

MTA New York City Transit Canarsie Tunnel Project

Supplemental Environmental Assessment and Section 4(f) Review

July 2018

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Prepared for
Federal Transit Administration

Abstract

The Metropolitan Transportation Authority New York City Transit (MTA NYCT) proposes to implement a Alternative Services Plan (ASP), which will serve the L train ridership during a planned 15-month, full-time, double-track closure of the L train in Manhattan and between Brooklyn and Manhattan. The proposed ASP has been developed to provide transit and mobility options to L train riders to the greatest extent practicable during the temporary 15-month service suspension, balanced against the needs of residents in the vicinity of existing L train service and other users of the transportation network. MTA NYCT has conducted significant analysis and public outreach to inform the proposed ASP and has presented details of the proposed ASP to the affected communities in an iterative fashion as plans have been developed.

The proposed ASP can be summarized as follows:

- Increased temporary alternative subway service during peak and off-peak hours
- New temporary bus routes, including one across 14th Street and four over the Williamsburg Bridge between Brooklyn and Manhattan
- New temporary ferry service between Williamsburg, Brooklyn and Stuyvesant Cove, Manhattan
- Station access and capacity improvements
- Additional temporary bicycle and pedestrian infrastructure
- Traffic management strategies, including a temporary busway on 14th Street and the temporary implementation of HOV3+ on the Williamsburg Bridge

This Supplemental Environmental Assessment (SEA) was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969, as amended, the NEPA regulations and guidance issued by the Council on Environmental Quality (CEQ) (40 CFR Part 1500 *et seq.*), and the Federal Transit Administration's (FTA) policies and procedures for implementing NEPA provided in 23 CFR Part 771. This SEA was also prepared in compliance with Section 4(f) of the US Department of Transportation Act of 1966 (as amended by 49 U.S.C. §303), and FTA's implementing regulations at 23 CFR Part 774. The purpose of this SEA is to provide information regarding the Proposed Action's potential impacts on the human and natural environments. The FTA would be a funding agency for the Proposed Action and is the lead federal agency for the NEPA environmental review process.

Based on the analyses presented in the SEA and after considering public comments, the FTA will determine whether or not the Proposed Action would result in any significant adverse environmental impacts. If applicable, the FTA will issue a Finding of No Significant Impact (FONSI) if there are no significant environmental impacts.

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Appendix I. Greenhouse Gas Emissions

Acronyms

ADA	Americans with Disabilities Act
ASP	Alternative Service Plan
APE	Area of potential effects
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFSFEIS	Citywide Ferry Service Final Environmental Impact Statement
CHASP	Construction Health and Safety Plan
EA	Environmental Assessment
EJ	Environmental Justice
EPA	Environmental Protection Agency
ERFEAS	East River Ferry Environmental Assessment Statement
ESA	Environmental Site Assessments
FHV	For-Hire Vehicles
FTA	Federal Transit Administration
HOV	High-Occupancy Vehicle
LPC	Landmarks Preservation Commission
LWCF	Land and Water Conservation Fund
MTA	Metropolitan Transportation Agency
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NJT	New Jersey Transit
NMFS	National Marine Fisheries Service
NYCDOT	New York City Department of Transportation
NYCDPR	New York City Department of Parks and Recreation
NYCEDC	New York City Economic Development Corporation
MTA NYCT	Metropolitan Transportation Authority, New York City Transit
NYSDEC	New York State Department of Environmental Conservation
NYSDOS	New York State Department of State
PANYNJ	Port Authority of New York and New Jersey
PCE	Passenger Car Equivalents
PM	Particulate Matter
SBS	Select Bus Service
SGR	State-of-Good-Repair
SHPO	State Historic Preservation Office
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USFWS	United States Fish and Wildlife Service

ES. Executive Summary

This Supplemental Environmental Assessment (SEA) was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, the NEPA regulations and guidance issued by the Council on Environmental Quality (CEQ), and the Federal Transit Administration's (FTA) policies and procedures for implementing NEPA provided in 23 CFR Part 771.^{1,2} The purpose of this SEA is to present the potential environmental impacts of the Metropolitan Transportation Authority New York City Transit's (MTA NYCT) proposed Alternative Service Plan (ASP, also referred to as the Proposed Action), which would serve the L train ridership during a planned 15-month, full-time, double-track closure of the L train between Brooklyn and Manhattan. There would not be any significant adverse impact from any environmental topic area analyzed. Therefore, the Proposed Action would not result in significant adverse environmental impacts.

In 2015, FTA issued two (2) Categorical Exclusions (CE), pursuant to NEPA for the Canarsie Tunnel Restoration and Resiliency Projects and in 2016, FTA issued a Categorical Exclusion (d), pursuant to NEPA, for the Canarsie Tunnel Core Capacity and State of Good Repair Project. The Core Capacity and State of Good Repair Project included full-tunnel closure and partial-tunnel closure construction options as well as a preliminary concept of MTA NYCT's service plan for providing alternative service to displaced transit riders. Collectively, for purposes of this SEA, the 2015 and 2016 projects are referred to as the Canarsie Tunnel Project (the approved Project). Federal funding for a portion of the Project is provided by FTA funds that the Metropolitan Transportation Authority (MTA) received as part of a larger effort to recover from the extensive damage sustained system-wide as a result of Hurricane Sandy. The MTA is also seeking FTA funds for the Core Capacity portion of the Project, which includes traction power improvements to increase L line capacity and station improvements to alleviate crowding at two of the most congested stations on the L line. The ASP is a proposed change to a previously approved project and was not analyzed in the prior NEPA review and, therefore, must be reviewed in accordance with NEPA. This SEA has been prepared pursuant to 23 CFR §771.119 and §771.130, FTA's procedure for conducting supplemental environmental review.

As summarized in Appendix A, as engineering progressed, MTA NYCT identified the double-track closure of the L train tunnel as the preferred method for construction of the approved Project. The proposed ASP has been developed to provide transit and mobility options to L train riders to the greatest extent practicable during the temporary 15-month service suspension, balanced against the needs of residents in the vicinity of existing L train service and other users of the transportation network. MTA NYCT has conducted significant analysis and public outreach to inform the proposed ASP and has presented details of the proposed ASP to the affected communities in an iterative fashion as plans have been developed.

Since FTA's 2016 NEPA review of the approved Project, the MTA NYCT, in coordination with New York City Department of Transportation (NYCDOT), has further developed and refined the service plan. In light of the proposed refined alternative service plan, the FTA decided to re-evaluate its prior environmental

¹ P.L. 91-190, 42 U.S.C. 4321-4347, *National Environmental Policy Act* of 1969, Section 102(2)(c), as amended.

² Guidance Regarding NEPA Regulations, CEQ, 48 *Federal Register* 34263 (July 28, 1983).

review, which led to the categorical exclusions, to determine whether it needs to supplement the environmental record to address any potential environmental impacts caused by the alternative service plan which were not previously contemplated. Because the proposed alternative service plan is considered a change to the approved Project, and is new information not previously reviewed pursuant to NEPA, FTA decided to perform a SEA on the proposed alternative service plan.

The rehabilitation, resiliency, core capacity and state of good repair scopes of work previously approved as part of the Project remain unchanged; therefore, they are not addressed in this SEA. The proposed ASP is the subject of this SEA. The purpose of this SEA is to present the potential environmental impacts of the proposed temporary ASP (the Proposed Action) relative to the No Action in which the tunnel suspension is implemented without the proposed ASP.

ES.1 PURPOSE AND NEED

The purpose of the Proposed Action is to provide transportation alternatives to the greatest number of diverted L train riders during a 15-month full tunnel shutdown. MTA determined the tunnel would need to be shut down full-time for 15 months to be able to repair the tunnel in a safe and expeditious manner to minimize risk of unexpected structural failure and service disruptions.

In 2012, the Canarsie Tunnel was seriously damaged by Hurricane Sandy. The tunnel was inundated with corrosive saltwater and silt that hardened and caused significant damage. While the exterior tunnel structure was deemed safe, structural and other components within the tunnel, such as the duct banks and power and communications cables, were severely damaged and have begun to fail.

Continuing to use the Canarsie Tunnel without necessary repairs would likely cause unexpected power outages and interior structural failure, resulting in an indefinite closure to L train service with little predictability about when that would occur.

Temporary closure of the Canarsie Tunnel will result in disruption to nearly 400,000 daily L train riders. Approximately 275,000 of these riders will need to divert to other transportation options: the 225,000 riders who use the L train to connect between Brooklyn and Manhattan and 50,000 who use the L train only in Manhattan. The purpose of the proposed ASP is to provide transportation alternatives to the greatest number of diverted L train riders to the extent possible balanced against the needs of residents in the vicinity of existing L train service and other users of the transportation network. The proposed ASP was developed to maximize opportunities to provide temporary services in coordination with other ongoing transportation improvements while meeting NYCT's MTA Board-approved Service Loading Guidelines to the extent possible.

Reference documents used to prepare this SEA can be found on the MTA Rebuilding Canarsie Tunnel website, <http://web.mta.info/sandy/rebuildingCanarsieTunnel.html>.

ES.2 PROJECT ALTERNATIVES

This SEA presents two alternatives: (1) the No Action Alternative and (2) the Proposed Action, which entails the proposed ASP. Development of the proposed ASP involved a planning assessment of the available temporary transportation measures (and limited permanent improvements) that would provide flexibility and modal accessibility to L train riders during the 15-month construction period, balanced with the needs of residents and other transportation network users. The analytical framework of this SEA assumes that the approved Canarsie Project will occur with or without the proposed ASP and compares the impacts of the proposed ASP with those from a No Action Alternative that reflects transit options to accommodate L train riders at a level routinely provided by MTA NYCT during major capital projects and includes planned independent projects anticipated to be completed by MTA NYCT and NYCDOT.

ES.2.1 No Action Alternative

The No Action Alternative includes subway and bus service enhancements that increase subway service on adjacent and intersecting lines to the extent feasible and increase bus service on the B39, M14A, and M14D routes. The No Action Alternative also includes Existing Planned Projects (see Section 5.1.2) that are expected to be in place with or without the proposed ASP (i.e., bike improvements, pedestrian safety improvements, new ferry service, procurement of new buses, and subway station improvements).

ES.2.2 Proposed Action Alternative

The proposed ASP was developed to provide transit service options aimed at reducing demand for subway lines projected to be overcrowded in the No Action Alternative and at providing service options for riders not well served by subway service. Elements of the proposed ASP include:

- **Subway:** The proposed ASP subway service plan would be identical to the No Action Alternative with the addition of permanent improvements, including adding turnstile capacity at Nassau Avenue (G Line), Metropolitan Avenue (G Line), and Lorimer Street (L Line); reopening of the Hope Street station entrance at Metropolitan Avenue (G Line); and reopening multiple station entrances at Hewes Street (J/M/Z Lines).
- **Bus:** The proposed ASP would add bus service along the L train route in the form of temporary interborough bus service (four routes) and enhanced 14th Street select bus service (SBS). High-occupancy vehicle (HOV) restrictions would be implemented on the Williamsburg Bridge, and bus priority lanes and operational restrictions for cars and trucks would be applied on 14th Street. A temporary bus terminal would be constructed at Stuyvesant Cove to facilitate connection between the ferry service and M14 SBS. In addition, there would be service increases to local bus routes and temporary overnight bus storage facilities.
- **Ferry:** The proposed ASP would include a temporary ferry service between North Williamsburg and Stuyvesant Cove with approximately eight trips during the peak hour. A temporary landing would also be constructed on Empire Pier, which is immediately north of the existing North Williamsburg landings.
- **Bicycles:** The proposed ASP would include temporary implementation of one-way bike lanes on 12th and 13th Streets. NYCDOT would also add temporary high capacity valet bike parking, temporary

upgrades to Grand Street bike lane, a temporary bike lane along Union Square West, and temporary installation of bike parking sleds.

- **Pedestrian:** The proposed ASP would include temporary vehicle restrictions on Union Square West and University Place and temporary bus stop curb and sidewalk extensions on 14th Street and Houston Street to allow for additional pedestrian space.

ES.3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Table ES-1 provides a summary of the potential impacts of the Proposed Action compared to the No Action Alternative. The suspension of L train service will be temporary for an approximately 15-month period. The associated proposed ASP would be temporary, also for an approximately 15-month period to coincide with the closure of the Canarsie Tunnel with the exception, as noted in Table ES-1, of permanent station improvements, and, potentially, M14 SBS fare machines and way-finding totems, as well as limited road surface repairs, which may be evaluated for permanent implementation.

TABLE ES-1: ENVIRONMENTAL IMPACT SUMMARY

	No Action Alternative	Proposed Action
Transportation Impacts	<p><i>Transit</i></p> <ul style="list-style-type: none"> ▪ Subways: The No Action Alternative would result in increased ridership on adjacent lines resulting in a temporary increase in peak loads that would exceed NYCT maximum loading guidelines. This alternative is anticipated to cause extreme overcrowding on trains and platforms, which could increase the likelihood of delays throughout the system. ▪ Buses: The No Action Alternative includes increased bus service between Brooklyn and Manhattan and increased bus service on 14th Street in Manhattan. However, the increased service between Brooklyn and Manhattan would likely not capture any meaningful number of L train riders and would not provide options to minimize adverse crowding conditions on the adjacent subway lines. Congestion and slow travel times would create degraded traffic conditions on 14th Street and adjacent side streets. The increased bus service on 14th Street without busway enhancements would not provide adequate capacity to serve as alternative service to L train customers and travel times would be slow due to congestion. ▪ Ferries: No additional service would be provided. Disrupted L train customers could seek to use existing services, which cannot accommodate the additional demand. 	<p><i>Transit</i></p> <ul style="list-style-type: none"> ▪ Subways: NYCT modeling estimates that the proposed ASP would result in a 20 percent reduction in demand on adjacent subways between Brooklyn and Manhattan compared to the No Action Alternative. This would improve operating conditions and reduce crowding thereby improving conditions for riders and overall service reliability. This would be a temporary beneficial impact on subway transit conditions. ▪ Buses: With the proposed ASP, overall levels of travel delay for bus passengers traveling between Brooklyn and Manhattan and on 14th Street would improve substantially over the No Action, where there would be a notable decline in transit mobility. This would be a temporary beneficial impact on bus transit conditions. ▪ Ferries: The new, temporary ferry service would reduce travel time for some riders by up to 30 minutes when compared with the No Action Alternative, in which no additional ferry service would be provided. This would be a temporary beneficial impact on ferry transit conditions.

	No Action Alternative	Proposed Action
	<p><i>Traffic</i></p> <p>The potential diversion or expansion of vehicle trips within Brooklyn including the diversion of riders to private vehicles, taxis, and for-hire vehicles (FHV) could result in localized increases in congestion on local streets. As with existing conditions, traffic on the Williamsburg Bridge would continue to be constrained. Congestion would be expected to worsen due to the potential addition of an estimated 500 vehicles.</p> <p>Traffic conditions along 14th Street also would be expected to worsen in the No Action Alternative. Insufficient bus capacity to absorb the doubling of crosstown passengers compared to existing conditions would force L train riders and existing bus passengers to consider alternative modes for crosstown travel including pedestrian and bicycle trips as well as trips by taxi and FHV. The increase in taxis and FHVs could be as high as 1,000 new vehicles along the corridor in the AM peak hour, with 500 new vehicles at the busiest segment. With no enhanced pedestrian capacities or additional bicycle facilities and an increase in corridor vehicular volumes, existing high levels of congestion and slow travel speeds for all vehicular traffic would be expected to deteriorate.</p>	<p><i>Traffic</i></p> <p>The vehicle restrictions and bus priority lanes in the proposed ASP would result in substantial improvements in overall travel times compared with the No Action Alternative where the limited bus expansion in combination with large increases in taxis and FHVs in the No Action would create congestion and delay. The implementation of high-occupancy vehicle (HOV) restrictions on the Williamsburg Bridge would result in changes in traffic patterns, including a notable reduction in automobile traffic on the Williamsburg Bridge and the street network on either side as well as an increase in automobile traffic on other crossings and adjacent streets. This would result in a temporary beneficial traffic impact at the Williamsburg Bridge and 14th Street.</p> <p>Traffic could also increase on side streets along the 14th Street corridor, but the temporary projected increase would not be considered significant compared to the No Action. After the proposed ASP is implemented, NYCDOT would regularly monitor and adjust traffic volumes and speed and evaluate whether any regulations on streets within the project area need to be adjusted to address traffic conditions or bus operations.</p> <p>Overall, the proposed ASP would not result in significant adverse traffic impacts, compared to the No Action.</p>
Transportation Impacts (continued)	<p><i>Pedestrians</i></p> <p>No pedestrian improvements would be provided. Pedestrian volumes would increase substantially in the 14th Street corridor when very large numbers L train riders would have to use the streets and sidewalks of the corridor during the 15-month construction period when there is no subway service. Since there would be no additional sidewalk capacity on this corridor that already has high pedestrian volumes, sidewalks would be very crowded and pedestrian flow would worsen.</p>	<p><i>Pedestrians</i></p> <p>Approximately 50,000 square feet of additional pedestrian space would be temporarily provided as part of the proposed ASP. This would substantially improve pedestrian circulation over the No Action Alternative. Additional space would be provided in the 14th Street corridor where walking would be an important alternative mode for cross-town travel. This would be a temporary beneficial impact.</p>
	<p><i>Bicycles</i></p> <p>The 14th Street corridor would experience a very large increase in demand for alternate modes of transportation. Cyclists would have to navigate already busy corridors and side streets, making it more difficult and less safe for cyclists. Potential conflicts with pedestrians and vehicles would further worsen deteriorated conditions for all modes.</p>	<p><i>Bicycles</i></p> <p>Approximately 3.6 lane miles of temporary new bike lanes would be delineated. The proposed bike lanes would considerably improve the safety and capacity of the bicycle network and would not have adverse impacts to other transportation modes. The proposed ASP would provide substantial improvement for cyclists in comparison with the No Action Alternative.</p>

	No Action Alternative	Proposed Action
		This would be a temporary beneficial impact.
	<p><i>Parking</i> No displacement of existing on- or off-street parking.</p>	<p><i>Parking</i> The proposed ASP would result in temporary displacement of approximately 970 on-street and 220 off-street parking spaces in Brooklyn and Manhattan. Generally, there are on-street and off-street parking spaces within a quarter mile of locations where parking would be displaced. This impact is temporary and would not result in a significant adverse impact.</p>
Air Quality	<p>There would be no HOV restrictions and no street treatments or bus priority. The No Action Alternative would result in mobile source impacts as a result of the increased traffic volumes from additional bus service and anticipated additional automobile traffic. Traffic on the Williamsburg Bridge and on the local streets approaching the bridge would be expected to be highly congested during peak hours, increasing emissions. On 14th Street, there would be an increase in bus traffic resulting in high levels of congestion and increased emissions. The increase in congestion on the Williamsburg Bridge and within the 14th Street corridor (including side streets) would result in a temporary increase in CO and particulate matter emissions.</p>	<p>The Proposed Action would reduce total vehicle volumes compared to the No Action, resulting in improved traffic speeds and reduced travel delay on Williamsburg Bridge. While individual locations in the larger network would experience additional volume and congestion, the temporary nature of the disruption is not expected to result in significant impacts to air quality. The potential for particulate matter impacts would be reduced since the supplemental bus fleet to be used for the temporary service would meet Environmental Protection Agency emissions standards for new buses. In addition, there would be 15 electric buses as part of the fleet. The additional ferry service under the Proposed Action would not result in significant impacts with respect to air quality based on the incremental emissions from the temporary service. Construction of temporary facilities would be short-term and minor and would not produce significant air emissions.</p> <p>Compared to the No Action Alternative, the Proposed Action would result in a beneficial temporary impact to air quality.</p>

	No Action Alternative	Proposed Action
Biological Resources	The No Action Alternative would require no temporary construction or operation of ferries and would have no adverse impact to biological resources.	<p>Initial consultation with NOAA NMFS Protected Resource Division has determined that the effects of the North Williamsburg temporary ferry landing are not likely to adversely affect protected species under NMFS' jurisdiction, subject to measures to minimize harm as required during construction. The consultation would be completed prior to issuance of a Section 10 permit for the Proposed Action.</p> <p>MTA NYCT has completed an Essential Fish Habitat (EFH) Assessment consultation with the NOAA NMFS Habitat Conservation Division in accordance with the Magnuson-Stevens Fishery Conservation and Management Act. (See Appendix H). NOAA NMFS determined that the adverse effects on EFH would not be substantial subject to measures to minimize harm during construction.</p>
Hazardous Materials	The No Action Alternative would require no new construction or disturbance of potentially contaminated materials and would have no adverse impact.	The Proposed Action would have no significant adverse impacts from hazardous materials. Standard industry practices and health and safety protocols would be implemented if hazardous materials are found during excavation.
Historical, Cultural, and Archaeological Resources	The No Action Alternative would require no new construction. This alternative would have no effect on historic and archaeological resources.	The Proposed Action would have no effect to historic and archaeological resources.
Noise and Vibration	The No Action Alternative would be expected to generate noise resulting from increased traffic volumes from additional bus service and additional automobile traffic (personal vehicles, taxis and FHV's). Automobile traffic would be expected to be diverted to the adjacent streets due to high levels of congestion on 14 th Street. The increase in bus and automobile volumes on the Williamsburg Bridge and within the 14th Street corridor (including side streets) would result in an increase in noise.	<p>The Proposed Action temporary ferry service would result in a peak-hour noise exposure below FTA's Moderate Impact Threshold; therefore, no impact is anticipated. Temporary M14 SBS and interborough bus service would not result in significant noise or vibration levels from bus operations. Construction of temporary facilities would be short term in duration and minor and is not expected to produce significant noise and vibration levels.</p> <p>Compared to the No Action Alternative, the Proposed Action would not result in significant adverse noise and vibration impacts.</p>

	No Action Alternative	Proposed Action
Section 4(f)	The No Action Alternative would require no new construction. This alternative would have no adverse impact.	The Proposed Action could have minor, temporary impacts to public park, recreation area, and historic properties: North 5th Street Pier and Park, Stuyvesant Cove Park, and Union Square. The proposed temporary alterations would be consistent with the existing uses and would not affect the public's use of these properties or result in the impairment of their recreational or historic features. For each Section 4(f) property, MTA NYCT is consulting with the officials with jurisdiction of these properties to request concurrence of the <i>de minimis</i> impact in accordance with Section 4(f).
Social Resources and Economic Impacts	The No Action Alternative would require no new construction. This alternative would have no adverse impact.	The Proposed Action would have no significant adverse impacts with respect to land use, acquisitions, displacements, and relocations, neighborhoods and populations and public services. The MTA NYCT would temporarily lease existing parking facilities for use as temporary bus storage resulting in minor temporary loss of, or less direct access to, customer or residential parking.
Water Resources	The No Action Alternative would require no new construction. This alternative would have no adverse impact.	The Proposed Action would have no significant adverse impacts on water resources. Proposed ASP elements in the floodplains would be designed to be flood resistant and would not affect flood levels, flood risk, or the flow of flood waters within or around the project sites. Due to the temporary nature and limited extent of the Proposed Action activities in the coastal zone, the Proposed Action would be consistent with the NYS coastal policies.
Construction	The No Action Alternative would require no new construction. This alternative would have no construction impacts.	There would be minor temporary construction impacts under the Proposed Action to prepare for proposed ASP implementation, including street and sidewalk treatments, installation of ticket machines, the Stuyvesant Cove bus terminal, and at the temporary North Williamsburg ferry landing. Construction durations for each element would be short-term (less than six months) and would not result in significant adverse air, noise, or traffic impacts.
Greenhouse Gas Emissions	Under the No Action Alternative, vehicle miles traveled (VMT) is likely to increase resulting in increased greenhouse gas (GHG) emissions.	The proposed ASP would result in VMT reductions of approximately 25,000 miles on a daily basis over a 15-month period. The resultant reduction in GHG emissions, compared to the No Action Alternative, would offset any increased GHG emissions from new buses or ferries. Therefore, there would be no significant adverse GHG impacts.

