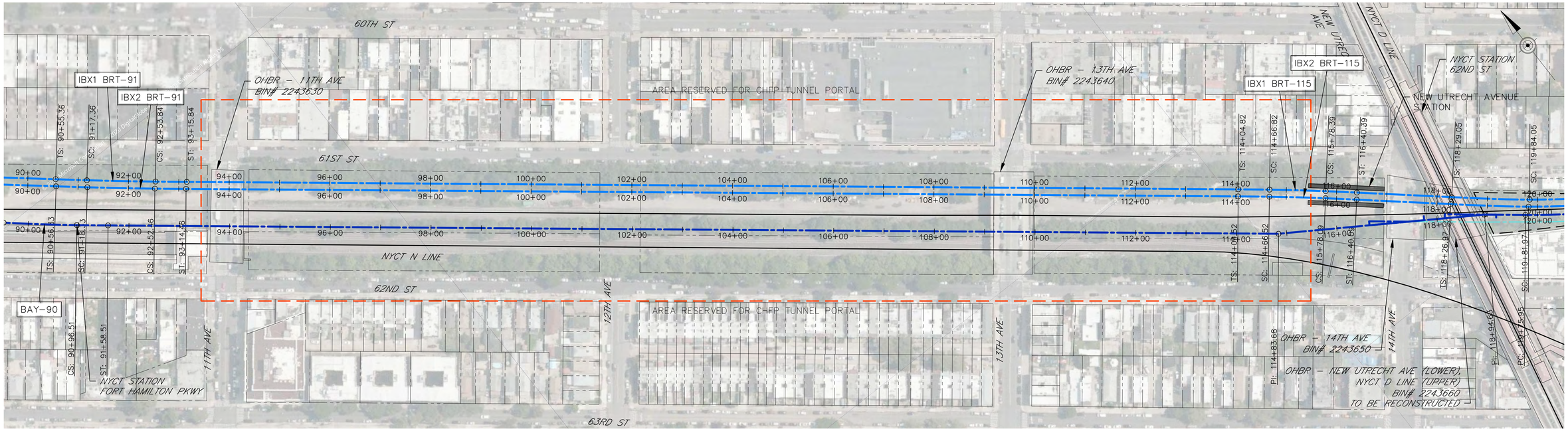
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

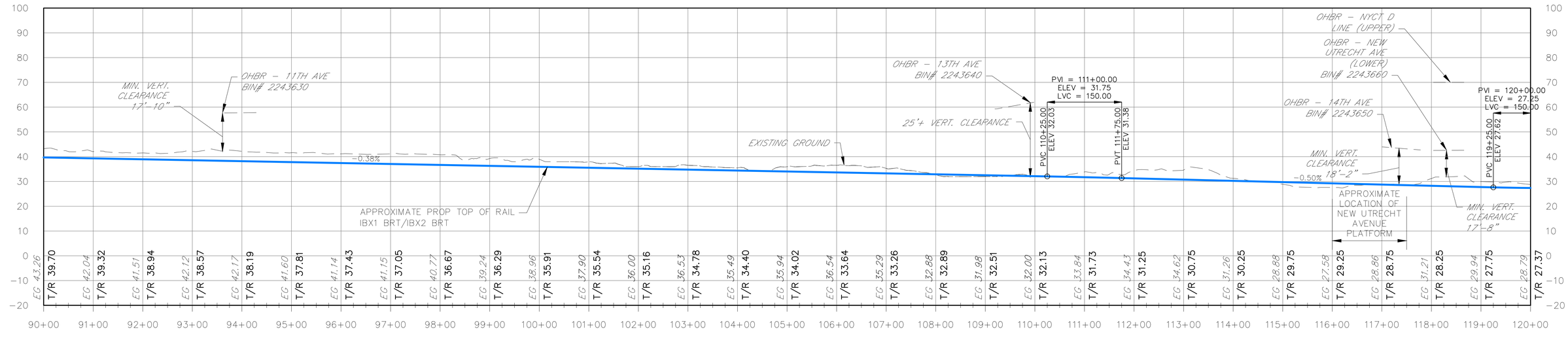
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 04 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

SCALE IN FEET: 100 0 100 200 (H); 20 0 20 40 (V)

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

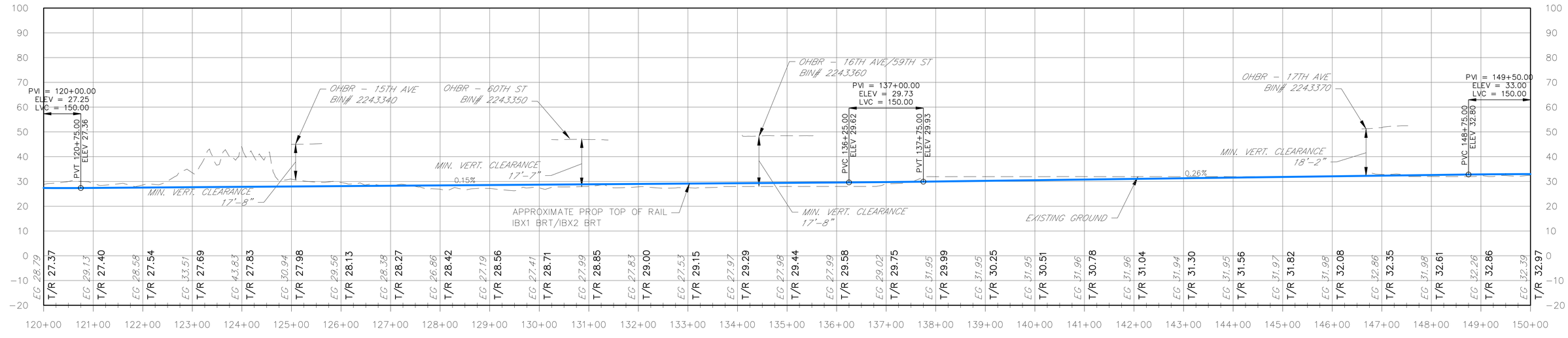
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 05 OF 29



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

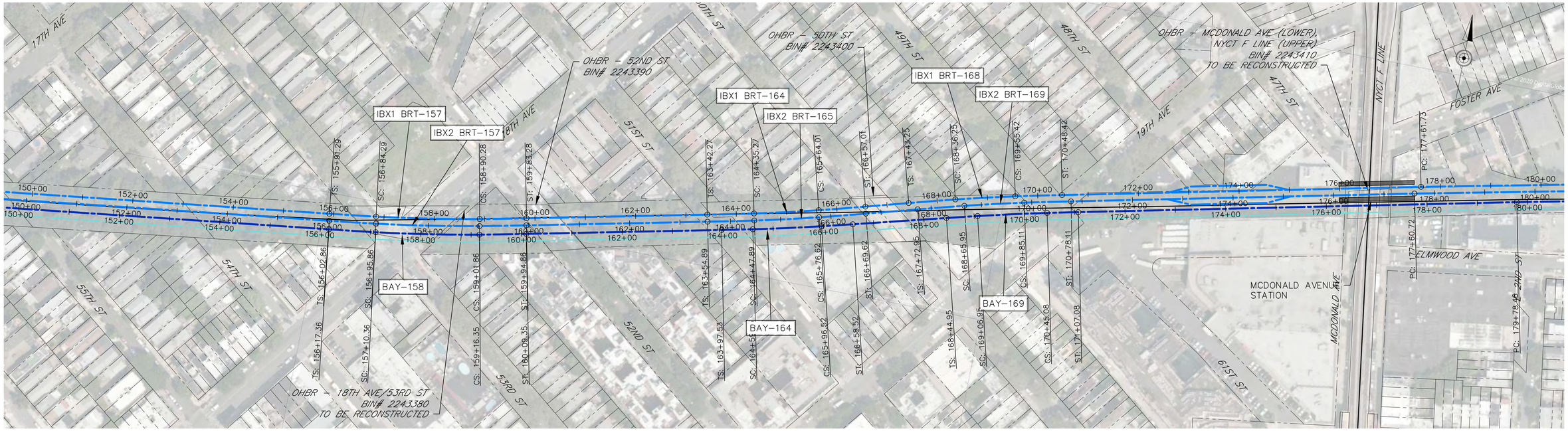
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

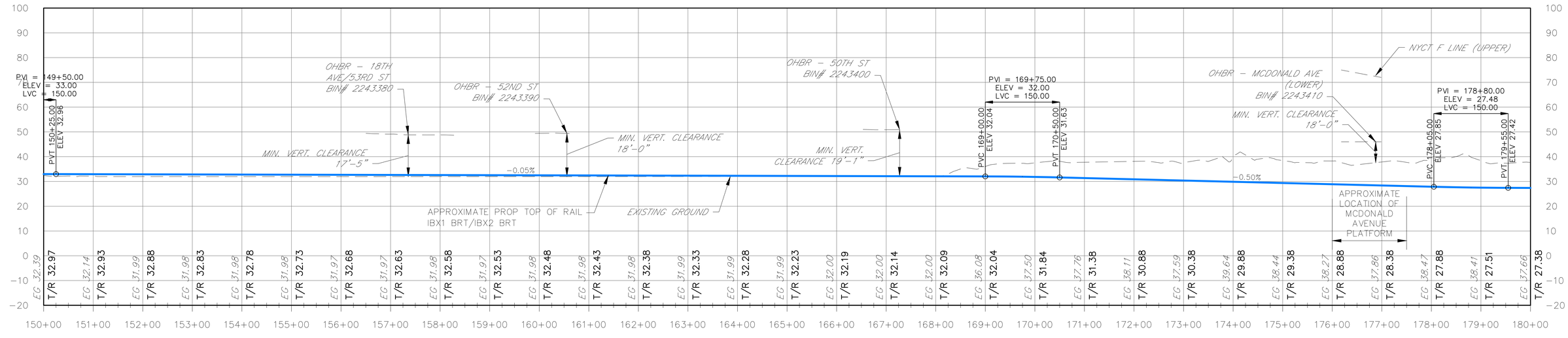
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 06 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

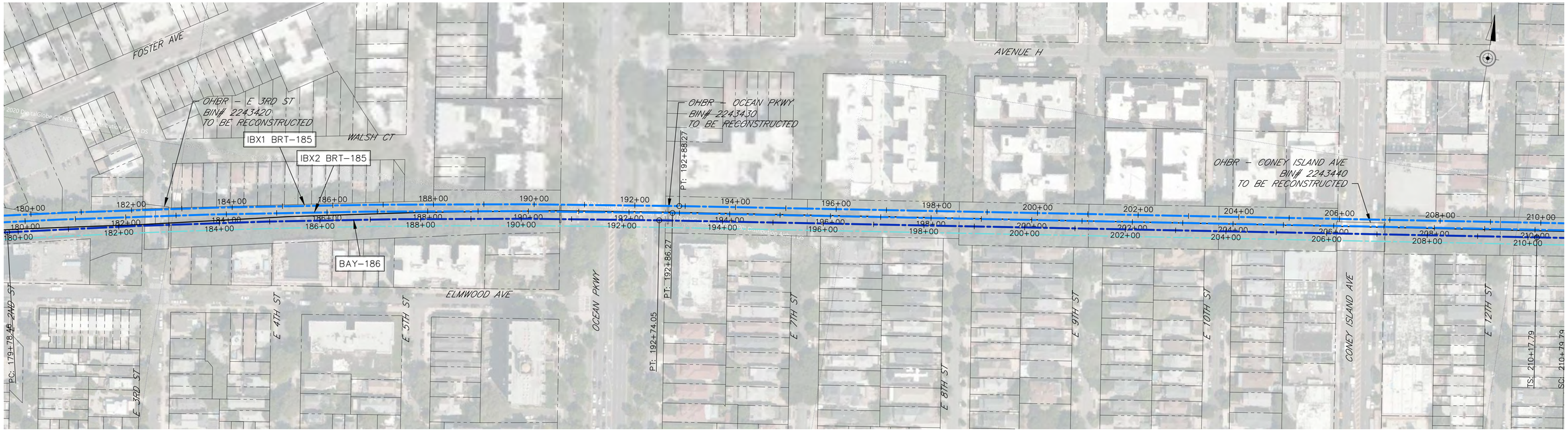
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

