Interborough Express
Draft Scoping Document

October 2025

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1 Introduction

The Metropolitan Transportation Authority (MTA) has initiated the environmental review process for the Interborough Express (IBX) Project in Brooklyn and Queens, New York, in accordance with the New York State Environmental Quality Review Act (SEQRA) and other regulatory requirements. MTA is the Lead Agency for the IBX Project under SEQRA and will prepare an Environmental Impact Statement (EIS) as part of this process.

1.1 PURPOSE OF SCOPING

MTA is conducting agency and public "scoping" to determine the scope, content, and issues to be addressed in the EIS. In accordance with New York State Comprehensive Rules and Regulations Title 6 Section 617.8, – Scoping – "the primary goals of scoping are to focus the EIS on potentially significant adverse impacts and to eliminate consideration of those impacts that are irrelevant or not significant." This scoping document is intended to help interested parties understand the scoping process, provide pertinent information about IBX, explain how alternatives were developed, and establish an early and open process for public and agency input.

This Draft Scoping Document summarizes the development of alternatives during conceptual engineering (CE) and provides the framework for the analysis in the Draft Environmental Impact Statement (DEIS). The anticipated outcome of the scoping process will be a Final Scoping Document for the IBX Project.

1.2 REGULATORY FRAMEWORK

The environmental review process allows decision-makers to consider the environmental effects of a proposed project, evaluate reasonable alternatives, and identify measures to mitigate significant adverse environmental effects. The DEIS for IBX will be prepared in accordance with SEQRA, codified in Article 8 of the Environmental Conservation Law (ECL §§ 8-0101 *et seq*.), and its implementing regulations, promulgated in Part 617 of Title 6 of the New York Codes, Rules and Regulations. Where specifically indicated herein, methodologies for evaluating impacts will be consistent with the guidelines set forth in the New York City Environmental Quality Review (CEQR) Technical Manual.

Subsequent to the SEQRA process, MTA may decide to apply for federal funding from the Federal Transit Administration (FTA) to support the capital construction of the Project. If this occurs, requirements under the National Environmental Policy Act (NEPA) of 1969 will be followed. The FTA would be the lead agency for NEPA, which would occur after the SEQRA process.

Implementation of the Proposed Project will require city, state and federal approvals. Section 7 entitled "Agency Coordination", provides a list of city, state and federal agencies that will be invited to participate in the IBX project, as well as a description of each agency's role and responsibility.

2 Project Description

The freight rail corridor comprising the Long Island Rail Road (LIRR) Bay Ridge Branch and the CSX-owned Fremont Secondary is one of the few remaining freight rail links in New York City (see **Figure 1**). The corridor provides the MTA with the opportunity to add passenger service to better connect some of the most densely populated and diverse communities of Brooklyn and Queens to the MTA's existing transit network. IBX would use the existing grade-separated rail right-of-way currently used solely for freight operations to provide passenger service from Sunset Park in Brooklyn to Jackson Heights in Queens. This new service would provide transfers to 17 subway lines, over 50 bus lines and the LIRR. Passenger and freight service would operate completely separately along the entire corridor.

The northern terminus of IBX would be directly west of the Jackson Heights–Roosevelt Avenue/74th Street subway station, one of the busiest stations in Queens. The IBX station would be within walking distance of the Woodside LIRR station, which provides connections to points east on Long Island and west to New York Penn Station. The 14-mile project corridor also intersects with the East New York LIRR station, which provides service to Atlantic Terminal to the west and Jamaica station to the east. IBX would bring much needed rail service to residents of underserved areas—such as East Flatbush and Maspeth—as well as neighborhoods served by only one subway line, such as Middle Village and Canarsie.

In addition to the alignment, the Proposed Project includes the following key elements:

- An Operations Facility and Storage Yard (OFSY) on the Brooklyn Army Terminal (BAT) site at the southern terminus of the alignment, as further described in Section 5.3.2.
- 19 proposed stations at locations further described in Section 5.3.3.
- 16 proposed traction power substations at each end of the alignment and spaced approximately one mile apart along the corridor, as further described in Section 5.3.4.
- Bridge/structure reconstructions along the corridor, as further described in Section 5.3.5.
- Relocation of the existing fuel pipeline within the existing corridor.
- Installation of two tunnel ventilation stacks above the East New York Tunnel.
- Repositioning of existing freight tracks to accommodate light rail service.

Figure 1 Project Overview

3 Background/History

The proposed IBX project 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. About one round-trip train per day utilizes the corridor.

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 in Queens 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 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 freight customers in Kings, Nassau and Suffolk Counties by connection with the Montauk Line.

While Brooklyn and Queens are well served by subway and other transit services to and from Manhattan, there are only limited direct rapid transit links within and between these boroughs. MTA completed the *Interim IBX Feasibility Study and Alternatives Analysis (IBX Feasibility Study)* in 2022, and an *IBX Planning and Environmental Linkages Study (IBX PEL Study)* in 2023. These studies demonstrate significant existing and foreseeable travel demand for improved intra- and inter-borough transit service. For example, 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 (e.g., 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 residents who depend on transit and often hold multiple jobs in these boroughs. Such transportation conditions also limit residents' access to existing and planned employment, as well as employers' ability to attract the necessary workforce.

The *IBX Feasibility Study* defined and evaluated transit alternatives in 14 miles of the existing freight rail corridor between Sunset Park in Brooklyn and Jackson Heights in Queens. The transit alternatives recommended by the study for further consideration included bus rapid transit (BRT), light rail transit (LRT), and conventional rail (CR).

The *IBX PEL Study* further examined BRT, LRT, and CR for IBX service. Based on this analysis, the *IBX PEL Study* identified LRT as the preferred alternative for further study. The LRT alternative would meet the IBX project purpose and address the identified needs, meet the forecasted ridership demand, provide reliable passenger service, provide a terminal station at Roosevelt

Avenue without disrupting roadway operations, and not preclude future service expansion, while avoiding or minimizing adverse environmental impacts.

The preferred alternative would operate within the freight rail corridor, but on dedicated passenger tracks completely separated from freight operations. Nineteen (19) stations would be provided along the route. The station locations were coordinated with the local community during various outreach events, including PEL Study engagement activities, Town Hall meetings, ten Open Houses and multiple community meetings from 2022 to 2025.

During the *IBX PEL Study,* over 20 stakeholder meetings were held with partners throughout the corridor. Virtual Town Hall meetings were held in May and September 2022, during which MTA responded to questions from participants. More than 1,000 comments were also submitted over a six-month period through the project website, all of which helped to inform the mode selection and potential station locations.

MTA also held a virtual Town Hall Meeting in August, 2023 to discuss the preferred alternative and the environmental review process. From August 2023 to the present, MTA has hosted ten open houses, held quarterly IBX Community Council and Technical Advisory Committee meetings to provide key updates to stakeholders, and hosted a series of pop-up outreach events engaging with over 1,300 residents and 230 businesses along the corridor. These activities yielded a series of CE design decisions on various project elements that are further documented in Section 5 (Alternatives).

4 Purpose and Need Statement

4.1 PURPOSE AND NEED

The purpose of the project 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 Sunset Park and Jackson Heights.

The primary needs for the project are:

- to provide efficient, direct, safe, and reliable travel between and within Brooklyn and Queens – Needed due to limited transit options between the two boroughs, resulting in long travel times, inefficient travel patterns and delays.
- to connect to existing subway and transit that serves Brooklyn and Queens – Needed based on the lack of connections between existing subway and transit systems along the IBX corridor.
- to improve access and connections to and among communities and job centers in the corridor that are currently underserved by subway or transit services – Needed because of long travel times between communities, job centers, and targeted growth areas along the corridor in the two boroughs.

4.2 GOALS AND OBJECTIVES

The planning and public outreach efforts of the *IBX Feasibility Study* and *IBX PEL Study* established project-related goals and objectives. The five primary goals and objectives for the project are:

- Support the economic health and development of local communities by providing more equitable access to services and resources along the corridor
- Maximize the use of the existing right-of-way and infrastructure for new transit services
- Accommodate transit and freight systems safely within the existing freight railroad corridors
- Avoid or minimize environmental issues, both during temporary construction activities and long-term operation
- Provide cost-effective transit service improvements

5 Alternatives

5.1 ALTERNATIVES EVALUATED DURING THE FEASIBILITY AND PEL PHASES

The identification of potential alternatives for the project began during the 2021 *IBX Feasibility Study* and continued through the development of the 2022 *IBX PEL Study*. The *IBX Feasibility Study* evaluated six modes, with variations on each mode, and then screened them through a feasibility analysis and secondary screening. The long list of modes evaluated included: four variations of Commuter Rail (CR), two variations of Diesel Multiple Units (DMUs), Heavy Rail Transit, Automated Guideway Transit, two variations of Light Rail Transit (LRT), and two variations of Bus Rapid Transit (BRT). A brief description of each is provided below.