	No Action Alternative	Proposed Action
Environmental Justice	The No Action Alternative would not result in disproportionate significant adverse impacts to environmental justice communities.	There are Environmental Justice (EJ) communities throughout the L train service area. The purpose of the proposed ASP is to provide equitable alternative transportation service to the greatest number of L train riders, including EJ communities. The Proposed Action would have no significant disproportionate adverse impacts on environmental and social conditions or disproportionate significant adverse impact on environmental justice communities.

ES.4 CONCLUSION

The Proposed Action is designed to provide viable transportation alternatives to the most customers. Based on the analysis presented in this SEA, the construction and operation of the proposed ASP would provide transportation benefits in terms of travel times and mobility choices, reduce congestion, and alleviate severe conditions better than the No Action Alternative. And, the Proposed Action would incorporate Measures to Minimize Harm, as summarized on page 99 of this SEA.

The No Action Alternative, in which the Canarsie Tunnel would be taken out of service for required repairs for a 15-month period without the proposed ASP, would result in overcrowding of alternative subway lines and other disruptions to transportation, even with implementation of the measures that NYCT routinely implements during construction work. The Proposed Action would minimize to the extent feasible the potential disruption resulting from the closure of the tunnel during this 15-month period.

This SEA presents analysis of twelve (12) environmental topic areas. Compared to the No Action Alternative, generally, there would be temporary beneficial impacts for the following five (5) areas: Transportation (includes Subway, Bus, Traffic, Ferry, Pedestrian, and Bicycles); Air Quality; Greenhouse Gas Emissions; Social Resources; and Economic Conditions. There are potential adverse impacts for the following six (6) areas, but because of the limited and/or temporary nature of the Proposed Action, the impacts are not considered significant: Biological Resources; Hazardous Materials; Noise and Vibration; Water Resources; Construction; and Section 4(f). There would be a potential adverse impact to Parking (analyzed under Transportation), but the limited removal of parking spaces would not create a significant adverse impact on parking overall throughout the larger area and, because of the temporary nature of the Proposed Action, this impact is not considered significant. For Historic Resources and Section 4(f), FTA is continuing to coordinate with officials with jurisdiction to ensure the Proposed Action has No Effect on historic resources and *de minimis* impact on Section 4(f) properties. In addition, there would be no significant disproportionate adverse impacts to the twelfth area of analysis: Environmental Justice communities.

Therefore, there would not be any significant adverse impact for any of the environmental areas analyzed. The Proposed Action would not result in significant adverse environmental impacts.

1. Introduction

This Supplemental Environmental Assessment (SEA) was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, the NEPA regulations and guidance issued by the Council on Environmental Quality (CEQ), and the Federal Transit Administration's (FTA) policies and procedures for implementing NEPA provided in 23 CFR Part 771.^{3,4} The purpose of this SEA is to present the potential environmental impacts of a proposed Alternative Service Plan (ASP) to serve the L train ridership during a planned 15-month, full-time, two-track closure of the L train between the boroughs of Brooklyn and Manhattan. In 2015, FTA issued two (2) Categorical Exclusions (CE), pursuant to NEPA for the Canarsie Tunnel Restoration and Resiliency Projects and, in 2016, FTA issued a Categorical Exclusion (d), pursuant to NEPA, for the Canarsie Tunnel Core Capacity and State of Good Repair Project. The Core Capacity and State of Good Repair Project included full-tunnel and partial-tunnel closure construction options as well as a preliminary concept of MTA NYCT's service plan for providing alternative service to displaced transit riders. For purposes of this SEA, the 2015 and 2016 projects are referred to as the Canarsie Tunnel Project or the "approved Project." The approved Project includes, but is not limited to, repair of extensive damage to the Canarsie Tunnel caused by Hurricane Sandy and incorporates resiliency measures to prevent future damage from flooding. The Canarsie Tunnel, located below the East River, provides the sole connection between Brooklyn and Manhattan for the MTA NYCT's Canarsie L Line. The 15-month tunnel closure requires the complete suspension of L train service within Manhattan and between Brooklyn and Manhattan. The ASP is a proposed change to the approved Project that was not previously reviewed in the prior NEPA review and is required to be reviewed pursuant to NEPA.

In 2015 and early 2016, the approved Project was in preliminary design and the construction methods were not yet determined; the service plan that would serve the diverted L train riders was conceptual. MTA NYCT conducted additional planning studies and public outreach to evaluate construction methods for completing the work within the Canarsie Tunnel. The full closure was identified by the MTA NYCT as the preferred construction method for tunnel reconstruction, as detailed in the MTA NYCT's alternatives analysis, which is included in this SEA as Appendix A. At the time the Categorical Exclusions were issued for the approved Project, the details of the proposed ASP had not yet been developed. Since that time, MTA NYCT has conducted significant analysis and public outreach to inform the proposed alternative service plan and has presented details of the proposed alternative service plan to the affected communities in an iterative fashion as plans have been developed. In light of the proposed refined alternative service plan, the FTA decided to re-evaluate its prior environmental review, which led to the categorical exclusions, to determine whether it needs to supplement the environmental record to address any potential environmental impacts caused by the alternative service plan which were not previously contemplated. Because the proposed alternative service plan is considered a change to the approved Project, and is new information not previously reviewed pursuant to NEPA, FTA decided to perform a SEA on the proposed alternative service plan. The rehabilitation, resiliency, core capacity, and state of good repair scope of work previously

³ P.L. 91-190, 42 U.S.C. 4321-4347, *National Environmental Policy Act* of 1969, Section 102(2)(c), as amended.

⁴ Guidance Regarding NEPA Regulations, CEQ, 48 *Federal Register* 34263 (July 28, 1983).

approved as part of the approved Project remain unchanged; therefore, they are not addressed in this SEA. The proposed ASP is the subject of this SEA.

The purpose of this SEA is to present the potential environmental consequences of the proposed ASP relative to the No Action Alternative in which the tunnel suspension is implemented without an ASP and to request public comments.

The proposed ASP has been developed to provide transit and mobility options to L train riders to the greatest extent practicable during the temporary 15-month L train service suspension, balanced against the needs of residents near existing L train service and other users of the transportation network. The proposed ASP includes temporary bus and ferry services, street treatments, and station capacity improvements to accommodate diverted L train riders for the 15-month closure period as well as a several-month start-up period prior to the start of the full closure in order to initiate temporary bus service.

The No Action Alternative is the previously approved Project, which includes transit service improvements at a level routinely provided by the MTA NYCT during major capital projects. Previously planned projects are also included in the No Action Alternative.

This SEA presents the potential impacts of the proposed ASP—most of which would be temporary—and includes the following:

- An overview of the purpose and need for the approved Project and the Proposed Action
- A brief project history, including a summary of the planning process that resulted in identification of the full-time two-track closure as the preferred construction method for the project
- The analytical framework for this SEA
- The detailed analysis that was performed to determine the different elements of the proposed ASP
- An evaluation of the environmental consequences of the proposed ASP as compared to the No Action Alternative
- An overview of the public involvement activities performed by MTA NYCT and New York City Department of Transportation (NYCDOT) to date

Reference documents used to prepare this SEA can be found on the MTA Rebuilding Canarsie Tunnel website, <http://web.mta.info/sandy/rebuildingCanarsieTunnel.html>.

2. Purpose and Need

2.1 CANARSIE TUNNEL REHABILITATION PROJECT

In 2012, Hurricane Sandy seriously damaged the Canarsie Tunnel. While the exterior tunnel structure was deemed safe, the interior tunnel was inundated with corrosive saltwater and silt that hardened; structural and other components have begun to fail. To be able to continue to operate train service, the MTA must replace critical elements in the tunnel, including the concrete interior, power and communication cables, circuit breakers, and various track equipment. The MTA has been continuously repairing and replacing elements within the tunnel during weekend and weeknight closures. However, to repair and replace structural features, as well as the duct banks and wiring, the tunnel must be temporarily closed, and service between Brooklyn and Manhattan must be temporarily reduced or suspended. Appendix A provides a summary of the alternatives analysis performed by the MTA NYCT that identified the preferred 15-month full tunnel closure.

The most substantial damage in the interior of the tunnel was to the duct banks, conduits, and wiring—all crucial elements for providing power to the tunnel and communication between stations. Within the duct banks, several conduits hold both the communication and power wires. The saltwater that flooded the tunnel carried silt, which settled and hardened in the conduits within the duct bank structure. This compromised both the duct bank and wiring, leaving the tunnel vulnerable to power outages and duct bank collapses. Continuing to use the Canarsie Tunnel without necessary repairs could cause unexpected power outages and interior structural failure, resulting in an indefinite unplanned closure to L train service. The MTA has prepared a video with details on the damage and the repair options (https://www.youtube.com/watch?v=Gt_JloKcE7s).

2.2 ALTERNATIVE SERVICE PLAN

Temporary closure of the Canarsie Tunnel presents a unique challenge because it will disrupt nearly 400,000 weekday L train riders. While MTA NYCT typically provides alternative transportation services to accommodate displaced riders (such as temporary shuttle bus service between stations and temporary increases to subway service on adjacent lines), the L train disruption would require a more substantial plan. Of the approximately 400,000 daily riders, approximately 125,000 use the L train for connections within Brooklyn; this service will continue to operate during the tunnel closure, albeit at a reduced frequency. Since intra-Brooklyn L train service will continue, approximately 275,000 riders will need to divert to other transportation options as a result of the tunnel closure, including 225,000 riders who use the L train to connect between Brooklyn and Manhattan and 50,000 who use the L train only in Manhattan.

The purpose of the Proposed Action is to provide transportation alternatives to the greatest possible number of diverted L train riders balanced against the needs of residents near existing L train service and other users of the transportation network. The Proposed Action was developed with a goal of meeting MTA NYCT's

MTA Board-approved Service Loading Guidelines⁵ and to maximize opportunities to provide temporary services in coordination with other ongoing transportation improvements being implemented by NYCDOT or other agencies.

⁵ MTA New York City Transit Service Guideline Manual, August 2010.
(<http://web.mta.info/sandy/rebuildingCanarsieTunnel.html>.)

3. Approved Project

3.1 PRIOR APPROVALS

3.1.1 Canarsie Tunnel Rehabilitation Project

On February 12, 2015, the FTA issued Categorical Exclusion (CE) (c)(8) and (c)(3) determinations for two separate activities as part of Grant Agreement NY-44-X012. This grant obligated FTA Section 5324 Emergency Relief Program funds for the Canarsie Tunnel Rehabilitation and Resiliency activities along with other MTA Hurricane Sandy relief efforts. FTA's CE(c)(8)⁶ determination covered the repair of extensive damage to the Canarsie Tunnel resulting from Hurricane Sandy, including replacement of damaged duct banks, track, circuit breaker houses, signals, communication, and power cables, tunnel lighting, and a pump room. FTA's CE(c)(3)⁷ determination covered the demolition and reconstruction of duct banks and the purchase and installation of corrosion-resistant communication and power cabling to prevent future damage from flooding in the Canarsie Tunnel. At the time of CE reviews, construction methods were not yet determined and transit service improvements, routinely provided by the MTA NYCT for large capital projects, such as increased subway and bus service on existing routes, were expected to serve the displaced L train riders.

3.1.2 Other Efforts Coordinated with Canarsie Tunnel Rehabilitation Project

MTA NYCT has coordinated construction of the Project with two other efforts: Canarsie Line Power and Station Improvements (Canarsie Core Capacity) and Canarsie Core Capital Program Improvements (Canarsie State of Good Repair [SGR]). The coordinated construction approach will allow Canarsie Core Capacity and Canarsie SGR to take advantage of track outages planned for the Canarsie Tunnel Rehabilitation Project, allowing work to occur more efficiently and reducing overall construction duration and costs as compared with the work being contracted and scheduled separately.

Canarsie Core Capacity includes traction power and station improvements. Three new power substations (14th Street-Avenue B Substation, Maspeth Avenue Substation, and Harrison Place Substation) and low-resistance contact rail will allow for increased capacity along the line from 20 to 22 trains per hour (tph) between Eighth Avenue and Myrtle-Wyckoff Avenue. Station improvements at First Avenue and Bedford Avenue Stations (including installation of American with Disabilities [ADA] compliant elevators) will alleviate crowding at two of the most congested stations on the L line. In accordance with NEPA, the FTA issued a CE (d)(6) determination for Canarsie Core Capacity and Canarsie SGR Project on August 24, 2016.

⁶ 23 CFR Part 771.118(c)(8) Maintenance, rehabilitation, and reconstruction of facilities that occupy substantially the same geographic footprint and do not result in a change in functional use, such as: improvements to bridges, tunnels, storage yards, buildings, stations, and terminals; construction of platform extensions, passing track, and retaining walls; and improvements to tracks and railbeds.

⁷ 23 CFR Part 771.118(c)(3) Activities designed to mitigate environmental harm that cause no harm themselves or to maintain and enhance environmental quality and site aesthetics, and employ construction best management practices, such as: noise mitigation activities; rehabilitation of public transportation buildings, structures, or facilities; retrofitting for energy or other resource conservation; and landscaping or revegetation.

Elements of that project, unrelated to the proposed ASP, are under construction. The NEPA review included review of a full-tunnel construction option with no L line subway service between Manhattan and Brooklyn for approximately 18 months as well as a partial-tunnel closure construction option. For either construction option, no specific details of the service plan were available since they were still under development. MTA NYCT committed to conducting public outreach to inform the service plan.

Canarsie SGR will implement various SGR improvements to assets in the Canarsie Tunnel and at First Avenue and Bedford Avenue Stations and other subway stations that were not damaged by Hurricane Sandy.

Work, unrelated to the proposed ASP, is currently underway on preparatory activities that must occur before the Canarsie Tunnel closure, including, but not limited to the following:

- Permitting and coordination with local agencies and utilities
- Excavations for shafts that would be used to remove debris from demolishing the existing duct banks and track bed in the Canarsie Tunnel
- Utility relocation
- Access improvements

3.2 TUNNEL CLOSURE PLAN

As summarized in Appendix A, MTA NYCT developed and evaluated potential alternatives in consideration of each alternative's ability to meet the Project's purpose and need to complete the critical reconstruction of the Canarsie Tunnel as quickly, safely, and efficiently as possible while minimizing service disruptions to affected L train passengers and operational impacts on the rest of the MTA NYCT subway network during construction. Critical assets in the Canarsie Tunnel are severely deteriorated due to Hurricane Sandy-related damage; the longer the tunnel is used without reconstruction taking place, the greater the risk of a catastrophic failure of these assets. Based on the MTA NYCT's careful consideration of alternative tunnel closure options, including public input, the MTA NYCT found the double-track closure of the L train tunnel to be preferred construction method.

4. Analytical Framework

The severe damage Hurricane Sandy caused to the Canarsie Tunnel must be repaired soon to prevent an emergency unplanned tunnel closure. Accordingly, the analytical framework for this SEA assumes that the approved Project, as discussed above in Section 3.1, “Prior Approvals,” would occur with or without the proposed ASP. As summarized in Appendix A, MTA NYCT identified the double-track closure of the L train tunnel as the preferred construction method and selected and proceeded to implement this closure plan. Subsequently, MTA NYCT established the proposed ASP to minimize disruption during tunnel closure. The proposed ASP is the subject of this SEA. Therefore, the No Action Alternative is the approved Project without the proposed ASP, and the Proposed Action assessed in this SEA is the approved Project with the proposed ASP.

The No Action Alternative includes the following:

- the approved Project;
- closure of the Canarsie Tunnel for a 15-month period;
- transit service improvements at a level routinely provided by MTA NYCT during major capital projects, such as increased subway and bus service on existing routes. (Table 1 provides a summary of these routine service improvements and Chapter 5 provides more detail on these No Action Alternative service changes.); and
- other planned, independent improvements to be implemented by MTA NYCT or NYCDOT.

The Proposed Action includes the following:

- the approved Project;
- closure of the Canarsie Tunnel for a 15-month period;
- temporary transit measures (and limited permanent improvements) beyond those measures typically implemented for a repair shutdown, including enhancements to 14th Street crosstown bus service, interborough bus services, additional subway station improvements, new ferry service, bicycle lanes, and pedestrian and priority lane street improvements that collectively comprise the proposed ASP.

The analysis presented for the Proposed Action assumes the implementation of the other planned, independent improvements to be implemented by the MTA NYCT or NYCDOT (see Appendix B and Section 5.1.2, “Existing Planned Projects”).

This SEA presents the potential environmental impacts of the proposed ASP compared to the No Action Alternative.

Table 1 presents a comparison of the No Action Alternative and Proposed Action elements, and Section 5.2 presents a more detailed description of the proposed ASP.

TABLE 1. COMPARISON OF NO ACTION ALTERNATIVE AND PROPOSED ACTION ELEMENTS

No Action Alternative	Proposed Action
<ul style="list-style-type: none"> ▪ Existing Planned Projects (see Chapter 5.1.2). 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
Subway Enhancements	
<ul style="list-style-type: none"> ▪ L train service between Bedford Avenue and Rockaway Parkway with 6-minute headways. 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Temporarily increase peak service across Williamsburg Bridge to 24 trains per hour (tph) from 21 tph: M train service would be increased from 9 tph to 14 tph in peak direction and J train service would be reduced from 12 tph to 10 tph in peak direction. Trains would make all stops between Marcy Avenue and Broadway Junction. J/Z skip stop may be suspended west of Broadway Junction and all service would operate local. 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Temporarily increase G train service serving Williamsburg and connecting with the A/C at Hoyt-Schermerhorn, J/M/Z trains at Broadway / Hewes and the E/M/7 at Court Sq. (12 G tph between Church Av/18 Av and Court Sq. during the peak – an increase from 9 tph; additional 3 tph between Bedford-Nostrand Avs and Court Sq. for 15 tph along this segment – an increase from 9 tph). G trains will also be lengthened to further increase capacity. 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Temporarily increase peak-hour M train service serving the Queens Blvd Line from 9 tph to 12 tph and reduce R train service from 10 tph to 8 tph. 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Temporarily increase off-peak service on the A, E, F, G, J, M and 7 trains. 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Lengthen C trains to increase capacity (permanent change). 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
<ul style="list-style-type: none"> ▪ Temporarily implement free MetroCard transfers between: <ul style="list-style-type: none"> – G and J/M/Z at Broadway/ Hewes – G and 7 at 21 St/Hunters Pt Av – L and 3 at Livonia Av/Junius St 	<ul style="list-style-type: none"> ▪ Same as No Action Alternative.
	<ul style="list-style-type: none"> ▪ Additional turnstile capacity at Nassau Street (G Line), Metropolitan Avenue (G Line), and Lorimer Street (L Line) (permanent change). ▪ Reopen Hope Street entrance at Metropolitan Avenue G Station (permanent change). ▪ Reopen station entrances at J/M/Z Hewes Street Station (permanent change).