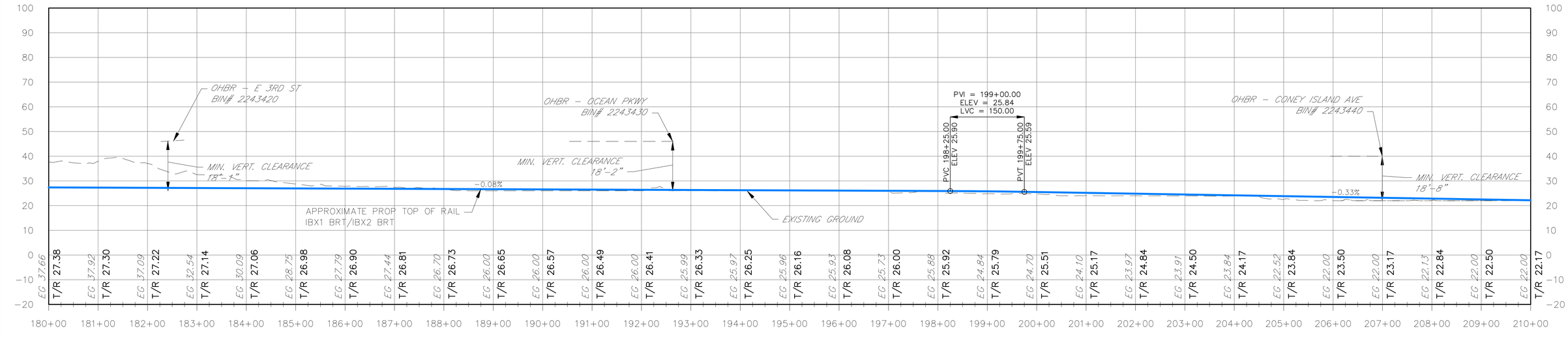
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 07 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

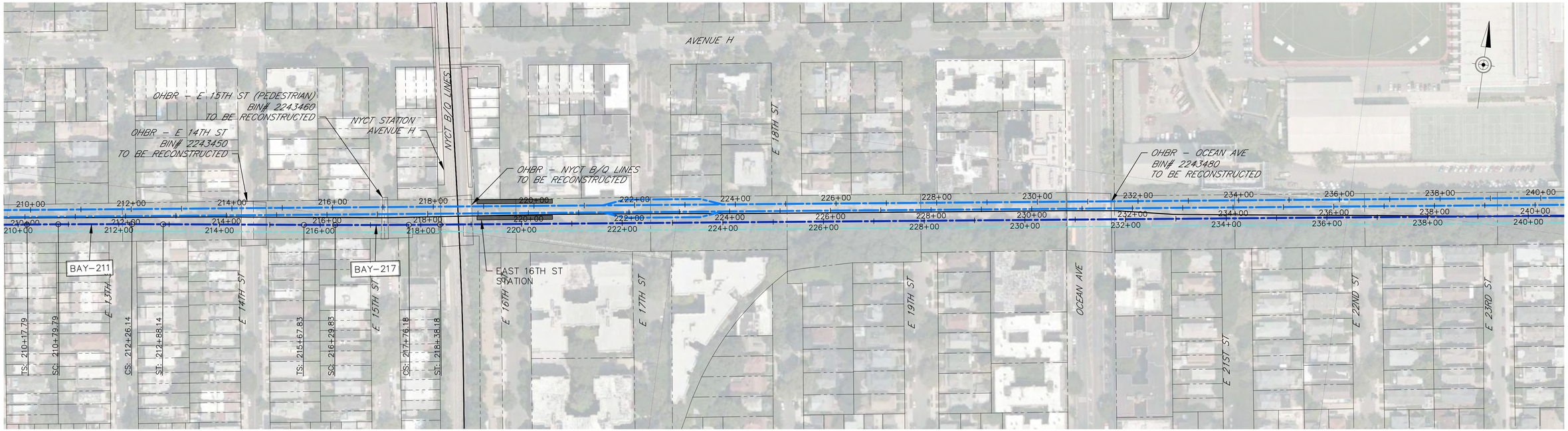
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

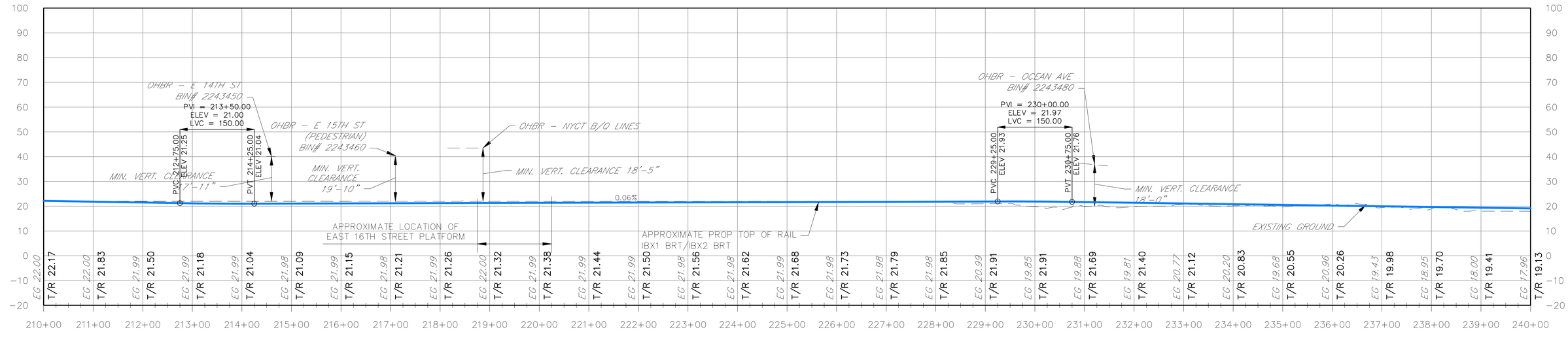
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 08 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

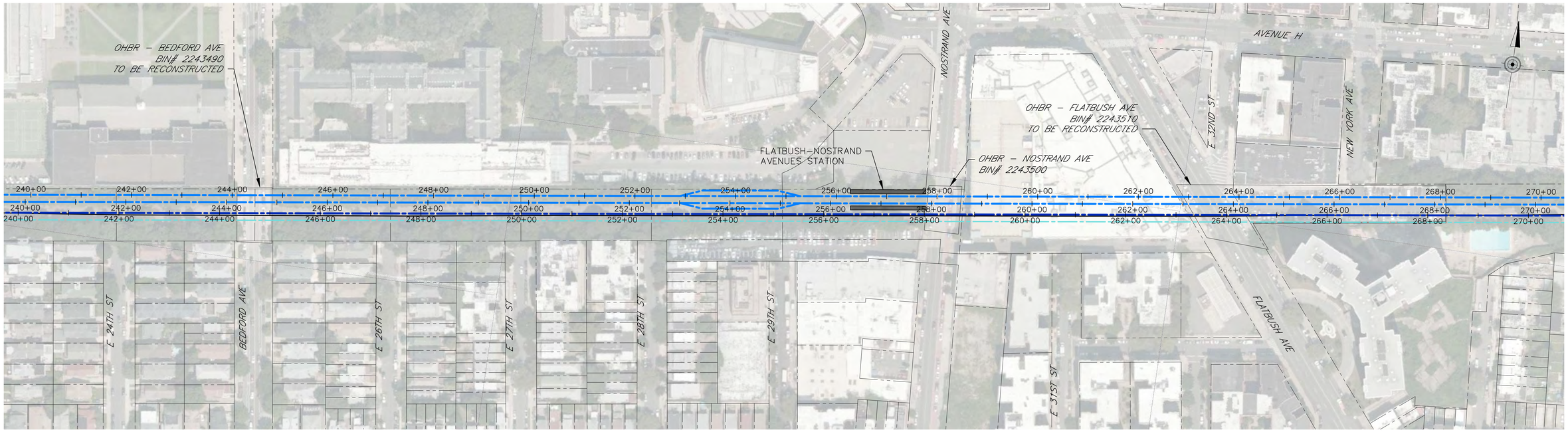
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

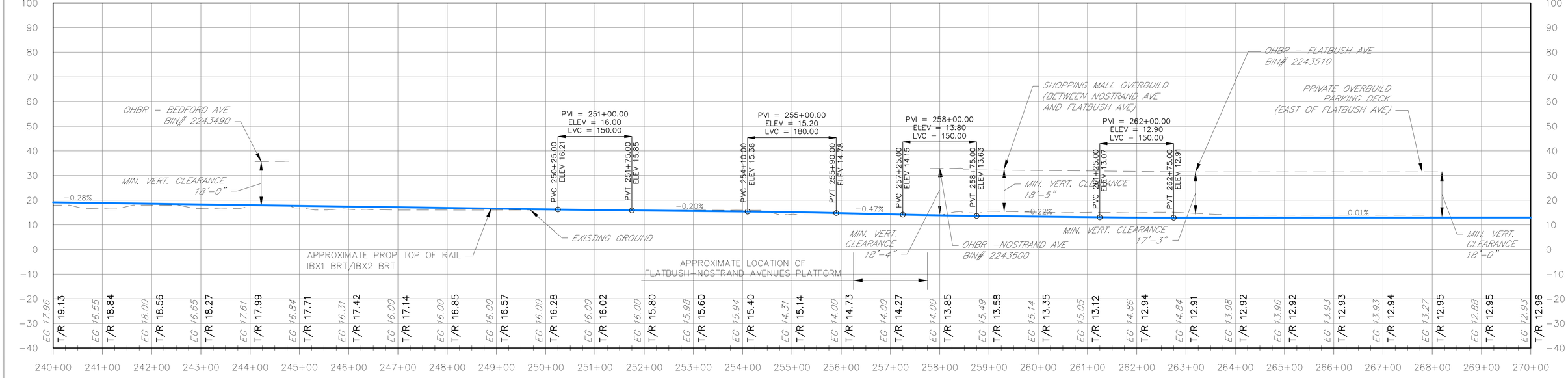
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 09 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

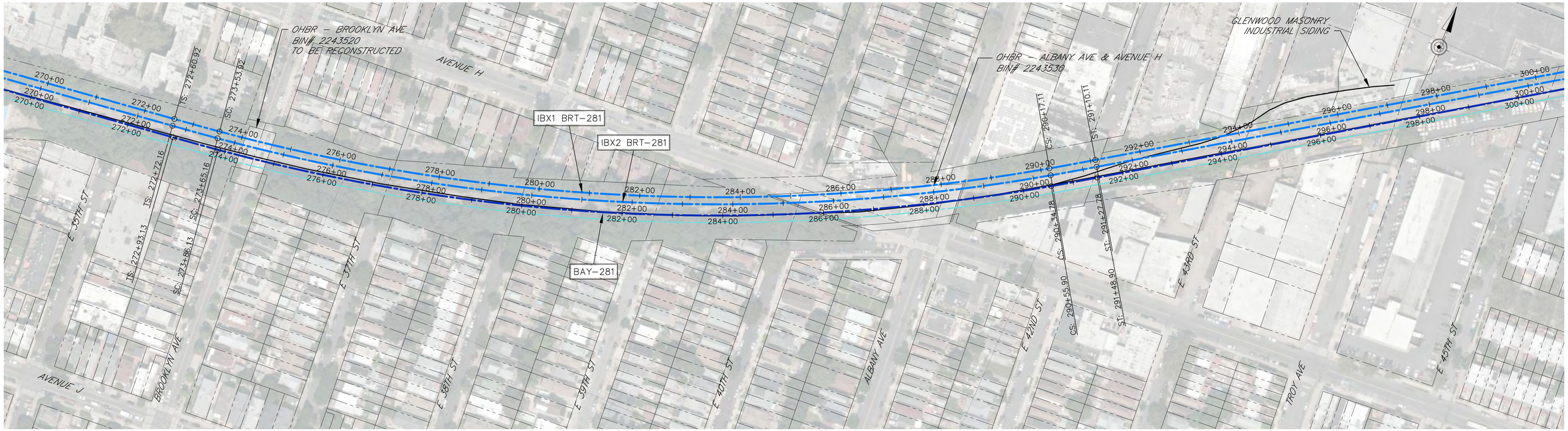
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

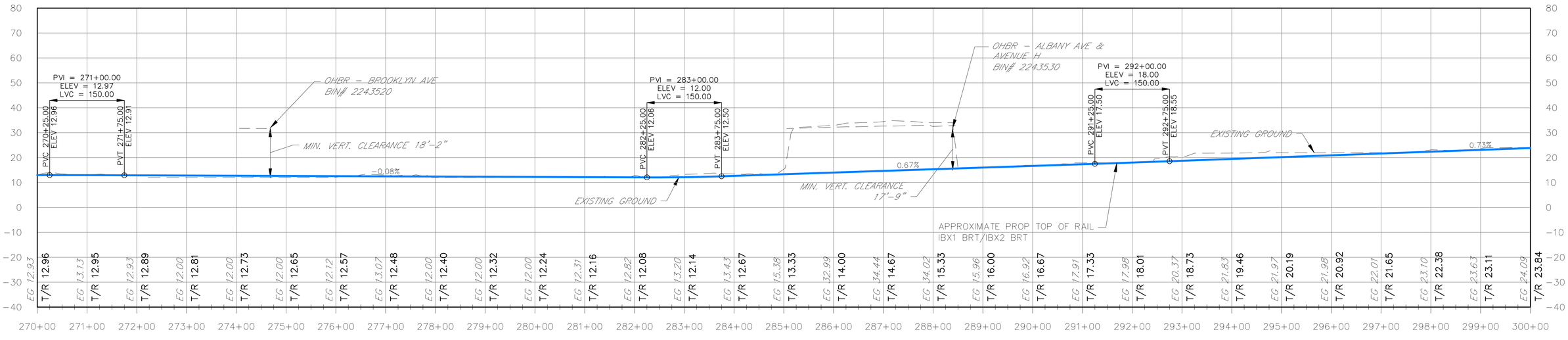
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: **10** OF **29**





