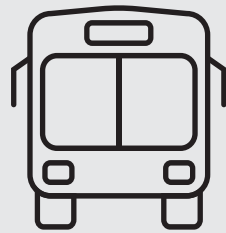


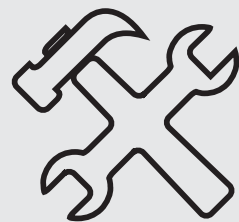
EVALUATION FACTORS

Each option will be evaluated based on the following factors:



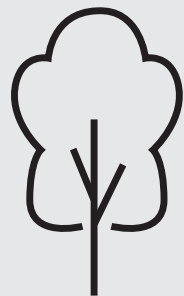
1. Transportation Aspects

- a. **Increased Mass Transit Connectivity to LaGuardia Airport** – travel time, reliability, customer experience and fare price.
- b. **Throughput & Capacity** – capacity to both comfortably move passengers and accommodate travel demand to LGA.
- c. **Ridership** – estimated ridership range.
- d. **Operating Cost** – estimated operations and maintenance costs.



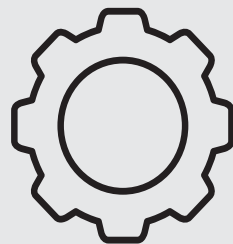
2. Construction Aspects

- a. **Constructability** – engineering feasibility and/or potential construction complexities.
- b. **Infrastructure Impacts** – impacts to existing transportation and utility facilities during the construction phase (note: impacts to local communities are addressed in 3.b below).
- c. **Project Cost** – estimated construction cost range.
- d. **Projected Timeline to Become Operational** – projected construction schedule.



3. Community and Environmental Aspects

- a. **Greenhouse Gas Reduction** – environmental benefits.
- b. **Local Community Impacts** –
 - Construction impacts on the local neighborhoods directly affected.
 - Permanent impacts on the local neighborhoods directly affected.
- c. **Equity** – opportunities to improve transit access and provide other benefits for underserved populations in neighborhoods affected by the project.
- d. **Removal of Cars from Local Roadways** – reduced car traffic around the airport.



4. Other Aspects

- a. **Permanent / Operational Impacts** – impacts to existing transportation and utility facilities during the operational phase, including impacts to existing transit network/riders (note: impacts to local communities are addressed in 3.b above).

POTENTIAL OPTIONS



Bus – Transit Improvements Along Existing Routes

- Q70 Route
- M60 Route



Bus – New Dedicated Bus Rapid Transit Routes

- Astoria Blvd Station Shuttle Service
- Astoria-Ditmars Blvd Station Shuttle Service
- Northern Blvd Station



Fixed Guideway with Light Rail

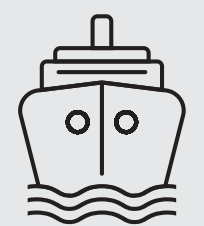
- Woodside
- Mets-Willets Point*
- Jamaica
- Astoria
- Jackson Heights

*Previously approved by FAA; currently on pause

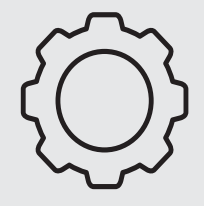


Subway Services

- N/W Grand Central Parkway Branch
- N/W Extension along 31st St and 19th Ave



Ferry Service + Shuttle Bus



Other Options / Emerging Technologies

BUS – TRANSIT IMPROVEMENTS ALONG EXISTING ROUTES

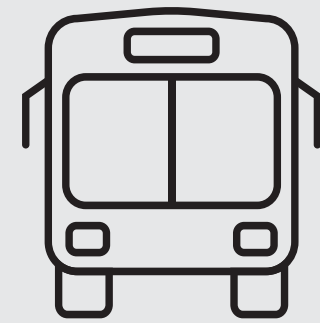
These options would evaluate improvements to existing bus services to the airport, such as the Q70 and M60, with enhanced service and transit priority improvements intended to reduce current travel times and increase convenience compared to current operations. Enhancements could include increasing the frequency of bus service to the airport during operating hours.

These options would evaluate bus stops having customer convenience features (i.e., weather protection, seating and space for luggage, additional transit information, etc.).

Each of the options in this section is being developed in consultation with the MTA.

Potential options are described below:

- Q70 Route
- M60 Route



BUS - TRANSIT IMPROVEMENTS ALONG EXISTING ROUTES: Q70 ROUTE

This option would evaluate both enhanced operations of the route as well as improved stops at each of the current Q70 bus stop locations both on and off-airport. This option would evaluate possible transit priority improvements requiring little to no modifications to existing roadways such as:

- Transit signal priority
- Stop improvements
- Queue bypass lanes

In addition, this option would also evaluate more extensive transit priority improvements such as:

- Exclusive dedicated bus lanes via conversion of the parking lane on both sides of Roosevelt Ave and Broadway, where feasible, for approximately 1 mile
- Exclusive dedicated bus lanes via widening, if feasible, of the Brooklyn-Queens Expressway and the Grand Central Parkway, which could require repurposing of the shoulder space on both sides into a bus lane for approximately 2 miles

This option would evaluate the potential for the route to stop at Terminal A.