TABLE 1. COMPARISON OF NO ACTION ALTERNATIVE AND PROPOSED ACTION ELEMENTS (CONTINUED)

No Action Alternative	Proposed Action
Bus Enhancements	
<ul style="list-style-type: none"> ▪ Temporarily increase B39 bus service from 2 buses per hour to 12 buses per hour. ▪ Temporarily increase M14A and M14D bus service from 25 buses per hour to 35 buses per hour. 	<ul style="list-style-type: none"> ▪ Temporary Interborough Bus Service (L1, L2, L3, L4). The B39 would be temporarily discontinued and incorporated into the L3 route. There would be up to 80 bus trips per direction in the peak hour (a net increase of 68 bus trips in comparison to the No Action Alternative). Service would be 24-hours with reduced and combined routes in the overnight period. ▪ Temporary HOV 3+ restrictions on Williamsburg Bridge from 5:00 a.m. to 10:00 p.m., seven days a week. ▪ Temporary bus priority treatments on approaches to Williamsburg Bridge. ▪ Temporary M14 select bus service (SBS) connecting to Stuyvesant Cove (2-minute headway during peak hours). M14A and M14D service would be unchanged. ▪ Temporary SBS street treatments (with the exception of 19-22 permanent fare machines). ▪ Temporarily convert 14th Street to a busway from 5:00 a.m. to 10:00 p.m., seven days a week (Ninth to Third Avenues eastbound; Third to Eighth Avenues westbound). ▪ Temporary bus terminal at Stuyvesant Cove – bus parking, pedestrian path, ticket machines. ▪ Temporarily increase peak hour local bus service – B62, B48, B57, B60, B6, B103, and B32. An increase of up to approximately 10 trips per route in peak hours would be implemented. ▪ Temporary overnight bus storage facilities.
Ferry Service	
	<ul style="list-style-type: none"> ▪ Temporary ferry service between Stuyvesant Cove and N. Williamsburg (8 trips per hour in peak periods). Ferries would operate from 6:00 a.m. to Midnight on Sundays through Thursdays and from 6:00 a.m. to 2:00 a.m. on Fridays and Saturdays with 4 to 6 trips per hour in off-peak periods. ▪ Construct temporary landing at Empire Pier in North Williamsburg.
Bicycle Enhancements	
	<ul style="list-style-type: none"> ▪ Temporary one-way bike lanes on 12th and 13th Streets (between Avenue C and Greenwich Avenue). ▪ Temporary bike lane on Union Square West. ▪ Temporary high capacity valet bike parking. ▪ Temporary upgrades to Grand Street bike lane. ▪ Temporary bicycle parking sleds.

No Action Alternative	Proposed Action
Pedestrian Enhancements	
	<ul style="list-style-type: none">▪ Temporarily close Union Square West to vehicles between 14th and 15th Streets and 16th and 17th Streets.▪ Additional temporary pedestrian space on University Place between 13th and 14th Streets.▪ Temporary sidewalk widening and SBS loading areas along 14th Street and Houston Street and in Brooklyn along Grand Street corridor.

5. Discussion of Alternatives

Development of the proposed Alternative Service Plan (ASP) involved a planning assessment of the available temporary transportation measures that would provide flexibility and modal accessibility to L train riders during the 15-month construction period, balanced with the needs of residents and other transportation network users. As noted previously, the analytical framework of this SEA compares the Proposed Action (with ASP) with a No Action Alternative that reflects subway service options to accommodate L train riders at a level routinely provided by MTA NYCT during major capital projects and includes current planned projects anticipated to be completed by MTA NYCT and NYCDOT.

This section of this SEA summarizes the elements of the No Action Alternative and describes the individual elements of the proposed ASP and the transportation planning analysis that led to the proposed ASP.

5.1 NO ACTION ALTERNATIVE

The No Action Alternative will include limited, temporary subway and bus service enhancements that MTA NYCT will implement without the more substantial elements of the proposed ASP as well as known and planned projects (identified in Section 5.1.2, “Existing Planned Projects”) to be implemented by MTA NYCT or NYCDOT that will provide additional ability to serve L train ridership disrupted by the tunnel closure. These enhancements reflect what MTA NYCT would routinely provide during service disruption for large capital projects.

5.1.1 Subway and Bus Service Enhancements

MTA NYCT will aim to temporarily increase subway service on adjacent and intersecting lines to the extent feasible, and will also temporarily increase bus service on the B39, M14A, and M14D routes.

Specifically, in the No Action Alternative MTA NYCT will implement the following temporary transit enhancements:

- **Operate L train service between Bedford Avenue and Canarsie-Rockaway Parkway with 6-minute headways.** One track at the Bedford Avenue station will be needed for construction access, so L trains will have access to only one terminal track at that station. A 6-minute headway is the most frequent service that could be provided under this constraint. Trains currently operate at a maximum 3-minute headway.
- **Increase peak subway service across the Williamsburg Bridge from 21 tph to 24 tph per direction.** During the peak hour, MTA NYCT will increase M train service from 9 tph to 14 tph and reduce J train service to 10 tph from 12 tph. Trains will make all stops between Marcy Avenue and Broadway Junction. In the off peak, MTA NYCT will operate J train service at increased frequencies.

With the existing signal system, 24 tph is the maximum frequency of combined J/M/Z service that can be provided across the Williamsburg Bridge, and 28 tph is the maximum frequency of trains that can run on the Sixth Avenue local track shared by the F and M trains. In light of these operating

constraints—and, acknowledging that the M train is a key alternative to the L, since it provides access between parts of Brooklyn near the L train corridor and the 14th Street corridor—MTA NYCT will maximize M train service to the extent feasible to address projected demand. The current northbound F train frequency of 14 tph needs to be maintained along Sixth Avenue, so the upper limit for M service is 14 tph. Using 14 of 24 hourly slots across the Williamsburg Bridge for the M train leaves only 10 tph for the J train during peak hours.

- **Increase G train service connecting Williamsburg with the A and C trains at Hoyt-Schermerhorn Streets, with the J/M/Z at Broadway/Lorimer/Hewes and with the E, M, and 7 trains at Court Square.** Between Church Avenue/18th Avenue and Court Square, G trains will increase from 9 tph to 12 tph, with an additional 3 tph between Bedford-Nostrand Avenues and Court Square for a total of 15 tph along this segment, compared to 9 tph currently. G trains will also be lengthened to further increase capacity.

The G line is a key connector between Williamsburg and lines to the north and south that run into Manhattan. It shares track with the F train between Bergen Street and Church Avenue, so the amount of service that could be run along the full route is limited by the capacity of this shared section (12 tph available to the G train since the F train will be 14 tph as noted above). To maximize the connectivity to the E, M, 7 trains at Court Square, an additional 3 tph will run between a terminal track at Bedford-Nostrand Avenues and Court Square, since this segment is not shared with any other subway routes.

- **Increase AM peak-hour M train service serving the Queens Boulevard line (from 9 tph to 12 tph) with a corresponding reduction in R train service (from 10 tph to 8 tph).** The maximum capacity of the Queens Boulevard local tracks is 20 tph due to limited terminal capacity at 71st Avenue. Increasing the M line by 3 tph, requires that the R line be reduced to 8 tph. Increased M line service from Queens into Manhattan will be needed to help relieve crowding at Court Square. With this change, peak direction R service would not be reduced in Brooklyn, and the R line would continue to operate within MTA NYCT passenger loading guidelines.
- **Lengthen C trains to increase capacity (permanent change).**
- **Increase off-peak service on the A, E, F, G, M and 7 lines.** Note that peak service frequencies cannot be increased on the A, C, E, F and 7 lines, since they will already operate at the maximum frequencies as allowed by their signal systems.
- **Implement free MetroCard transfers between the following:**
 - G and J/M/Z lines at Broadway/Lorimer/Hewes
 - G and 7 lines at 21 Street/Hunters Point Avenue
 - L and 3 lines at Livonia Avenue/Junius Street
- **Increase M14A and M14D peak frequencies from 25 buses per hour (combined) to 35 buses per hour⁸**
- **Increase B39 frequencies from 2 buses per hour to 12 buses per hour⁹**

⁸ M14A and M14D are crosstown bus routes that operate along 14th Street.

⁹ B39 operates between Williamsburg Bridge Plaza in Brooklyn and the Lower East Side in Manhattan, providing bus service across the Williamsburg Bridge.

5.1.2 Existing Planned Projects

In coordination with NYCDOT and the New York City Economic Development Corporation (NYCEDC), planning for the proposed ASP seeks to integrate and complement the following planned projects that are expected to be in place with or without the proposed ASP (see Appendix B). These are permanent efforts that were planned for implementation independent of the Project or its ASP. In some cases, improvements may have been accelerated for completion prior to the start of the Canarsie Tunnel closure, but the projects continue to have independent utility and need. See Appendix B for supporting documentation regarding the planned permanent projects.

- **Bike Improvements:** NYCDOT has planned bike improvements in both Brooklyn and Manhattan, including some infill of the existing bike share program and acceleration of the City Rack installation program in both boroughs. In Manhattan, planned bike improvements include a two-way protected bike lane along Delancey Street as well as the 20th Street bike lane. In Brooklyn, bike improvements include bike lanes along Union Avenue, Devoe Street, Metropolitan Avenue, and Morgan Avenue. Improvements that were recently completed include improved access to and from Williamsburg Bridge from South 4th Street, Borinquen Place, and South 5th Street, protected bike lanes linking neighborhood networks, parks, commercial areas, bus terminals and subway stations; and improved connections to the Williamsburg Bridge from South 3rd Street, Scholes Street, South 4th Street, and Meserole Street, including speed reductions and traffic calming measures to provide a safer and more direct alternative for bike access to Williamsburg Bridge.
- **Pedestrian Safety Improvements:** Targeted pedestrian safety improvements by NYCDOT include slip turn-lane closures to reduce pedestrian crossing distance; new neckdowns and crosswalks; extended concrete triangles on Broadway from Hooper Street to Flushing Avenue; conversion of Montrose Avenue into a one-way westbound street and Hooper Street into a one-way southbound street to improve pedestrian safety and provide alternative subway station access; and Bedford Avenue and Nassau Avenue street direction changes, paint curb extension, and signal timing improvements.
- **New Ferry Service:** The ferry terminal recently installed at Stuyvesant Cove will begin East River ferry service in the summer of 2018, as part of the City of New York's expansion of NYC Ferry service. The service will initially operate with four boats per hour between Wall Street, Grand Street (Lower East Side), Stuyvesant Cove, 34th Street, and Long Island City. (See Appendix B for map of services).
- **Procurement of New Buses:** The MTA will procure new articulated, express, and low-floor standard buses. The buses will be ADA compliant and meet all U.S. Environmental Protection Agency (EPA) emission standards. The new buses will be part of the MTA's initiative to revitalize bus operations, with plans for acquiring 2,042 state-of-the-art new buses over five years (including 15 electric buses), and including buses that may be used for the proposed ASP. The new buses will replace nearly 40 percent of the MTA's current fleet and represent a \$1.5 billion investment of Capital Program resources. New buses included in the plan have been delivered and are already in service in all five boroughs. (See Appendix B for descriptions of related Statewide Transportation Improvement Program Region 11 MTA projects.)
- **Subway Station Improvements:** Permanent subway station improvements by MTA NYCT on the G, J, M, Z and L lines will include additional station turnstiles, increased stair and control area capacity, and other access and capacity improvements, as detailed in Appendix B.

5.2 PROPOSED ASP ELEMENTS AND OPTIONS CONSIDERED

The proposed ASP includes multiple elements to provide temporary transportation options for L train customers during the 15-month tunnel closure. This would involve permanent subway station modifications as well as temporary increased bus services, new ferry service, and other pedestrian and bikeway measures. Each is described in the following sections, which include an overview of the element and its transportation context in serving the L train ridership. All elements are temporary unless specified. Interborough bus services and the 14th Street corridor, in particular the screening and selection of alternative options, are also summarized.

5.2.1 Estimated Demand for Proposed ASP Elements

The proposed ASP was developed to accommodate the 275,000 L train customers traveling between Brooklyn and Manhattan or traveling within Manhattan. It is also aimed at providing transit service options that would reduce demand for subway lines that were projected to be overcrowded and providing service options for riders not well served by subway service. By providing ASP options to riders, MTA NYCT can reduce demand on other subway lines and better meet its loading guidelines to provide more comfortable, reliable and faster subway service.

Of the 400,000 daily L train riders, 125,000 travel only within Brooklyn and these riders would still be able to use L train, although in peak hours it would operate at reduced frequencies (instead of a train every 3 minutes, it would be every 6 minutes); 225,000 are riders travelling between Manhattan and Brooklyn, and there are 50,000 daily L train riders who stay within Manhattan. For the critical cross-borough demand, MTA NYCT estimates that about 79 percent of daily L train riders would use other subway lines for their trip and 21 percent would be the most likely to take advantage of the alternative transportation options, including the interborough buses (17 percent) and the expanded ferry service (4 percent). Note that this does not account for potential shifts to non-transit modes. For these riders, the proposed ASP options would provide favorable travel times from areas of the L train service area that are more isolated. These elements in addition to other station modifications would benefit all riders by relieving some of the crowding on the remainder of the system and improving reliability. Table 2 summarizes the daily and AM peak-hour subway, bus, and ferry demand. A small portion of the overall demand could be expected to use other modes such as walking, bicycle, or transportation not provided by MTA NYCT or they might choose to not make the trip at all. (For conservative analysis, these trips were not removed from the subway demand assessment.)

TABLE 2. ESTIMATED BROOKLYN-MANHATTAN RIDERSHIP BY MODE

Brooklyn-Manhattan Commuters	Total Ridership	Subway	Interborough Bus	Ferry
Daily	225,000	175,800	40,300	8,900
AM Peak Hour	24,600	19,600	4,100	900

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

In Manhattan, it is estimated that 57 percent of Manhattan-only L train riders (28,500) would use the 14th Street Select Bus Service (SBS) that includes offboard fare payment, bus lanes, and longer spacing between stops. The other 43 percent (21,500) may commute by choosing other subway lines, other crosstown buses,

for-hire vehicles (FHV) or taxis, as well as bicycles and walking, or they may choose to not make the trip (see Table 3). Overall, as summarized on Table 4, 14th Street is estimated to have a demand of about 84,000 daily bus riders comprising existing crosstown bus riders and L train riders from both the intra-Manhattan and interborough markets.

TABLE 3. ESTIMATED MANHATTAN-ONLY RIDERSHIP BY MODE

Manhattan Commuters	Total Ridership	Subway	14 th Street SBS	Other Subways, Buses, Modes
Daily	50,000	0	28,500	21,500
AM Peak	6,000	0	3,420	2,580

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

TABLE 4. ESTIMATED 14TH STREET BUS RIDERS BY MARKET

Total 14 th Street Bus Riders	Total Bus Ridership	Existing M14A and M14D Bus	M14 SBS Intra Manhattan L Riders	M14 SBS Brooklyn-Manhattan L Riders
Daily	84,000	30,000	28,500	25,500
AM Peak	10,080	3,600	3,420	2,580

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

5.2.2 Subway

5.2.2.1 Description of Service

Under typical subway closure conditions, MTA NYCT increases adjacent subway service to provide alternatives to the closure. This is a core element of the proposed ASP. As proposed, the subway increases in the proposed ASP subway service plan would be identical to the No Action Alternative, with the addition of the following permanent station improvements to help alleviate crowding:

- Provide additional turnstile capacity at Nassau Avenue (G Line).** During the tunnel closure, it is expected that there would be a considerable increase in entries at Nassau Avenue since L train riders living near the station use the southwest street entrance to the crosstown G line. To increase both entry and exit capacity and make the entrance more user-friendly overall, the four existing high entry turnstiles would be replaced with four low turnstiles. The redesign would benefit customers both during and after the L line tunnel work. In addition, the station has an over-track passageway that is split evenly between a paid and unpaid side, which would be expected to be heavily used by diverted L train riders. Therefore, it is proposed to convert the passageway into an entirely unpaid corridor to allow the full capacity of the passageway to be used for unpaid moves crossing under Manhattan Avenue and reduce congestion in the passageway.
- Provide additional turnstile capacity at existing entrances at Metropolitan Avenue (G Line)–Lorimer Street (L line).** During the L tunnel closure, many passengers will continue to use the L line in Brooklyn and transfer to the G line at Metropolitan Avenue–Lorimer Street. MTA NYCT anticipates congestion at the transfer stair at the end of the Manhattan bound L platform, which leads to the G mezzanine. Directly adjacent to the transfer stair is a station entrance. To minimize pedestrian conflicts between station entries/exits and the queue at the transfer stair, MTA NYCT would install low turnstiles, to replace high entry/exit turnstiles.

Additionally, passengers currently entering the station from the street to use the L train will likely enter using fare control areas at the G mezzanine rather than the L mezzanine, as it more proximate to the G train. To accommodate this shift in entries and exits, low turnstiles would be installed in place of high entry/exit turnstiles at the northern G mezzanine at the corner of Metropolitan Avenue and Grand Street.

- **Reopen Hope Street entrance at Metropolitan Avenue (G Line).** Transfer volumes between the L and G lines are expected to increase substantially during tunnel closure, thereby putting additional capacity pressures on the existing transfer passageway and the already at-capacity G train platform stairs. To help alleviate anticipated congestion, stairs that are currently closed would be reopened on each G train platform and the currently closed street entrance at Hope Street would be reopened. The reopened entrance and southern platform stairs would improve movement on the common mezzanine to the north, which would help absorb diverted L train riders and accommodate ridership growth.
- **Reopen station entrances at Hewes Street (J/M/Z Line).** All existing access to and from the Hewes Street station on the Broadway-Jamaica line is located at the west end of the station at Hooper Street. A mezzanine at the east end of the station contains two platform stairs and two street stairs that are currently closed to the public. During construction, a free transfer (with MetroCard) would be implemented between the Broadway G line and Hewes Street stations. By reopening the Hewes Street mezzanine, the walking distance between the stations would be cut in half from 1,200 feet to about 650 feet. This would help G train riders who normally transfer to the L train to use the J/M/Z lines as an alternative route during tunnel closure. The reopened eastern mezzanine would provide a permanent added convenience to the station's eastern catchment area and would also allow for improved network flexibility.

5.2.3 Bus

Under typical subway closure conditions such as nighttime tunnel work, when there is no subway alternative, MTA NYCT runs shuttle bus service between stations. To accommodate the volume of ridership that could seek alternative transportation, the proposed ASP would provide a more robust and substantial bus service. The proposed ASP would add bus service along the L train route in two separate forms: temporary interborough bus service and temporary enhanced 14th Street SBS (i.e., busway). Additionally, there would be temporary service increases to local bus routes that connect to alternative subway options. To meet the demand for additional temporary bus service during tunnel closure, MTA NYCT anticipates that up to 200 buses would be refurbished for longer term service so that newly procured buses could be assigned to the temporary ASP routes without reducing service on the rest of the system. This is the maximum number of additional buses that could be added based on the system's capacity to store, maintain, and operate buses.

5.2.3.1 Temporary Interborough Bus Service

Description of Service

The proposed ASP element would provide temporary interborough bus service as a connector between Brooklyn and Manhattan, and would generally serve the portions of the Brooklyn service area west of Grand Street Station. MTA NYCT's goal in designing the temporary interborough bus service was to focus on areas where alternative subway service would lead to much longer travel times with the L tunnel closed,

and to leverage existing available capacity on the subway lines in the Lower East Side, Little Italy, and SoHo that connect with these buses.

This bus service would run in four routes (L1, L2, L3, L4) that overlap in different areas of Brooklyn and/or Manhattan. All bus lines would use the Williamsburg Bridge, the closest connection between Brooklyn and Manhattan (Figure 1). NYCDOT would temporarily limit the use of the bridge to buses, trucks and automobiles with three or more occupants (HOV3+). As shown in Appendix D, Figure D-19, HOV regulations are proposed on the bridge in the westbound direction from Roebling Street in Brooklyn to Clinton Street in Manhattan. In the eastbound direction, the restrictions would be in place from Clinton Street in Manhattan to Broadway/Havemeyer Street/BQE in Brooklyn. (There are three Brooklyn-bound exit points, and all three would be the endpoints of the HOV policy.)