Table 1 Initial Long List of Alternatives

Alt Code	Alternative Mode	Guideway Location	# of additional tracks/ guideway lanes	Specified Service Frequency (headways), in minutes		Propulsion
				Peak	Off-Peak	
CR1	Commuter Rail	Shared trackage with freight; side platform stations	1	10 (unless there is an operational restriction)	15	Diesel Locomotive
CR2		Independent trackage	2			Diesel Locomotive
CR3		Shared trackage with freight, side platform stations	1			Electric Multiple Unit
CR4		Independent trackage	2			Electric Multiple Unit
DMU1	Diesel Multiple Unit (DMU)	Shared trackage with freight	1	10	15	Self-Propelled Diesel
DMU2		Segregated trackage	2			Self-Propelled Diesel
HRT1	Subway (Heavy Rail)	Segregated from freight tracks	2	3 - 4	6 - 8	Electric Multiple Unit
AGT1	Automated Guideway (AGT)	Protected dedicated trackways	2	8	10 - 12	Electric Multiple Unit
LRT1	Light Rail Transit (LRT)	At existing rail grade	2	5	10 - 12	Electrified Overhead Wire (OCS) Multiple Unit/Battery Electric
LRT2		Elevated over the existing rail grade	2			Electrified Overhead Wire (OCS) Multiple Unit/Battery Electric

Alt Code	Alternative Mode	Guideway Location	# of additional tracks/ guideway lanes	Specified Service Frequency (headways), in minutes		Propulsion
				Peak	Off-Peak	
BRT1	Bus Rapid Transit (BRT)	Paved roadway at rail grade (independent of freight tracks)	2	5	10 - 12	Battery Electric
BRT2		Elevated roadway over ROW	2			Battery Electric

Source: IBX Feasibility Study (2021)

To narrow down this list of alternatives, each alternative was screened for feasibility across several criteria, including: the potential for high capital costs and high complexity of construction, effective use of available right-of-way (ROW), ability to provide reasonable transit/freight service, and ability to connect conveniently with existing corridor transit services.

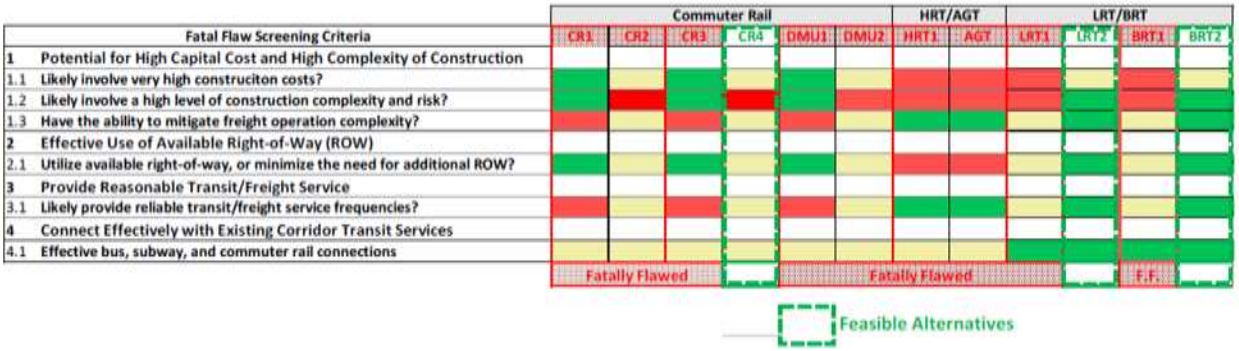
Heavy Rail Transit and Automated Guideway Transit were removed from the list of alternatives in the Feasibility Study due to several significant constraints – high construction costs, high complexity and risk, and inability to effectively utilize available ROW or minimize additional ROW needed. As both modes require physical separation from freight operations, greater space needs increase the extent and complexity of reconstruction within the corridor, thus increasing the potential for impacts along portions of the corridor. Secondary screening criteria were then applied to the remaining alternatives.

The remaining alternatives progressed to a secondary screening process whereby both DMU options, certain CR, LRT, and BRT types, were eliminated. DMU uses Federal Railroad Administration (FRA)-compliant vehicles that are propelled by onboard diesel engines. Two DMU options were evaluated – DMU option 1 would share tracks with the freight railroad and DMU option 2 would operate on two dedicated tracks. DMU option 1 was projected to complicate freight operations and not provide adequate transit/freight frequencies; DMU option 2 was projected to have high construction complexity and risk due in part to limited sharing of freight trackage.

Four types of CR were evaluated: CR1, shared trackage with freight using diesel locomotive; CR2, independent trackage using diesel locomotive; CR3, shared trackage with freight using electric multiple unit; and CR4, independent trackage using electric multiple unit. CR1 and CR3 were dismissed because they did not have the ability to mitigate freight operation complexity or provide reliable transit/freight service frequencies. CR2 was dismissed because it involved a high level of construction complexity and risk and also used diesel multiple units, which is inconsistent with the project goal to avoid or minimize environmental issues (CR1 shared this inconsistency). While CR4 also likely involved a high level of construction complexity and risk, it was advanced as a viable option because its two-track alignment allowed transit operations considerably more independent of freight rail service in the corridor, with reasonable transit frequencies, a core goal of the study. Furthermore, it could utilize electric multiple units – consistent with the project goal to avoid or minimize environmental issues.

Two types of LRT were evaluated: LRT1, electrified overhead wire multiple unit/battery electric service elevated over the existing rail grade; and LRT2, electrified overhead wire multiple unit/battery electric service at existing rail grade. Two types of BRT were also evaluated: BRT1, battery electric service operating on a paved roadway at rail grade independent of freight tracks; and BRT2, battery electric service operating on elevated roadway over the ROW. LRT1 and BRT1 were found to be deficient because they involved high levels of construction complexity and risk, as well as very high construction costs, due predominantly to limited horizontal and vertical space available to accommodate these alternatives. LRT2 and BRT2 were advanced as viable options for further evaluation because they did not have any significant deficiencies (see **Table 2**).

Table 2 Analysis Results



In summary, three modes were advanced from the *IBX Feasibility Study* to the *IBX PEL Study* – CR4, LRT2, and BRT2. The alternatives were assessed across the following criteria: capacity, reliability, constructability, vehicle specialization, and cost per rider.

5.1.1 Bus Rapid Transit (BRT)

The *IBX PEL Study* found that BRT could not meet all the elements of the project purpose and need because it could not provide sufficient capacity to meet the forecasted ridership demand. Buses lack the carrying capacity of LRT or CR vehicles, resulting in BRT passenger capacity of approximately 65% that of LRT or CR passenger capacity. The capital cost for BRT was the lowest among the alternatives. However, because of BRT's ridership capacity constraints, the annualized capital cost per rider was higher than LRT, but lower than CR. The operations and maintenance costs for BRT were lower than the operations and maintenance costs for LRT and CR. However, due to the limits of bus design and carrying capacity, BRT falls substantially short of the forecasted ridership demand for the project. Further, at corridor termini locations, BRT vehicles must exit the corridor and perform turning movements before re-entering revenue service in the other direction, resulting in further congestion on local roadways. Such requirements restrict operational goals and limit BRT potential for future expansion.

5.1.2 Conventional Rail (CR)

CR could meet the project's purpose and need. It would have the capacity to serve substantially higher ridership than BRT and would provide fast and reliable transit service. However, CR was found in the *PEL Study* to have a significantly higher capital cost of construction and vehicle procurement. Compared with other modes, procurement of CR vehicles posed a significant

challenge because of competing demands on the limited pool of rolling stock manufacturers in the United States. Furthermore, many types of CR vehicles would not be able to operate in the East New York Tunnel due to horizontal clearance limitations. In addition, the *PEL Study* found that CR would require a new tunnel under Metropolitan Avenue. The existing tunnel under the cemetery cannot accommodate additional tracks. As a result, the capital costs for CR would be significantly higher than the capital costs for BRT (the estimated construction costs for CR would be more than twice that of BRT).

5.1.3 Light Rail Transit (LRT)

LRT offered the most benefits of all mode options, while meeting the project purpose and need. As discussed in the PEL Study, LRT is able to support operational headways and has the capacity to meet the forecasted future ridership demand. It could provide reliable transit service and would accommodate future expansion, if necessary. LRT represents a cost-effective and constructible project mode, with greater operational flexibility than CR and BRT modes. LRT vehicles also represent a new, modern class of vehicle equipped with the latest available railcar technology, and could be procured "off the shelf" with minimal customization from a relatively large vendor pool compared to other project modes.

As with all project modes assessed in the PEL Study, LRT could not operate within the existing freight tunnel below Metropolitan Avenue. However, the flexibility of LRT allows it to run in a variety of operating environments, and limited on-street operations along Metropolitan Avenue, 69th Street and 69th Place were determined to be a feasible alternative to constructing a new, adjacent tunnel below Metropolitan Avenue. As conceptual design was advanced beyond the PEL Study, additional tunneling solutions for LRT were developed that represent a more cost-effective alternative to those contemplated in previous planning studies. As discussed elsewhere in this Scoping Document, tunneling at Metropolitan Avenue will be evaluated further in the EIS.

5.1.4 Mode Choice per PEL Recommendation

For reasons stated above, the *IBX PEL Study* recommended that LRT be further advanced as the Preferred Alternative through the environmental review process and that CR and BRT be eliminated from further consideration.

5.2 ALTERNATIVES EVALUATED DURING CONCEPTUAL ENGINEERING

While LRT has been deemed the preferred mode, MTA also evaluated an additional alternative during the Conceptual Engineering (CE) phase of the project – Enhanced Bus Service.