Route Length: approximately 4 to 5 miles, including on-airport portion



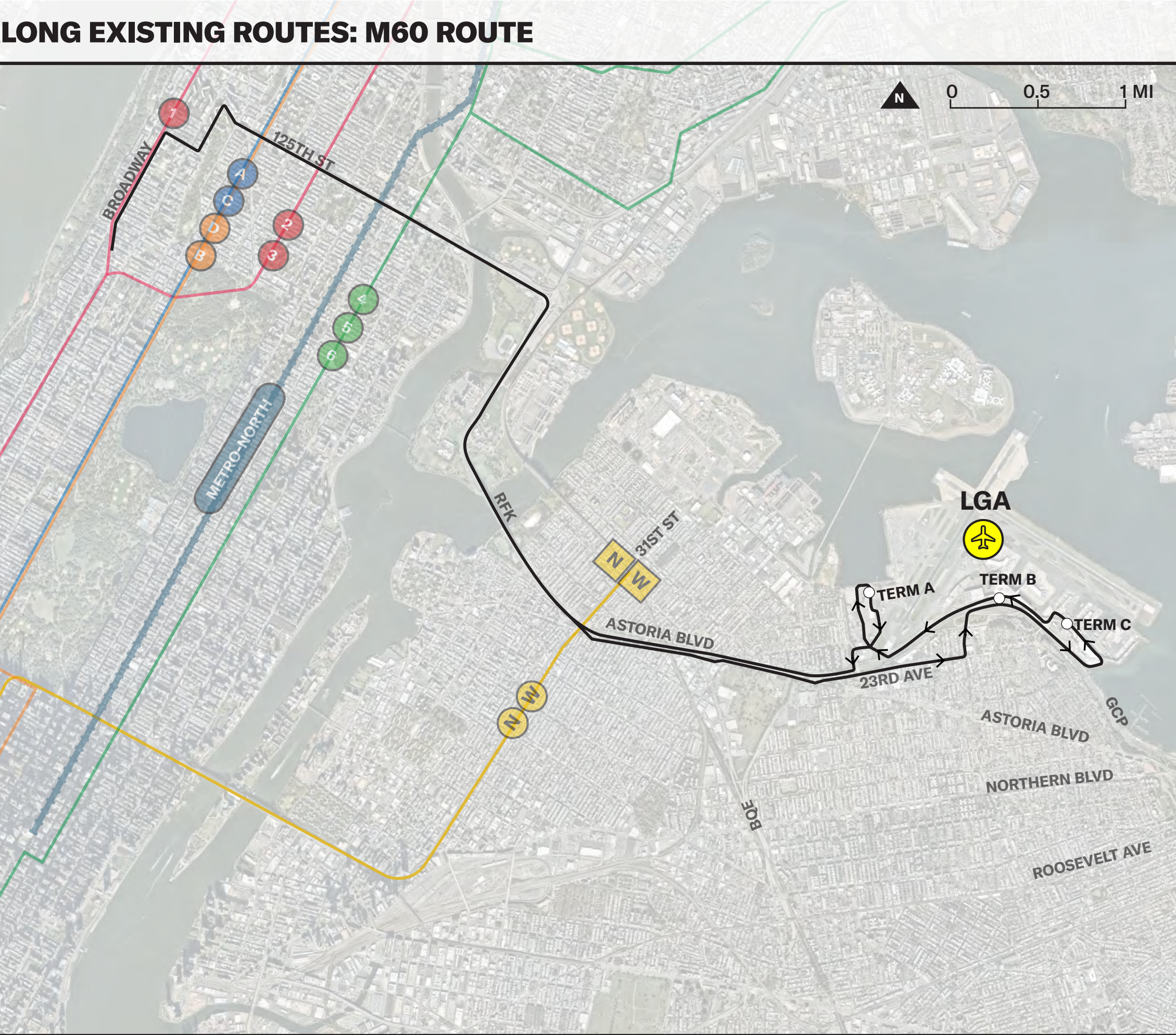
BUS - TRANSIT IMPROVEMENTS ALONG EXISTING ROUTES: M60 ROUTE

The M60 service would be evaluated as two options. The first option would evaluate both the Manhattan and Queens portions of the current M60 route, including current M60 bus stop locations both on and off-airport, with potential transit priority improvements requiring little to no modifications to existing roadways such as:

- Transit signal priority
- Stop improvements
- Queue bypass lanes

The second option, which is described under the Astoria Blvd Station Shuttle Service option shown in the “Bus- New Dedicated Bus Rapid Transit Routes: Astoria Blvd Station Shuttle Service” image below, would evaluate more extensive transit priority improvements to create an airport shuttle bus service to/from the Astoria Blvd subway station as a new service operating in addition to the existing M60 bus route.

Route Length: approximately 9.5 miles, including on-airport portion



LEGEND: — EXISTING ○ EXISTING STATION

BUS – NEW DEDICATED BUS RAPID TRANSIT (BRT) ROUTES

These options would evaluate the potential for creating new services involving dedicated bus lanes and associated infrastructure improvements. Creating new dedicated bus lanes would typically require repurposing of existing travel or parking lanes or widening of existing roadways that could involve significant construction, if feasible. Traffic signal priority for the new bus services would be provided to the maximum extent feasible. Additionally, these options would evaluate providing a high frequency of bus service to the airport during operating hours.



These options would evaluate bus stops having customer convenience features (i.e., weather protection, seating and space for luggage, additional transit information, etc.).

Each of the options in this section is being developed in consultation with the MTA.

Potential options are described below:

- Astoria Blvd Station Shuttle Service
- Astoria-Ditmars Blvd Station Shuttle Service
- Northern Blvd Station

BUS- NEW DEDICATED BUS RAPID TRANSIT ROUTES: ASTORIA BLVD STATION SHUTTLE SERVICE

This option would evaluate an airport shuttle bus service utilizing Astoria Blvd and the Grand Central Parkway between the Astoria Blvd N/W subway station and the airport. This option would evaluate the potential for:

- Non-stop or limited bus stop routes
- Exclusive dedicated bus lanes via conversion of a general travel lane on Astoria Blvd from 0.7 to 1.4 miles
- Exclusive dedicated bus lanes via widening along Grand Central Parkway, which could require reconstruction, if feasible, of overpasses and on/off ramps and repurposing of existing shoulders into bus-only lanes from 1.6 to 2.3 miles

The route could operate in addition to the existing M60 bus route.