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

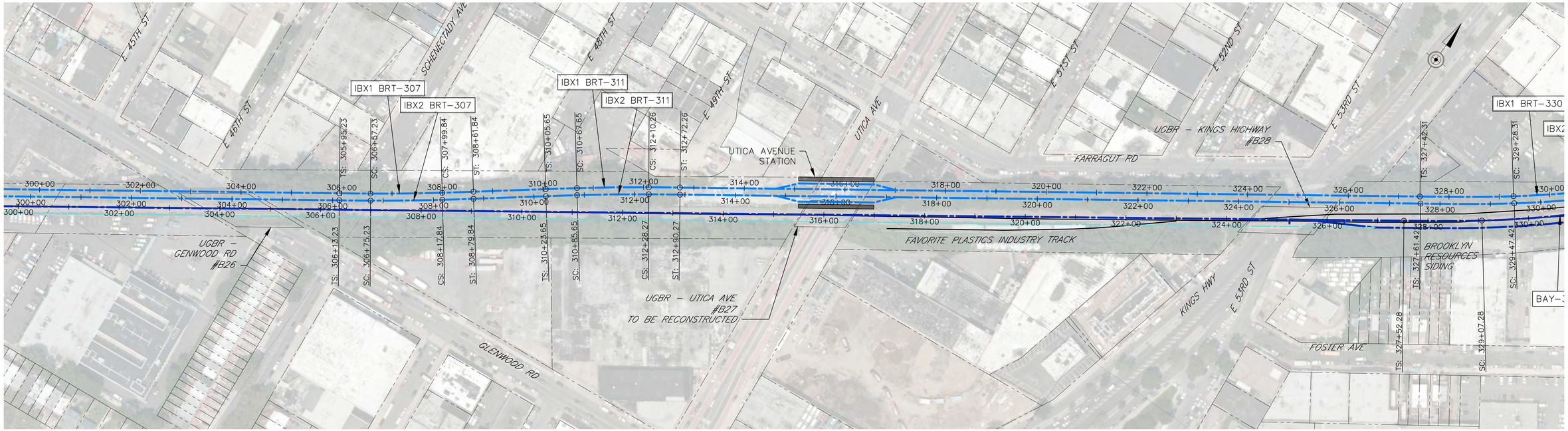
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

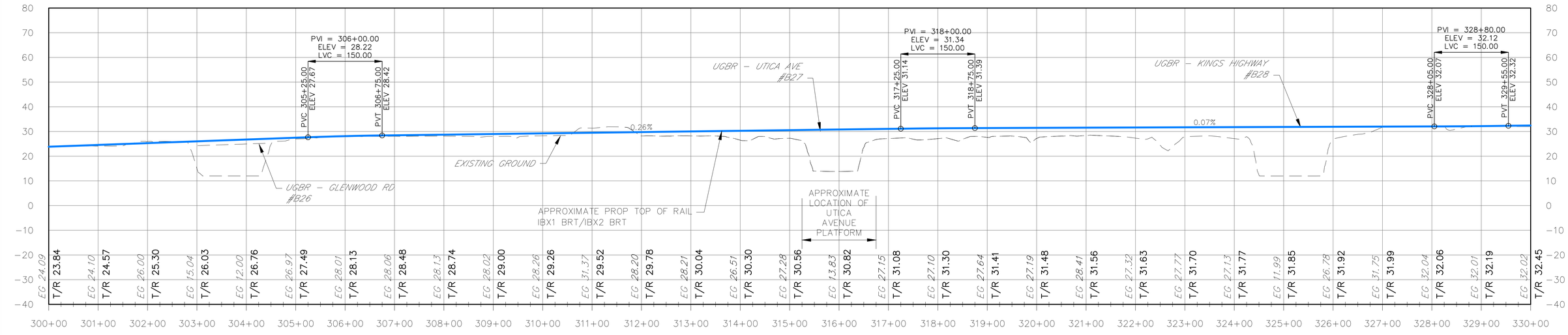
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 11 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

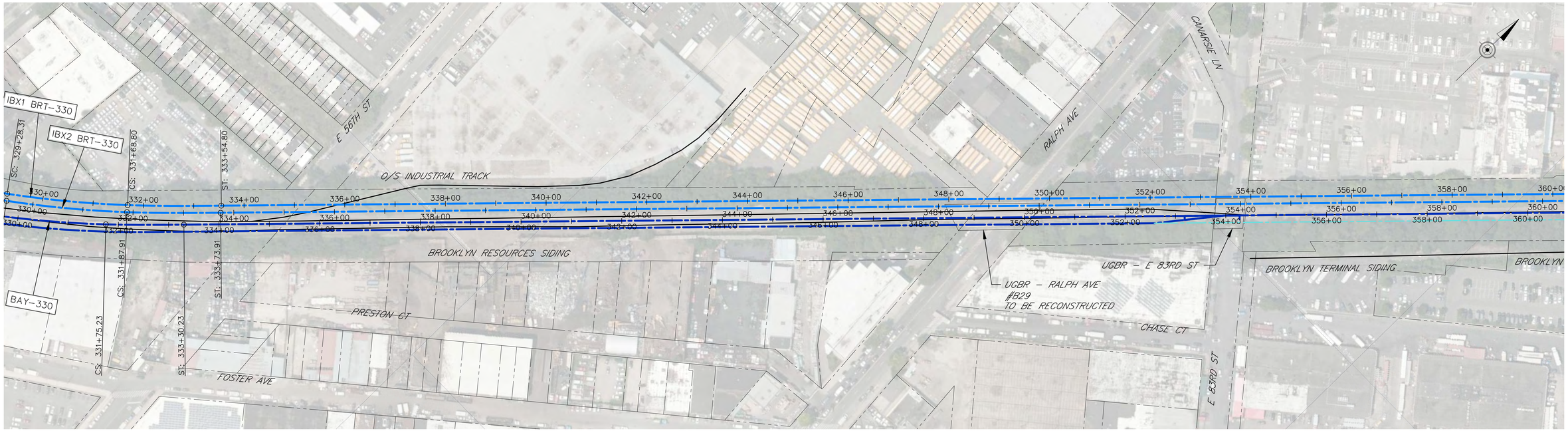
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

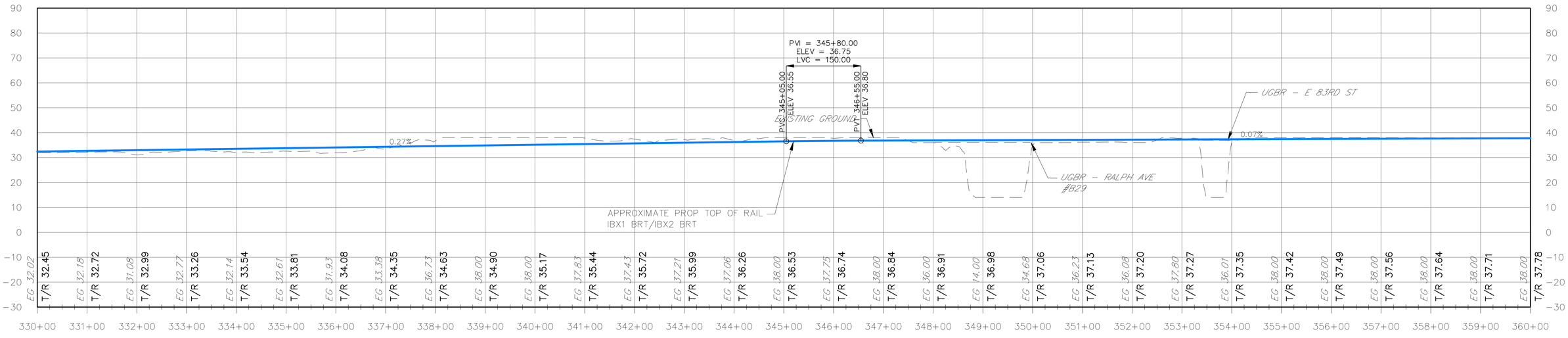
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 12 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

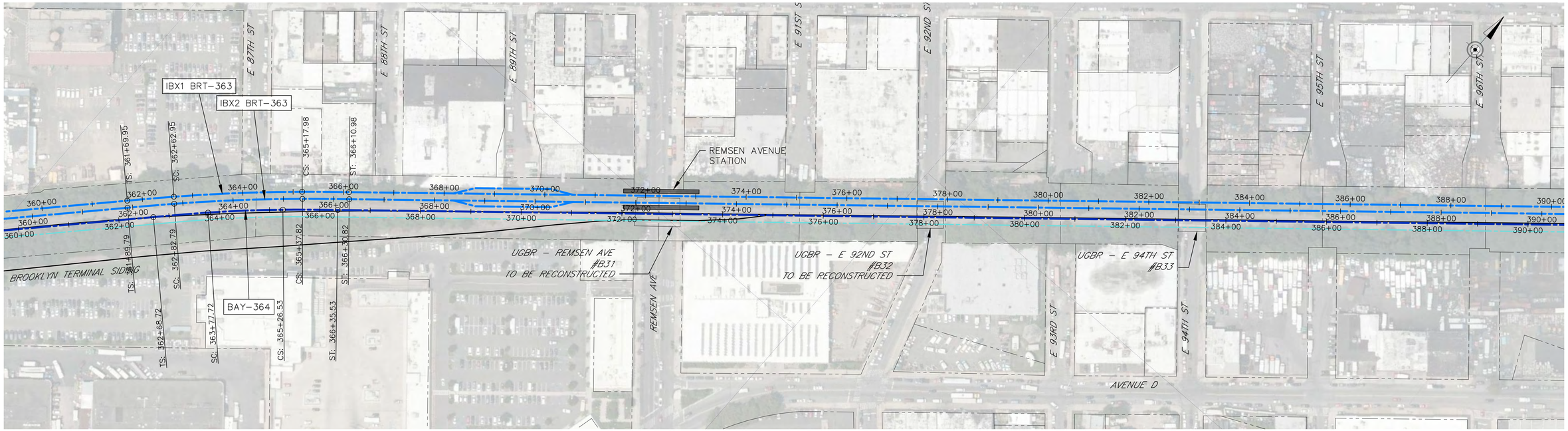
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

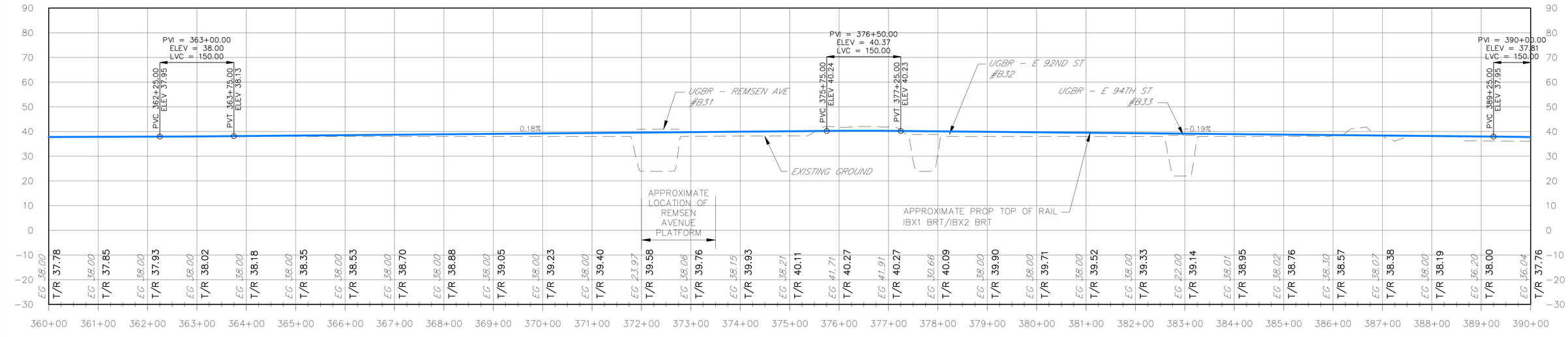
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 13 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