Route L1 would provide service from near the Grand Street Station in Brooklyn and loop up to 15th Street and back on First and Second Avenues, connecting with the subway in Manhattan at Essex Street/Delancey Street. Route L2 would similarly start around Grand Street but would loop through SoHo/Little Italy on Delancey Street and north to Houston Street, connecting with subway service at Essex/Delancey Street, Spring Street, Prince Street, and Broadway-Lafayette Street/Bleecker Street. Route L3 would have the same Manhattan route as L2, but would provide a loop in the western Williamsburg going northbound on Berry Street to North 5th Street and then southbound on Roebling Street. Route L4 would have the same Manhattan route as L1 and the same Brooklyn route as L3. During overnight hours, the proposed temporary M14 SBS would be combined with the L4 route.

FIGURE 1. PROPOSED TEMPORARY INTERBOROUGH BUS SERVICE



As modeled by MTA NYCT, it is anticipated that approximately 17 percent of the L train ridership (largely from Williamsburg and the western areas of the service area) would utilize this temporary interborough bus service (or nearly 37,400 daily trips and about 3,800 Manhattan-bound AM peak-hour trips). MTA NYCT

estimates that the four bus routes would in total provide approximately 80 bus trips per direction in the peak hour. The buses on these routes would be standard 40-foot buses.

In addition to bus priority treatments on the Williamsburg Bridge described above, NYCDOT worked with MTA NYCT to identify street treatments that would provide priority for buses and pedestrians along portions of the proposed interborough routes. The portions of First and Second Avenues between Houston Street and 15th Street where the L1 and L4 routes would operate already have dedicated red painted bus lanes, which were installed in 2010 to support the M15 SBS and local bus service. Along portions of Grand Street, Borinquen Place, and Roebling Street in Brooklyn, and Delancey Street, Allen Street, and Kenmare Street in Manhattan, temporary bus priority treatments would be installed to support the interborough services. These temporary treatments may include roadway resurfacing, painted pedestrian spaces, red painted bus lanes, roadway markings, bus stop curb extensions and changes to street direction.

Options Considered for Operations on the Williamsburg Bridge

MTA NYCT and NYCDOT evaluated options to provide competitive travel times for buses on the Williamsburg Bridge. Demand and simulation modeling of the increased bus traffic was undertaken for the Williamsburg Bridge based on integrating the regional travel demand model—New York Metropolitan Transportation Council’s Best Practice Model (BPM)—with Aimsun microsimulation model.

Advanced Interactive Simulator for Urban and Non-Urban Networks (known as “Aimsun”) is an industry-standard, microsimulation traffic modeling software. It can simulate individual vehicle operations at signalized or unsignalized intersections, and lane changing and queuing along freeways and is used by traffic planners and engineers to test the potential impact of proposed geometric or operating policy changes. For the proposed ASP, the Aimsun model was used to evaluate the various bus/high-occupancy vehicle (HOV) lane alternatives for the proposed temporary bus routes along the two key corridors: Williamsburg Bridge and 14th Street.

The model looked at the bridge crossing itself, as well as the network of streets leading to and from the bridge in Manhattan and Brooklyn, including the ramps to and from the Brooklyn-Queens Expressway. The modeling was used to evaluate travel times across the bridge and its approaches as a basis to compare the viability of different roadway strategies. The options for providing the proposed ASP interborough buses, included the following:

- **No Bus Priority Treatment** – Adding approximately 80 new interborough buses in the AM peak period but with no special priority treatment (similar to the No Action Alternative but with more peak-hour buses on the bus routes than the 12 peak-hour B39 buses).
- **Option A** – Outer deck of bridge reserved for buses and trucks only
- **Option B** – Outer deck of bridge reserved for buses, trucks, and HOV3+
- **Option C** – Entire bridge reserved for buses, trucks, and HOV3+ (the selected ASP configuration)

Of these, Option C was found to be the only option that maintained steady and reasonable bus travel times in the AM and PM peak periods (see Figure 2 and Figure 3, respectively).

FIGURE 2. WESTBOUND TRAVEL TIME ON WILLIAMSBURG BRIDGE AND APPROACHES

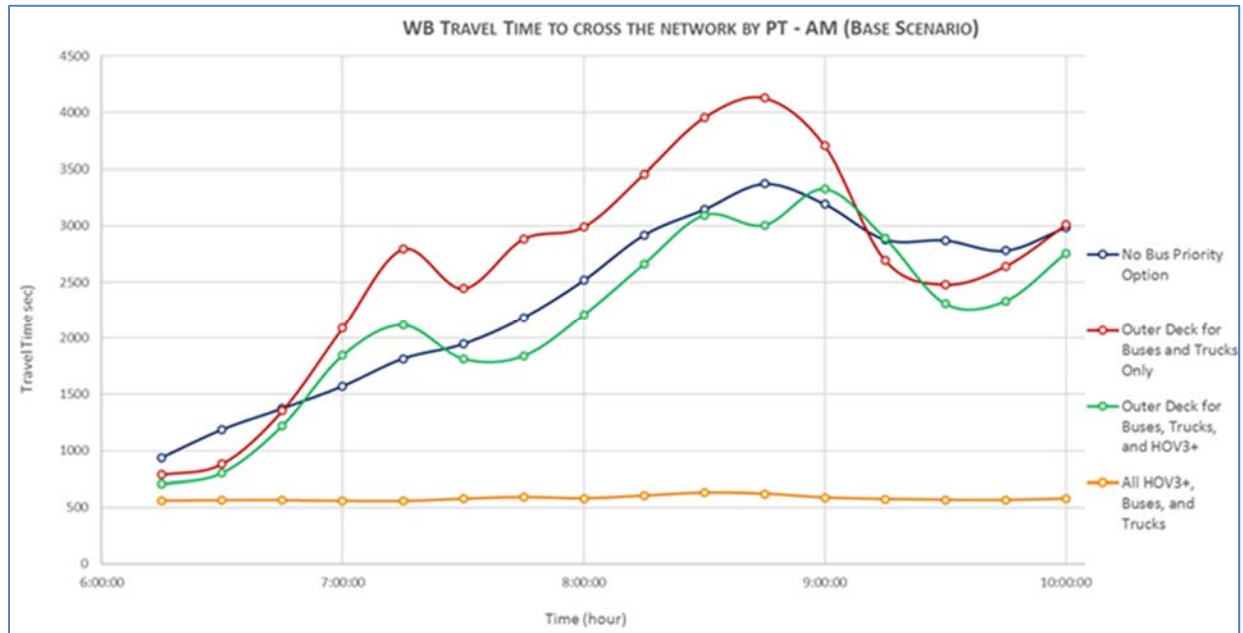
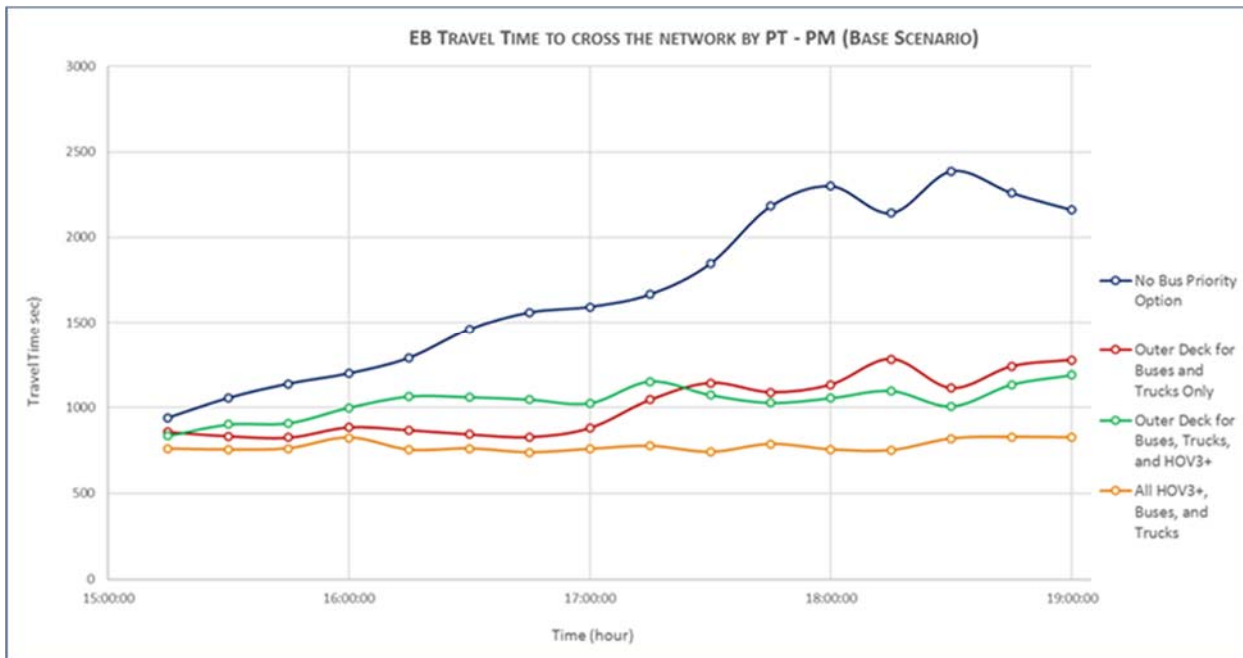


FIGURE 3. EASTBOUND TRAVEL TIME ON WILLIAMSBURG BRIDGE AND APPROACHES



5.2.3.2 14th Street Corridor Bus Enhancement

Description of Service

The 15-month closure of the L train running under 14th Street would create a greater demand for crosstown surface travel along the 14th Street corridor in Manhattan. There would be ridership disruption to the approximately 50,000 L train riders who stay within Manhattan (including transfers from north-south subway lines) and a portion of the 225,000 riders who typically use the L train for travel between Manhattan and Brooklyn. These riders would need to be accommodated in addition to the 30,000 customers per day currently using the existing M14A and M14D buses. The proposed ASP has identified a temporary series of bus priority measures to accommodate a substantial increase in bus frequency on 14th Street. Appendix E presents the NYCDOT summary of the 14th Street description of service as well as a travel demand analysis used to evaluate 14th Street corridor options considered in the proposed ASP.

There is already a substantial bus volume on 14th Street. Two routes (M14A and M14D) provide the primary service along 14th Street. The M14A and the M14D travel along Avenue A and Avenue D, respectively, to serve destinations on the Lower East Side. In addition, MTA NYCT and NYCDOT have identified the 14th Street corridor as one that may have SBS implemented in the future (following a full evaluation and public outreach). This permanent SBS would involve a conversion of the M14A and M14D service. However, for the temporary ASP, the M14A and M14D would continue to operate in their current configuration before and during the Canarsie Tunnel closure, except for some minor bus stop relocations around Union Square to facilitate pedestrian circulation (see Appendix D, Figure D-3). As part of the proposed ASP, the temporary M14 SBS would supplement this service as a new route overlaid across 14th Street, more than doubling the frequency of bus service on this street.

The first phase would occur before the tunnel closure when NYCDOT would modify the 14th Street curbs and sidewalks, and MTA NYCT would install offboard fare machines. MTA NYCT plans to implement a preliminary M14 SBS service prior to the closure of the Canarsie Tunnel. This service would operate across 14th Street between First Avenue and Tenth Avenue and would be in addition to the existing M14A and M14D. This initial phase would operate 7 days a week from 6 a.m. to 10 p.m. approximately every 8 minutes.

Potentially starting a week or two prior to the start of the tunnel closure, and continuing throughout the 15-month construction period, the M14 SBS would operate from the temporary bus terminal adjacent to the Stuyvesant Cove ferry terminal to Tenth Avenue. This main phase of the temporary M14 SBS would be a temporary service that would operate 24/7 with a headway of under 2 minutes during peak hours. During the late-night period, the SBS route may be combined with the L4 interborough temporary bus routes to provide a one-seat ride between 14th Street and Brooklyn, since transfer times during late nights would be especially long, and buses would be available to provide that combined service at night.

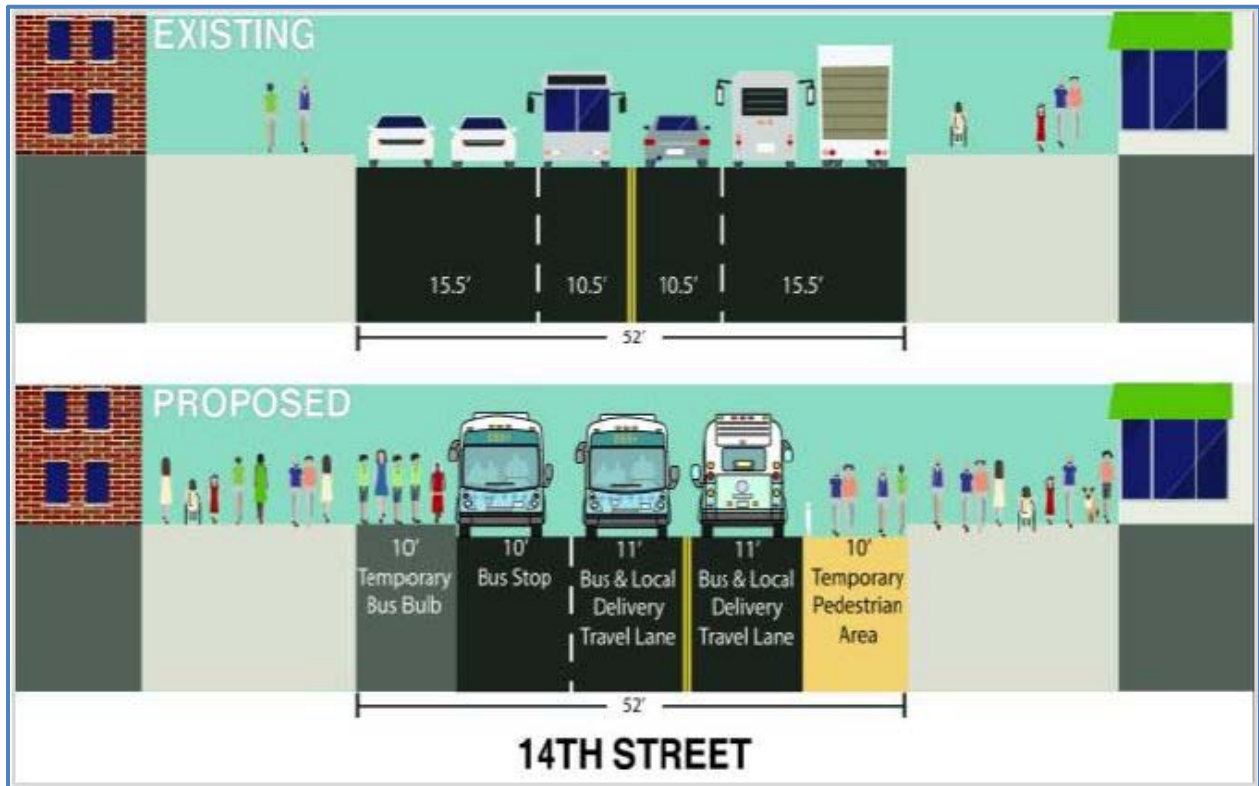
After the end of the tunnel closure, MTA NYCT and NYCDOT would end the temporary M14 SBS service but may consider implementation of a permanent M14 SBS, but planning and evaluation of this potential permanent change would occur at a later point, and permanent M14 SBS is not considered part of the Proposed Action. Following the reopening of the tunnel, the high-frequency M14 SBS, running between Stuyvesant Cove and Tenth Avenue, would be discontinued since it is a temporary service during the Canarsie Tunnel closure.

The proposed ASP bus enhancement would add service to the SBS on a temporary basis by decreasing bus headway and by extending bus service to directly link the Stuyvesant Cove ferry landing with 14th Street crosstown service (see Appendix D, Figure D-1). The temporary service would focus SBS service to match current subway transfer locations, with the exception of Third Avenue, and would provide temporary passenger facilities and enhanced pedestrian areas. In addition, to reduce bus and bicycle conflicts, enhance safety, and to accommodate an anticipated increase in bicycle trips, temporary one-way bike lanes would be placed along 12th and 13th Streets between Avenue C and Greenwich Avenue.

In order for MTA NYCT to provide adequate capacity and competitive travel times for the temporary increase in bus service along 14th Street, bus priority lanes and operational restrictions for cars and trucks would be required.

The street design for the temporary Busway option on 14th Street would consist of elements that would provide priority for buses and pedestrians along 14th Street between First Avenue and Ninth Avenue. Between Third Avenue and Eighth Avenue in the westbound direction and between Ninth Avenue/Hudson Street and Third Avenue in the eastbound direction, the roadway would be redesigned to prioritize buses and pedestrians, and restrict through traffic to buses, and emergency vehicles. Limited local access—including for deliveries, access to garages, and passenger pick-up/drop-off—would be permitted on these blocks of 14th Street. On the blocks of 14th Street between First Avenue and Third Avenue in the eastbound and westbound directions, and between Eighth Avenue and Ninth Avenue in the westbound direction, bus lanes would be added to the roadway, but provisions restricting through traffic access would not be in place. Throughout the 14th Street corridor, temporary bus priority street treatments may include roadway resurfacing, painted pedestrian spaces, red painted bus lanes, roadway markings and bus stop curb extensions (see Figure 4). Temporary pedestrian improvements around 14th Street in Manhattan would include new pedestrian space on Union Square West from 14th to 15th Streets and 16th to 17th Streets (where the street would be temporarily closed to vehicles). A new pedestrian street with a new bike parking hub would be temporarily established on University Place between 13th and 14th Streets. The street would be a “shared street” where pedestrians, vehicles, and cyclists all share the right of way. The street would be designed for a slow travel speed and vehicles would be advised to drive 5 mph. (NYCDOT has implemented other similar “shared streets” elsewhere in New York City on low volume streets). This block would be converted to a single southbound travel lane with loading space, a large bikeshare dock, and a variety of bike parking facilities.

FIGURE 4. EXISTING AND PROPOSED DESIGN TYPICAL 14TH STREET BUSWAY CROSS SECTION



Stuyvesant Cove Bus Terminal: To facilitate the connection between the ferry at Stuyvesant Cove and the M14 SBS, a temporary bus terminal would be constructed at an existing parking lot under the FDR Drive viaduct located at Avenue C and 18th Street. This parking lot has a capacity of 83 spots and is owned by New York City Small Business Services, managed by NYCEDC and operated by a private entity. MTA NYCT is currently discussing the use of this lot with the operator. While design of the temporary facility is ongoing, Appendix D, Figure D-16, shows a conceptual plan that would accommodate up to six articulated buses, a new boarding platform, modifications to entry/egress of the lot to allow for bus maneuverability, construction of a temporary pedestrian path to the ferry, and installation of fare machines. There would also be a dispatcher booth and a small facility for bus operator accommodations. Upon completion of the L train closure, the lot would be restored to its original condition. In addition, a New York City Small Business Services owned parking lot immediately to the north of the proposed bus terminal would undergo a minor alteration to switch the entry and exit point from the south end of the lot to the north end of the lot. This would remove the conflict of buses exiting the north end of the bus terminal and vehicles that would be entering and exiting that lot. There may be one or two parking spots that are eliminated to accommodate the relocation of an attendant booth.

Options Considered for 14th Street Roadway Treatments

The determination of the need for bus priority treatment on 14th Street is based on traffic modeling analyses conducted by MTA NYCT and NYCDOT of the 14th Street corridor, including adjacent side streets. The side streets have a more residential character than 14th Street itself so the plan reflects the imperative to

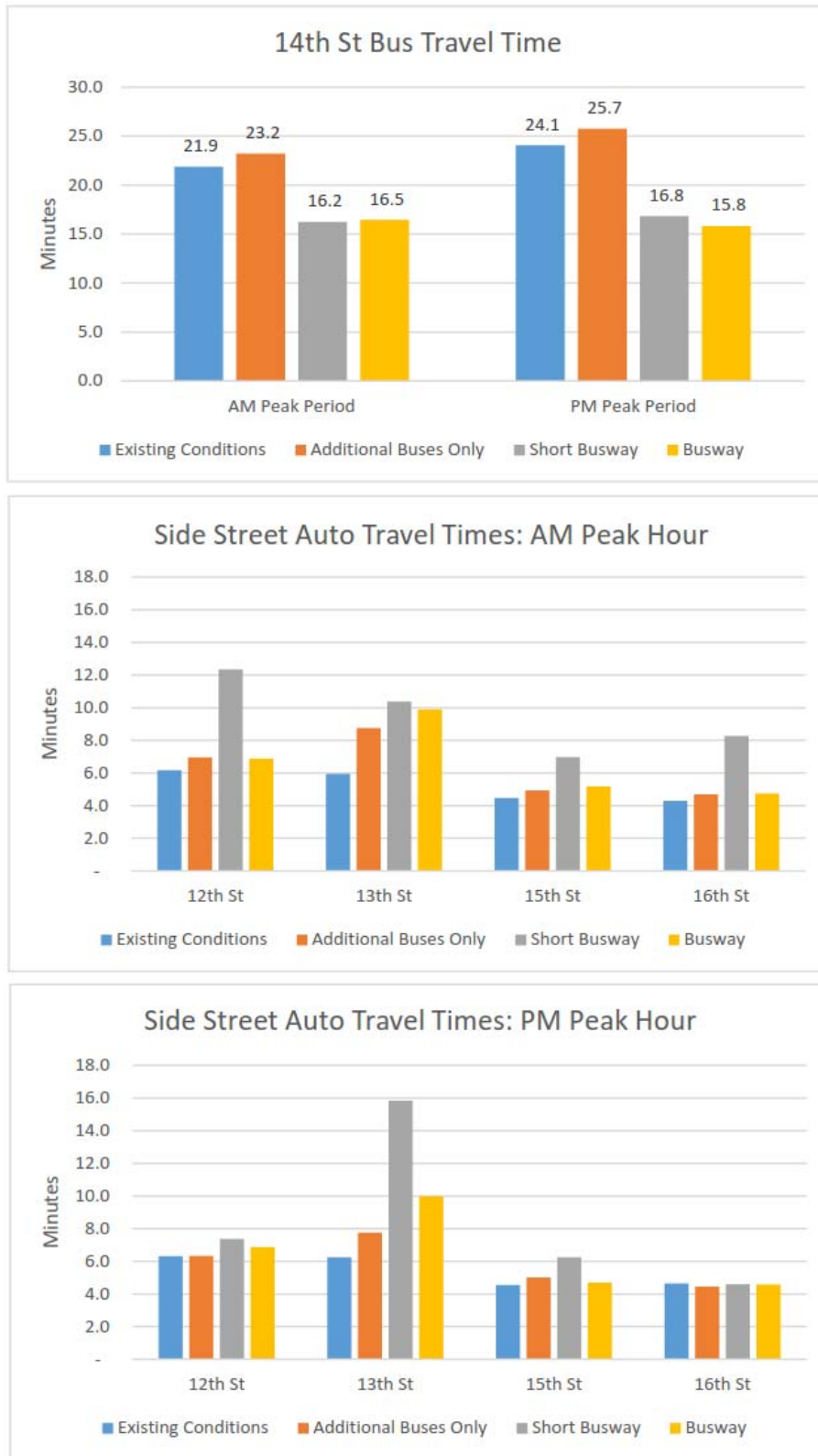
balance the needs of local access on these streets while addressing the larger challenge of accommodating tens of thousands of crosstown subway riders who would shift to buses, bikes, and walking.