Route Length: approximately 3 miles, including on-airport portion



BUS- NEW DEDICATED BUS RAPID TRANSIT ROUTES: ASTORIA-DITMARS BLVD STATION SHUTTLE SERVICE

This option would be entirely on neighborhood streets between the Astoria-Ditmars Blvd subway station and the airport. This option would evaluate the potential for:

- Exclusive dedicated bus lanes via conversion of the angled parking lane to a parallel parking lane on both sides of 31st St for approximately 0.5 miles
- Construction of a new surface bus-only roadway through private commercial property to connect 31st St to 19th Ave. At 31st St and 20th Ave, 31st St dead ends in front of a private commercial property gate. The new 0.3 mile bus-only access street, which would need to be constructed, would run north through the entrance of the private commercial property before turning east and leaving the private property parcel. The route would connect to 19th Ave at 37th St.
- The route would then follow 19th Ave for approximately 1 mile to the airport entrance, utilizing exclusive dedicated bus lanes which would be created by conversion of a parking lane on one side of 19th Ave and restriping on the other side of 19th Ave

Potential intermediate off-airport stops could be made at the following locations:

- Astoria-Ditmars Blvd subway station
- 19th Ave and Steinway St
- 19th Ave and Hazen St

Route Length: approximately 3 miles, including on-airport portion



BUS- NEW DEDICATED BUS RAPID TRANSIT ROUTES: NORTHERN BLVD STATION

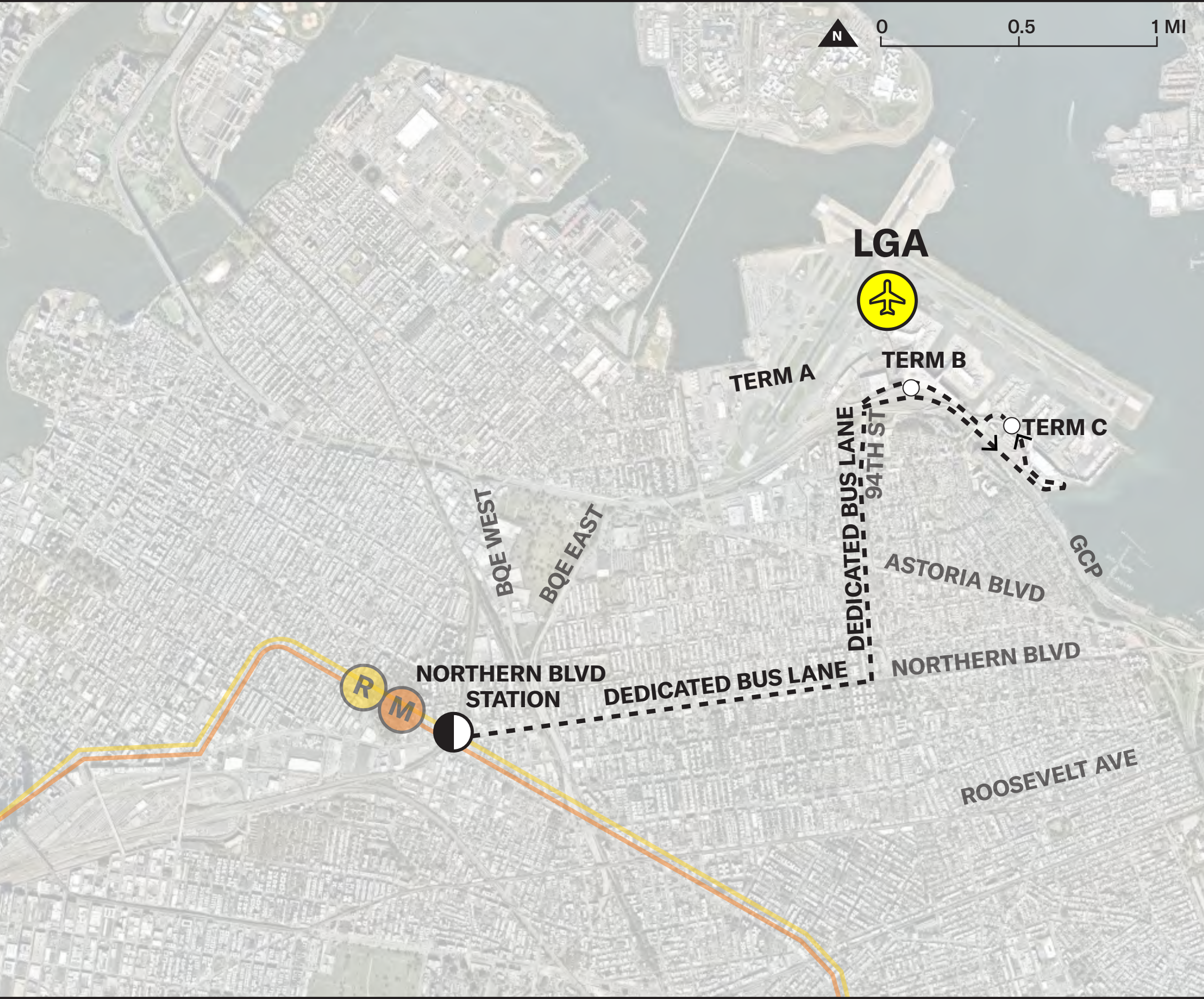
This option would evaluate a route that travels along Northern Blvd for approximately 2 miles and 94th St for approximately 1 mile between the Northern Blvd M/R subway station and the airport. This option would evaluate the potential for:

- Exclusive dedicated bus lanes achieved by conversion of either a general travel lane or parking lane on each side of Northern Blvd
- Exclusive dedicated bus lanes achieved by conversion of parking lanes on both sides of 94th St

Potential intermediate off-airport stops could be made at the following locations:

- Northern Blvd subway station
- Northern Blvd and 73rd/74th St
- Northern Blvd and 82nd/83rd St
- Northern Blvd and Junction Blvd
- 94th St and Astoria Blvd
- 94th St and 23rd Ave

Route Length: approximately 3.5 miles, including on-airport portion



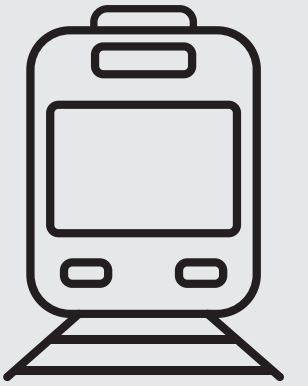
FIXED GUIDEWAY WITH LIGHT RAIL

These options would provide a service comparable to the existing AirTrain JFK. This approach could use different types of vehicles but all would share the construction of an elevated track structure that would provide a dedicated connection from LGA to existing mass transit systems. Each option would require a fixed guideway station at the connection point with the existing transit services, including vertical circulation and pedestrian connectors. Each option also includes evaluation of an operations, maintenance and storage facility (OMSF) for its fleet and related back of house facilities.

Options with routes that would travel in the vicinity of Runway-04 would be required to avoid conflicts with the runway protection zone. Accordingly, for options entering the airport from the west side, the feasibility of descending below-grade as they approach the runway and the ability to avoid a conflict would be evaluated.

Potential options are described below:

- Woodside
- Mets-Willets Point
- Jamaica
- Astoria
- Jackson Heights



FIXED GUIDEWAY WITH LIGHT RAIL: WOODSIDE

This option would connect the airport to the existing LIRR (multiple lines) station and the existing NYCT 7 line subway station in Woodside. The route would travel from Woodside on an elevated guideway adjacent to the existing LIRR right of way, and could require the acquisition of portions of residential and commercial property, for 0.3 miles and would then turn north onto 55th St. The route would then run above 55th St, through a light industrial corridor, for 0.3 miles and then continue north within the Amtrak right-of-way for 0.3 miles. It would then turn east above 31st Ave, a commercial area, passing over the Brooklyn-Queens Expressway before turning north to continue above 68th St and then Boody St for a total of 0.8 miles. This stretch of the alignment would be immediately adjacent to the Brooklyn-Queens Expressway on the west. On the east side of this portion of the alignment, there are residences or other private properties located on 68th St and where Boody St intersects with 70th St and 71st St. The route then would turn east and need to navigate the ramps of the Brooklyn-Queens Expressway and Grand Central Parkway interchange, likely at grade. The route would then run at grade inside the southern edge of the Grand Central Parkway right of way before needing to descend below grade to avoid Runway-04 for 0.3 miles. Once east of Runway-04, the route would ascend to cross over the Grand Central Parkway and ramps associated with the 94th St interchange in order to connect to two fixed guideway stations, one serving Terminal B and one serving Terminal C. The feasibility of avoiding a conflict with the end of Runway-04 and of gaining sufficient elevation once the route is past Runway-04 to connect to on-airport stations would be part of the evaluation of this option. The location of the OMSF for this option would need to be identified.