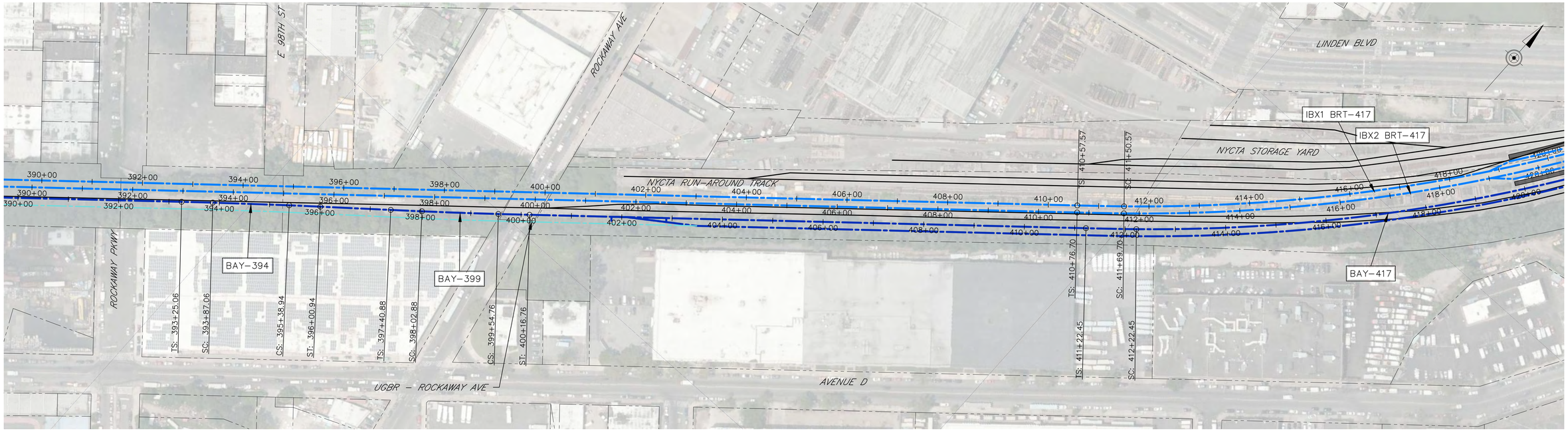
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

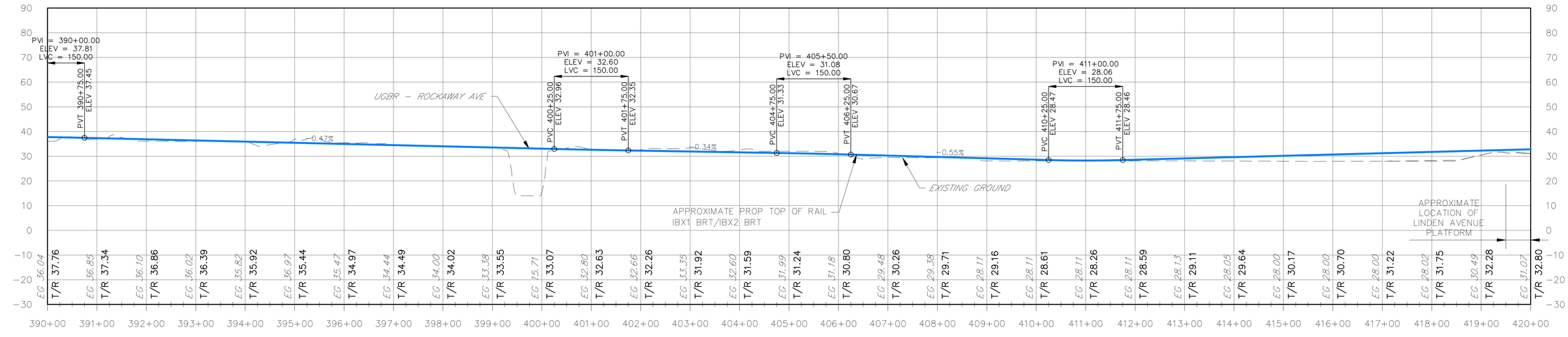
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 14 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

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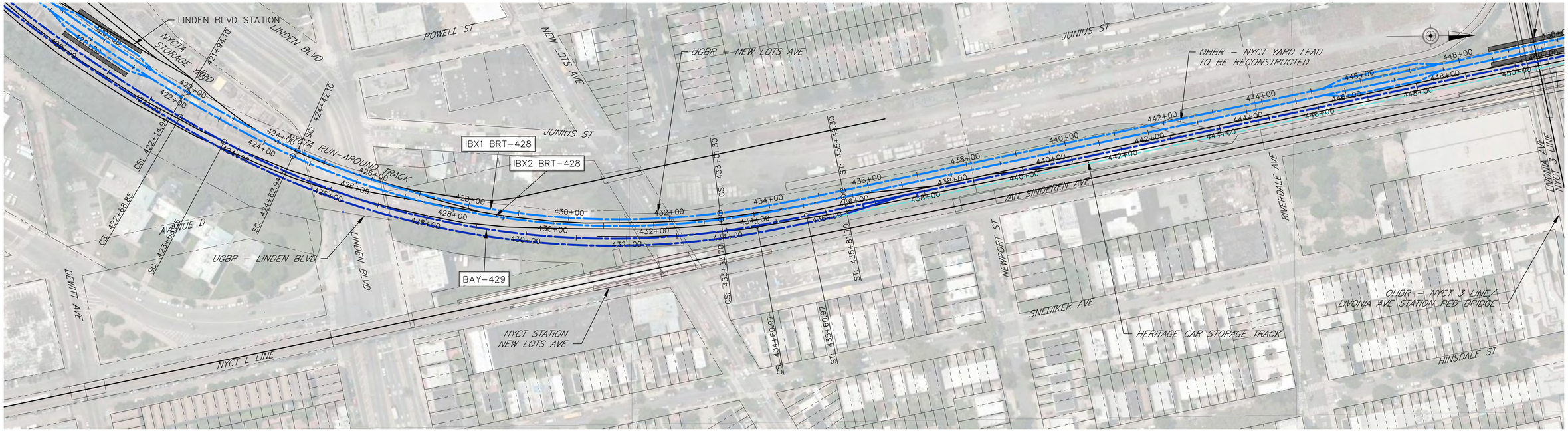
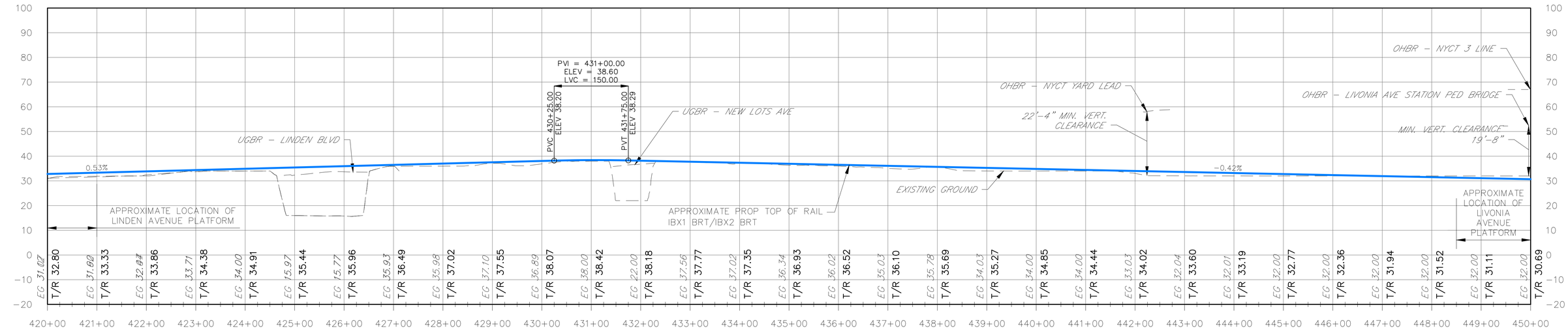
MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 15 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

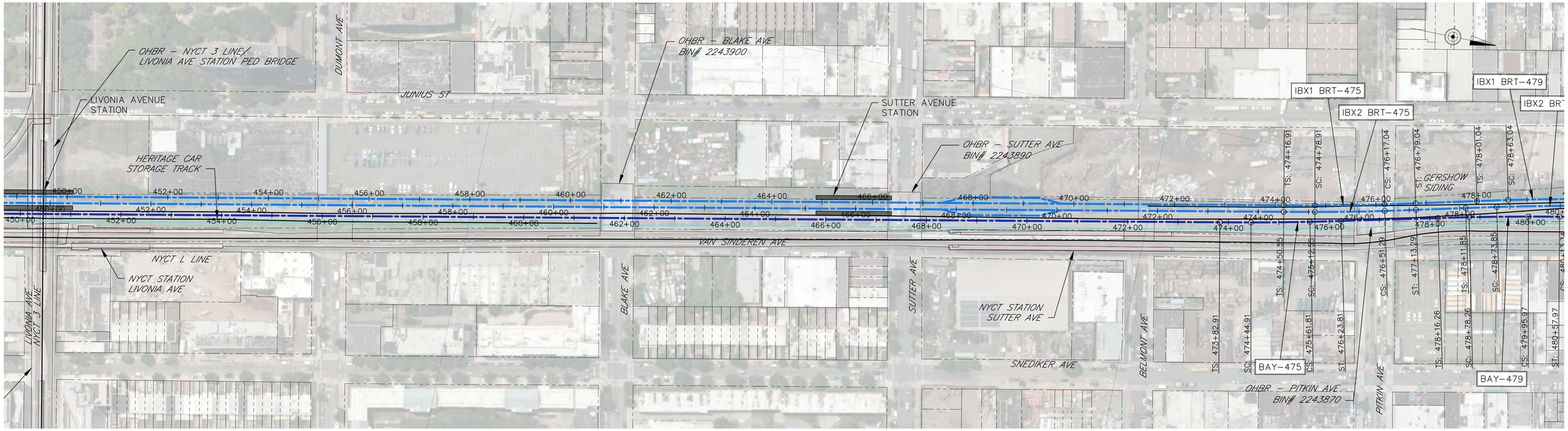
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