The Aimsun model looked at a network of streets: between 12th and 16th Streets between Avenue C and Ninth Avenue; First Avenue between 14th and 20th Streets; and East 20th Street between Avenue C and First Avenue. The effects of crosstown travel on 12th to 16th Streets were evaluated based on scenarios that modeled various bus priority configurations and general traffic access along 14th Street. The following scenarios were modeled for 14th Street network:

- **Additional Buses Only Option** (additional bus service with no street treatments) where NYCT runs additional bus service to support the corridor during tunnel closure, but NYCDOT makes no changes to the street. This is similar to the No Action Alternative but would add considerably greater frequency of crosstown bus service.
- **SBS Option** that offers standard transit priority lanes and typical turn restrictions found along other crosstown SBS routes.
- **Short Busway Option** that restricts general traffic access on 14th Street between Third Avenue and Sixth Avenue.
- **Busway Option** that spans from Third Avenue to Eighth Avenue in the westbound direction and Ninth Avenue/Hudson Street to Third Avenue in the eastbound direction (the preferred ASP option).

The Additional Buses Only Option did not improve crosstown travel times and still had limited bus throughput such that NYCT and NYCDOT determined that the option was not viable to meet the temporary demand. Similarly, the Short Busway option from just Third Avenue to Sixth Avenue was deemed not viable primarily based on the diversion of traffic to side streets (creating a marked decrease in side street travel speeds primarily in the AM peak hour) and difficult turning movements at the east and west ends of the busway. The anticipated bus and overall travel speeds for 14th Street and side streets is summarized in Figure 5, which shows that with the proposed Busway Option, travel speeds would be optimized on 14th Street and side streets (including 12th, 13th, 15th, and 16th Streets) would generally operate with similar speeds to existing conditions, although certain side streets will be more congested than existing conditions.

FIGURE 5. BUS AND AUTO TRAVEL TIMES ON 14TH STREET CORRIDOR: OPTIONS CONSIDERED FOR 14TH STREET ROADWAY TREATMENTS



5.2.3.3 Local Bus Service

Riders who normally take the L train can access other subway lines by walking or by local bus connections. Most of the local bus routes would have sufficient capacity to absorb these additional riders since the routes are not at their peak load points approaching the subway stations. However, MTA NYCT has identified several routes that would benefit from temporary increased service to meet the anticipated additional demand. These routes include the B62, B48, B57, B24, B60, B6, B103, and B32. Temporary increased service on these routes is likely to be along a segment of the route, rather than the full length of the route. The B39 bus route, which operates between the Williamsburg Bridge and Delancey Street/Allen Street in Manhattan, would be temporarily discontinued since it mirrors the L3 interborough bus route.

5.2.3.4 Temporary Storage Facilities

The proposed ASP would require MTA NYCT to secure temporary parking areas to store additional buses for the temporary M14 SBS route, L1, L2, L3, and L4 interborough bus routes, and increased local bus services. MTA NYCT would allocate up to 200 buses to support the temporary services. The MTA's existing bus depots would fuel and maintain the additional buses, but most depots are at or near capacity and cannot accommodate additional large fleets of vehicles for overnight storage.

Site Selection Process

To identify and select suitable properties, MTA and MTA NYCT undertook an extensive review of MTA-controlled as well as other publicly and privately-owned properties. Properties included sites owned by NYCDOT, Port Authority of New York & New Jersey (PANYNJ), and New Jersey Transit (NJT) as well as maritime infrastructure properties.

Considerations for site selection included the following:

- Minimize travel distance of empty buses by prioritizing sites located near planned bus routes and existing depots.
- Minimize shuttle distance required of bus drivers between parking areas and dispatch centers by seeking to identify one single site or cluster of nearby sites.
- Minimize costs to lease properties by giving preference to underutilized publicly owned sites.
- Minimize negative impact to community by seeking sites with conforming industrial uses.

Description of Preferred Storage Locations

The MTA reviewed approximately 25 sites and narrowed the list to three sites that are preferred based on their relative proximity to the temporary service routes and capacity to accommodate most, if not all, of the additional buses at a single location at the Metropolitan Avenue, Port Authority, and Williamsburg Bridge sites.

Under the proposed ASP, the MTA would secure the Metropolitan Avenue and Port Authority sites for temporary bus storage needs (as described below), but the Williamsburg Bridge site would only be pursued should the Port Authority site become unavailable. Based on the capacity of the preferred sites, standard buses (40 feet in length) for interborough and enhanced local bus services would be stored separately from articulated buses (60 feet in length) for the M14 SBS bus services.

Metropolitan Avenue site. This site is MTA NYCT’s preferred location for parking of standard buses. The privately-owned site is in Maspeth, Queens. It is approximately 195,698 square feet (4.492 acres) in size, and the portion of the lot MTA NYCT is seeking to secure is 137,457 square feet (3.156 acres). Figure 6 is a map of the proposed site.

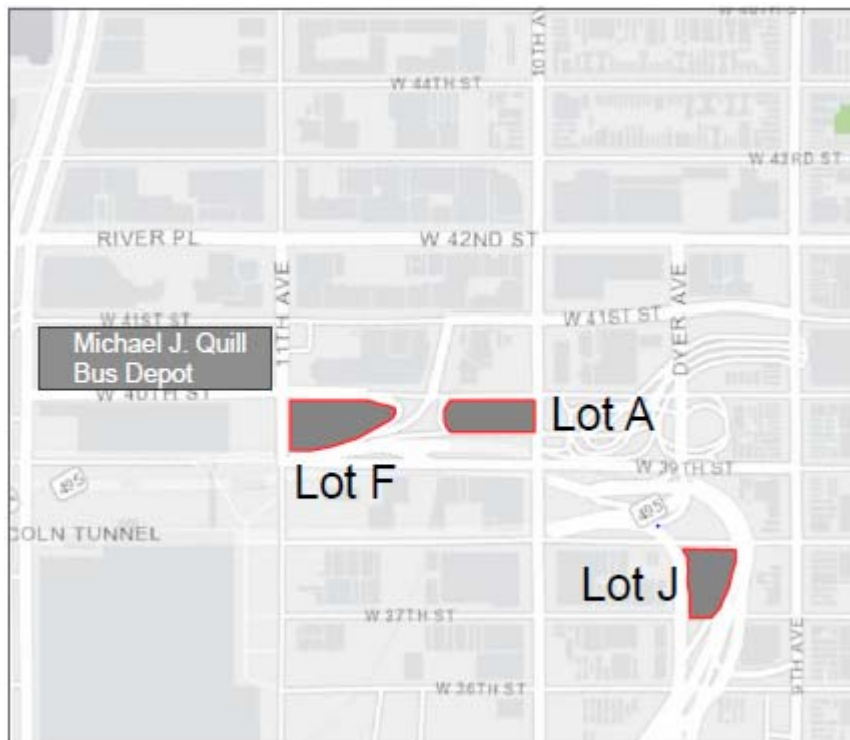
FIGURE 6. METROPOLITAN AVENUE BUS STORAGE SITE



The site is preferred because parking capacity meets all temporary additional standard bus fleet storage needs in one location. Currently, the portion of the site that the MTA NYCT would utilize has about 137 spaces used for truck and private bus parking on a month-to-month basis. The lot can accommodate up to 206 standard buses, and MTA NYCT would need parking for approximately 130 standard buses. In addition, it satisfies proximity considerations of being near an existing depot (MTA NYCT Grand Avenue Depot is approximately 0.8 mile away) and the interborough bus routes. MTA NYCT’s proposed bus parking use is in conformance with the existing use, as the site is used for short-term parking of various vehicles (e.g., coach and school buses, freight trucks, vans, cars, and movie trailers). Under the proposed ASP, MTA NYCT would seek to occupy a portion of the lot for the duration of the Project. The remaining portion of the lot would continue to be used for month-to-month parking and storage by others.

Port Authority site. This site is MTA NYCT’s preferred location for overnight parking of articulated buses. The site comprises three distinct lots located on Manhattan’s West Side, between West 38th and West 40th Streets, covering 64,950 square feet (1.49 acres). Figure 7 is a map of the proposed site.

FIGURE 7. PORT AUTHORITY BUS SITE LOTS A, F, AND J



The site is owned by PANYNJ and is currently licensed to NJT for daytime storage of its buses. In addition, a local church has permission from PANYNJ to use one of the three lots on Sundays for daytime parking.

The site is preferred because the combined parking capacity meets all temporary additional articulated bus fleet storage needs. The site can accommodate up to 50 articulated buses, and MTA NYCT would need parking for approximately 47. The site also satisfies the proximity criteria of being near an existing depot (MTA NYCT’s Michael J. Quill Bus Depot is diagonally across from two of the lots and the third lot is four blocks away) and the proposed M14 SBS route. In order to maximize operations efficiencies, MTA NYCT would store some articulated buses that are housed in the Quill Depot in the Port Authority lots overnight. As the current site is used for bus parking, MTA NYCT’s proposal is compatible with the existing use.

Under the proposed ASP, MTA NYCT would seek to share occupancy with NJT and the church, all with PANYNJ’s consent, for the duration of the Project.

Williamsburg Bridge site (alternate for PANYNJ site). This site is MTA NYCT’s second preferred location for overnight parking of articulated buses for the temporary bus fleet expansion. The site would only be pursued should the Port Authority site become unavailable. The site is in Manhattan under the Williamsburg Bridge on-ramp. Figure 8 is a map of the proposed site.

FIGURE 8. WILLIAMSBURG BRIDGE BUS STORAGE SITE



This site is owned by the City of New York under NYCDOT’s jurisdiction. It is currently used for storage of materials such as traffic barriers, other roadway equipment, and occasional access related to bridge maintenance.

The site is MTA NYCT’s second preferred location for articulated buses because it can store some of the temporary additional articulated bus fleet storage needs. While its distance of 4.8 miles from MTA NYCT’s Michael J. Quill Depot is less desirable than the PANYNJ site, the Williamsburg Bridge site satisfies the proximity consideration of being near the proposed M14 SBS route. While the current industrial use of the site is compatible with the bus storage use proposed under the proposed ASP, the site’s location near large apartment complexes makes it less desirable.

Under the proposed ASP, MTA would seek to occupy the available space at the site for the duration of the Project.

5.2.4 Ferry

MTA NYCT does not typically add ferry service for subway closures. However, the proximity of the L train’s Williamsburg ridership to the East River, and the fact that those riders would otherwise face some of the longest additional travel time during the closure (up to 40 minutes one-way for some markets) indicated ferry service would be a desirable option for some L train riders.

In North Williamsburg, temporary modifications would be made to accommodate the increase in the number of passengers with the construction of an additional temporary ferry landing adjoining the Empire

Pier, immediately to the north of the existing ferry landing between North 5th and North 6th Streets. This landing would share New York City Department of Parks and Recreation's (NYCDPR) Empire Pier through an agreement between the MTA NYCT and NYCDPR.

At the recently installed Stuyvesant Cove ferry landing, which is soon to open in 2018, a temporary pedestrian path would be constructed through Stuyvesant Cove Park to connect the ferry landing to a temporary bus terminal to be provided on the adjoining parking lot (see 14th Street SBS service description Section 5.2.3.2). The proposed ferry service would include the temporary installation of automated ticket vending machines at both the Stuyvesant Cove and North Williamsburg landings. At Stuyvesant Cove, three MTA NYCT ticket machines may be installed at the proposed temporary bus terminal. At North Williamsburg, up to seven MTA NYCT ticket machines may be installed near the existing pier within North 5th Street Park. There would be free transfers between the proposed ASP modes and other MTA buses and subways (but not with the NYC Ferries). (MTA NYCT would not require displaced L riders to pay an additional MTA NYCT fare on NYCT services, including the proposed temporary MTA NYCT ferry service, consistent with current MTA policy.)

MTA NYCT worked with NYCEDC to develop a temporary ferry alternative for the proposed ASP that would create a connection between the waterfronts in Manhattan and Brooklyn. A temporary ferry service between the existing North Williamsburg landing and the Stuyvesant Cove landing, which is slated to open in 2018, would be contracted by NYCEDC on behalf of MTA NYCT, which would provide approximately eight total trips during the peak hour, providing an hourly capacity of 1,192 passengers in each direction. This service would be able to handle the anticipated peak hour demand of 919 passengers in the peak direction. Both ferry terminals are run by NYCEDC. The existing North Williamsburg landing operates today at capacity and cannot accommodate the additional passengers. This is due largely to the limited width of the fixed pier and gangway at the existing North Williamsburg landing. Given the NYC Ferry service that already exists today, there is no space for an additional queueing line for a temporary ferry service. Therefore, a temporary North Williamsburg landing would be constructed adjoining the existing Empire Pier, immediately north of the existing landing. A ferry landing at Stuyvesant Cove is already programmed to be built by the City of New York and would open prior to the closure of Canarsie Tunnel as part of an expansion of citywide ferry service. The temporary ferry service would not be considered part of the NYC Ferry Service but would be contracted separately with ferry operators.

MTA NYCT has entered into an agreement for NYCEDC to procure an entity to design and build the temporary North Williamsburg landing and operate the temporary ferry service from the temporary North Williamsburg landing to the future landing at Stuyvesant Cove. The work would include the removal and site restoration of the temporary ferry landing placed adjacent to the Empire Pier at the completion of the temporary ferry service. NYCEDC has substantial experience in the provision and management of ferry services in the East River. No ferry mooring or maintenance facilities would be built or expanded for the Proposed Action.

In the request for proposals, NYCEDC has issued detailed performance specifications for the abovementioned services, including the following requirements:

- Obtain an NYCDPR construction permit for the construction of the landing.

- The operator must construct the landing no later than February 28, 2019, and provide sufficient time to allow for appropriate testing and commissioning prior to the start of service no earlier than March 16, 2019.
- A U. S. Coast Guard-compliant security gate must be installed by the operator as part of the temporary ferry landing at the top of the gangway on the Empire Pier.
- The operator must obtain a route license (also known as a Limited Private Ferry Operator License) from NYCDOT and pay associated fees. Additionally, the operator must obtain a landing slot license and pay associated fees for the right to use the temporary North Williamsburg landing and the Stuyvesant Cove landing from the NYCDPR and the NYC Department of Small Business Services, respectively.
- The operator must cross the East River, between the temporary ferry landing at North Williamsburg and Stuyvesant Cove, within approximately 5.5 minutes.
- Vessels must use the current landing at Stuyvesant Cove and the proposed landing at North Williamsburg.
- Vessels must meet the design and operational standards of U.S. Coast Guard (USCG) subchapter T vessels that are certified to carry a minimum of 149 passengers to accommodate the anticipated ridership demand at each landing location. Preference will be given for vessels that have Tier 3 engines (or better).
- Vessels must comply with all applicable laws, including the ADA and Local Law 68 of 2005— Accessible Water Borne Commuter Services Facilities Transportation Act of 2005 (LL68).
- Vessels must be capable of safely and reliably operating the proposed route across the East River under typical environmental conditions, which include ice and high winds.
- The operator must provide a System Safety Program, consistent with U.S. Coast Guard Safety Standards and Regulations.
- The operator must develop a contingency plan to provide uninterrupted operations should any vessel be taken out of service.

The ferry boats would use existing navigational channels in the East River. No dredging would be needed to accommodate the proposed route. A meeting with the executive committee of the New York Harbor Operations Committee would be held to identify and resolve any maritime safety concerns. In addition, the temporary ferry service and facilities are being reviewed with natural resource agencies to avoid and minimize potential impacts.

Table 5 and Table 6 provide schedules of proposed temporary ferry service. A service frequency of every 7.5 minutes during AM and PM peak hours (8 trips per hour in each direction) is based on the availability of slots at the two ferry landings and the ability to integrate with existing and planned future ferry service. The ferries would have a minimum capacity of 149 passengers, consistent with NYCEDC's existing fleet, and would have the physical dimensions and operational capabilities to meet requirements of the route.

TABLE 5. PROPOSED FERRY SERVICE: WEEKDAY SERVICE TIMETABLE

Time Period	Frequency (minutes)
Early AM (6 AM – 7 AM)	15
AM Peak (7 AM – 10 AM)	7.5
Midday (10 AM – 5 PM)	10
PM Peak (5 PM – 8 PM)	7.5
Evening (8 PM – Midnight)	10

TABLE 6. PROPOSED FERRY SERVICE: WEEKEND/HOLIDAY SERVICE TIMETABLE

Time Period	Frequency (minutes)
Early AM (6 AM - 10 AM)	15
Daytime (10 AM - Midnight)	10
Friday/Saturday Night (Midnight – 2 AM)	15

MTA NYCT would share ferry facilities with the NYC Ferry service at Stuyvesant Cove. Since NYC Ferry service would continue to operate during the closure, the proposed peak frequencies take advantage of currently unused capacity at ferry landings and, combined, are the maximum that can be provided. It is not anticipated that new or expanded NYC Ferry Service would be required. However, MTA NYCT and NYCEDC would monitor ridership and would attempt to address loading issues if they arise.

5.2.5 Bicycles

In order to provide the most comprehensive service, MTA NYCT, in partnership with NYCDOT, would implement temporary bike enhancements for cycling commuters as part of the proposed ASP in conjunction with other planned bike improvements that NYCDOT is implementing independent of the Proposed Action.

In Manhattan, the proposed ASP would include the temporary implementation of one-way bike lanes on 12th and 13th Streets and Union Square West to provide a safer crosstown cycle path between Avenue C and Greenwich Avenue. The parking lanes would be removed on one side of the street on 12th and 13th Streets (a loss of about 550 spaces), but all vehicle through lanes would remain, and overall the new temporary bike lanes would not impede capacity or operation of the street.

NYCDOT would include temporary high-capacity valet bike parking that may include secure parking space for private bikes or additional space for Citi Bike facilities and temporary upgrades to the Grand Street bike lane.

5.2.6 Pedestrians

MTA NYCT and NYCDOT have incorporated temporary pedestrian improvements into the proposed ASP to minimize crowding and improve safety on highly used streets and public areas. These improvements would be made in conjunction with NYCDOT’s permanent planned pedestrian improvements that are

separate from the Proposed Action. In Manhattan, the proposed ASP includes temporary vehicle restrictions on Union Square West and University Place to allow for additional pedestrian space as well as temporary sidewalk expansions on 14th Street, specifically between Eighth and Third Avenue and along Houston Street, and Grand Street Corridor in Brooklyn. At the Stuyvesant Cove ferry landing, arriving and disembarking ferry passengers would be crossing the bicycle and pedestrian traffic north/south along the East River Greenway. This crossing would not be signal-controlled, but the mixing area would be delineated through markings and signage along the pathway. Current designs have ferry passengers crossing the pathway across a raised crosswalk to further delineate the mixing area and to communicate to pathway users to yield to crossing pedestrian traffic. This design is consistent with similar pathway crossings throughout the city, as well as city, state and national design best practices.