5.2.1 Enhanced Bus Service

Based on the *IBX Feasibility Study* and the *IBX PEL Study*, Enhanced Bus Service could provide an alternative to LRT service. The proposed Enhanced Bus Alternative would operate as a Select Bus Service (SBS) on streets that would parallel the IBX corridor, primarily using portions of existing bus routes B9, B7, Q67, Q18, and Q47. The Enhanced Bus Alternative would entail targeted intersection improvements, traffic engineering actions, and other operational and physical improvements to improve service, enhance connections, increase capacity, and speed

transit along the corridor. Enhanced Bus service would include some combination of the following elements:

- All door fare collection for faster bus boarding.
- Three-door, low floor, and articulated buses to reduce boarding and alighting times.
- Sidewalk extensions to avoid buses pulling into the curb and waiting for a gap in traffic to return to the travel lane.
- Transit signal priority to decrease delays and increase travel time reliability.
- Bus lanes and queue jumpers, if favorable roadway geometries could be found.
- Bus route adjustments with limited stop spacing.
- Additional free transfers.
- Re-envisioned transfer points between different transit routes and modes to remove bottlenecks and improve transfer time and passenger experience.

Expected travel times on the SBS route without any SBS treatments vary from 1 hour 55 minutes in the PM south-westbound direction to 2 hours 15 minutes in the PM north-eastbound direction. Assuming travel time savings of 20 percent[1] when applying the SBS treatments along the route, travel time would be reduced by an average of 24 minutes, thereby reducing the average trip duration to 1 hour 38 minutes. If SBS treatments were only applied to the 14 segments of the route with bus speeds between zero and six mph (approximately five miles in length), travel time would be reduced by an average of 10 minutes, thereby reducing the average trip duration to 1 hour 52 minutes.

In comparison, IBX run time from the Brooklyn Army Terminal to Roosevelt Avenue using LRT is expected to be approximately 32 minutes, which is significantly faster than the average run time for the Enhanced Bus Alternative during any time period.

While the Enhanced Bus Alternative would perform better than the No Action Alternative in terms of maximizing the existing transit system without requiring major capital investment for new infrastructure, it would not meet the project purpose and need of providing fast, direct, safe and reliable transit service between Brooklyn and Queens. Nor would the Enhanced Bus Alternative provide connections to existing subway and transit serving Brooklyn and Queens. Lastly, compared to the preferred LRT Alternative, the Enhanced Bus Alternative would not improve access and connections to and among communities and job centers in the corridor. As a result, the Enhanced Bus Alternative has been eliminated from further consideration.

5.3 DESIGN REFINEMENTS EVALUATED DURING CONCEPTUAL ENGINEERING

Various design elements within the LRT alternative have undergone further refinement during the CE phase of the project, including:

[1] https://www.nyc.gov/html/dot/downloads/pdf/nyc-dot-select-bus-service-report.pdf

- Metropolitan Avenue alignment
- Operations Facility and Storage Yard layout and locations
- Station locations and access
- Traction power sub-station (TPSS) locations
- Bridge/structure reconstructions

The following focuses on each of the above design elements and provides a summary of options evaluated, identifies options eliminated from further consideration, and identifies the options that are advancing for further evaluation in the DEIS because they best meet the Project's purpose and need and established goals and objectives.

5.3.1 Metropolitan Avenue Alignment

The *IBX PEL Study* included street-running as part of the alignment, which consists of LRT running on-street for a short segment, sharing the right-of-way with vehicular traffic and separate from the existing sub-surface rail line. The preliminary design in the *IBX PEL Study* utilized portions of Metropolitan Avenue, 69th Street, and 69th Place to detour around the All Faiths Cemetery (see **Figure 2** for the street-running alignment). Street-running design was further advanced during CE by developing design parameters, identifying design constraints, developing design options, and ultimately selecting a preferred design option. As street-running was further developed and disadvantages identified, two new options were developed for consideration and comparison: the Flyover Option and the Tunneling Option.

All three options were evaluated for associated costs, potential property impacts, traffic impacts, and other tangible community concerns, as summarized below.

5.3.1.1 Street-Running Option

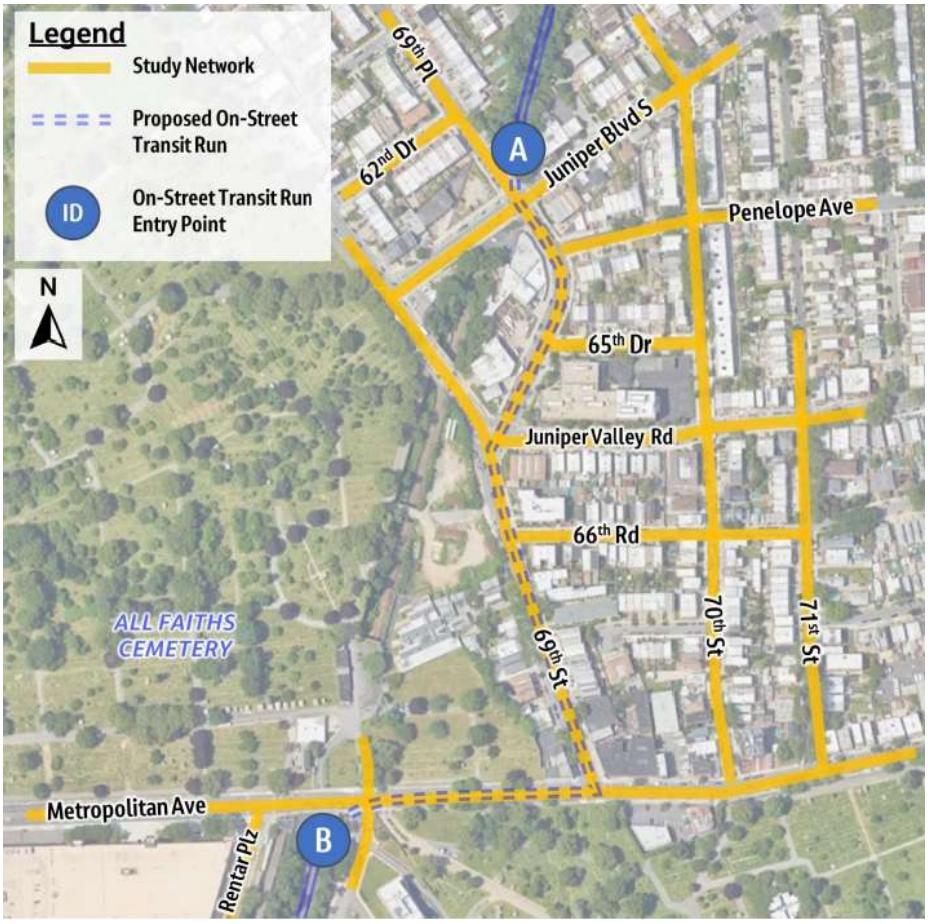
This section summarizes the segment design undertaken for on-street portions of the IBX at Metropolitan Avenue and 69th Street (see **Figure 2**).

Metropolitan Avenue would maintain two travel lanes in each direction, converting the center lane to a shared lane with light rail vehicles (LRVs). The center lanes, which would be utilized by both LRVs and general traffic, would be 13 feet wide to minimize potential side swipe collisions for LRVs with other heavy vehicles. The LRVs would require additional space to house the overhead catenary system (OCS) poles, which would be installed in the middle of the street by introducing a raised center median.

69th Street would have one travel lane in each direction, which would be shared with LRVs and general traffic. A three-foot-wide raised center median would also be introduced, which would prohibit left-turns at existing driveways.

To accommodate turning movements for LRVs and minimize driver confusion, roadway geometry improvements and signal retiming would be necessary at four intersections: Railway Corridor/Metropolitan Avenue; Metropolitan Avenue/69th Street; 69th Street/69th Place/Juniper Valley Road; and 69th Place/Juniper Boulevard South.

Figure 2 Street-Running Option



5.3.1.2 Flyover Option

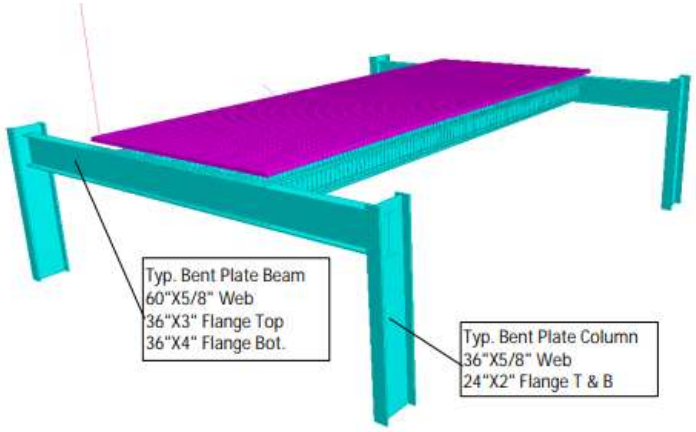
The Flyover Option would require construction of a viaduct structure to elevate the IBX tracks over Metropolitan Avenue, All Faiths Cemetery, 69th Street, and the Juniper Boulevard South/69th Place intersection. This would avoid the street-level impacts associated with the street-running option. Construction impacts to the cemetery are anticipated, largely due to structural column locations.

The alignment of the viaduct would largely parallel the Fremont Secondary freight alignment. The viaduct would have a grade increase of +4%, a flat segment also containing an elevated Metropolitan Avenue IBX station, and a varying grade decrease of 2-6% to meet the existing track alignment north of the cemetery. The full length of the viaduct would be approximately 4,700 feet, and its maximum height would be approximately 30 feet, from street level to track.

Along with the superstructure shown in **Figure 3**, each column would require a concrete pedestal and foundation. The installation of the foundations would require significant excavation and

impacts to the areas around each column. At a minimum, there would be two excavations and two foundations, one on each side of the right-of-way, every 100 feet, for the length of the flyover.