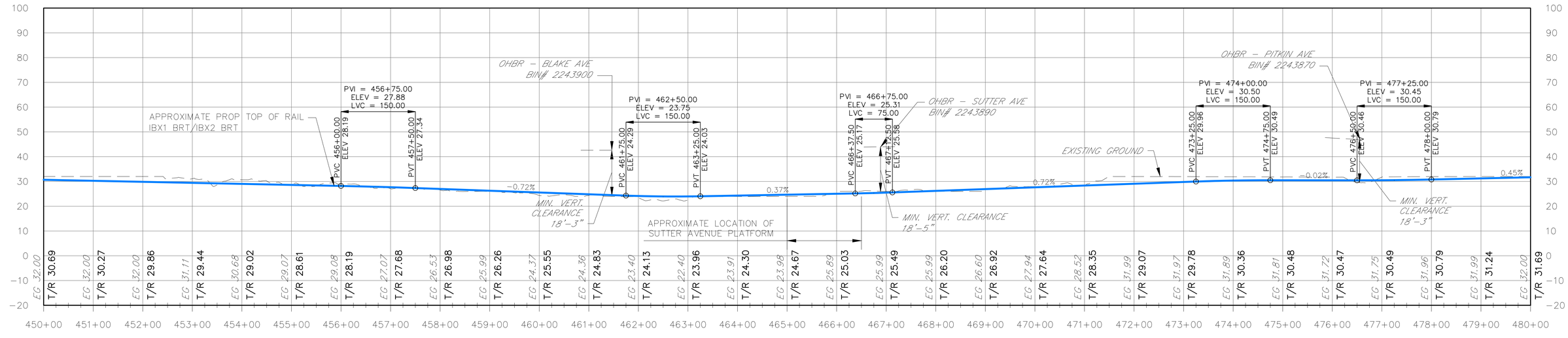
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 16 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
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AECOM
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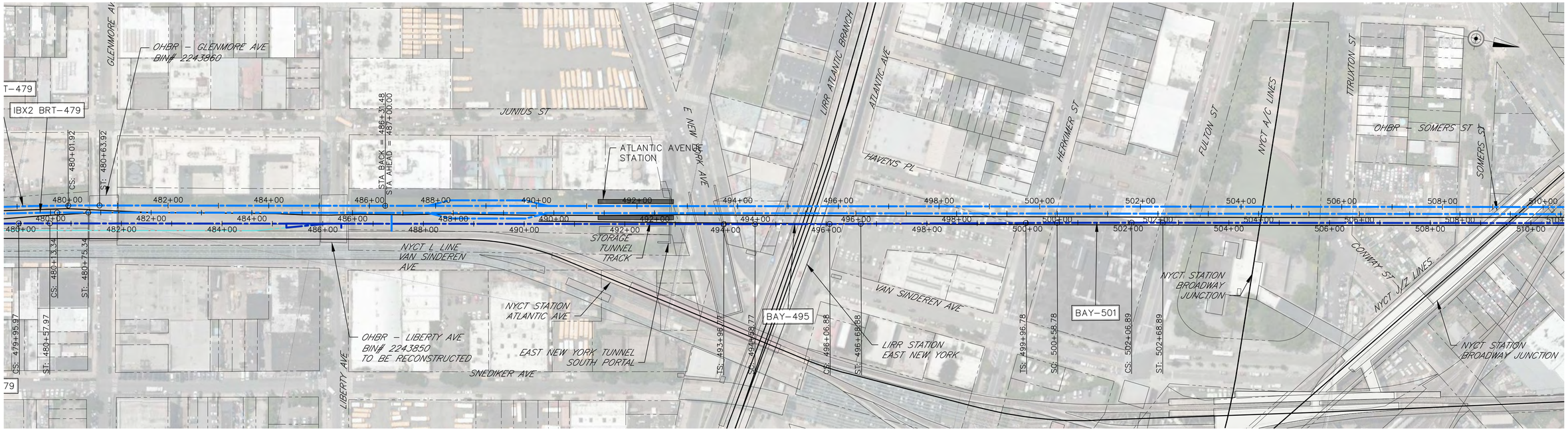
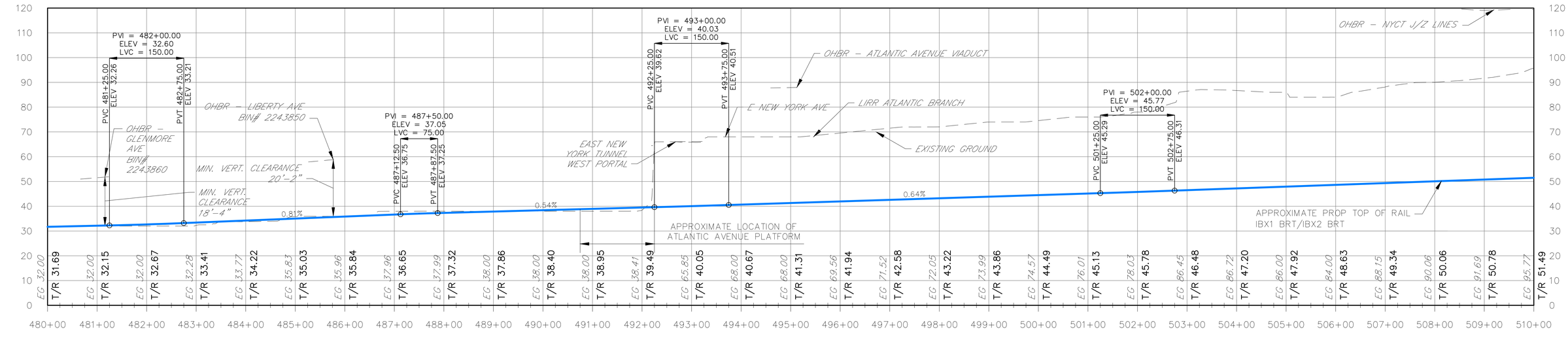
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 17 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
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02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
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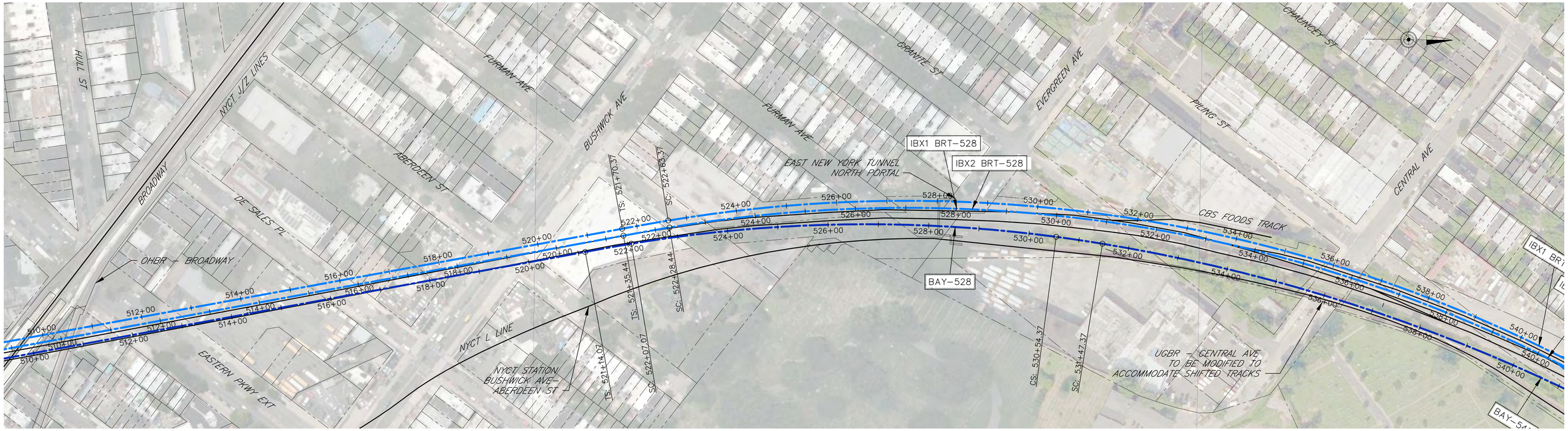
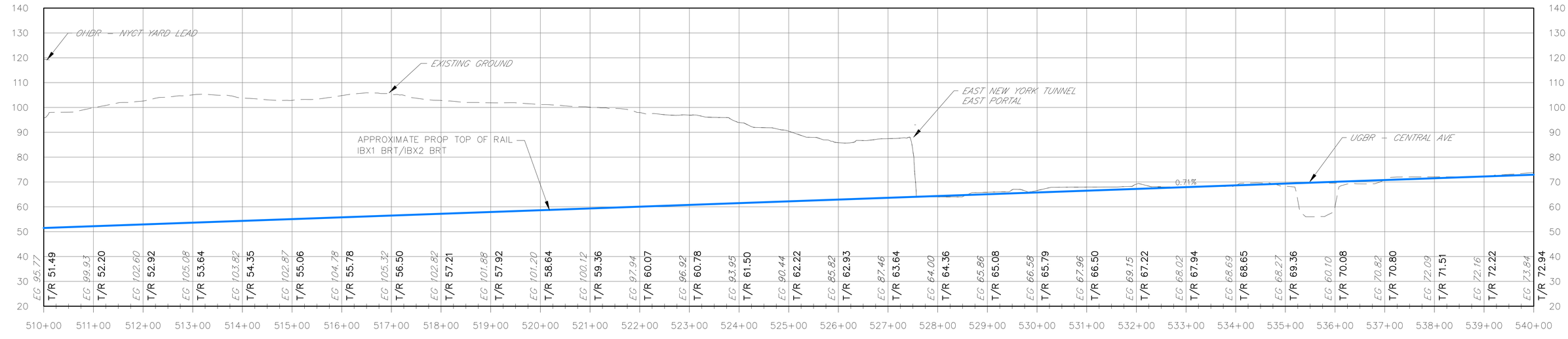
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 18 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

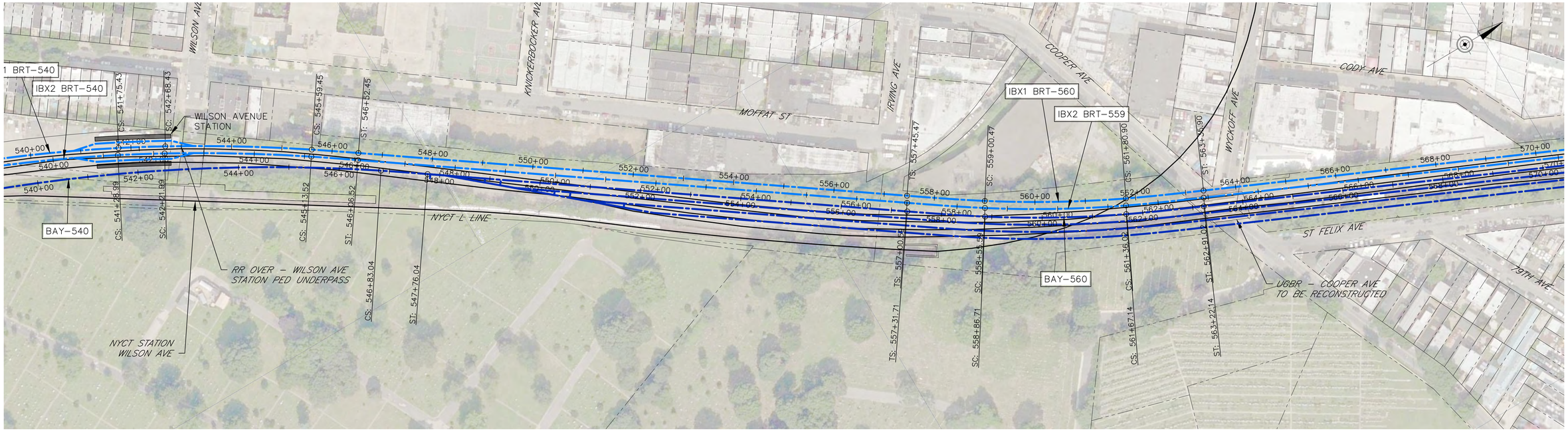
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

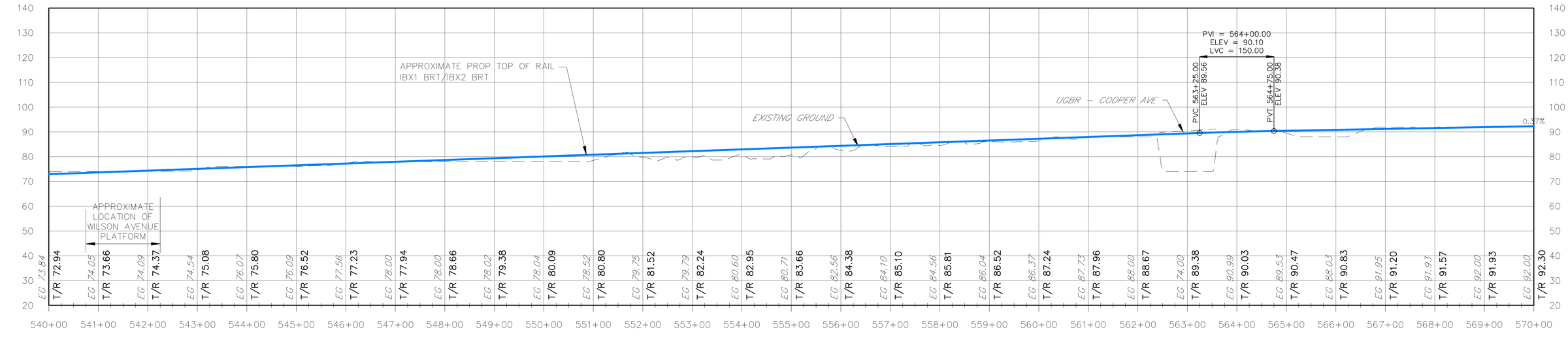
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 19 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

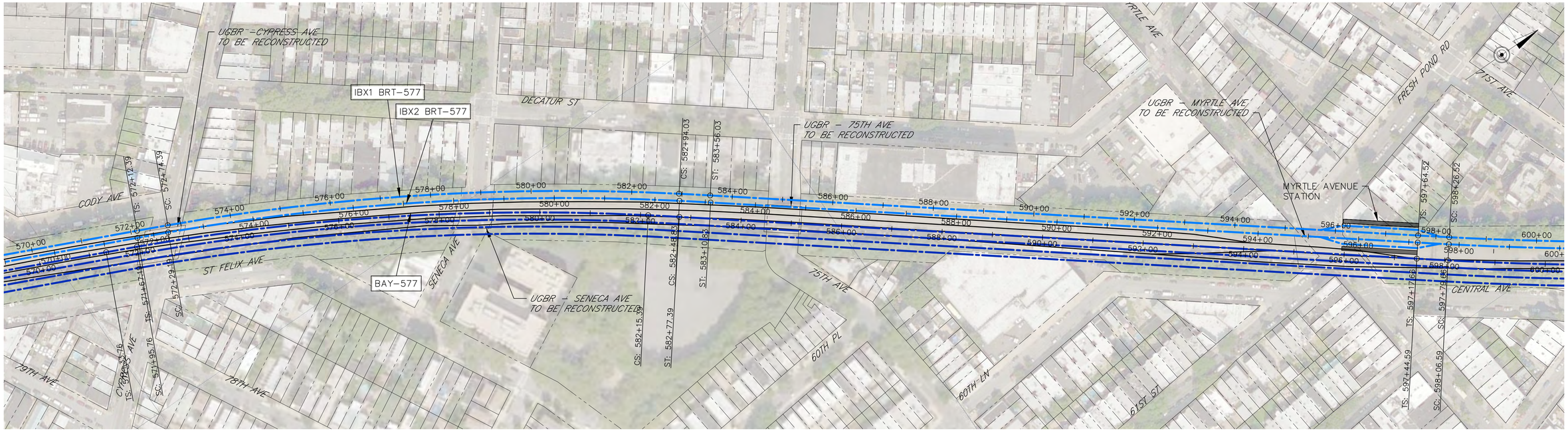
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