Route Length: approximately 3 miles, including on-airport portion

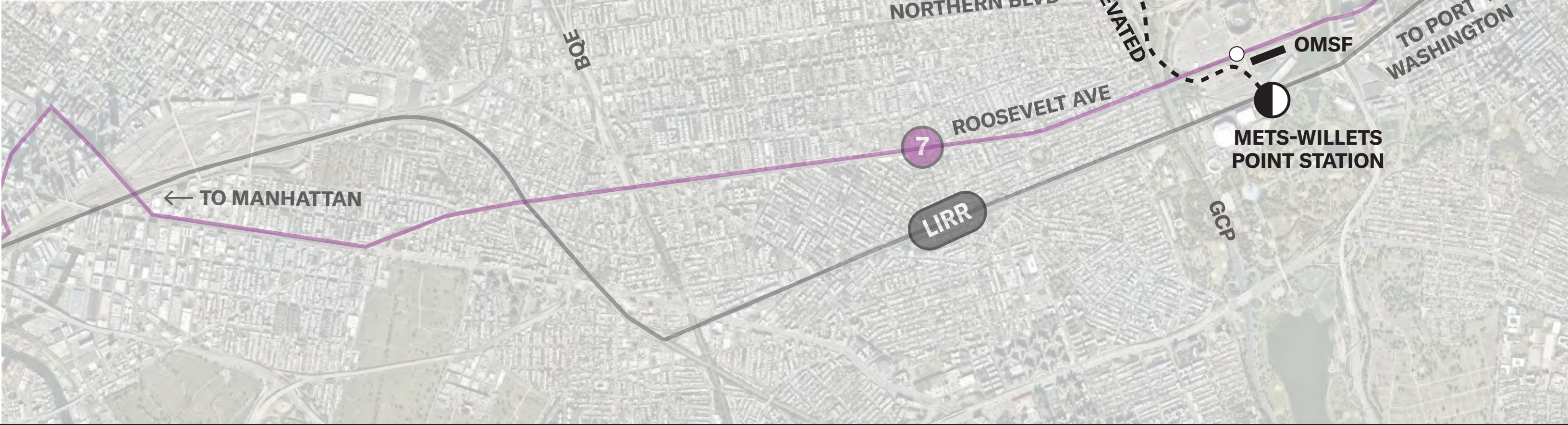


LEGEND: — EXISTING - - - - - POTENTIAL ROUTE ○ EXISTING STATION ● POTENTIAL STATION

FIXED GUIDEWAY WITH LIGHT RAIL: METS-WILLETTS POINT

This option would connect the airport to the existing LIRR (Port Washington Branch) station and the existing NYCT 7 line subway in Willets Point. The route would travel on an elevated guideway from the new fixed guideway station, which would be located above the existing LIRR Mets-Willets Point station, traversing MTA property and New York Mets parking lots for a total of 0.4 miles. It would then travel above the median of the Grand Central Parkway for 0.5 miles before crossing over the westbound lanes to be above the edge of the Malcolm X Promenade adjacent to the Grand Central Parkway for 0.7 miles. Once on-airport, the route would connect to two elevated, fixed guideway stations, one serving Terminal C and one serving Terminal B. An OMSF would be located above MTA's Casey Stengel Bus Depot parking lot and New York Mets parking lot.

Route Length: approximately 2 miles, including on-airport portion

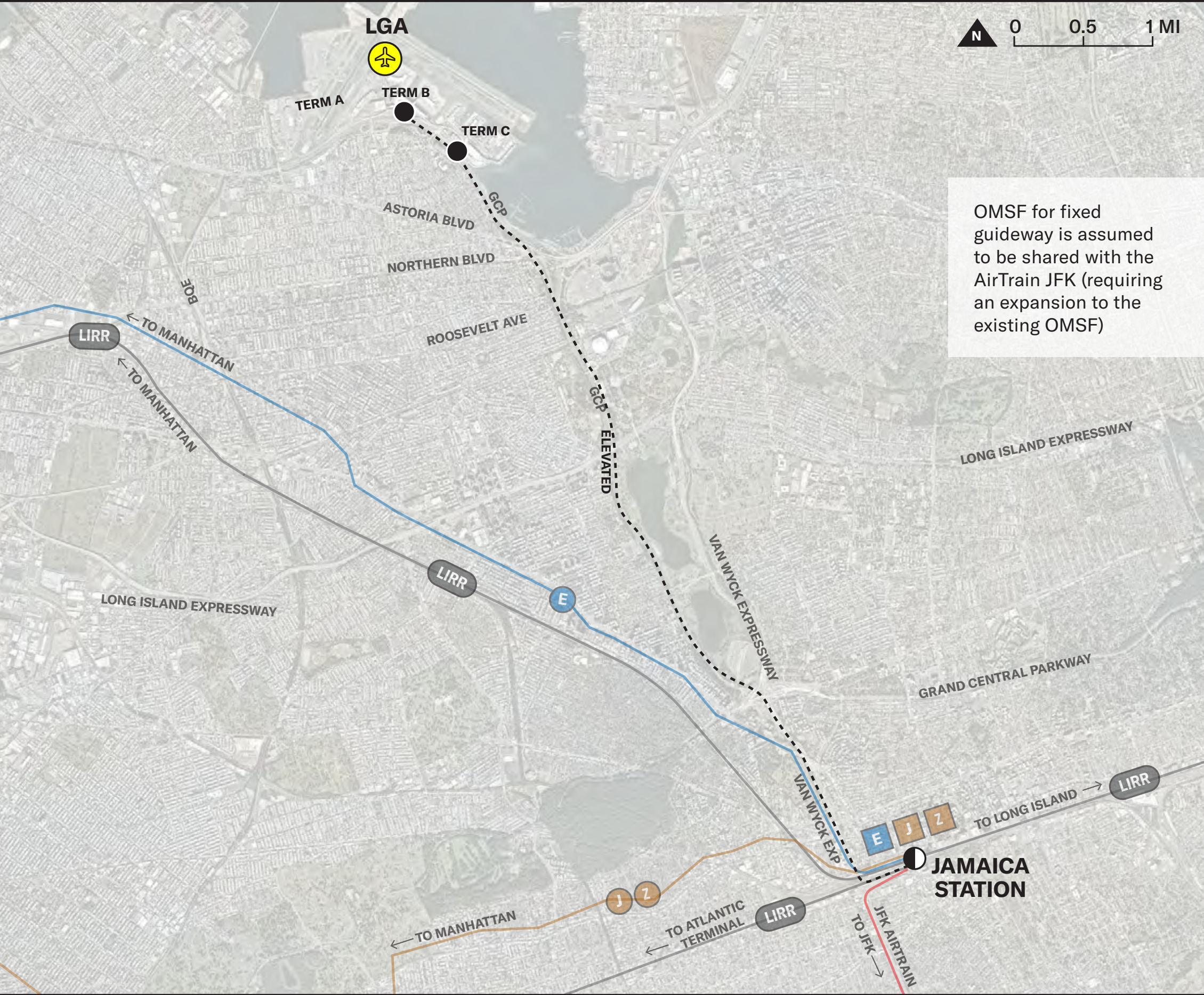


LEGEND: — EXISTING - - - - - POTENTIAL ROUTE ○ EXISTING STATION ● POTENTIAL STATION

FIXED GUIDEWAY WITH LIGHT RAIL: JAMAICA

This option would connect the airport to the existing LIRR (multiple lines) and the existing NYCT E-J-Z subway lines by providing a connection to the existing AirTrain JFK station at Jamaica. From Jamaica, the route would be over the LIRR rail yard next to the existing AirTrain JFK guideway for one block before turning to travel northwest over the Van Wyck Expressway right of way for 1.4 miles. The route would then cross above the Kew Gardens Interchange and be above the median of the Grand Central Parkway for 3.6 miles before crossing over the Grand Central Parkway westbound lanes to be above the southern edge of the Malcolm X Promenade adjacent to the Grand Central Parkway for 0.7 miles. Once on-airport, the route would connect to two elevated fixed guideway stations, one serving Terminal C and one serving Terminal B. It is anticipated that this option would expand the existing AirTrain JFK OMSF.