5.3 SUMMARY OF PROPOSED ACTION

Based on the extensive analysis of the closure plan as summarized above, MTA NYCT, in coordination with NYCDOT, developed the proposed ASP to maximize transportation options to L train ridership during the anticipated full tunnel closure while balancing the needs of residents near existing L train service and other users of the transportation network. It is a comprehensive approach that would maximize continued subway ridership as well as new temporary bus and ferry service and enhanced pedestrian and bicycle opportunities. As an intermodal plan, its implementation is based on a collaborative approach with key MTA and City of New York agency participation. With additional public input, some elements of the proposed ASP may be adjusted prior to implementation. Once the proposed ASP is implemented, monitoring would be dynamic and responsive, with an ability to adjust approaches to optimize performance during the anticipated 15-month construction schedule.

6. Affected Environment and Environmental Consequences

For each impact category, this section evaluates the impacts of the Proposed Action (ASP) in comparison with a No Action Alternative in which the tunnel is closed but without the proposed ASP measures. The proposed ASP would be in effect for only a temporary, approximately 15-month period to coincide with the closure of the Canarsie Tunnel and associated suspension of L train service and would result in no permanent changes that could have potential long-term effects on environmental conditions within the affected areas. Therefore, all the impacts described below would be construction-related and temporary.

Under CEQ guidelines, the level of detail for each resource should be in proportion to the significance of the impact, and the potential it has to affect the decision-making process to select an alternative. Based on the largely temporary implementation of the proposed ASP during the Canarsie Tunnel closure period, and the limited changes to the existing environmental setting, the Proposed Action would have no effects on the following resources:

- Energy and Natural Resources
- Geology and Soils
- Utilities
- Visual Resources and Aesthetics
- Section 6(f) of the Land and Water Conservation Act

In addition, since the Proposed Action would be temporary, there would be no potential for indirect effects. Changes in ridership and modal shifts would be expected to return to pre-construction numbers and shares once the tunnel is reopened and normal L train service resumes.

The following resources are analyzed in this SEA since there is the potential for impacts under the Proposed Action:

- Transportation
- Air Quality
- Biological Resources
- Hazardous Materials
- Historic, Cultural and Archaeological Resources
- Noise and Vibration
- Social Resources and Economic Impacts
- Water Resources
- Construction
- Greenhouse Gas Emissions
- Environmental Justice
- Section 4(f) of the Department of Transportation Act

6.1 TRANSPORTATION IMPACTS

6.1.1 Subway Transit

Principal Conclusion: MTA NYCT modeling estimates that the proposed ASP would result in a 20 percent reduction in demand on adjacent subways between Brooklyn and Manhattan. Compared to the No Action Alternative, the Proposed Action would allow the subway system to improve operating conditions and improve crowding conditions, thereby improving conditions for riders and overall service reliability. This would be a temporary beneficial impact on transit conditions.

6.1.1.1 No Action Alternative

Based on the No Action Alternative service enhancements summarized in Chapter 5, MTA NYCT modeled the anticipated No Action Alternative volume and projected passenger loads for the subway lines that would be expected to absorb most L train ridership between Brooklyn and Manhattan. Table 7 shows the forecasted AM peak-hour demand on subways based on the No Action Alternative.

TABLE 7. NO ACTION ALTERNATIVE: AM PEAK-HOUR VOLUME, GUIDELINE CAPACITY AND VOLUME-TO-GUIDELINE CAPACITY FOR SUBWAYS LINES AT KEY LOCATIONS

Line	Project-Related Peak Load Point	On Board Volume Leaving Station	Max. Loading Guideline Capacity	Volume-to-Capacity
A	Hoyt-Schermerhorn	19,812	23,800	83%
C	Hoyt-Schermerhorn	7,819	11,600	67%
G	Greenpoint Avenue (northbound)	13,378	17,400	77%
G	Clinton Washington (southbound)	7,172	13,920	52%
J	Marcy Avenue	12,065	11,600	104%
M	Marcy Avenue	18,713	16,240	115%
L	Bedford Avenue	—	—	—
7	Vernon Boulevard Jackson Avenue	29,088	35,090	83%
E	Court Square-23rd Street	22,846	21,750	105%
M	Court Square-23rd Street	10,668	13,920	77%
R	Queens Plaza	7,016	11,200	63%

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

Overall, the absorption of additional ridership on other subway lines would result in a large temporary increase in demand and peak loads that would exceed MTA NYCT’s Service Loading Guidelines on the J, M and E lines by 4 percent, 15 percent and 5 percent, respectively. Train loads that exceed MTA NYCT’s maximum loading guideline capacity (a seated load plus 3 square feet per standee on average per car, with train loads averaged over an hour) result in extremely overcrowded individual trains and particularly individual cars, since riders do not always spread out evenly among the cars. Trains that exceed MTA NYCT’s loading guidelines typically have longer station dwell times, since it takes longer for riders to exit and board the train. In turn, long dwell times can reduce train throughput, which reduces the number of trains in the peak hour and can exacerbate further crowding and delays. This would be the case particularly on the M line, given the projected severe level of crowding.

Additionally, even though permanent improvements are being made at Court Square, Metropolitan-Lorimer, Marcy Avenue, and Broadway Junction stations prior to the start of the closure, these stations are expected to see crowding conditions.

6.1.1.2 Proposed Action

With the proposed ASP in place, MTA NYCT modeled East River subway crossings to estimate its effect compared with the No Action Alternative. For AM peak subway service, the proposed ASP would generally improve operating conditions, most notably on the J and M lines. Overall, the other lines would generally meet MTA NYCT’s loading guidelines. Table 8 shows that, of the affected lines, only the E, M, and J trains would operate with a volume-to-guideline capacity ratio higher than 100 percent. For comparison, the No Action Alternative would yield extreme crowding on the M line at a level that would be very difficult to operate reliably, which would generate further crowding and reduce train throughput and capacity.

TABLE 8. NO ACTION ALTERNATIVE AND ALTERNATIVE SERVICE PLAN AM PEAK SUBWAY SERVICE

Line	Project Related Peak Load Point	No Action Alternative			Alternative Service Plan		
		On Board Volume Leaving Station	Max. Loading Guideline Capacity	Volume-to-Capacity	On Board Volume Leaving Station	Max. Loading Guideline Capacity	Volume-to-Capacity
A	Hoyt-Schermerhorn	19,812	23,800	83%	19,549	23,800	82%
C	Hoyt-Schermerhorn	7,819	11,600	67%	7,544	11,600	65%
G	Greenpoint (northbound)	13,378	17,400	77%	11,868	17,400	68%
G	Clinton Washington (southbound)	7,172	13,920	52%	6,701	13,920	48%
J	Marcy Avenue	12,065	11,600	104%	11,648	11,600	100%
M	Marcy Avenue	18,713	16,240	115%	16,577	16,240	102%
L	Bedford Avenue	—	—	—	—	—	—
7	Vernon Boulevard Jackson Avenue	29,088	35,090	83%	28,730	35,090	82%
E	Court Sq-23rd St	22,846	21,750	105%	22,604	21,750	104%
M	Court Sq-23rd St	10,668	13,920	77%	10,444	13,920	75%
R	Queens Plaza	7,016	11,200	63%	7,150	11,200	64%

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

With the proposed ASP in place, station crowding would be reduced as some riders would be diverted to buses and ferries. There would be additional station improvements at Hewes Street, Nassau Street, and Metropolitan Avenue to further improve crowding conditions.

Compared to the No Action Alternative in which there would be limited subway and bus service enhancements, the anticipated ridership on other subway lines under the Proposed Action would be able to be accommodated with loading generally within MTA NYCT’s loading guidelines. Therefore, the Proposed Action would result in a reduced level of potential impact on subway riders compared with the No Action Alternative.

6.1.2 Bus Transit

Principal Conclusion: With the proposed ASP, overall levels of travel delay for bus passengers (both for Brooklyn-Manhattan and 14th Street riders) would improve substantially over the No Action Alternative, where there would be a notable decline in transit mobility. This would be a temporary beneficial impact on bus transit conditions.

6.1.2.1 No Action Alternative

Under the No Action Alternative, MTA NYCT identified a reasonable maximum number of buses that could be added to existing routes without greatly increasing bus travel times based on the practical experience of the agency's bus operations and planning experts. Without any physical enhancements to prioritize bus movements, additional buses beyond this amount would result in longer bus travel times, which would make this mode less attractive than other modes, such as walking.

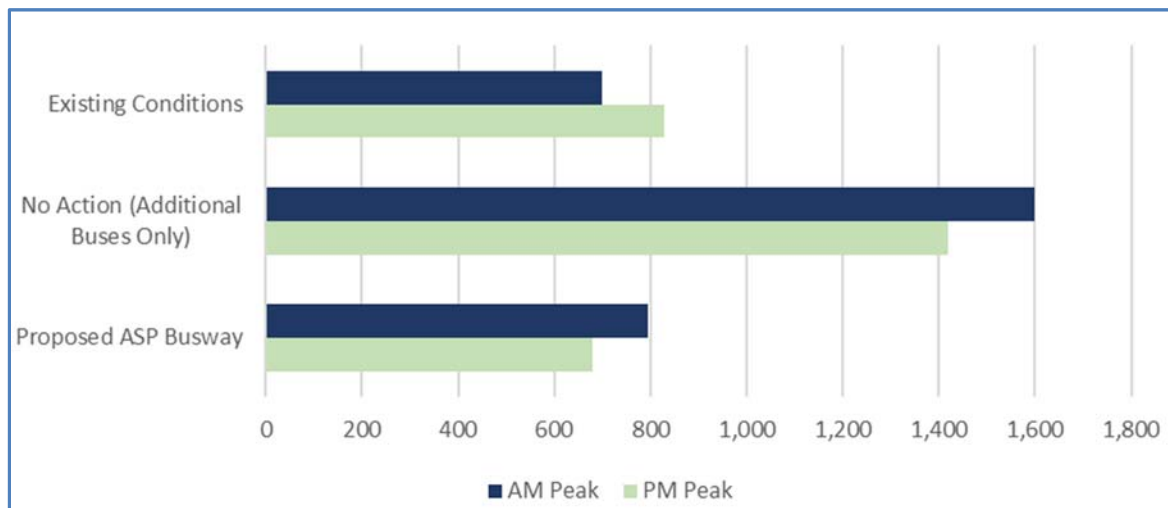
Brooklyn-Manhattan Bus Service

Under the No Action Alternative, the B39 would be temporarily increased in frequency from 2 buses to 12 buses per hour in each direction during the morning peak. MTA NYCT modelling analysis indicates that B39 bus speeds would be expected to be slower than the current travel times experienced in the AM peak hour due to additional vehicular traffic on the Williamsburg Bridge. Ridership forecasts assumed the B39 travel times would rise to the 85th percentile of those currently experienced by the route. With these travel times, the additional B39 service would not be expected to capture any meaningful numbers of L train ridership or generate a viable option for L train customers. This would push some of these riders into lengthier transit trips or into other modes, including private vehicles (or FHV's), which would exacerbate peak-hour traffic congestion.

14th Street Corridor Bus Service

The M14A and M14D would have temporary peak frequency increases from 25 buses per hour to 35 buses per hour in each direction under the No Action Alternative. These additional buses added to a cross street with already high levels of congestion would provide little additional capacity to absorb the dramatic increase in demand for bus service in the No Action Alternative. The addition of intra-Manhattan L train riders as well as interborough L train riders arriving at 14th Street from other north-south subway lines would nearly triple passenger demand of the existing 30,000 riders on the M14A and M14D routes. Appendix E presents a detailed analysis of traffic impacts along the 14th Street corridor. As shown in Figure 9, the Additional Buses Only Option (as a proxy for the No Action based on its similar characteristics) would dramatically increase travel times for crosstown bus service compared with existing conditions. This is a result of the significant increase in bus ridership and the inability of the No Action Alternative bus frequency or travel speeds to absorb the new demand, as well as the increase in autos and taxis serving displaced L riders. The poor bus speeds would in turn push even more riders into other modes, including taxis and FHV's as well as additional pedestrian and bicycle volumes, all of which could exacerbate peak-hour traffic congestion and could have diversions and spillover effects on side streets.

FIGURE 9. PEAK TWO-HOUR COMBINED AUTO AND BUS PASSENGER AGGREGATE PERSON-HOURS OF DELAY, 14TH STREET CORRIDOR



Note: Based on the near-term implementation of the Alternative Service Plan, the existing conditions information has been included in this analysis since it allows for a comparable baseline for both the No Action Alternative with additional buses and the Proposed Action with the proposed ASP.

In the No Action Alternative, there would be a notable decline in the transit mobility for the easternmost residential areas around Stuyvesant Town where residents would mostly be anticipated to walk upwards of a mile to connect with the Union Square subway station.

6.1.2.2 Proposed Action

Brooklyn-Manhattan Bus Service

Based on prior analysis (see Appendix E as well as supplementary traffic modeling information available at: http://web.mta.info/sandy/pdf/20180222_14th_Street_Traffic_Memo_Appendices.pdf), temporarily converting the Williamsburg Bridge to a full HOV3+ with bus priority and allowing for trucks is considered the only viable option for bridge operations and is the proposed framework for the proposed ASP. With this bus priority treatment, it is anticipated that interborough bus service would have adequate schedule and capacity to serve the modeled demand (Table 9).

TABLE 9. PEAK MANHATTAN-BOUND BUS VOLUME AND CAPACITY ON THE MANHATTAN BRIDGE

	Alternative Service Plan		
	Volume	Guideline Capacity	Volume-to-Capacity
Williamsburg Bridge Buses	4,068	4,374	93%

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

14th Street Corridor Bus Service

With the proposed ASP, the 14th Street bus service would include a greatly expanded SBS template, and the busway configuration would allow for maximum capacity and travel speeds necessary to accommodate the increased demand. In addition to existing M14 bus service, SBS buses would operate with 2-minute headways during peak hours, providing an additional 33 and 34 buses in each direction in the AM and PM

peak hours, respectively. As summarized in Figure 9, overall levels of travel delay for bus passengers would improve substantially over the No Action Alternative while also serving tens of thousands extra customers (indicating a much lower travel time per trip given the large increase in ridership). Temporary SBS service would link the crosstown service with the temporary ferry terminal at Stuyvesant Cove and would provide full coverage of service from the East Side of Manhattan thereby greatly improving bus service for Stuyvesant Town and residential and other customers in the eastern portions of the 14th Street corridor.

6.1.3 Traffic and Roadways

Principal Conclusion: The vehicle restrictions and bus priority lanes in the proposed ASP would result in substantial improvements in overall travel times compared with the No Action Alternative where the limited bus expansion would create congestion and delay. The potential for automobile diversions from the Williamsburg Bridge would result in localized changes in traffic patterns, including a notable reduction in automobile traffic on the Williamsburg Bridge and the street network on either side as well as an increase in automobile traffic on other crossings and streets. This would be a temporary but not significant adverse impact to traffic in some areas and a temporary beneficial impact on the Williamsburg Bridge and 14th Street.

6.1.3.1 No Action Alternative

East River Crossings

As with existing conditions, traffic on the Williamsburg Bridge would continue to be constrained. Congestion would be expected to worsen due to the potential addition of an estimated 500 vehicles resulting from L train riders opting for taxis or FHVs to shorten their travel times between Manhattan and Brooklyn. This is an increase of about 12 percent over the bridge's two way AM peak hour volumes and would be most pronounced in the peak Manhattan-bound direction (see Table 10). Note that this is likely a conservative estimate since 500 is less than 2 percent of current AM peak-hour L ridership across the river.¹⁰

The potential diversion or expansion of vehicle trips within Brooklyn reflecting the diversion of riders to private vehicles, taxis, and FHVs could result in localized increases in congestion on streets leading to and from the Williamsburg Bridge or other East River crossings and trips within Brooklyn and Queens to access other transit stations.

14th Street Corridor

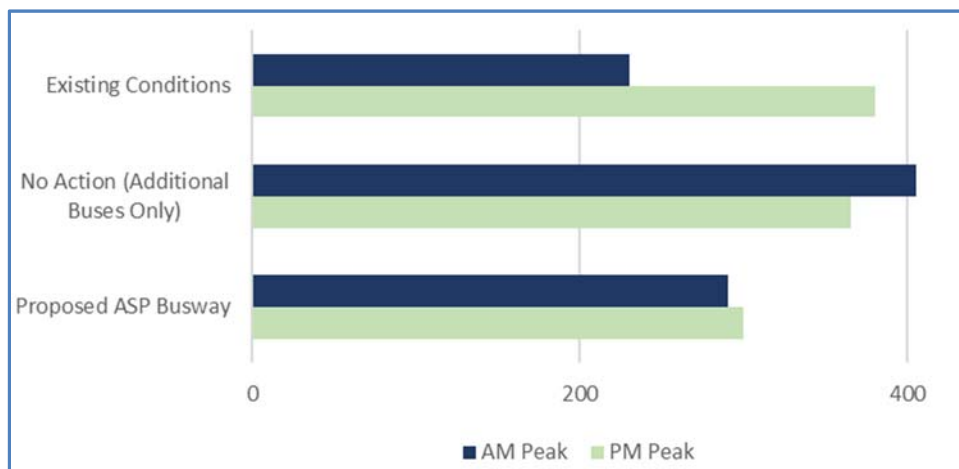
Traffic conditions along 14th Street would be expected to worsen in the No Action Alternative. As noted previously, there would be insufficient bus capacity to absorb the tripling of crosstown passengers compared to existing conditions. This would force L train riders and existing bus passengers to consider alternative modes for crosstown travel, including substantially more pedestrians and bicycle trips as well as taxis and FHVs. The increase in taxis and FHVs could be as high as 1,000 new vehicles along the corridor

¹⁰ Current established models (such as the BPM) have not yet been updated to fully account for the rapid rise of FHVs. However, MTA NYCT has recently developed a revised factor to represent transit riders that might shift to or from taxi or FHVs given the addition or elimination of a major transit line. This factor was derived from observations that taxi and FHV trips decreased on the Upper East Side of Manhattan following the opening of the Second Avenue Subway. That decrease was equal to about 10 percent of Second Avenue Subway ridership. Rather than apply that 10 percent to the entire current L demand of 25,000 in the peak hour, it has been applied only to the 5,300 peak L train riders who would be best served by the bus and ferry services in the ASP than by alternative subways.

in the AM peak hour, and 500 new vehicles at the busiest segment.¹¹ This would double the hourly car volumes on 14th Street, so spillover effects on side streets would be likely.

With no enhanced pedestrian capacities or new bicycle facilities and an increase in corridor vehicular volumes, existing high levels of congestion and slow travel speeds for all vehicular traffic would be expected to deteriorate. As shown in Figure 10, auto travel delays on all corridor streets (12th, 13th, 14th, 15th, and 16th Streets) would increase from existing conditions to the No Action Alternative (using the Additional Buses Only Option as a proxy since it would have similar characteristics) in the AM peak and would remain about the same in the PM peak hour. It is noted that the variation in these modeled travel delays does not consider the addition of up to 500 new auto trips in the corridor, so delays and traffic disruptions would be even greater in the No Action Alternative.

FIGURE 10. PEAK TWO-HOUR AGGREGATE AUTO PERSON-HOURS OF DELAY (12TH TO 16TH STREETS)



Note: Based on the near-term implementation of the Alternative Service Plan, the existing conditions information has been included in this analysis since it allows for a comparable baseline for both the No Action Alternative with additional buses and the Proposed Action with the proposed ASP.

6.1.3.2 Proposed Action

East River Crossings

The Williamsburg Bridge HOV3+ bus priority configuration would dramatically reduce the number of auto trips across the bridge during peak periods. As summarized in Table 10, BPM modeling results indicate that almost 3,000 vehicles could be diverted from the Williamsburg Bridge in the AM peak hour and almost 3,500 vehicles in the PM peak period. On balance, the HOV3+ option would provide for a more convenient transit connection serving an estimated 4,600 riders (about 4,100 Manhattan-bound trips and 500 Brooklyn bound trips) and travel speeds would be greatly enhanced for all remaining users of the bridge. The large

¹¹ In the ASP, demand of about 5,000 peak-hour bus passengers is projected on the busiest segment of 14th Street (or about half of the total AM peak-hour demand across the entire corridor of about 10,000 bus passengers). Using the same 10 percent factor described above and used for bridge demand, it is estimated that between 400 and 500 new vehicle trips would be generated in the core of the corridor if adequate transit alternatives are not provided.

reduction in vehicles crossing the bridge would be expected to ease traffic congestion and increase overall speeds on the streets leading to and from the bridge in both Manhattan and Brooklyn.

TABLE 10. WILLIAMSBURG BRIDGE TRAFFIC VOLUMES

Direction	AM Peak Hour*			PM Peak Hour*		
	No Bus Priority**	HOV3+	Change	No Bus Priority**	HOV3+	Change
Westbound	2,575	561	-2,014	2,356	844	-1,512
Eastbound	1,522	552	-970	2,571	653	-1918
Total	4,097	1,113	-2,984	4,927	1,497	-3,430

Source: NYCDOT/WSP. The process for deriving the information in this table is described in Appendix E.

* Average of 4-hour peak period

** No Bus Priority as proxy for No Action Alternative

The potential diversion of several thousand vehicle trips on a temporary basis during the tunnel closure would manifest itself in several ways. Low-occupancy vehicle trips could seek to use other river crossings including the three currently toll-free bridges of the Brooklyn Bridge, Manhattan Bridge, and Queensborough Bridge as well as the Brooklyn Battery Tunnel, Midtown Tunnel, and RFK (Triborough) Bridge.