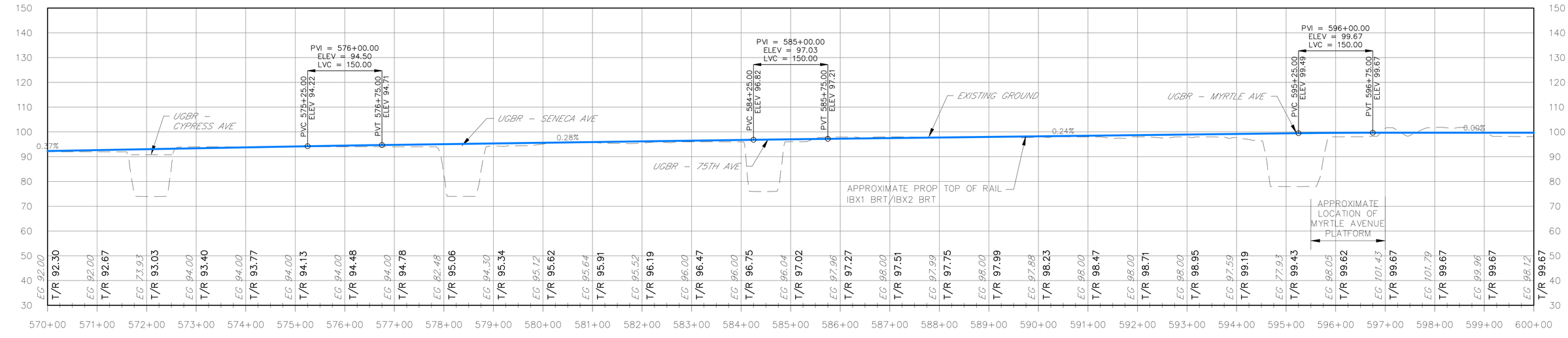
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 20 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

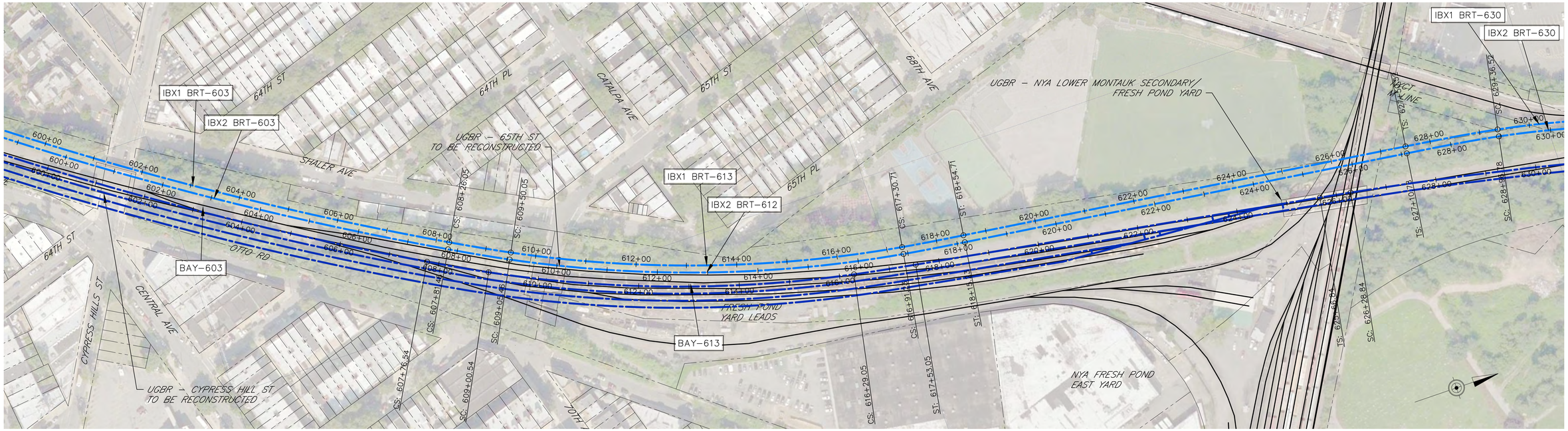
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

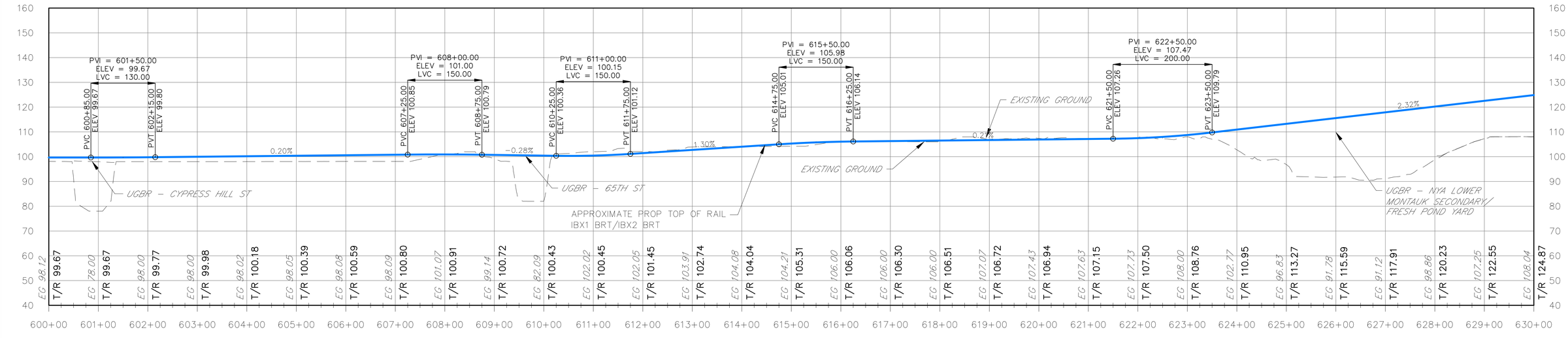
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 21 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
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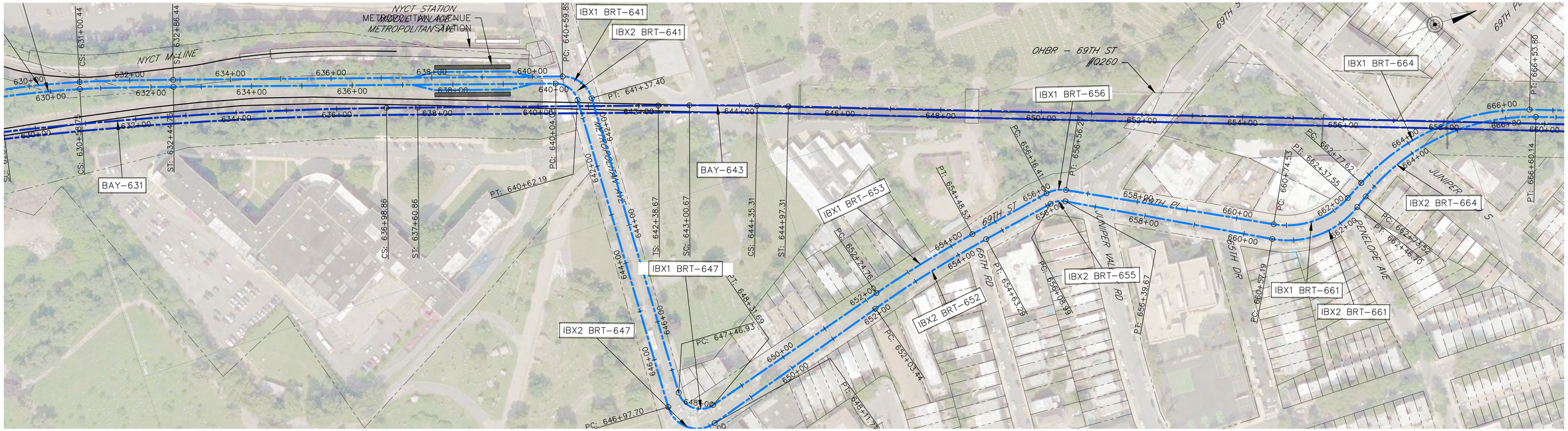
PHILADELPHIA, PA 19103

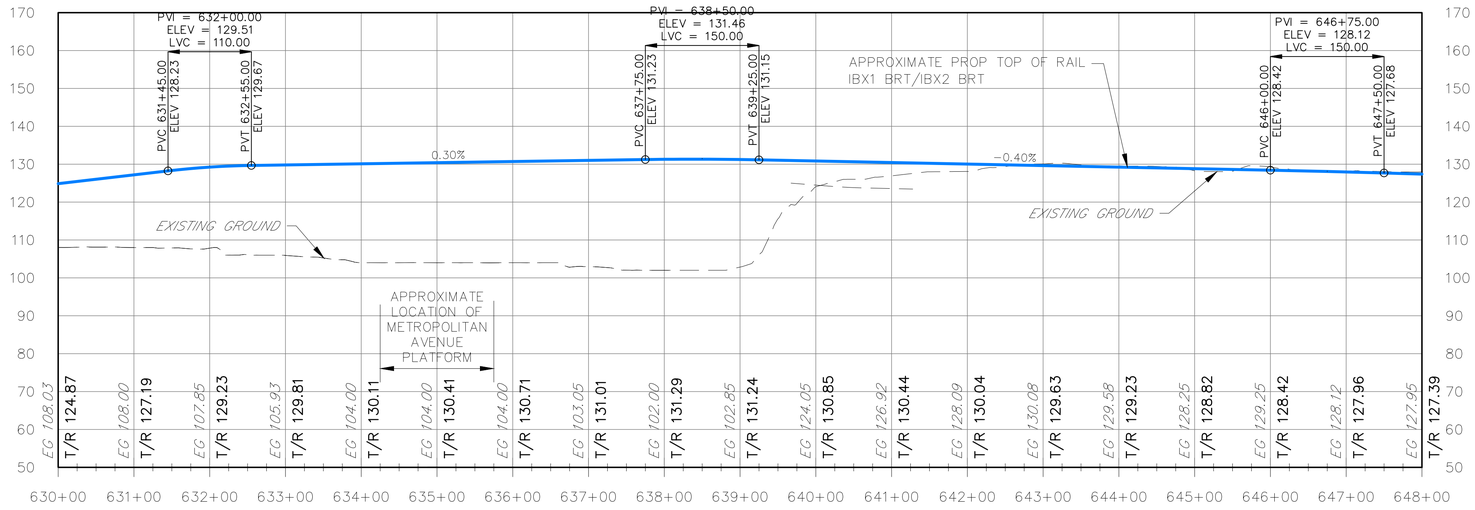
MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 22 OF 29