Route Length: approximately 7 miles



OMSF for fixed guideway is assumed to be shared with the AirTrain JFK (requiring an expansion to the existing OMSF)

FIXED GUIDEWAY WITH LIGHT RAIL: ASTORIA

This option would connect the airport to the existing NYCT N/W subway line via a new fixed guideway station located adjacent to the existing Astoria Blvd station above Columbus Square Park and adjacent to the Grand Central Parkway. The route would then follow the right of way of the Grand Central Parkway on an elevated guideway for approximately 2 miles. Along the Grand Central Parkway, the fixed guideway would pass over multiple Grand Central Parkway overpasses, need to cross over, under or through the Amtrak/Northeast Corridor Hell Gate trestle, cross the interchange with the Brooklyn Queens Expressway, and would need to descend below grade to avoid a conflict with the end of Runway-04. Once east of Runway-04, the route would ascend back to an elevated structure to connect to two on-airport fixed guideway stations, one serving Terminal B and one serving Terminal C. The feasibility of navigating the Hell Gate trestle, Grand Central Parkway overpasses and Brooklyn-Queens Expressway interchange, and of avoiding a conflict with the end of Runway-04 and of gaining sufficient elevation once the route is past Runway-04 to connect to on-airport stations would be part of the evaluation of this option. The location of the OMSF for this option would need to be identified.

Route Length: approximately 3 miles



FIXED GUIDEWAY WITH LIGHT RAIL: JACKSON HEIGHTS

This option would connect the airport to the existing NYCT 7, E, F, M and R subway lines via a new fixed guideway station adjacent to the existing 74th St-Roosevelt Ave/Jackson Heights subway station. From the station, the route would then travel on an elevated guideway above Broadway, through a commercial area, for 0.2 miles. The route would turn right to be above 69th St, immediately adjacent to the Brooklyn-Queens Expressway on the west side and residential/commercial property on the east side for 0.4 miles. After crossing 34th Ave heading north, the route would curve over the Brooklyn-Queens Expressway offramp until reaching Northern Blvd. After crossing Northern Blvd heading north, the route would be above 68th St with residences or other commercial properties located on both sides of 68th St for 0.25 miles. North of 30th Ave, 68th St becomes Boody St with residences or commercial properties located at the intersections with 70th St and 71st St on the east side and the Brooklyn-Queens Expressway on the west side for 0.5 miles. The route would turn east and need to navigate the ramps of the Brooklyn-Queens Expressway and Grand Central Parkway interchange, at grade. The route would then run at grade inside the southern edge of the Grand Central Parkway right of way before needing to descend below grade to avoid Runway-04 for 0.3 miles. Once east of Runway-04, the route would need to ascend in order to cross over the Grand Central Parkway and ramps associated with the 94th St interchange in order to connect to two fixed guideway stations, one serving Terminal B and one serving Terminal C. The feasibility of avoiding a conflict with the end of Runway-04 and of gaining sufficient elevation once the route is past Runway-04 to connect to on-airport stations would be part of the evaluation of this option. The location of the OMSF for this option would need to be identified.

Route Length: approximately 3 miles



LEGEND: — EXISTING - - - - - POTENTIAL ROUTE ○ EXISTING STATION ● POTENTIAL STATION

SUBWAY SERVICES

Subway options would provide subway service from the N/W line directly to LGA, primarily along an elevated track structure. Each subway option would have either two elevated stations on-airport serving terminals B and C or one subterranean station to the south of the Grand Central Parkway.

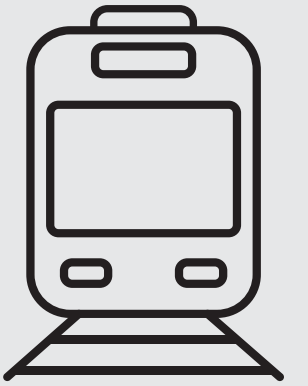
Options with routes that would travel in the vicinity of Runway-04 would be required to avoid conflicts with the runway protection zone. Accordingly, for options entering the airport from the west side, the feasibility of descending below-grade as they approach the runway and the ability to avoid a conflict would be evaluated.

Subway options will be assessed based upon MTA's typical standards for track, stations and support facilities. Each subway option will also include evaluation of required supporting infrastructure.

Each of the options in this section is being developed in consultation with the MTA and would be operated by the MTA.

Potential options are described below:

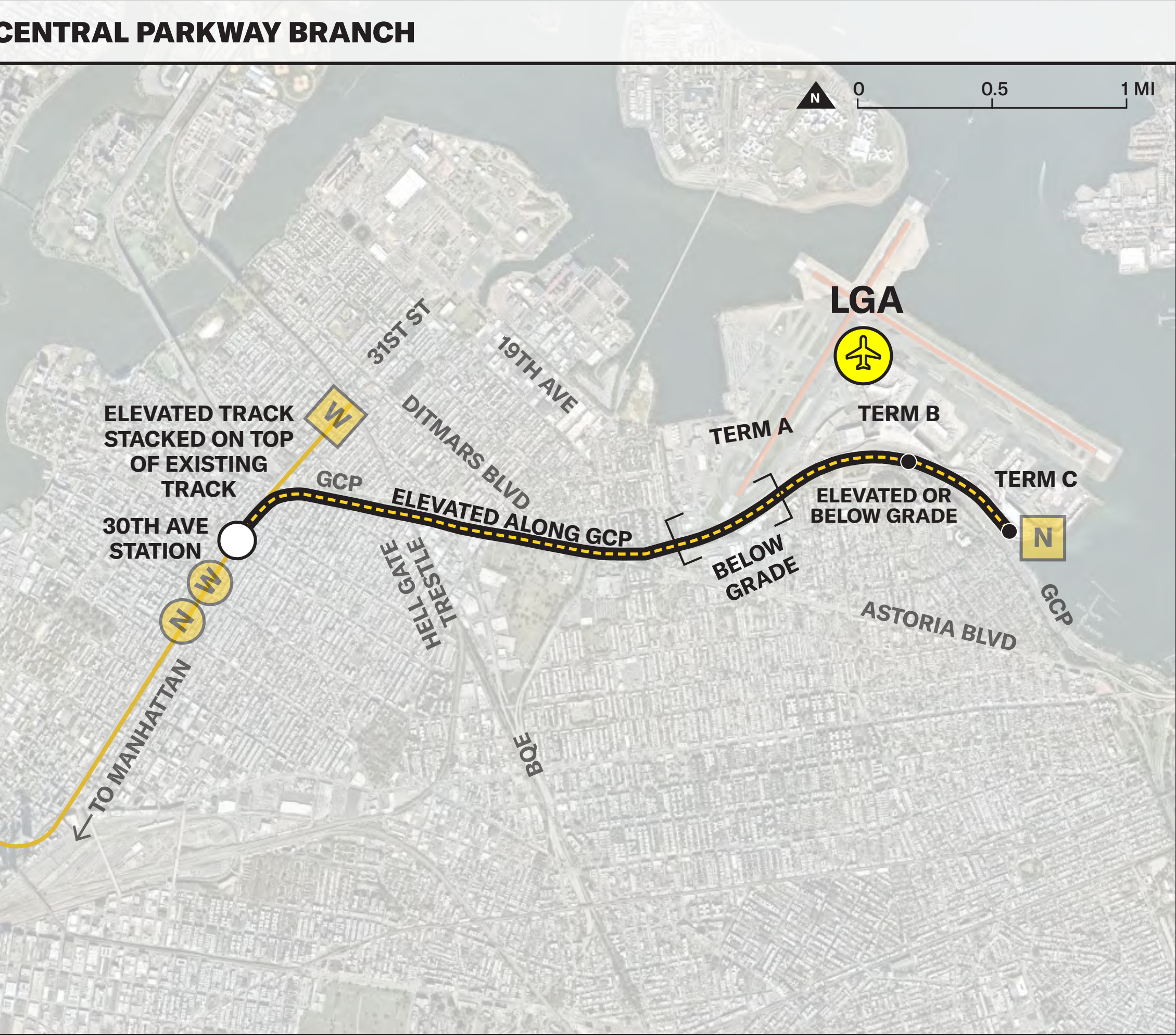
- N/W Grand Central Parkway Branch
- N/W Extension along 31st St and 19th Ave



SUBWAY SERVICES: N/W GRAND CENTRAL PARKWAY BRANCH

This option would connect the airport to the existing NYCT N/W subway line by installing a new dual-track branch south of the existing Astoria Blvd station and north of the existing 30th Ave station. The two new tracks would initially run adjacent to the western and eastern edges of the existing subway infrastructure. The new northbound track would go over Columbus Park, possibly requiring the acquisition of a commercial structure as it turns to the east. The new southbound track would elevate over the existing Astoria Blvd Station as it turns to the east. The two tracks would rejoin in the Grand Central Parkway right of way. The route would then follow the right of way of the Grand Central Parkway on an elevated guideway for approximately 2 miles. Along Grand Central Parkway, the route would pass over multiple Grand Central Parkway overpasses, need to cross over, under or through the Amtrak/Northeast Corridor Hell Gate trestle, cross the interchange with the Brooklyn Queens Expressway, and then need to descend to below grade to avoid a conflict with Runway-04. Once east of Runway-04, the route would either remain below grade to an underground subway station south of the Grand Central Parkway or ascend back to an elevated structure to connect to two on-airport subway stations, one serving Terminal B and one serving Terminal C. The feasibility of navigating the Hell Gate trestle, Grand Central Parkway overpasses and Brooklyn-Queens Expressway interchange, of avoiding a conflict with the end of Runway-04 and of gaining sufficient elevation once the route is past Runway-04 to connect to on-airport stations would be part of the evaluation of this option. The location of the required supporting infrastructure, including any ventilation system required for tunneling, would need to be evaluated. It is assumed that the branch would split existing subway service with some trains terminating at LGA and others at Astoria-Ditmars Blvd station.

Route Length: approximately 3 miles



SUBWAY SERVICES: N/W EXTENSION ALONG 31ST ST AND 19TH AVE

This option would connect the airport to the NYCT N/W subway line by extending the existing elevated track above 31st St, north of the existing Astoria-Ditmars Blvd station, through a residential area for approximately 0.4 miles. At 20th Ave, the route would enter into private commercial property as it immediately turns east toward 19th Ave. East of the intersection of 19th Ave and 37th St, the route would run above 19th Ave through a light industrial area for 0.6 miles, and another 0.2 miles above 19th Ave with airport property on the north side and residential properties on the south side, until it enters airport property after crossing 81st St. Once on-airport, the route would need to descend below grade to avoid a conflict with Runway-04. Once east of Runway-04, the route would either remain below grade to an underground subway station south of the Grand Central Parkway or ascend to an elevated structure to connect to two on-airport subway stations, one serving Terminal B and one serving Terminal C. The feasibility of navigating the Hell Gate trestle, Grand Central Parkway overpasses and Brooklyn-Queens Expressway interchange, of avoiding a conflict with the end of Runway-04 and of gaining sufficient elevation once the route is past Runway-04 to connect to on-airport stations would be part of the evaluation of this option. The location of the required supporting infrastructure, including any ventilation system required for tunneling, would need to be evaluated. It is assumed that all existing subway service would terminate at LGA.