In addition, diverted traffic may alternatively be replaced by travelers taking advantage of the HOV3+ capacity by either carpooling or using high-occupancy FHVs, or by travelers who could opt to not make the river crossing trip at all. It is possible that some drivers experiencing traffic congestion at alternative crossings would make such adjustments over the course of the 15-month period that the proposed ASP would be in effect.

As analyzed by MTA NYCT and NYCDOT, the additional bus volume along Grand Street and other roadways in the temporary interborough bus service area may generate some diversion and congestion on adjoining streets, but this would be for only 15 months. NYCDOT continues to work with affected communities to address this congestion. As a result, and based on the temporary closure period of 15 months, these changed conditions are not expected to generate significant adverse transportation impacts. Within Manhattan, the interborough bus routes would loop on First and Second Avenues, which are already operational with bus-only lanes as well as Allen, Lafayette, and Houston Streets, which are wide streets with existing bus operations. These additional buses would be offset by the dramatic decrease along Delancey Street in localized traffic coming from or to the Williamsburg Bridge.

The distribution of potential diverted trips to other East River crossings would create temporary increases in traffic volumes on these facilities and localized street networks serving the crossings. Because these conditions would last for only 15 months, and drivers would be expected to adjust their travel activities over the course of the temporary construction period, and since overall travel patterns would not change significantly, these conditions would not result in significant adverse environmental impacts.

14th Street Corridor

The busway ASP implementation would restrict vehicular access to 14th Street, with diversion of traffic to local side streets and the larger street network, MTA NYCT and NYCDOT modeling predicts that the busway alternative treatment (including M14 SBS street treatments) would offer substantial improvements

in overall modelled travel times for passengers by all modes compared with the Additional Buses Only option, which is similar to the No Action Alternative. This is true whether measured by travel hours of delay for all passengers in either bus or auto (see Figure 9), or by auto travelers (see Figure 10). Because 14th Street would be highly congested in the No Action Alternative, the overall level of congestion in the area in the proposed ASP, as measured by aggregate auto person-hours of delay, would be 28 percent lower in the AM peak hour and 18 percent lower in the PM peak hour. If impacts to just the side streets are assessed (i.e., excluding 14th Street), direct model results indicate mixed impacts: in the AM peak hour, auto times in the proposed ASP (shown on Figure 5 as Busway Option) would be about the same on 12th, 15th, and 16th Streets, and 14 percent slower on 13th Street compared to the Additional Buses Only option, which is similar to the No Action Alternative (see Figure 5). In the PM peak hour, some streets would have faster travel times and some would have slower times. The overall improvement in travel delay would likely be greater than shown here, considering that these results do not account for potential large shifts to taxis and FHV's that would be likely under the No Action Alternative described in Section 6.1.3.1, leading up to 500 new taxi and FHV trips in the corridor in the peak hour, roughly equal to current peak auto volumes along 14th Street. Considering those shifts, there is a strong possibility that even the side streets would be less congested with the proposed ASP than with the No Action Alternative.

6.1.4 Ferries

Principal Conclusion: The new, temporary ferry service would reduce travel time for some riders by up to 30 minutes when compared with the No Action Alternative, in which no additional ferry service would be provided. This would be a temporary beneficial impact on transit conditions.

6.1.4.1 No Action Alternative

Aside from the City of New York's previously planned Lower East Side Route that would serve Stuyvesant Cove, the No Action Alternative would not provide additional ferry service.

6.1.4.2 Proposed Action

As shown in Table 11, it is anticipated that the eight boats per peak hour would have a capacity of about 1,192 passengers and would use the existing Stuyvesant Cove ferry pier as well as a new temporary ferry landing on the Empire Pier in North Williamsburg. The estimated AM peak-hour demand is 919 passengers, thereby reflecting a utilization of about 77 percent. While this overall demand could vary considerably by season and daily weather conditions, capacity is sufficient, and the ferry service could absorb additional ridership should the demand grow for the service during the tunnel closure. This ferry service would reduce the travel time for some riders by up to 30 minutes when compared with the No Action Alternative.

TABLE 11. TEMPORARY FERRY ROUTE AM PEAK-HOUR VOLUME AND CAPACITY

Cordon Stations	Alternative Service Plan		
	Volume	Capacity	Volume-to-Capacity
Temporary East River Ferry	919	1,192	77%

Source: MTA NYCT. The process for deriving the information in this table is described on page 7 in Appendix E.

6.1.5 Pedestrians

Principal Conclusion: The proposed ASP would substantially improve pedestrian circulation compared to the No Action Alternative, particularly in the 14th Street corridor where walking would be an important alternative mode for crosstown travel. This would be a temporary beneficial impact to pedestrian circulation.

6.1.5.1 No Action Alternative

In the No Action Alternative, pedestrian volumes would increase substantially in the 14th Street corridor when large numbers of L train riders would have to use the corridor streets and sidewalks while there is no subway service over the 15-month construction period. There would be no additional sidewalk capacity added to core high-volume areas, and with the considerable pedestrian traffic already on 14th Street, pedestrian flow and safety would worsen.

6.1.5.2 Proposed Action

The variety of temporary pedestrian amenities would allow for greater pedestrian circulation and use of the corridor's sidewalks. In key areas, the busway configuration would widen the usable area for pedestrians and further expand SBS stop locations to minimize friction with through pedestrians and speed the boarding/alighting process. At Union Square, one of the business nodes in the corridor, additional provisions would expand pedestrian circulation space adjacent to the square, SBS stops, and subway entrances. Overall, with the proposed ASP in place, pedestrian circulation and safety would be substantially improved over the No Action Alternative.

6.1.6 Bicycles

Principal Conclusion: The proposed bike lanes under the proposed ASP would add considerably to the safety and capacity of the bicycle network and would not adversely affect vehicular congestion. The proposed ASP would provide substantial improvement compared with the No Action Alternative. This would be a temporary beneficial impact to bicycle transportation.

6.1.6.1 No Action Alternative

Overall, the No Action Alternative would see additional bicycle amenities provided for both Manhattan and Brooklyn cyclists, which would benefit the potential option of L train riders using bicycles for a portion of their trips. However, the largest block of potential new bicycle trips would be in the 14th Street corridor where the No Action Alternative would see a large increase in demand for alternate modes of transportation since there would be insufficient bus capacity to absorb L train riders during the temporary tunnel closure. These users would have to navigate already busy corridors and side streets. Such conditions would be more difficult and less safe for cyclists, and the potential friction with pedestrians and vehicles would further worsen deteriorated conditions for all modes.

Based on the experience in 2012 after Hurricane Sandy closed the Canarsie Tunnel for more than a week, NYCDOT projects bike ridership over the Williamsburg Bridge could increase at least 300 percent from today's average volume of 7,100. This volume would disperse throughout Manhattan using the existing network and new protected lanes along Grand Street, Delancey Street, as well as onto 12th and 13th Streets.

The estimate for new Manhattan-bound bike trips ranges 1,200–2,500 trips during the 8:00 to 9:00 a.m. peak hour.

NYCDOT projects 2,000–5,000 daily cyclists would use the 12th Street and 13th Street bike lanes during the L train’s closure. This number is based on cyclist counts on existing lanes near Union Square, the growth of cycling expected on the Williamsburg Bridge, and experience on similar protected bike lane projects where ridership has grown by at least 300 percent. NYCDOT anticipates that the loss of the L train would also spur cycling volume among Manhattan residents.

6.1.6.2 Proposed Action

New York City has been installing protected bike lanes throughout the city. The proposed ASP measures would provide for temporary one-way bicycle lanes on 12th and 13th Streets and Union Square West. The new lanes would remove a row of parking on each street but would not restrict moving lanes of vehicular traffic. The reduction in parking friction would further facilitate through-vehicular movements. The temporary bicycle lanes would result in the loss of the parking lane along the streets with a temporary displacement of about 550 parking spaces on 12th and 13th Streets. Overall, the bike lanes would add considerably to the safety and capacity of the bicycle network and would not adversely affect vehicular congestion. The proposed ASP would provide substantial improvement in comparison with the No Action Alternative.

6.1.7 Parking

Principal Conclusion: The proposed ASP would result in temporary displacement of on- and off-street parking spaces. While the displacement would affect local residents, daytime commercial users and visitors who use these parking spaces, the removal would not create a significant adverse impact on parking overall throughout the larger area.

6.1.7.1 No Action Alternative

In the No Action Alternative, parking would be largely unaffected with no direct displacement of parking to accommodate L train enhancements.

6.1.7.2 Proposed Action

The proposed ASP bicycle lanes on 12th and 13th Streets would eliminate on-street parking on one side of each street. NYCDOT estimates that up to 550 spaces would be removed along both streets.

The proposed ASP L1, L2, L3, and L4 interborough bus routes and temporary M14 SBS would require bus stops and bus layover locations that would temporarily remove up to 970 on-street parking spaces, which are a mix of commercial parking, metered parking, and alternate side of the street parking. In addition, overnight bus storage at 46-81 Metropolitan Avenue in Brooklyn would affect 137 spaces and the temporary bus terminal at Stuyvesant Cove would affect 83 spaces. Based on preliminary discussions, the operator of the Metropolitan Avenue site is agreeable to relocating vehicles using the portion of the site to be leased by MTA NYCT to another location owned by the same owner with similar characteristics and in the same industrial use setting. The proposed bus storage lot currently has fewer vehicles parking in the square footage and will be reconfigured to hold 137 buses that will occupy 137,457 sq ft of the 195,698 sq ft lot.

Table 12 presents the total parking displacement under the Proposed Action. For both Brooklyn and Manhattan, the proposed ASP would result in temporary displacement of parking spaces along streets where bicycles, buses or pedestrians are prioritized. For the 14th Street corridor in particular, with temporary displacement along 12th and 13th Streets, between Avenue C and Greenwich Avenue, the five off-street parking garages on 14th Street would also remain accessible to all motorists, as would other off-street parking garages within the broader affected area, rendering the number of displaced parking spaces relative to the area-wide parking supply commensurate with other street treatment projects NYCDOT routinely implements around New York City. For the temporary displacement of parking spaces in the off-street lot by Stuyvesant Cove, to be used as a temporary bus terminal, the total displacement of approximately 83 spaces could readily be absorbed by existing available off-street capacity within a quarter mile of the site. Observed parking conditions in fall 2017 indicated that over 300 off-street spaces were available during the midday and that the current parking demand at the terminal site was about half of the capacity, or about 45 vehicles.

While the displacement would affect local residents and users of these parking spaces, the temporary removal would not create a significant adverse impact on parking overall throughout the larger area (Table 12).

TABLE 12. PARKING DISPLACEMENT

Route/Facility	Parking Spaces
On-Street Parking	970
14th Street M14 SBS (including 12 th /13 th Street bike lanes)	550
Grand St Bus Priority	275
L1 (not including Grand Street)	60
L2 (not including Grand Street)	20
L3/L4	65
Off-Street Parking	220
46-81 Metropolitan Avenue, Brooklyn (privately owned)	137
Stuyvesant Cove Bus Terminal	83

Source: NYCDOT

6.2 AIR QUALITY

The service plans under both the No Action Alternative and Proposed Action would have the potential for air quality impacts due to the increase in vehicular traffic and changes in traffic patterns during the 15-month L train shutdown. In addition, the Proposed Action would introduce temporary ferry service across the East River.

Principal Conclusion: The Proposed Action would improve traffic speeds and reduce travel delay on Williamsburg Bridge and total vehicle volumes. While individual locations in the larger network may experience additional volume or congestion, the temporary nature of the disruption is not expected to result in significant impacts to air quality. The potential for particulate matter impacts would be reduced since the supplemental bus fleet to be used for the temporary service would meet U.S. Environmental Protection Agency (EPA) emissions standards for new buses. The additional ferry service under the Proposed Action would not result in significant impacts with respect to air quality. Construction of temporary facilities would be short term and minor and would not produce significant air emissions. Overall, compared to the No Action Alternative, the Proposed Action would be a beneficial temporary impact.

Regulatory Setting, National Ambient Air Quality Standards, Pollutants of Concern

The EPA identified the following air pollutants to be of concern nationwide and as required by the Clean Air Act (CAA), has established National Ambient Air Quality Standards (NAAQS) for them: carbon monoxide (CO), ozone (O₃), nitrogen dioxide (NO₂), particulate matter smaller than 10 microns (PM₁₀), particulate matter smaller than 2.5 micron (PM_{2.5}), sulfur dioxide (SO₂), and lead (Pb). In New York City, ambient concentrations of CO, hydrocarbons, and O₃ are influenced predominantly by motor vehicle activity. Nitrogen oxides are emitted from both mobile and stationary sources; sulfur oxides are associated mainly with stationary sources; and particulate matter emissions are associated with stationary sources and, to a lesser extent, with diesel-fueled mobile sources (e.g., heavy trucks and buses).

Pursuant to the CAA, the EPA designates nonattainment areas as geographical regions that do not meet one or more of the NAAQS. Maintenance areas are defined as previously having nonattainment status and not yet re-designated to attainment status. All of New York City is designated as a maintenance area for CO and 24-hour PM_{2.5} and a nonattainment area for O₃. Manhattan is designated as nonattainment area for PM₁₀ based on historic air quality monitoring results but which is not reflected in more recent data (as shown in Table 13). New York City is in attainment (i.e., meets the air quality standards) for all other pollutants.

Of the seven criteria pollutants, CO and particulate matter are considered pollutants of concern for the mobile source component of the No Action Alternative and Proposed Action. Ambient concentrations of PM_{2.5}, NO₂ and SO₂ may be affected by the ferry emissions. However, due to the federal sulfur content restriction in the diesel fuel, no significant quantities of SO₂ are emitted from ferries, and the SO₂ analysis is not warranted. Concentrations of Pb are not likely to be significantly affected by either the No Action Alternative or Proposed Action. Regional emissions are not significantly affected by temporary changes and therefore were not evaluated.

Table 13 shows the current air pollutant levels in the project area. All monitored levels are below respective NAAQS thresholds, even at locations near high levels of traffic and associated congestion from trucks, buses and other vehicles. CO levels are very low and PM₁₀ levels are less than a quarter of the standard

value, resulting in a big window of current and future concentrations before impacts could become significant. PM_{2.5} leaves a window of 35 percent–50 percent of the level of the standard.

TABLE 13. 2017 MONITORED AIR CONCENTRATIONS IN MANHATTAN

Pollutant	Time Period	Unit	Concentration	Location	NAAQS
CO	8 hour	ppm	0.2	CCNY, 160 Convent Avenue	9
PM ₁₀	24 hour	µg/m ³	35*	PS124, 40 Division Street	150
PM _{2.5}	24 hour	µg/m ³	18**	PS124, 40 Division Street	35
			17**	PS19, 185 First Avenue	

* Maximum concentration (highest day during 2017)

** 98th percentile concentration

6.2.1 No Action Alternative

There would be mobile source emissions associated with the No Action Alternative as a result of the increase in traffic volumes from additional bus service and likely additional automobile traffic (personal vehicles, taxis and FHVs). Traffic on the Williamsburg Bridge without any HOV restrictions and on the local streets approaching the bridge would be expected to be highly congested during peak hours, increasing emissions. On 14th Street, there would be an increase in bus traffic and no street treatments or bus priority, resulting in high levels of congestion and increased emissions. The increase in congestion on the Williamsburg Bridge and within the 14th Street corridor (including side streets) would result in a temporary increase in CO and particulate matter emissions. Considering that CO levels are barely traceable with current traffic, the temporary increased CO emissions would not be expected to be significant. Since particulate matter impacts with the existing traffic reach one-third of the PM₁₀ standard and up to one-half of the PM_{2.5} standard, the increase in particulate matter emissions would be expected to be lower than the NAAQS.

There would be no air quality impacts as a result of the increase in subway service on adjacent lines that would occur under the No Action Alternative. In addition, since there would be no construction activities required under the service plan represented by the No Action Alternative, there would be no construction-related emissions.

6.2.2 Proposed Action

6.2.2.1 Mobile Source Impacts

The impacts of mobile source emissions from the Proposed Action would be higher along 14th Street and the parallel streets where traffic would be diverted and near the temporary interborough bus routes in Brooklyn and Manhattan on both sides of the Williamsburg Bridge than other areas affected by the Project. There would be no adverse air quality impacts as a result of the increase in subway service on adjacent lines that would occur under the Proposed Action.

Air Quality Impacts Along Interborough/Williamsburg Bridge Bus Routes

The overall traffic volumes on the Williamsburg Bridge and along the bus routes (routes L1, L2, L3, and L4) near the bridge would decrease under the Proposed Action compared with the No Action Alternative. There would be additional buses under the Proposed Action replacing the cars and existing bus service on

the bridge. The HOV restrictions and bus priority lanes would result in improved traffic speeds and reduced travel delay. The truck volumes are not expected to change.

Over the larger study area, the redistribution of trips by location, mode, or time would not be expected to change overall mobility or traffic patterns. The HOV3+ restriction on the Williamsburg Bridge under the Proposed Action would result in increased carpooling and diversions over multiple East River crossings, including the Manhattan Bridge, Brooklyn Bridge, and Queens Midtown Tunnel. While individual locations in the larger network would experience additional volume or congestion, the temporary nature of the disruption is not expected to result in significant impacts to air quality.

Under the Proposed Action, no significant CO impacts are expected along the interborough bus routes. The potential for particulate matter impacts along the proposed interborough bus service routes under the Proposed Action would be minimized since the supplemental bus fleet to be used for the temporary service meets EPA emissions standards for new buses. All MTA diesel buses are fitted with filters that reduce particulate matter emissions by as much as 95 percent. Therefore, it is not expected that the temporary interborough bus service under the Proposed Action would create a significant particulate matter impact.

Air Quality Impacts Along 14th Street

With the implementation of the busway, the overall volume of traffic along the 14th Street corridor would decrease during the busway hours (5:00 a.m. to 10:00 p.m., seven days a week) under the Proposed Action compared to the No Action Alternative. Thus, no CO impacts are expected from the Proposed Action along the 14th Street corridor. While the number of buses within the corridor would increase up to 68 trips under the Proposed Action, as explained above, the composition of the supplemental bus fleet, including a plan for 15 electric buses and diesel buses that achieve 95 percent particulate matter capture, would ensure that no significant particulate matter impacts would result from the additional bus service under the Proposed Action along the 14th Street corridor.

Air Quality Impacts at Side Streets

Under the Proposed Action, when the busway is implemented, automobile traffic would be diverted from 14th Street to the side streets. Although traffic modeling assumed diversions to 12th and 13th Streets to the south and 15th and 16th Streets to the north, the diversions would be spread over a larger network including to major crosstown streets such as 23rd Street. Overall, for the duration of 15 months, these temporary variations in traffic volumes would not be expected to create significant CO impacts on the side streets.

Fourteenth Street is a designated local truck route while local side streets are not. Under the Proposed Action, trucks diverted off of 14th Street due to the busway must find other permitted routes north or south of the corridor and use that route to get as close as possible to their delivery location.

MTA NYCT would work with NYCDOT to ensure that NYCDOT's Freight Mobility Group continues its regular, ongoing outreach to representatives of the trucking industry to educate commercial drivers of their appropriate route options. Trucks diverted off of 14th Street due to the busway must find other permitted routes north or south of the corridor and use that route to get as close as possible to their delivery location. NYCDOT would also notify the NYPD Transportation Division's Truck Enforcement Unit of routing changes associated with the L Train Tunnel Closure and coordinate with them on education and enforcement events.

Therefore, no significant particulate matter impacts from the Proposed Action would be expected on the local side streets.

Air Quality Impacts from Ferry Service

The Proposed Action would provide supplemental temporary ferry service between Stuyvesant Cove and North Williamsburg. The highest frequency of trips of the additional service is planned to be 7.5 minutes in the peak hours. Table 14 presents the number of trips at these landings with the regular planned service and with the extra trips generated by the Proposed Action.

TABLE 14. PEAK HOUR FERRY TRIPS UNDER NO ACTION ALTERNATIVE AND PROPOSED ACTION

Landing	No Action Alternative (Boat trips/peak hour)	Proposed Action (Boat trips/peak hour)
North Williamsburg	8	16
Stuyvesant Cove	6	14

Impacts of ferry emissions were estimated using results of the East River Ferry Environmental Assessment Statement (ERFEAS) and of the Citywide Ferry Service Final Environmental Impact Statement (CFSFEIS).^{12 13} The previous studies showed that particulate matter impacts from ferries are relatively small and the temporary increased service would not cause an exceedance of 24-hour or annual particulate matter standards. The Canarsie Tunnel Rehabilitation Temporary Ferry Service RFP¹⁴ released by NYCEDC on April 13, 2018, notes that preferences would be given to vessels with enhanced emission controlled Tier 3 engines or better.¹⁵ Tier 3 engines are generally used to reduce the emission of pollutants, primarily NO_x.