PROFILE BELOW SHOWS HORIZONTAL ALIGNMENT LIMIT FROM STATION 630+00 TO 648+00



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

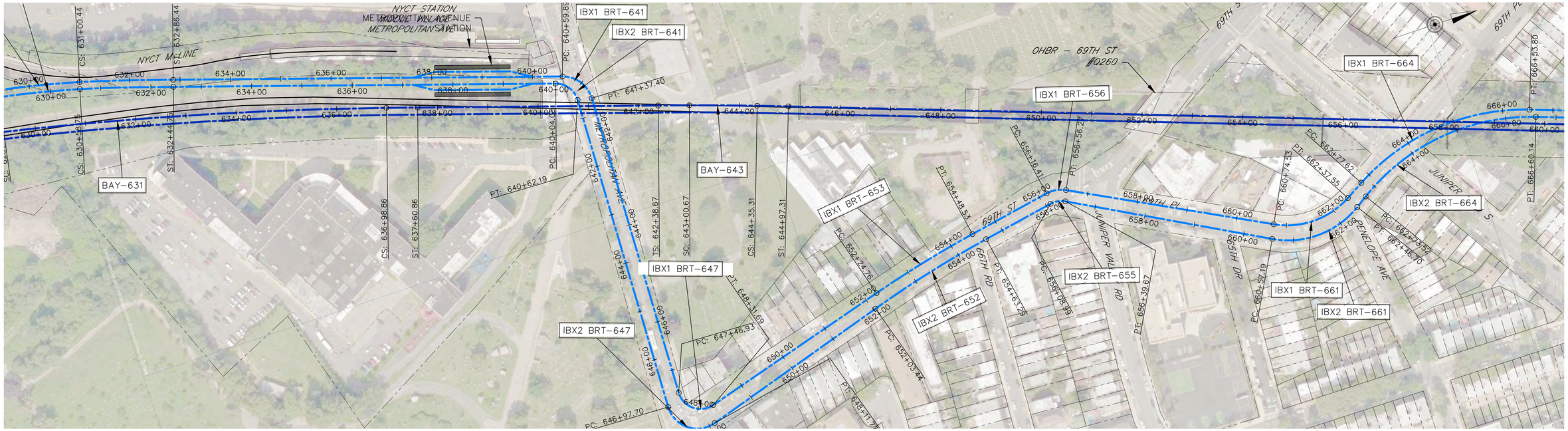
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

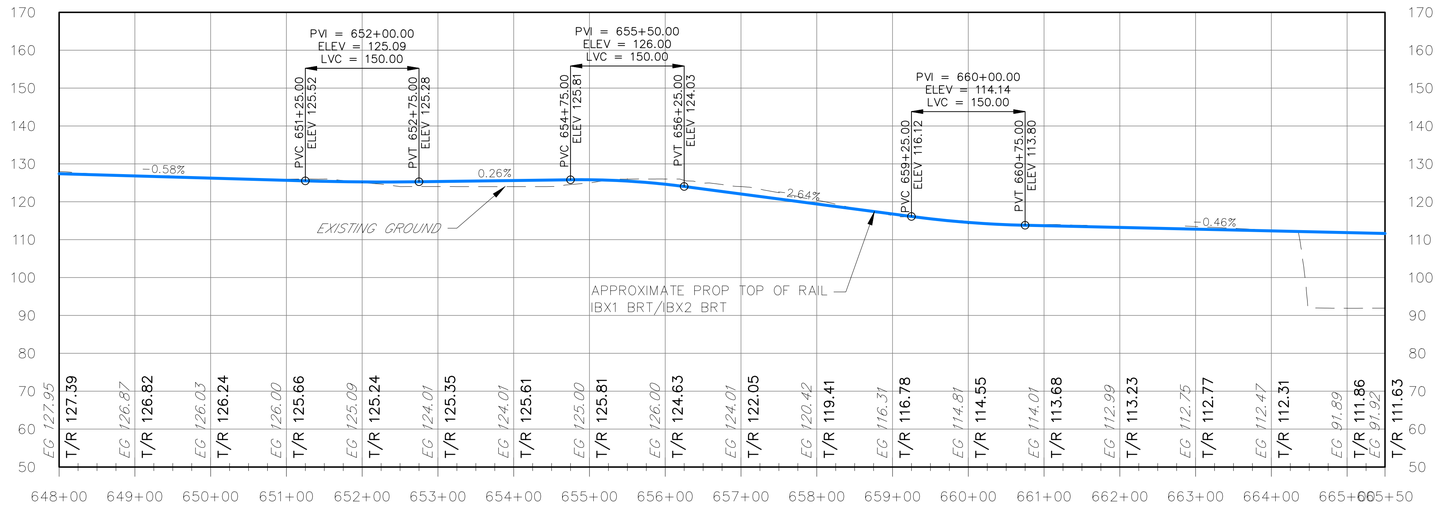
MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 23 OF 29



PROFILE BELOW SHOWS HORIZONTAL ALIGNMENT LIMIT FROM STATION 648+00 TO 665+50



LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

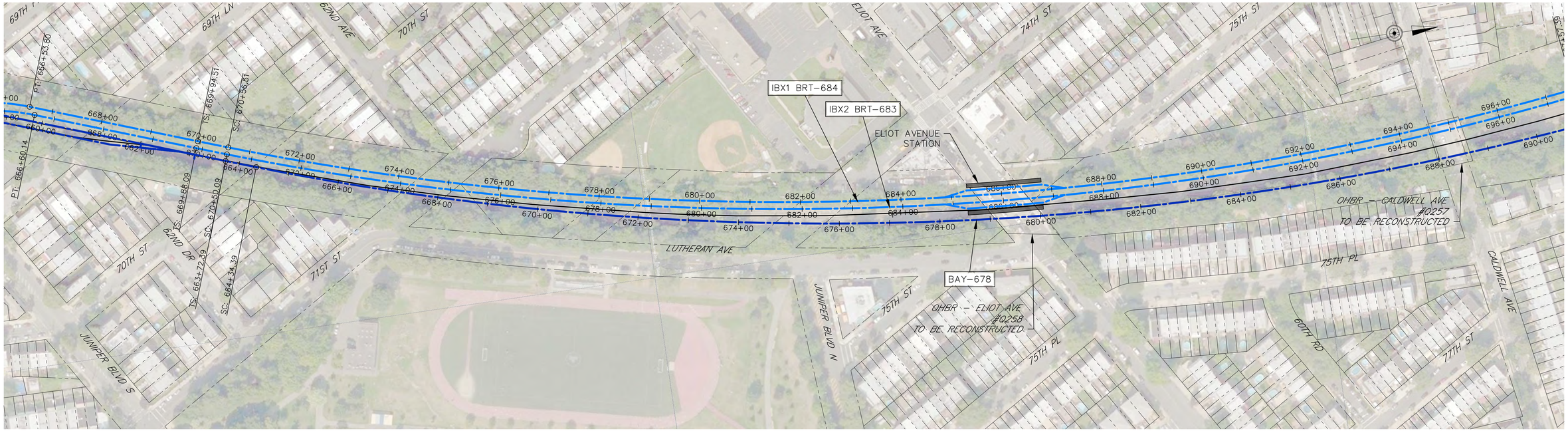
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

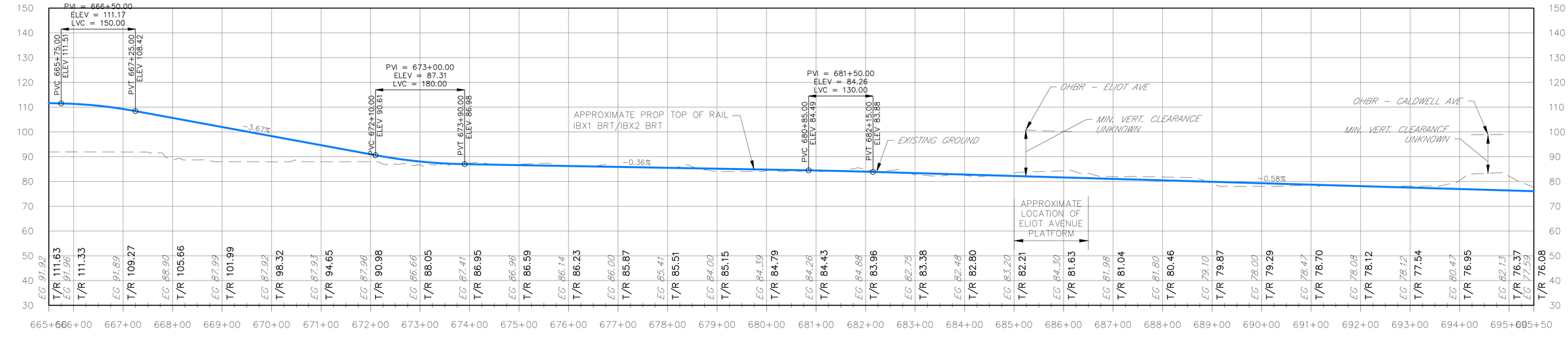
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 24 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

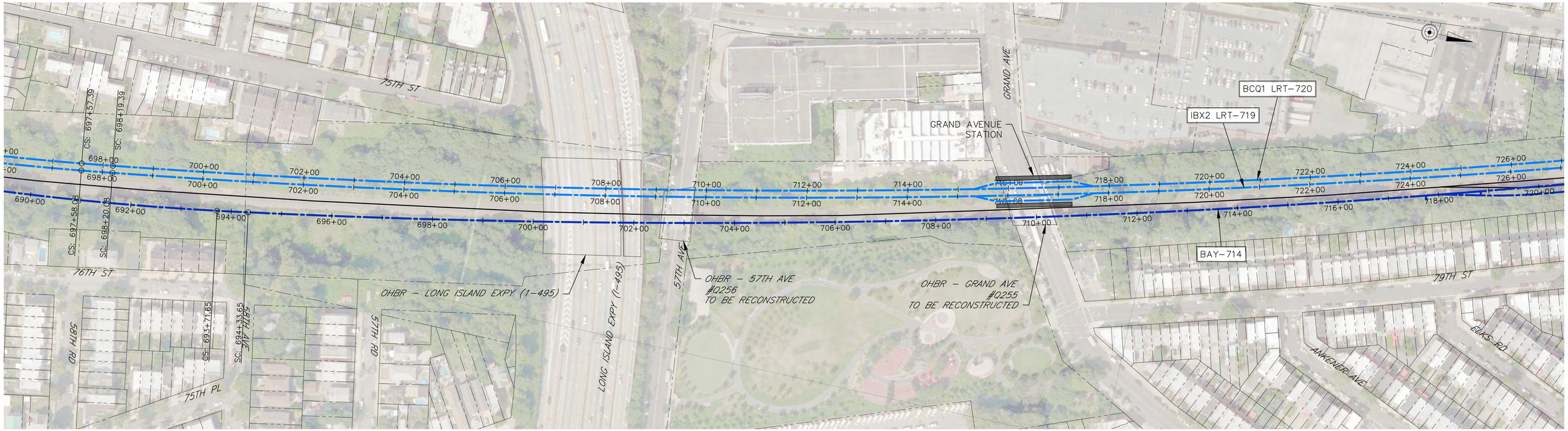
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

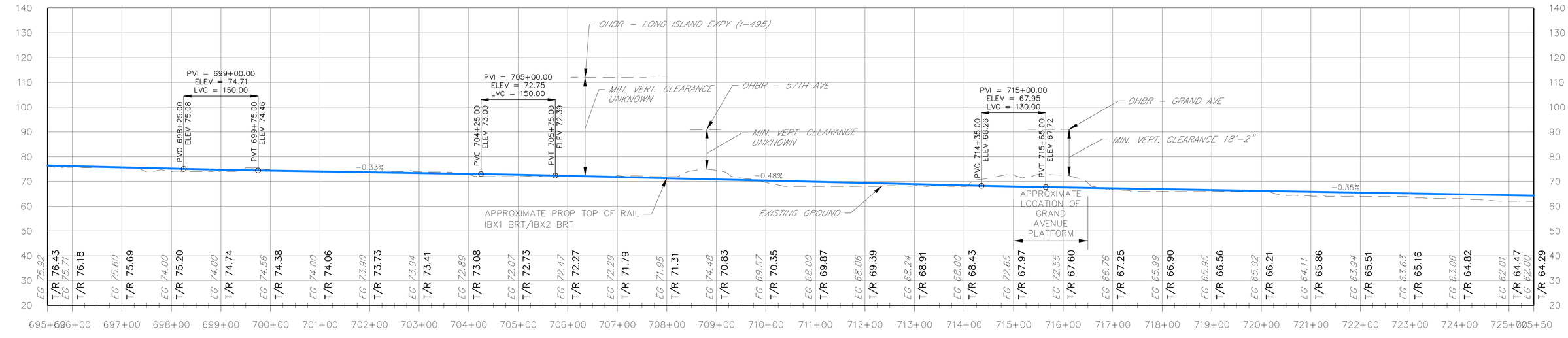
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 25 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