Figure 3 Typical Section of IBX Flyover Structure



5.3.1.3 Tunneling Option

The tunneling option involves the construction of an approximately 520-foot-long tunnel underneath Metropolitan Avenue. The preliminary tunnel concept is based on a station with side platforms. Vertical clearance of the tunnel would be 18 feet for the LRVs, with the catenary frame fully extended. Potential impacts to any structures above or adjacent to the proposed tunnel will be assessed during the EIS process.

5.3.1.4 Overview of Analysis Results

An evaluation of the three options described above was conducted to determine the preferred option for this short Metropolitan Avenue section of the IBX alignment. **Table 3** below provides an overview of the results of that analysis. The following conclusions from that analysis demonstrate that the tunneling option best meets the Project purpose, need and objectives, and is therefore recommended for further evaluation, while the street-running and flyover options have been eliminated from further consideration:

- As the tunnel option would be underground, it would have a lower likelihood of property impacts than the flyover or street-running options. Similarly, it would not pose the potential noise impacts that the street-running and flyover options would, as it would provide further distance between the noise source and sensitive receptors while the street-running and flyover options would decrease this distance.

- Service reliability of the IBX for the street-running option would pose higher risks as LRT operations and general traffic operations would be shared within the same roadway. The flyover and tunnel options would not have that service reliability/run-time risk factor, as LRT operations and general traffic operations would be separate.

- The flyover option would have the highest construction cost estimate while the street-running option would have the lowest, with the tunnel option in the middle. Although the construction cost estimate for the street-running option would be the lowest, the overall financial implications would not likely be the lowest considering the slower IBX run time, service reliability issues and vehicular traffic conflicts.

- The flyover option would present a potentially significant visual impact by constructing an aerial flyover within this residential community.

Table 3 Comparison of Street-Running, Tunneling and Flyover Options

OPTION	PROPERTY EFFECTS	COST	TRAFFIC	LRT OPERATION	OTHER FACTORS
STREET-RUNNING	**Permanent** impact to four 1-story commercial buildings	Baseline Cost	Shared LRT and general traffic operations result in highest safety risk (compared to flyover and cut-and-cover) Left turns prohibited at driveways Southbound left turns prohibited at Metropolitan Avenue/69th Street Driveways on 69th St. and 69th Pl. restricted to right turns only Potentially significant adverse traffic impacts at three signalized intersections	Reduced service reliability (compared to flyover and tunneling) Increased travel time (compared to flyover and tunneling)	Potential air quality impacts due to higher traffic congestion Potential noise impacts with LRT service close to sensitive receptors (residential) Potential construction-related impacts as construction closer to residential, commercial and institutional uses

OPTION	PROPERTY EFFECTS	COST	TRAFFIC	LRT OPERATION	OTHER FACTORS
FLYOVER	**Permanent** impact to 4 1-story commercial buildings **Permanent** easements within cemetery for placement of structural columns	Significantly higher than Baseline (street-running)	Separate LRT and general traffic operations Improved traffic safety (compared to street-running)	Reduced travel time (compared to street-running)	Potentially significant visual impact with introduction of aerial flyover within residential area Higher potential for noise impacts to surrounding community
TUNNELING	**Temporary** potential impact to All Faiths Cemetery and 4 1-story commercial buildings (could be restored after construction)	Slightly higher than Baseline (street-running)	Separate LRT and general traffic operations Improved traffic safety (compared to street-running)	Reduced travel time (compared to street-running)	Minimizes potential impact to surrounding community for air quality, traffic, noise and visual

5.3.2 Operations Facility and Storage Yard (OFSY)

The CE phase of the IBX project included exploration of various layouts for the OFSY, focused primarily on the Brooklyn Army Terminal (BAT) site at the southern terminus of the alignment in Brooklyn. Multiple yard options were considered to co-locate the OFSY with existing site uses for freight facilities in this area. Due to the configuration of the yard and its existing freight facilities, splitting the operations facility and vehicle storage yard and siting them in separate locations was considered, along with combining the two facilities on a common site. Additionally, the area under the Bay Ridge Towers was evaluated for potential LRV storage.

The following criteria and operational requirements were considered in determining the site layout and functionality of the OFSY:

- The preferred location for the IBX OFSY is at the terminal end of the line. Siting a yard at the route terminal is preferred to facilitate peak period service ramp-up and ramp-down when peak service concludes. Given the need to accommodate other uses and their associated employees at the yard, the required vehicle storage yard would be separated from the operations facility and located on the existing employee parking west of 2nd Avenue (known as the “East Lot”). Replacement of the existing employee surface parking would be accommodated with structured parking.

- Currently, vehicular access to the BAT is provided at two locations via 58th Street and 63rd Street. Based on design of the OFSY, these access points may require reconstruction with a goal of maintaining two access points.

- No permanent structures (including buildings or ramps) may be located over NYCDEP infrastructure that run through the 65th Street Yard. Additionally, the existing 1st Avenue freight spur from the Bay Ridge Branch to Bush Terminal must be maintained. Other facilities within BAT displaced by the IBX OFSY construction must be maintained and thus relocated or reconstructed as part of the project and overall site plan.

- The 100-year floodplain (per Federal Emergency Management Agency [FEMA] Flood Insurance Rate Map [FIRM]) encompasses the western edge of the BAT and the western third of the 65th Street Yard. Any OFSY facilities within the floodplain must be elevated above the floodplain or otherwise floodproofed to accommodate all relevant floodplain regulations.

- The IBX OFSY must be designed to accommodate an electrically powered LRV fleet of trainsets up to 325 ft. long until a manufacturer is selected.

- With the exception of daily servicing (sanding, interior cleaning and daily inspections) and exterior washing, all LRV maintenance activities at the IBX OFSY must be performed on individual cars and coupled trainsets. Vehicles shall be moved into the maintenance facility as three-car coupled trainsets for sanding and exterior cleaning. However, trains may be separated to run through the automatic exterior wash system independently.

- Vehicle maintenance personnel and LRV operators will have the necessary reporting, locker room, restroom, and break facilities.

- Storage must be provided for all LRVs assigned to the IBX OFSY. The LRV storage facility must be designed with sufficient lighting to accommodate car interior cleaning and daily vehicle inspections.

- Car shop maintenance tracks must be designed to hold a maximum of two LRVs to preclude entrapment of an LRV between other cars when maintenance and repair activities are being performed. The exception to this rule is the servicing/sanding track, which must be designed to handle a 3-car trainset.

- Car positions inside the OFSY must be electrified using the same electric propulsion as the overall system selected.

- Elevated work platforms shall be provided along both sides of the car in the work bays for access to LRV rooftops and must provide fall protection. Access to all roof level work platforms shall be interlocked with the OCS to ensure that the catenary wire is de-

energized before employees gain access. Foreperson offices shall be located near the work areas they supervise.

- The ability to perform minor troubleshooting and repairs on selected car components (i.e., trucks, HVAC units, inverters and pantographs) shall be provided at the OFSY. Therefore, the facility may store maintenance-of-way (MOW) parts for the Systems Maintenance department and include an in-ground wheel truing machine on-site. Major component repairs and rebuilds for all fleets shall be performed off site.

- The IBX OFSY shall have the capability to remove and replace all major LRV components including truck assemblies, HVAC units, pantographs and large inverter boxes.

The proposed OFSY would be located within the BAT and 65th Street Yard site (shown in **Figure 4**) and accommodate all the above system and spacing requirements and also work within the site to allow for existing freight, other stakeholders and BAT facilities.

Figure 4 Proposed Operations Facility and Storage Yard Location

5.3.3 Station Locations/Access

Figure 5 below identifies the proposed station locations along the IBX alignment. These 19 stations would connect with 17 different subway lines, LIRR, and over 50 bus routes, strengthening the transit network through Brooklyn and Queens by providing a connective transit link.

Figure 5 IBX Proposed Stations

Table 4 below identifies all 19 stations evaluated during the PEL study. As the location and configuration of these stations were further evaluated during CE, improvements were made to optimize accessibility, accommodate vertical circulation, minimize property impacts, and streamline station design. For each station, **Table 4** compares the platform type/location developed during the PEL study and CE, and provides the rationale for that change. Platform type refers to side or center, with center typically preferred due to spatial and operational efficiency.