Route Length: approximately 3 miles, including on-airport portion



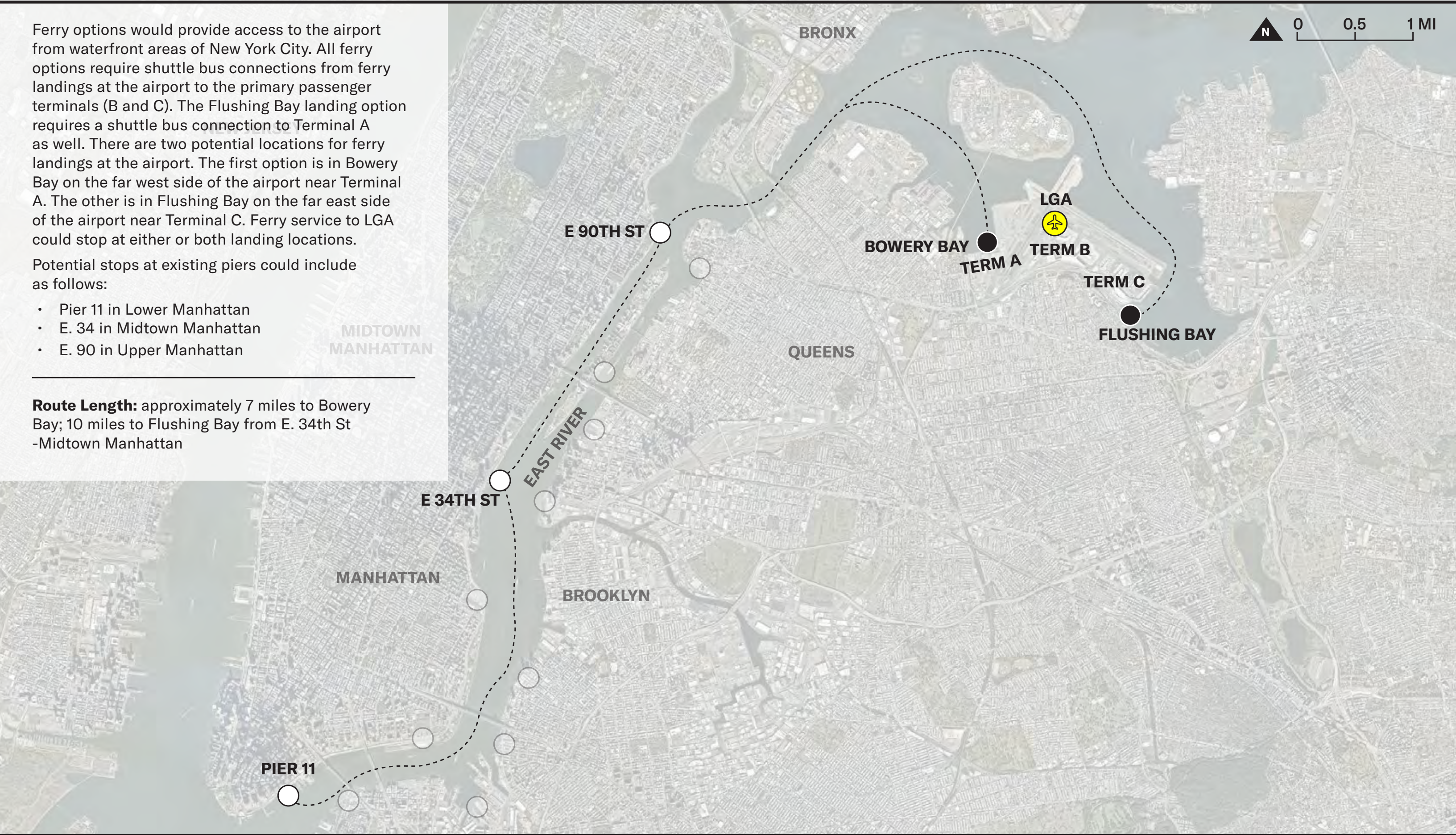
FERRY SERVICE + SHUTTLE BUS

Ferry options would provide access to the airport from waterfront areas of New York City. All ferry options require shuttle bus connections from ferry landings at the airport to the primary passenger terminals (B and C). The Flushing Bay landing option requires a shuttle bus connection to Terminal A as well. There are two potential locations for ferry landings at the airport. The first option is in Bowery Bay on the far west side of the airport near Terminal A. The other is in Flushing Bay on the far east side of the airport near Terminal C. Ferry service to LGA could stop at either or both landing locations.

Potential stops at existing piers could include as follows:

- Pier 11 in Lower Manhattan
- E. 34 in Midtown Manhattan
- E. 90 in Upper Manhattan

Route Length: approximately 7 miles to Bowery Bay; 10 miles to Flushing Bay from E. 34th St -Midtown Manhattan



LEGEND: ----- POTENTIAL ROUTE ○ EXISTING STOP ● POTENTIAL STOP

OTHER OPTIONS/EMERGING TECHNOLOGIES

This study also includes an evaluation of innovative and emerging technologies that could be applicable, such as:

- Narrow tunnels with electric vehicles
- Fixed guideway with:
 - Group rapid transit (autonomous shuttles or buses)
 - Personal rapid transit (individual or small group pod systems)