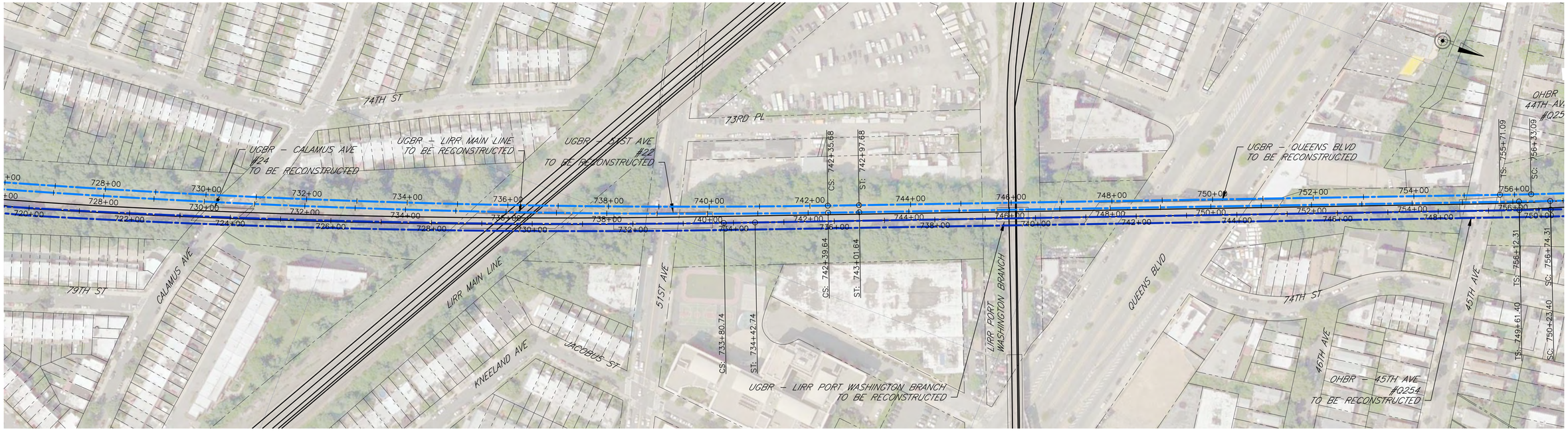
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

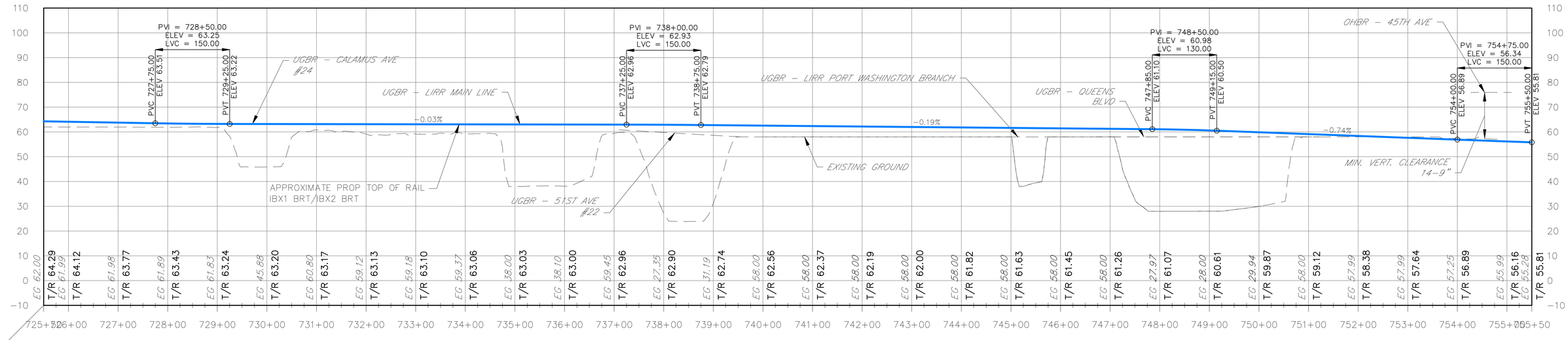
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 26 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
02	09-18-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

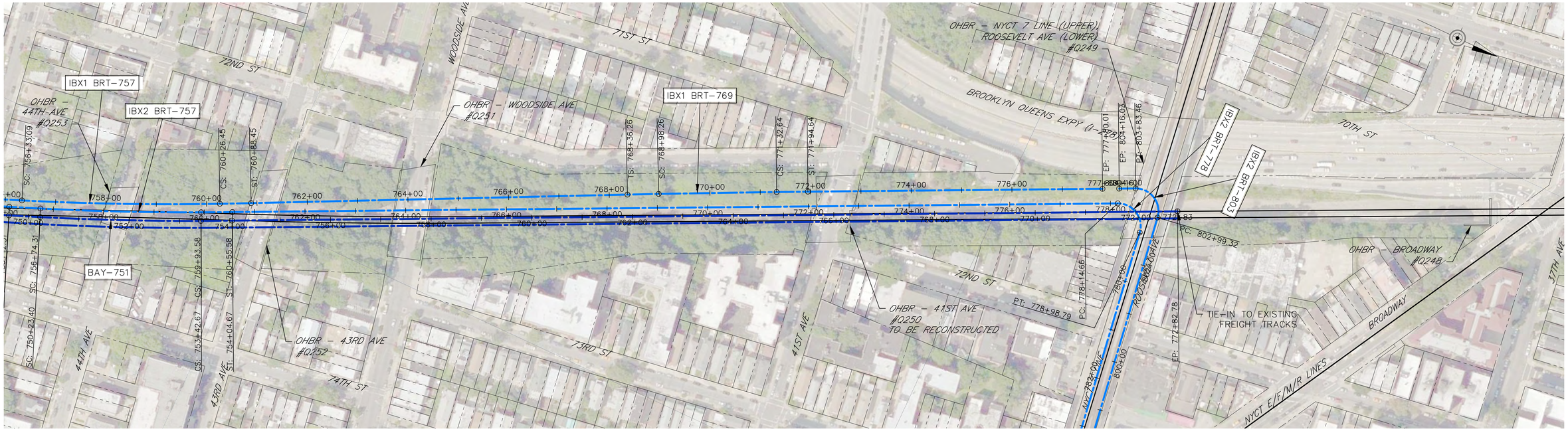
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

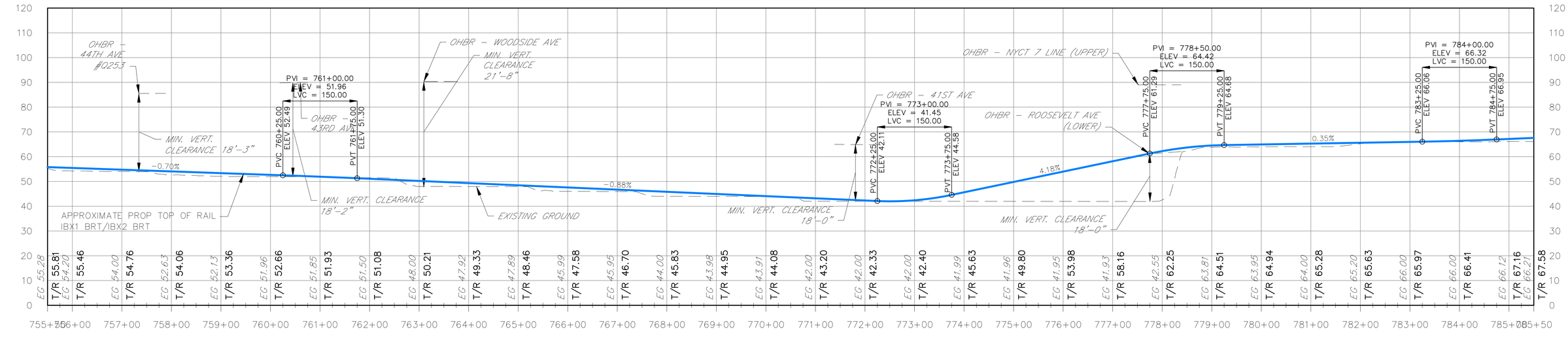
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 27 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
01	09-14-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
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06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
07	11-02-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY

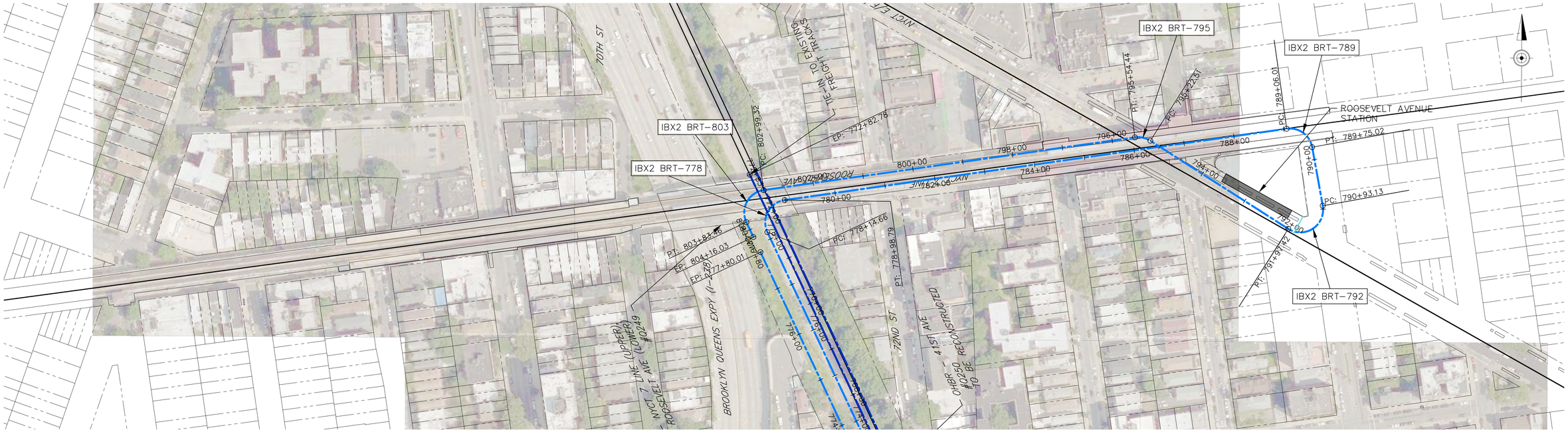
DESIGNED BY: JJM
DRAWN BY: JJM
CHECKED BY: WVN
DATE: NOVEMBER 2022

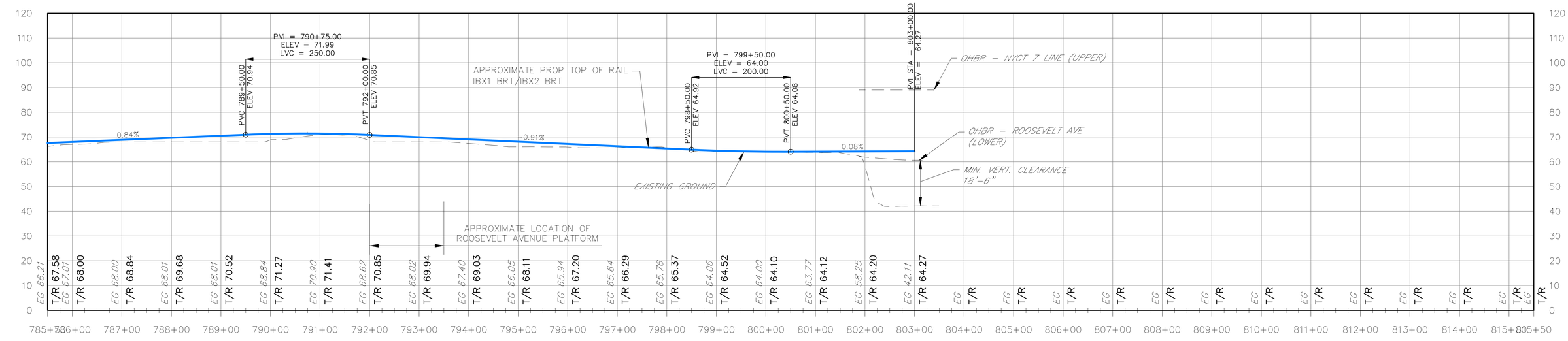
AECOM
1700 MARKET STREET
PHILADELPHIA, PA 19103

MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H) 1" = 20' (V)
SHEET NO: 28 OF 29





LEGEND:

- IBX SERVICE
- ACTIVE FREIGHT TRACK
- POTENTIAL FUTURE FREIGHT TRACK
- EXISTING TRACKS

100 0 100 200 (H)
20 0 20 40 (V)
SCALE IN FEET

REV.NO.	DATE	BY	APP BY	DESCRIPTION
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03	10-23-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
04	12-02-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTS: WORK IN PROGRESS
05	12-09-20	JJM	WVN	TASK 10 - ANALYSIS OF FEASIBLE ALTERNATIVES
06	10-14-22	RMD	WVN	PLANNING AND ENVIRONMENTAL LINKAGES STUDY
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DESIGNED BY: JJM
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MTA INTERBOROUGH EXPRESS

BRT
PLAN AND PROFILE

PROJECT NO:
DRAWING NO: -
SCALE: 1" = 100' (H)
1" = 20' (V)
SHEET NO: 29 OF 29