Table 4 Summary of Station Changes Between the PEL Study and CE

STATION NAME	PEL STATION PLATFORM TYPE/LOCATION	CE STATION TYPE/LOCATION	RATIONALE FOR CHANGE BETWEEN PEL AND CE
BROOKLYN ARMY TERMINAL	Location not specified	Side/W side of 2nd Ave, between 59th and 63rd Streets	To provide a functional Operations Facility and Storage Yard and strong street connection
4TH AVE	Side/W of 5th Ave	Center/W side of 5th Ave	To reduce the number of elevators
8TH AVE	Side/Under 8th Ave	Side/E side of 8thAve	To avoid reconstructing 8th Ave bridge and N train tunnel
NEW UTRECHT AVE	Side/W side of 14th Ave	Side/W side of 14th Ave	Platforms shifted 70 ft west of 14th Ave to accommodate vertical circulation
MCDONALD AVE	Side/Under McDonald Ave	Side/E of McDonald Ave	Platforms shifted 70 ft east of McDonald Ave to accommodate vertical circulation
EAST 16TH ST	Side/E of NYCT B/Q lines	Side/E of 16th St	Property constraints require a shift in the platform location to the east
FLATBUSH-NOSTRAND AVE	Side/W of Nostrand Ave	Side/W of Nostrand Ave	Platforms shifted 70 ft west of Nostrand Ave to accommodate vertical circulation
UTICA AVE	Side/W of and above Utica Ave	Center/E of and above Utica Ave	Better functionality due to geometry of track alignments and elevator shaft location
REMSEN AVE	Side/S of and above Remsen Ave	Center/N of and above Remsen Ave	To avoid building impacts

STATION NAME	PEL STATION PLATFORM TYPE/LOCATION	CE STATION TYPE/LOCATION	RATIONALE FOR CHANGE BETWEEN PEL AND CE
LINDEN BLVD	Side/200 ft S of Linden Blvd	Side/N of Linden Blvd	Platform shifted north of Linden Blvd to provide connection to a public street
LIVONIA AVE	Side/N of and under NYCT 3 Line	Side/N of Livonia Ave	To avoid structural modification to the existing NYCT L- Line Livonia station
SUTTER AVE	Side/S of Sutter Ave	Center/S of Sutter Ave	Reduce number of elevators while saving Sutter Ave structure
ATLANTIC AVE	Side/S of E. NY Ave	Center / within East New York Tunnel	Station opportunity within ENY Tunnel identified. Center platform to minimize tunnel retrofit requirements
WILSON AVE	Center/S of Wilson Ave	Center/N of Wilson Ave	Platform shifted to north due to track alignment geometry, and changed to center to reduce costs
MYRTLE AVE	Side/N of Myrtle Ave	Side/S of Cypress Hills St	To avoid impact on historic properties adjacent to Myrtle Ave/Fresh Pond Rd
METROPOLITAN AVE	Side/S of Metropolitan Ave	Side/S of Metropolitan Ave	No change
ELIOT AVE	Side/S of and under Eliot Ave	Center/N of Eliot Ave	Platform shifted to north due to track alignment geometry, and center platform reduces elevators

STATION NAME	PEL STATION PLATFORM TYPE/LOCATION	CE STATION TYPE/LOCATION	RATIONALE FOR CHANGE BETWEEN PEL AND CE
GRAND AVE	Side/N of and under Grand Ave	Center/S of and under Grand Ave	Center platform saves on vertical circulation and platform moved to south to minimize property impact
ROOSEVELT AVE	Center/S of Roosevelt Ave	Center/S of Roosevelt Ave	No change

5.3.4 Traction Power Sub-Station (TPSS) Locations

The LRT system would be electrically powered and require traction power sub-stations for electrical supply conversion from the main utility source (Con Edison). The PEL Study identified 16 TPSS locations along the IBX alignment, 11 of which are within the existing right-of-way and four of which would require property acquisitions beyond the right-of-way. During CE, these locations were reevaluated based on the following factors: distance between adjacent substations, substation access from street, overhead catenary system (OCS) and track access, visual impacts, maintenance requirements, real estate impacts, architectural design, technical compliance, system configuration, safety prioritization, ownership, and land use. Generally, it was assumed for this evaluation that the substations should be spaced approximately every mile along the corridor, with one at each end of the alignment.

Figure 6 provides an overview of proposed TPSS locations.

Figure 6 Proposed TPSS Locations

5.3.5 Structures Modifications

As part of the CE process, all 87 structures that currently intersect the IBX corridor were evaluated to identify if the existing spaces under/over the structures are sufficient to accommodate the IBX light rail system. As part of this evaluation, the following inputs were considered:

- **Overhead vs. undergrade structures:** Modifications to overhead bridges would likely have a greater impact on the local roadway network in Brooklyn and Queens and have higher construction complexity than undergrade structures.
- **Ownership:** Additional approval requirements may be triggered based on the ownership of each structure.
- **Existing track arrangement:** Can be used to identify any existing substandard conditions (i.e., substandard clearances) that may contribute towards the required modifications.
- **Proposed track arrangement:** This is to reflect the needs of the IBX project only.
- **Available horizontal space:** The existing space is based on field measurements and is represented as a rough estimate for what is available.
- **Available vertical space:** The existing space is based on field measurements and is represented as a rough estimate for what is available.

In summary, 23 overhead bridges/structures and 16 undergrade bridges out of the total 87 bridges/structures would require modification to accommodate the IBX project. Seven (7) undergrade bridges would require the introduction of separate structures parallel to the existing structures. The East New York Tunnel would be retrofitted to accommodate IBX passenger trains and freight trains on separate, dedicated tracks. In comparison to the PEL estimates, the refined conceptual alignment eliminated 15 previously identified overhead bridge reconstructions and 1 undergrade bridge expansion, and identified an additional two overhead bridge reconstructions and three undergrade bridge expansions. Overall, the refined IBX design reduced the number of bridge/structure reconstructions from 57 to 46.

5.4 ALTERNATIVES TO BE EVALUATED IN THE DEIS

The DEIS will evaluate a No-Action Alternative and an Action Alternative for the 14-mile LRT system. A description of each alternative is provided below.

5.4.1 No Action Alternative

The No-Action Alternative would retain the existing transit network and the committed projects within the IBX study area that are documented in the Fiscal Years 2020–2024 Transportation Improvement Program (TIP) adopted by the New York Metropolitan Transportation Council, the Metropolitan Planning Organization (MPO) for Brooklyn and Queens. See **Table 5** for a list of committed projects in the study area contained in the TIP. The No-Action Alternative serves as the baseline for comparison to all other alternatives.

Table 5 No Action Project List

PROJECT	DESCRIPTION	LOCATION
Rehabilitation of Owls Head Viaduct	Rehabilitation to extend useful life	From 61st Street to Belt Parkway, Bay Ridge
HOV Land on Gowanus Expressway	Continued Operation of the High Occupancy Vehicle Lane	From Verrazzano Narrows Bridge to Hugh L. Carey Tunnel
Bridge Replacement of Fort Hamilton Parkway over Gowanus Expressway	Bridge replacement to correct structural deficiencies, extend useful life, and improve safety	Fort Hamilton Parkway at Gowanus Expressway
Gowanus Expressway Viaduct Bridge Corrective Repairs and Maintenance	Steel repairs and painting to prolong useful life	From Hugh L. Carey Tunnel to 65th Street
Wyckoff Avenue Reconstruction	State of good repair project	Flushing Avenue to Gates Avenue
Schenck Avenue Reconstruction	New curbs, realigned crosswalks, and roadway repair	Jamaica Avenue to Flatlands Avenue
Reconstruction of 5th Avenue Bridge	To bring up to state of good repair	Over MTA Bay Ridge Branch and Sea Beach Line
Installation of electric vehicle chargers	Along roadway rubs and in parking garages	Citywide
South Brooklyn Pedestrian Safety Improvements	Sidewalk and Roadway Enhancements	Various
Safety and Operational Improvements on Jackie Robinson Parkway	Improving lane assignments on westbound parking and providing 2 through lanes on eastbound parkway	Between Jamaica Avenue and Highland Boulevard
Southern Brooklyn Crosstown Select Bus Service	Implementation of select bus service to reduce travel times	Cropsey Avenue/37th Street to Pennsylvania and Seaview Avenues
Queens Blvd Pedestrian Safety Improvements (Phase 1 and 2)	Expansion of sidewalks and walkways; installation of raised bike lanes, lighting, and landscaping	Roosevelt Avenue to Eliot Avenue
Woodhaven Boulevard Improvements for Select Bus Service	Installation of median stations and bus bulb-outs	From Beach 116th Street / Rockaway Beach Boulevard to 61st Street / 39th Avenue
Long Island Expressway Transportation Demand Management	To enhance mobility and reliability	Midtown tunnel to Main Street, Flushing
Brooklyn Yards Development	Rezoning to facilitate development of 335,000 square-foot development, including 270 residential units and 64,000 square feet of commercial space over the railroad tracks	Over the Bay Ridge Branch railroad tracks, roughly bounded by 14th and 16th Avenues and 59th and 61st Streets

Sources: New York Metropolitan Transportation Council. TIP Subregional Project Listings Update – New York City 2023 – 2027 Project Listing. Available online: Federal Fiscal Years 2023-2027 (FFYs) Transportation Improvement Program (TIP) (nymtc.org). June 2024. New York City Department of City Planning. Zoning Application Portal. Available online: https://zap.planning.nyc.gov/projects. Accessed July 29, 2024.

5.4.2 LRT Action Alternative

LRT was selected as the preferred mode for the IBX project and would operate primarily in a 14-mile section of freight railroad corridor from Sunset Park, Brooklyn at the southern end of the corridor to Roosevelt Avenue in Jackson Heights, Queens, at the northern end of the corridor. The IBX LRT would serve 19 stations. Service will be modeled to operate during peak and non-peak hours, seven days a week, 24 hours a day.

6 Environmental Review Process

The environmental review process involves the following key milestones:

- Scoping and Public Scoping Meetings
- Draft Environmental Impact Statement (DEIS) and Public Hearings
- Final Environmental Impact Statement (FEIS)

6.1 SCOPING

Scoping is an early and open process for the public and agencies to provide input on the scope, or range of issues, to be addressed in the DEIS. The input received during scoping will help to identify the depth and breadth of environmental analysis to be completed. It will also serve to identify and eliminate from further study the issues that are not important or have been covered by prior studies. Likewise, it will confirm alternatives that have been deemed not feasible, therefore eliminated from further consideration during the feasibility and PEL stages of the project.

The environmental scoping process consists of the following key steps:

- Invite involved and interested agencies, the public and stakeholders to comment on the scope of the project, including the purpose and need, alternatives considered, key issues evaluated and evaluation methodologies.
- Connect previous planning decisions with current project development.
- Address agency and stakeholder comments on the Draft Scoping Document and include responses in the Final Scoping Document.
- Determine the scope and issues of concern to be analyzed in the DEIS.

6.2 DRAFT AND FINAL ENVIRONMENTAL IMPACT STATEMENT

Following scoping, a DEIS will be prepared to assess the potential adverse impacts and benefits of the IBX project. The DEIS will:

- Describe the purpose and need; goals and objectives for the IBX.
- Describe the Proposed Project.
- Identify the reasonable range of alternatives to be evaluated in the DEIS and identify any alternatives eliminated from further consideration.
- Discuss the affected environment.
- Assess the social, economic and environmental consequences of the reasonable range of alternatives, including the Proposed Project
- Identify any mitigation measures, as warranted based on the analysis.

The DEIS will be circulated for public and agency comments over a 30-day review period. During this time, public hearings will be held to present the results of the DEIS and all comments received during the public comment period will be formally recorded.

The FEIS will respond to comments received on the DEIS and state the Proposed Project, environmental findings, and proposed mitigation measures, if warranted.

A coordinated review process will be conducted throughout the environmental review, whereby all involved agencies will cooperate in an integrated process to consider interests and concerns.

6.3 ENVIRONMENTAL ANALYSIS FRAMEWORK AND SCOPE

This section describes the framework for the DEIS technical analysis and identifies the following analysis years for the Proposed Project: 2035 and 2050 (horizon year – for long term planning purposes, is the latest forecast year for which data is currently available).

The DEIS will document the affected environment and environmental impacts for future conditions with and without the Proposed Project for the following technical resources: land use, zoning and public policy, community facilities and services, transportation, socioeconomic conditions, open space, visual and aesthetic resources, displacement and relocation, historic and cultural resources, air quality and greenhouse gas emissions (GHG), noise and vibration, infrastructure and energy, contaminated materials, natural resources, coastal zone consistency, safety, environmental justice, cumulative effects and construction. Both the long-term (operational) and short-term (construction) impacts will be evaluated.

6.3.1 Land Use, Zoning, and Public Policy

This section will examine the potential for the Proposed Project to impact land use, zoning and public policy. The analysis will describe land uses, zoning regulations, and applicable policies within the Study Area, and will assess the potential land use impacts and compliance with zoning regulations and policies.

Land use refers to the activity that is occurring on land and within the structures that occupy it. Types of uses include residential, retail, commercial, industrial, vacant land, and parks. According to the CEQR Technical Manual, the appropriate study area for land use and zoning is related to the type and size of a Proposed Project; the location and context of the area that could be affected by the project; and other factors, such as natural and man-made geographic boundaries. Land uses in the Study Area will be determined through a review of New York City Department of City Planning (NYCDCP) Primary Land Use Tax Lot Output (PLUTO) data.

The New York City Zoning Resolution (ZR) dictates the use, density and bulk of developments within the City. The ZR is divided into two parts: zoning text and zoning maps. The zoning text establishes the zoning districts within New York City and dictates the zoning regulations governing land uses and developments, while zoning maps show the boundaries of the City's zoning districts. Zoning designations in the Study Area will be determined through a review of NYCDCP Zoning Maps and through a review of the City's online Zoning Resolution.

Various public policies can affect the allowable land uses on a project site. Officially adopted and promulgated public policies also describe the intended use applicable to an area or particular sites in the City. Some public policies have regulatory status, while others describe general goals that can help define the existing and future context of the land use and zoning of an area. Policies may also change over time to reflect the evolving needs of the City, as determined by appointed and elected officials and the public. The DEIS will include an analysis of the No Action and Proposed Project's impact on land use, zoning and public policies.

6.3.2 Community Facilities and Services

This section will evaluate whether the Proposed Project would physically impact or displace any community resources, result in any increases in resident population, have any impact on public schools, healthcare facilities, publicly funded group early childhood programs, libraries or local police and fire facilities. The DEIS will include an analysis of the No Action and Action Alternatives on community facilities and services.

6.3.3 Transportation

The Proposed Project represents an investment in transit infrastructure that will generate reductions in private automobile trips and will result in improved transportation conditions. This section will evaluate the anticipated effects of the Proposed Project on local roadways and intersections and identify impacts of the Proposed Project on the existing multimodal transportation network. The projected ridership for the IBX (as modeled by MTA) will be used to generate person-trips by mode for all analysis peak hours. Based on the trip generation and modal split assessments, further analysis may be necessary, based on CEQR screening thresholds. More detailed trip assignment (i.e., routing trips by each travel mode to specific sidewalks, transit services, etc.) is expected to be necessary for pedestrian and transit technical areas. The screening and analysis procedures will be performed under CEQR guidance and traffic study methodology and analysis results will be coordinated with the New York City Department of Transportation. The DEIS will include an analysis of the No Action and Action Alternatives impact on existing roadways, pedestrian infrastructure, transit stations and bus subway lines.

6.3.4 Socioeconomic Conditions

According to the CEQR Technical Manual there are six (6) guidelines for determining whether a socioeconomic assessment is required. They are related to the following:

- Displacement of residential population.
- Displacement of more than 100 employees.
- Business displacements.
- New development that is markedly different from existing land uses.
- New or improved retail development.
- Effects on a specific industry.

While it is not expected that the Proposed Project would have impacts as identified in any of the above six guidelines, further analysis will be conducted in the DEIS to confirm. If it is determined that one or more of the above six guidelines is exceeded, further socioeconomic assessment may be required.

This section will also identify any property acquisitions necessary to construct the Proposed Project inclusive of stations, sub-stations, OFSY, utilities and clearances. If property is acquired using the NYS Eminent Domain Procedure Law (EDPL), a public hearing is required when ROW takings are more than de minimis. Per EDPL Section 206(C), a public hearing held for the environmental review process may be used for this purpose. Preparation of property acquisition documents in support of EDPL requirements will be provided as a supplement. The DEIS will include an analysis of the No Action and Action Alternatives impact on displacements and relocations.

6.3.5 Open Space

Open space is defined as publicly- or privately-owned land that is publicly accessible and operates, functions, or is available for leisure, play, or sport, or set aside for the protection and/or enhancement of the natural environment. Open space and recreational resources will be identified adjacent to the IBX corridor, and an assessment will be undertaken to determine whether the Proposed Project would result in the loss of recreational opportunities or the reduction of an open space resource. Impacts may be direct resulting from the elimination or alteration of open space or recreational resources, or indirect resulting from the overtaxing of these resources. The DEIS will include an analysis of the No Action and Action Alternatives impact on open space. Measures to avoid, minimize and mitigate impacts to open space and recreational resources will be identified, as necessary.

6.3.6 Visual and Aesthetic Resources

An assessment of impacts to visual and aesthetic resources will be undertaken in consideration of guidance provided in New York State Department of Environmental Conservation's *DEP-00-2: Assessing and Mitigating Visual and Aesthetic Impacts,* the *U.S. Department of Transportation Guidelines for the Visual Impact Assessment of Highway Projects*, and Chapter 10, *Urban Design and Visual Resources*, of the CEQR Technical Manual. The analysis will document the visual character of the study area, identify key viewsheds and aesthetic resources, define the viewer characteristics, assess the visual quality of the Study Area, and evaluate the changes to visual character that would result from the Proposed Project. A series of photo-simulations will be prepared in support of the analysis. It will also assess the impact changes that sunlight and shadows would have on the visual character and enjoyment of identified visual and aesthetic resources. The focus of the visual analysis will be on the locations where improvements would be visible from locations surrounding the existing freight rail corridor. The DEIS will include an analysis of the No Action and Action Alternatives impact on visual and aesthetic resources. Measures to avoid, minimize, or otherwise mitigate visual and aesthetic effects will be identified as necessary.

6.3.7 Historic and Cultural Resources

This section will examine the potential effects the Proposed Project may have on historic properties within the Study Area. The historical and cultural resources analysis will be prepared in accordance with the State Historic Preservation Act of 1980 (SHPA), Section 14.09 of the Parks, Recreation and Historic Preservation Law (PRHPL). Section 14.09 requires State agencies to consult with the commissioner if it appears that any project which is being planned may or will cause any change, beneficial or adverse, in the quality of any historic, architectural, archeological or cultural property that is listed on the National Register of Historic Places or property listed on the State Register of Historic Places or that is determined by the commissioner to be eligible for listing on the State Register of Historic Places. It requires State agencies, to the fullest extent practicable, consistent with other provisions of the law, to avoid or mitigate adverse impacts to such properties, to fully explore all feasible and prudent alternatives and to give due consideration to feasible and prudent plans which would avoid or mitigate adverse impacts to such property.

A required step in the Section 14.09 process is the identification of the project impact area. The project impact area is defined in the state regulations as "the geographic area or areas within which a proposed undertaking may cause any change, beneficial or adverse, in the character or use of an eligible or registered property." Archaeological and historic architectural project impact areas will be delineated to consider potential impacts of the Proposed Project on these resource types.

6.3.7.1 Architectural Resources

The historic architectural project impact area includes all areas where the action may cause changes to land or structures and their uses, including the area of ground disturbance caused by the project, and locations from which elements of the undertaking may be visible.

According to *CEQR Technical Manual* guidelines, historic resources study areas are generally defined as the project site plus a 400-foot radius around the Proposed Project site. Therefore, the 400-foot Study Area is adequate to evaluate potential direct impacts of the Proposed Project.

6.3.7.2 Archaeological Resources

Archaeological resources are concerned with direct effects caused by subsurface disturbances to previously undisturbed soils or minimally disturbed soils associated with the execution of a project action. The archaeological project impact area includes two components: the horizontal project impact area, which is the footprint of proposed ground disturbance; and the vertical project impact area, which is considered as the depth to which the potential ground disturbance is anticipated to extend.

As part of the project analysis, a Phase 1A Archaeological Study will be conducted to determine the potential impacts on archeological resources caused by subsurface disturbance.

Note that while the analysis described above is generally consistent with the requirements of Section 106 of the National Historic Preservation Act (NHPA), additional coordination with NYC Landmarks Preservation Commission (LPC) and New York State Historic Preservation Office (SHPO) would be required as part of potential future NEPA compliance.

6.3.8 Air Quality and Greenhouse Gas Emissions

The Proposed Project is expected to be electrically powered and reduce vehicle miles traveled (VMT) and thus have a positive impact on regional air quality. This section will examine the potential for air quality impacts from long term operation of the Proposed Project. The air quality assessment determines if the Proposed Project would affect ambient air quality, which is the quality of the surrounding air.

Pollutant sources that could affect air quality include mobile and stationary sources. Mobile sources are related to vehicular traffic or other moving sources, such as vehicles, airplanes, trains, or boats. Mobile sources are generally linked to projects that add vehicles to an area or "change traffic patterns by diverting vehicles." Stationary sources are pollutants that are fixed in a location and can include "exhaust stack(s) used for the heating, hot water, ventilation, and air conditioning (HVAC) systems of a building" amongst other manufacturing or industrial processes.

While the IBX will have a positive impact on regional air quality, the OFSY and potential roadway alterations could potentially impact local air quality levels. A mesoscale analysis will be conducted to quantify the overall emission impacts from the various project alternatives and a microscale analysis will be conducted to determine the project's impact on local air quality levels. For the proposed OFSY, stationary source emissions will be evaluated using screening analysis to determine the potential for significant pollutant concentrations from the proposed project's HVAC systems.

The DEIS will include an analysis of the No Action and Action Alternatives impact on air quality and greenhouse gas emissions.

6.3.9 Noise and Vibration

This section will include an assessment to determine the potential noise and vibration impacts associated with the operation of the Proposed Project. The study will be completed in accordance with the FTA transit noise and vibration impact assessment procedures as described in the September 2018 *FTA Transit Noise and Vibration Impact Assessment Manual*. Additional areas where traffic displacements are expected to occur will be assessed for potential traffic noise impact.

The transit service line operation noise exposure will be determined and assessed using the Computer Aided Noise Abatement Cadna-A noise prediction model. The Cadna-A model has been approved by NYC and federal review agencies and represents the current state-of-the-art in noise exposure determination. In determining noise exposure at a given noise sensitive location, the Cadna-A model can account for varying ground terrain, shielding and it incorporates the FTA transit noise emission levels for LRT and freight vehicles. Furthermore, if abatement measures are necessary, the model can determine the consequential noise reduction effectiveness adjacent to noise sensitive properties. The transit noise and vibration impact and abatement assessment along the transit corridor alignment will consist of the following elements: representative site selection; noise monitoring and data collection, estimation of future noise expected from LRT operations; estimation of future vibration impact from LRT operations; comparison of transit operations noise and vibration levels to FTA criteria; evaluation of the

effectiveness of potential noise and vibration mitigation measures, where necessary; and completion of a traffic noise exposure (non-transit) assessment in accordance with CEQR screening procedure. It is anticipated that none of the sites evaluated for traffic noise will experience a doubling of Passenger Car Equivalents (PCEs) that would necessitate a detailed traffic noise analysis.

6.3.10 Energy

This section will examine the potential for energy impacts from the Proposed Project on existing utility infrastructure in the study area. According to the *CEQR Technical Manual*, the analysis of energy "focuses on a project's consumption of energy and, where relevant, potential effects on the transmission of energy that may result from the project. The assessment evaluates energy sources typically used in a project's operation (HVAC, lighting, etc.) and includes electricity, fossil fuels (oil, coal, gas, etc.), nuclear power, hydroelectric power, and occasionally, miscellaneous fuels like wood, solid waste, and other combustible materials." The purpose of the analysis is to determine if the Proposed Project would result in a significant impact on energy supply and to ensure the City's power supply and transmission systems have the capacity to meet future demand. The DEIS will include an analysis of the No Action and Action Alternatives' impact on energy.

6.3.11 Contaminated Materials

A Hazardous Material Screening Assessment will be conducted to identify sites with a reasonable potential to impact the Proposed Project with hazardous materials. The screening will build on the high-level Screening Assessment completed for the PEL Study and will focus on construction impacts and property acquisitions necessary for the Proposed Project. A new environmental database will be obtained for sites located within 1/8-mile of the Proposed Project, historical Sanborn maps will be reviewed, and a visual site reconnaissance will be conducted. The study will emphasize areas affected by the LRT alignment, proposed stations and the proposed OFSY. The database and Sanborn maps will be reviewed for proposed acquisition properties and the information summarized in the DEIS. The DEIS will include an analysis of the No Action and Action Alternatives impact on contaminated materials.

6.3.12 Natural Resources

The assessment of Natural Resources includes ground water, soils, geologic features, natural and human-created aquatic and terrestrial habitats, and areas used by wildlife. The natural resources assessment will document the existing conditions or presence of the following: terrestrial ecosystems, aquatic ecosystems, habitats, wetlands, submerged aquatic vegetation, water quality, essential fish habitat and threatened and endangered species. Evaluation of the identified resources will determine if any resources will be adversely impacted, and if so, mitigation to minimize those impacts will be identified. The DEIS will include an analysis of the No Action and Action Alternatives' impact on natural resources.

6.3.13 Coastal Zone Consistency

A portion of the Proposed Project is within the City's Coastal Zone Boundary and is therefore subject to review for consistency with the policies of the NYC Waterfront Revitalization Program

(WRP). The WRP includes policies designed to maximize the benefits derived from economic development, environmental preservation, and public use of the waterfront, while minimizing the conflicts among these objectives.

The WRP Consistency Assessment Form (CAF) lists the WRP policies and indicates whether the Proposed Project would promote or hinder a particular policy, or if that policy would not be applicable. The CAF will be prepared to identify the applicable policies and consistency assessment statements will be prepared for each. A floodplains evaluation worksheet (Policy 6.2) will also be completed. The CAF form will be submitted to NYCDCP and New York State Department of State for review and the assessment findings will be summarized in the DEIS.

6.3.14 Safety

This section will focus on proposed station locations. Safety analysis at impacted locations will consist of a review of three years of historic crashes with notable patterns at each location for the existing conditions. The section will include a qualitative assessment of impacts related to the Proposed Project and associated access. There will be specific focus on pedestrian and bicycle crashes, with potential mitigation factors for these crash types. This section will also address safety issues with respect to movement of freight within this urbanized corridor, as well as the presence of the fuel pipeline within the existing freight corridor.

6.3.15 Environmental Justice

Section 7 of the Climate Leadership and Community Protection Act (CLCPA) requires all state agencies when undertaking governmental actions to avoid disproportionately burdening disadvantaged communities (DACs) and prioritize reductions in greenhouse gas (GHG) emissions and co-pollutants in these areas. The Disadvantaged Community Assessment Tool (DACAT) screening tool will be used to identify whether the project is in or near a disadvantaged community and assess whether the proposed project would result in potential disproportionate impacts. If the major project requiring a NYSDEC-issued permit may burden a DAC, an Existing Burden Report may be required under ECL §70-0118 and a disproportionate burden analysis and enhanced public participation plan may be recommended under NYSDEC DEP-24-1 Policy.

The New York State Department of Environmental Conservation (NYSDEC) Commissioner Policy 29 (CP-29) provides guidance for incorporating environmental justice (EJ) concerns into the NYSDEC's permitting and SEQRA processes. An environmental justice screening will be conducted to determine whether the project is located in or near a Potential Environmental Justice Area (PEJA) and has the potential to result in at least one significant adverse environmental impact. If the major project requiring a NYSDEC-issued permit may adversely impact a PEJA, measures to avoid or minimize those impacts will be evaluated and a public participation plan may be recommended to ensure fair and meaningful public participation.

6.3.16 Indirect and Cumulative Effects

A cumulative effects assessment will be conducted at a level of detail sufficient for the public and involved/interested agencies to understand the beneficial and/or negative effects resulting from construction of the Proposed Project, in addition to consideration of other reasonably foreseeable

projects within the Study Area. The cumulative effects assessment will draw from the other separate technical analyses supporting the DEIS and will consider their combined effects.

For the Proposed Project, indirect or secondary effects may occur if the new transit service attracts transit-oriented development (TOD). However, the new transit option presented herein seeks to address existing demand and extensive growth that is forecasted to occur in the study area with or without the project. Furthermore, no new rezoning actions to foster TOD are proposed as part of the Proposed Project. Therefore, the indirect growth assessment will primarily be a qualitative assessment of incremental growth that might occur as a result of the Proposed Project. An example of potential TOD could involve the Brooklyn Army Terminal (BAT) site where layout of the operations facility and storage yard may also induce some form of transit-oriented development, as well as potential TOD adjacent to the proposed station at Atlantic Avenue, Brooklyn.

A full evaluation of the community and environmental impacts of induced growth will be included in the DEIS along with an assessment of the Proposed Project's cumulative effects as they are currently understood, and other proposed projects that will be built throughout the Study Area by the future design year. This will include consideration of socioeconomic conditions, cultural resources, visual resources, transportation, air quality and energy, noise and vibration, hazardous materials, infrastructure, natural resources, and construction impacts.

6.3.17 Construction

An assessment of the construction activities on the following resources will be conducted including a screening assessment of transportation, air quality, noise, open space, socioeconomic conditions, community facilities, land use and public policy, historic and cultural resources, hazardous materials, natural resources, and water and sewer infrastructure. A preliminary assessment is conducted when construction activities are anticipated to be long-term, more than two years or when short-term construction activities would directly impact a technical resource. The Proposed Project is anticipated to have over a 2-year construction schedule and a preliminary assessment will be conducted.

The preliminary assessment will evaluate the Proposed Project's short-term and temporary construction impact on the above-mentioned technical resources. A detailed assessment is anticipated for transportation, air quality, noise, and vibration. The detailed assessment methodology is summarized in the following sections.

6.3.17.1 Transportation

The construction of the Proposed Project is expected to require numerous roadway and sidewalk closures. Therefore, a quantitative traffic and pedestrian assessment will be conducted to identify the anticipated area of project influence. Based upon screening to identify locations where increases in traffic and pedestrian activity would exceed CEQR thresholds, critical locations will be selected for analysis in greater detail to quantify the anticipated level of impact and development of factors for input into the noise and air quality assessments.

6.3.17.2 Air Quality

The construction of the Proposed Project is expected to exceed two years and the major tasks are expected to occur in close proximity to one another such that there is the potential for air quality impacts to nearby sensitive receptors. The construction air quality analysis will review the projected activity and equipment in the context of intensity, duration, and location of emissions relative to nearby sensitive receptors. If extended traffic diversions are anticipated at a specific area during construction, a mobile source analysis will be performed for nearby roadway intersections using information provided in the traffic analysis.

6.3.17.3 Noise and Vibration

Construction noise exposure will be determined and assessed using the Cadna-A noise prediction model. The Cadna-A model has been approved by NYC and federal review agencies for detailed construction noise assessment and the model incorporates the same construction equipment referenced sound pressure levels as those outlined in Chapter 22 of the *NYC CEQR Technical Manual* and the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RCNM). Furthermore, it has several advantages over the RCNM in that it can consider varying terrain conditions and can test potential mitigation measures in the model for noise reduction effectiveness. An assessment of noise exposure from construction activities is warranted for the following reasons:

- The total duration of the Proposed Project construction is expected to last longer than two years; and,
- Noise-sensitive receptors occur at various locations throughout the Proposed Project construction limits.

Therefore, a quantitative construction noise and vibration assessment will be conducted in accordance with the procedures and impact criteria as described in Chapter 7 of the FTA Manual. The FTA Detailed Analysis Construction Noise Criteria will be utilized to determine impact, and mitigation and noise control measures will be evaluated and recommended based on their acoustic effectiveness to eliminate or substantially reduce the impact. Vibration impacts will be assessed against the FTA Construction Vibration Damage Criteria.

7 Agency Coordination

In accordance with SEQRA regulations, a coordinated review will be conducted to consider all agency concerns and interests. Early and continuous involvement with agencies will be critical to advancing the Proposed Project into the next implementation phase. Therefore, MTA has invited local, regional, state, and federal agencies listed in **Table 6** to participate in the environmental review process as either an involved or interested agency.

7.1 INVOLVED AND INTERESTED AGENCIES

Agencies at the local, regional, state, and federal level will be involved in the IBX environmental review process. **Table 6** below identifies these agencies and provides a designation of whether they are "involved" or "interested" agencies pursuant to SEQRA. An involved agency is an agency that has regulatory jurisdiction over the proposed action, while an interested agency is an agency with interest acting in an advisory role.

Table 6 Involved and Interested Agencies Roles and Responsibilities

AGENCY	AGENCY ROLE	RESPONSIBILITY
City Agencies		
New York City Department of City Planning (NYCDCP)	Involved	Coordination related to Consistency determination under the Local Waterfront Revitalization Program and the ULURP process.
New York City Department of Transportation (NYCDOT)	Involved	Coordination related to design approval of alignment and other work in NYCDOT ROW.
New York City Economic Development Corporation (NYCEDC)	Involved	Design coordination related to work at Brooklyn Army Terminal.
New York City Department of Parks & Recreation (NYC Parks)	Interested	Tree Work Permits and Capital Construction Permit for any construction on NYC Parks property (if any).
New York City Landmarks Preservation Commission (LPC)	Interested	Advisory agency for activities on or near sites of historic architectural or archaeological value.
New York City Department of Environmental Protection (NYCDEP)	Involved	Water/Sewer connections, utility relocations and potential air quality permits
Regional Agencies		
Port Authority of New York and New Jersey (PANYNJ)	Interested	Design coordination, specifically for 65th Street Yard and Cross Harbor Freight Program.
State Agencies		
New York State Historic Preservation Office (SHPO)	Involved	Coordination related to Section 14.09 New York State Historic Preservation Act.
New York State Department of Environmental Conservation (NYSDEC)	Involved	Coordination related to SEQRA, Natural Heritage Program; and State Pollutant Discharge Elimination System (SPDES) program.

AGENCY	AGENCY ROLE	RESPONSIBILITY
New York State Department of State (NYSDOS)	Involved	Coordination related to coastal zone consistency and work within a cemetery (Division of Cemeteries)
New York State Department of Transportation (NYSDOT)	Involved	Coordination related to design and construction permits/approvals for work within State's transportation ROW.
Federal Agencies		
Federal Transit Administration (FTA)	Interested	Advise environmental review process as needed.
Federal Highway Administration (FHWA)	Interested	Coordination related to Cross Harbor Freight Program (FHWA is lead federal agency for CHFP)
Federal Railroad Administration (FRA)	Interested	Waiver for shared freight/passenger rail right-of-way (< 25' centers)
Federal Emergency Management Agency (FEMA)	Interested	Coordination related to resilience and floodplain issues.
Surface Transportation Board	Interested	Coordination of freight rail activities and property.
Tribal Nations		
Delaware Nation	Interested	Coordination related to historic resources
Delaware Tribe of Indians	Interested	Coordination related to historic resources
Shinnecock Indian Nation	Interested	Coordination related to historic resources
Stockbridge-Munsee Community Band of Mohican Indians	Interested	Coordination related to historic resources

8 Opportunities for Public Involvement

There will be opportunities for the public to provide input on the Proposed Project and the environmental analyses leading up to and throughout the SEQRA process, as noted in **Table 7**.

Table 7 Public Outreach Methods and Communication Support

METHOD	COMMUNICATION SUPPORT	AUDIENCE
Project Website Updates	Email blast Social media	General public
Contact Database	Email blasts	General public, stakeholders, elected officials
Open Houses	Email blast Project website Social media On-site interpretation in Spanish and additional languages as requested	General public
Virtual engagement	Flyers Email blast Project website Social media Browser-based translation	General public
Technical Advisory Committee	Briefing presentation and materials	Agency stakeholders
IBX Community Council	Briefing presentation and materials	Elected officials, stakeholders
Public Scoping meetings	Required publications (ENB, newspapers) Flyers E-mail blast Project website Social media On-site interpretation in Spanish and additional languages as requested	General public
DEIS Public Hearings	Required publications (ENB, newspapers) Flyers E-mail blast Project website Social media Media advertisements On-site interpretation in Spanish and additional languages as requested	General public
Elected official briefings	Briefing package	Elected officials/stakeholders

8.1 NOTICE PUBLICATION AND LANGUAGE ACCESS

In-person events will include on-site Spanish-language interpreters, with the opportunity for additional languages to be requested ahead of the meeting during registration. Additional on-site interpreters will be accommodated based on availability.

Scoping meeting notices will be published in English and Spanish, and will be published in the New York State Environmental Notice Bulletin (ENB) and the following print-media outlets: amNY and Noticia NY (Spanish language).

8.2 SCOPING MEETINGS

There will be two in-person scoping meetings (one in Brooklyn, one in Queens) and one virtual scoping meeting (for those that cannot attend in person) following the publication of the Notice of Availability (NOA) of this Draft Scoping Document. The format of the scoping meetings will include an open-house type format where staffed information stations and informal discussion is encouraged, followed by a more formal presentation and opportunity for public and/or agency representatives to provide oral comments on the scope of the EIS. Individuals wishing to speak at the meetings are required to register as they sign in. Anyone who needs special assistance should visit mta.info/IBX in advance of the meeting. The dates, times, and locations of these three scoping meetings are included below:

- Brooklyn Scoping Meeting will be held on **October 29, 2025** from 5:30 to 8PM at Brooklyn College, Whitehead Hall, 2710 Campus Road, Brooklyn, NY 11210.
- Queens Scoping Meeting will be held on **November 6, 2025** from 5:30 to 8PM at Christ the King High School Auditorium, 68-02 Metropolitan Avenue, Middle Village, Queens, NY 11379.
- Virtual Scoping Meeting will be held on **November 12, 2025** from 10AM to 12PM and 6 to 8PM, register here: mta.info/IBX.

Public comments on the Draft Scoping Document will be accepted until **November 26, 2025**. Email comments to IBXOutreach@mtacd.org or mail comments to Jordan Smith, IBX Director, 2 Broadway, C6.87, New York, NY 10004.

Please visit our website for full details at mta.info/IBX