However, hourly NO_x emissions from ferries have been shown to provide a high contribution to ambient concentrations. Impacts of ferry emissions on hourly NO₂ concentrations at the Stuyvesant Cove residential receptors and in the Stuyvesant Cove Park were considered previously in the CFSFEIS. Impacts of the ferry emissions at the residential receptors were smaller than impacts in the park. Using the CFSFEIS approach that assumed that 80 percent of the ferry’s NO_x emissions converts to NO₂ while dispersing for a short distance within an hour, concentrations at the park receptor under the Proposed Action (doubling of ferry trips during the peak hour) could exceed the one-hour NO₂ at certain hours. However, this is based on a very conservative approach and does not utilize more applicable reference guidance such as from the South Coast Air Quality Management District (California) with much lower conversion values which, if applied, would be expected to yield results below the one-hour NAAQS from NO_x to NO₂.¹⁶ In addition, the NO₂ standard is a 3-year average, and since the temporary ferry service would be in place for only 15 months, the likelihood of an exceedance is further diminished by the limited time frame within the 3-year average. Concentrations at the residential receptors near Stuyvesant Cove would be below the one-hour NAAQS with the additional ferry service under the Proposed Action, regardless of modeling approach. Annual NO₂

¹² NYCEDC, “East River Ferry Environmental Assessment Statement,” 2013.

¹³ NYCEDC, “Citywide Ferry Service Final Environmental Impact Statement,” 2016.

¹⁴ <http://web.mta.info/sandy/rebuildingCanarsieTunnel.html>.

¹⁵ Tier 3 engines refers to the EPA exhaust emission standards for marine diesel engines that are applicable to vessels manufactured after 2013.

¹⁶ South Coast Air Quality Management District Governing Board, “Final Localized Significance Threshold Methodology,” June 2003.

impacts at Stuyvesant Cove were shown to be small in the CFSFEIS (an increment of 3 $\mu\text{g}/\text{m}^3$ of a total concentration of 39 $\mu\text{g}/\text{m}^3$ —less than 10 percent of the 53 $\mu\text{g}/\text{m}^3$ standard) and annual concentrations under the Proposed Action, with the additional ferry service, at the residential and park receptors would be below the annual NAAQS.

Impacts at North Williamsburg landing were assessed based on the ERFEAS results. The ERFEAS considered several ferry landings along the East River. The impacts at all East River landings were estimated based on impacts at the “worst” location with the closest sensitive receptors: Schaefer landing in South Williamsburg. Impacts of the Proposed Action at the North Williamsburg landing were conservatively assessed based on the same Schaefer landing result. NO_2 concentrations at the worst receptor location with the increased ferry service under the Proposed Action would not cause any exceedance of the one-hour or annual NO_2 NAAQS.

The additional ferry service under the Proposed Action would not result in significant impacts with respect to air quality.

6.2.2.2 Construction Emissions

Construction for the proposed temporary services would be limited to temporary modifications of the North Williamsburg ferry landing, Stuyvesant Cove bus terminal, overnight bus storage lots, and temporary street treatments along the service routes. Construction of these temporary facilities would be short term in duration and minor in scope, and is not expected to entail work activities that would produce significant air emissions.

6.3 BIOLOGICAL RESOURCES

Biological resources include all species of fish, wildlife, plants, and their habitats. With the exception of the in-water work associated with the installation and removal of the temporary ferry landing in North Williamsburg, Brooklyn, the project site is entirely developed with buildings and pavement interspersed with urban landscaping consisting of trees, shrubs, and grasses. The landscaped areas, including roadway medians and drainage basins, would provide limited habitat value because they are actively maintained.

The construction of a temporary ferry landing at North Williamsburg as part of the Proposed Action could affect biological resources. MTA NYCT has and continues to consult with New York State Department of Environmental Conservation (NYSDEC), U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS) regarding the construction of the temporary ferry landing. In addition to the correspondence in Appendix F, MTA NYCT met with the NYSDEC on June 4, 2018, the U.S. Coast Guard on June 14, 2018, and the U.S. Army Corps of Engineers (USACE) on June 15, 2018. MTA NYCT has conducted a screening for threatened, endangered and species of concern and has contacted the USFWS, NMFS, and the New York State Natural Heritage Program. MTA NYCT's coordination with NMFS includes consultation with the Protected Resources Division in accordance with the Endangered Species Act (ESA) for protected species under NMFS's jurisdiction (Atlantic and Shortnose sturgeon) and the Habitat Conservation Division in accordance with the Magnuson-Stevens Fishery Conservation and Management Act.

Principal Conclusion: The Proposed Action would include temporary changes to streetscapes to allow for bus priority and improved pedestrian and bicycle access. These changes would occur in previously developed areas and would not affect biological resources, including street trees.

The implementation of temporary ferry service between North Williamsburg and Stuyvesant Cove is not anticipated to result in significant adverse impacts to biological resources during construction of the temporary ferry landing in the East River or during ferry service operations. This includes potential impacts to threatened and endangered species, aquatic biota, and water quality in the East River due to installation and removal of piles and platforms for the ferry landing at North Williamsburg. MTA NYCT has initiated consultation with NOAA NMFS Protected Resources Division and Habitat Conservation Division. Initial consultations with Protected Resources Division indicate that the Proposed Action would Not Likely to Adversely Affect (NLAA) endangered or threatened species protected by the Endangered Species Act (ESA) in the project area. The Habitat Conservation Division completed its consultation on July 13, 2018 and has determined that the Proposed Action will have no substantial adverse effects on Essential Fish Habitat (EFH), subject to measures to mitigate harm during construction and removal of the temporary landings. FTA and MTA NYCT will complete its required consultations with NOAA prior to issuance of a Section 10 permit.

6.3.1 No Action Alternative

Under the No Action Alternative, there would be no new construction and no impact to biological resources.

As a baseline to evaluate the potential for impacts resulting from the temporary construction of a ferry landing facility in North Williamsburg adjoining the existing Empire Pier, and to support U.S. Army Corps

of Engineers permitting requirements that are being prepared pursuant to agency consultation, the following information has been developed on water quality and aquatic communities.

6.3.1.1 *Water Quality*

The East River is a tidal strait connecting western Long Island Sound with the Upper Bay portion of New York Harbor. It is approximately 16 miles long and generally ranges from 600 to 4,000 feet wide. Currents are swift and can approach 8 feet/second. The East River is classified by NYSDEC as Use Classification I. Recommended uses for Class I waters are secondary contact recreation and fishing, and water quality should be suitable for fish propagation and survival.

NYCDEP monitors water quality in the East River through its annual Harbor Survey. The 2016 New York Harbor Water Quality Report reports the results of the survey by region. The Inner Harbor survey region, which includes the lower East River, reported on water quality parameters including bacteria, dissolved oxygen, chlorophyll 'a', and secchi transparency. The results of recent surveys conducted by NYCDEP, show that water quality has improved significantly as a result of measures undertaken by the City of New York such as infrastructure improvements, elimination of 99 percent of raw dry-weather sewage discharges, reduction of illegal discharges, increased capture of wet-weather-related floatables, and reduction of toxic metals loadings from industrial sources.

6.3.1.2 *Aquatic Communities*

The East River provides a variety of habitats that support a diverse and productive aquatic community that is similar in composition to other parts of New York Harbor. Aquatic organisms include phytoplankton, submerged aquatic vegetation, benthic macroalgae, zooplankton, benthic invertebrates, and fish. On rare occasions, marine mammals and sea turtles have also been documented in the East River. Harsh conditions within the East River, including swift currents and lack of shoals, embayments, and other sheltered habitat, limit their utility as spawning habitat, but several fish species are nevertheless able to breed within the area; Ichthyoplankton tow sampling in the Upper East River (station ER5), for example, documented eggs of eight finfish species.

The NMFS EFH Mapper tool lists the East River as EFH at all life stages for smooth dogfish (*Mustelus canis*), summer flounder (*Paralichthys dentatus*), black sea bass (*Centropristis striata*), scup (*Stenotomus chrysops*), bluefish (*Pomatomus saltatrix*), and Atlantic butterfish (*Peprilus triacanthus*). Federally listed aquatic species that NMFS considers to have the potential to occur within the East River include the Atlantic sturgeon (*Acipenser oxyrinchus*; endangered), and shortnose sturgeon (*A. brevirostrum*; endangered).

Five distinct population segments (DPSs) of Atlantic sturgeon (*Acipenser oxyrinchus*) are listed as threatened or endangered. The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida. Atlantic sturgeon spawning migrations generally occur during April-May in Mid-Atlantic systems. Young remain in the river/estuary before emigrating to open ocean as sub-adults. The sub-adults and adult Atlantic sturgeon travel within the marine environment, coastal bays, sounds, and ocean waters. Atlantic sturgeon originating from any of the five DPSs could occur in the waters within the Action Area. Because of their life history, sub-adult or adult Atlantic sturgeon life stages could be migrating between the Hudson River and Long Island Sound, and possibly foraging opportunistically in the East River. According to NOAA's ESA Section 7 Mapper, adults or sub-adults could be present within the Action Area at any time of year, and therefore could be present during construction, operation, and removal

of the proposed project. Juveniles would not be expected to be present due to the elevated salinities in this portion of the East River.

Unlike the Atlantic sturgeon, the shortnose sturgeon (*Acipenser brevirostrum*), spends most of its time within its natal river. However, some shortnose sturgeon are known to travel out of the river and into the shallow coastal waters. There is also evidence that some shortnose sturgeon will migrate into other river systems for short periods of time. Although no transient shortnose sturgeon have been documented in the East River, based on occasional movements of shortnose sturgeon from Hudson River to Connecticut River it is assumed that an occasional transient shortnose sturgeon could enter the Action Area for the purpose of migrating and foraging. According to NOAA's ESA Section 7 Mapper, adult shortnose sturgeon could occur between April 1 and November 30 of any year; therefore, shortnose sturgeon would not be expected to be present during the January – February 2019 construction of the proposed project. However, adult sturgeon could be present during operation and removal of the proposed ferry landing.

6.3.1.3 Wetlands

There are no State or federally regulated tidal wetlands at the proposed ferry landing site. The NYSDEC classifies the entire East River as littoral zone tidal wetland, although littoral zone tidal wetland regulations apply only to areas with a depth of 6 feet or less at mean low water (MLW) and most coastal areas of the city lack a true, vegetated littoral zone due to shoreline engineering. The proposed ferry landing would be in water deeper than 6 feet at MLW; therefore, there are no NYSDEC tidal wetlands in the project area.

6.3.2 Proposed Action

The proposed project includes construction of a temporary ferry landing in the East River adjacent to the existing Empire Pier located between North 5th Street and North 6th Street in North Williamsburg, Brooklyn. The temporary ferry landing would be completely removed upon completion of the 15-month tunnel rehabilitation. Construction would begin on January 1, 2019, and be completed by February 28, 2019. Construction of the ferry landing would be conducted from spud barges in the East River.

The ferry landing would accommodate one ferry boat and would consist of an access platform, a gangway, a ferry landing barge, and guide piles with donut fenders. The access platform would be connected to the existing Empire Pier, would be supported by four 16-inch-diameter steel piles and would provide access to the ferry landing barge. The ferry landing barge (35 feet wide by 120 feet long) would be supported by six 36-inch-diameter steel anchor piles. Four 36-inch-diameter steel guide piles with donut fenders would be located north of the ferry landing to guide the ferry as it approaches the landing. A gangway (10 feet wide by 80 feet long) would be constructed on top of the ferry landing barge, avoiding shading of aquatic resources. The total number of piles to be installed would be 14. Overall, the project would disturb less than 80 square feet of bottom surface from the piles (about 0.0018 acre), and the combination of the gangway, access platform, and floating landing barge would create a space of under about 4,356 square feet or about 0.1 acre.

All piles would be installed and removed using vibratory methods. If impact hammering is required (due to encountering rock), soft starts and a wooden block would be used to buffer noise and vibrations during hammering. Hammering for any given pile would be expected to be 10 minutes or less. The pile installation would be intermittent with approximately one pile per day to be installed. Pile installation would take less

than 2 hours per day. Full-length silt curtains would be used during pile installation and removal to prevent turbidity impacts on aquatic resources. The landing barge and the construction spud barges would float at all stages of the tide and would not come in contact with the river bottom.

A general construction sequence is presented below:

1. The Contractor will mobilize equipment to the project site;
2. BMPs, including turbidity barrier, will be deployed;
3. Piles will be driven with a vibratory hammer to the extent practical;
4. Landing and access platforms will be placed in position and secured;
5. Work completes; BMPs are removed;
6. Contractor will demobilize from site.

Once the temporary ferry landing is no longer needed, similar construction methods and sequence would be followed to remove the temporary ferry landing.

Based on the limited area of disturbance and the implementation of best construction management techniques, there would be no significant adverse impacts to biological resources, including threatened and endangered species, due to the construction or temporary operations of the proposed ASP under the Proposed Action.

6.3.2.1 Water Quality

Water depth at the proposed ferry landing is sufficient so that work barges will float during all stages of the tide, limiting the potential for resuspension of bottom sediment. Potential impacts to water quality that could result due to resuspension of bottom sediment due to boat wakes would be evaluated during the detailed design of the landing and measures would be implemented as necessary to prevent increases in suspended sediment due to ferry-generated wakes. These measures may include:

- Utilizing hull designs and engine configuration options that would minimize wake energy—examples include use of low-wake design vessels such as catamarans which are able to achieve efficient planning angles at sufficient speeds, and employing foil assist technology;
- Optimizing vessel course and speed to minimize wakes at sensitive points along the route—this could include running more slowly or running faster, depending on how sensitive the route location is to wake energy and use of ride-control systems to assure that vessels operate at maximum efficiency; and
- Operating ferries at reduced and/or low speeds while entering and exiting dock spaces.

6.3.2.2 Aquatic Communities

During operation of the proposed landings, nighttime lighting would be limited to the minimum number of lights and wattage necessary. In addition, down-shielded lights would be used to direct the light only to the area needed and minimize spill. Therefore, no impacts to fish would be anticipated to occur from lighting from the operation of the proposed ferry landing.

The total overwater coverage from the proposed ferry landing elements is 0.1016 acres. The overwater coverage (shading) is minimal and temporary. Therefore, the ferry landing elements would have minimal potential to result in significant adverse impacts to aquatic habitat due to shading.

The East River is a heavily-trafficked, urban waterway, with high levels of vessel activity. The proposed ferry landing is located adjacent to an existing permanent ferry terminal. The proposed ferry landing would use two commercial ferry vessels to travel in the East River between Stuyvesant Cove and North Williamsburg during peak hours for the project duration of 15 to 16 months. The two commercial ferry vessels will be from the ferry fleet of a current regional operator. Operation of the proposed ferry landing would represent a negligible incremental increase in boat traffic that would not affect aquatic resources.

Threatened or Endangered Aquatic Species and Essential Fish Habitat

Atlantic sturgeon and shortnose sturgeon are the federally-listed species of aquatic biota that may occur within the vicinity of the proposed ferry landing in the East River. Based on the preceding analysis, the proposed ferry landing would not adversely impact these species or Essential Fish Habitat (EFH) within the East River.

6.4 HAZARDOUS MATERIALS

Principal Conclusion: The Proposed Action would have no significant adverse impacts with respect to hazardous materials. Standard industry practices and health and safety protocols would be implemented if hazardous materials are found during construction activities.

6.4.1 No Action Alternative

Under the No Action Alternative, there would be no excavation or new activities that would increase exposure to hazardous materials.

6.4.2 Proposed Action

Minor amounts of excavation/surface preparation work may be required under the Proposed Action that could increase exposure pathways to potentially contaminated media, such as petroleum contaminated soils. Most ground disturbance would be limited to 18 inches below grade, except for select areas where electrical connections would be made 30 inches below grade (i.e., along 14th Street where ticket machines and wayfinding totems would be installed), and where the in-water construction work would take place at the North Williamsburg landing, as described in Section 6.11, “Construction.” The shallow soil disturbance would make it unlikely that unforeseen hazardous materials would be encountered; however, standard industry practices and health and safety protocols would be implemented to manage any spills or hazardous materials.

MTA NYCT has conducted Phase I Environmental Site Assessments (ESA) at each of the sites where bus parking and overnight storage of buses would occur. The findings of the Phase I ESAs determined the history of contamination, if any, at each site. MTA NYCT would do minimal work to these sites since they are already used for vehicular parking, so it is unlikely any hazardous materials would be encountered. In addition, MTA NYCT’s contractual terms for the temporary occupation of any site would verify that if

historic contamination is found, neither the MTA nor MTA NYCT would be liable for that contamination or for any cleanup or restoration of the site.

A Construction Health and Safety Plan (CHASP) would be implemented to avoid exposure of workers and the public to any hazardous materials during construction activities. In addition, MTA NYCT would abide by the regulations and requirements set forth by the NYSDEC for the management and removal of hazardous materials. Accordingly, contaminated materials encountered during the site modifications would be managed in accordance with a CHASP and NYSDEC regulations, and material that is removed would be disposed of in accordance with MTA NYCT's specifications for contaminated materials. The necessary precautions and standard industry practices, including appropriate health and safety protocols, would be implemented during the constructions activities to ensure that there is no exposure of workers, employees or the public to contaminated materials that may be present at the sites. With the implementation of these measures, the Proposed Action would not result in significant adverse impacts related to hazardous materials.

6.5 HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES

Pursuant to Section 106 of the National Historic Preservation Act¹⁷ (NHPA), through consultation with stakeholders, federal agencies must account for the effects of their actions on eligible or listed historic properties, work together to avoid, minimize, or mitigate adverse effects, and afford the Advisory Council on Historic Preservation a reasonable opportunity to comment. The process by which the federal agency decides whether a project or action affects historic properties is called a Section 106 review.

Principal Conclusion: Based on a review by the State Historic Preservation Office (SHPO), the Proposed Action has been determined to have No Effect on the Union Square National Historic Landmark or on other eligible or listed historic or archeological resources (see Appendix F for SHPO correspondence), including those adjacent to elements of the proposed ASP that would require minor construction for street and sidewalk treatments, bus storage and the temporary ferry landing. As Union Square is a National Historic Landmark, in June 2018, FTA sent a letter to the Department of Interior (DOI) requesting concurrence on the proposed Section 106 finding of No Effect (along with the proposed Section 4(f) determination). Section 7 of this SEA provides additional evaluation criteria pursuant to Section 4(f) of the U.S. Transportation Act.

6.5.1 No Action Alternative

The proposed temporary service changes under the No Action Alternative would be located within the existing street right-of-way and would not result in the demolition or physical alteration of any historic resources. There would be no construction under the No Action Alternative; therefore, there would be no potential impacts to Section 106 historic resources.

6.5.2 Proposed Action

6.5.2.1 Area of Potential Effects

An area of potential effects (APE) was identified as a 150-foot buffer around the following individual areas that would require construction to implement the proposed ASP and are in proximity to historic resources:¹⁸

- Ticket machines along the M14 SBS and interborough bus routes and wayfinding totems along the M14 SBS route
- Area of vehicle restrictions on Union Square West
- Potential bus storage location at the Williamsburg Bridge
- Bus terminal at Stuyvesant Cove

Along the proposed M14 SBS route, specific locations would require the installation of ticket machines and wayfinding totems. MetroCard and Coin SBS fare machines would be installed on the existing sidewalk for customers to use a MetroCard or coins to obtain proof of payment receipts. Some of the fare machines and wayfinding totems may remain permanently, but this has not been determined yet. Wayfinding totems involve the installation of WalkNYC information panels displaying static neighborhood maps and a real-

¹⁷ Public Law 89-665; 16 U.S.C. 470 et seq.

¹⁸ Due to the minor nature of the construction activities, a 150-foot buffer, encompassing the first row of buildings from the street, was identified as appropriate.

time bus arrival information screen. The ticket machines and totems would be located at the following intersections:

- 14th Street and east side of Tenth Avenue
- 14th Street and Eighth Avenue (northwest and southeast corners of West 14th Street)
- 14th Street and Sixth Avenue (northwest and southeast corners of West 14th Street)
- 14th Street and University Place (southwest corner at East 14th Street)
- 14th Street and Fourth Avenue (northeast corner at East 14th Street)
- 14th Street and Second Avenue (northwest section of Second Avenue) (Note that these machines are for L1 and L4 bus routes)
- 14th Street and First Avenue (north and southeast corners at East 14th Street)

New MetroCard and Coin SBS fare machines would be installed temporarily at locations within the temporary interborough bus routes. The fare machines would be located at the following intersections:

- Bushwick Avenue and Grand Street (Brooklyn) (southeast corner)
- Delancey Street and Essex Street (Manhattan) (along Delancey Street at the southeast and southwest corners of intersections adjacent to Ludlow Street and Essex Street; at the northwest side of Delancey at the intersection of Delancey and Essex Streets; and at the northeast side of Delancey at the intersection of Delancey and Essex Streets)
- East Houston Street between Mulberry and Mott Streets (Manhattan) (along the south side of East Houston Street at the east and west ends of the street)
- Delancey Street and Norfolk Street (Manhattan) (southeast corner of Delancey Street)

The temporary street and sidewalk treatments, to be constructed in support of the M14 SBS, interborough bus service and bicycle lanes, were not identified in the APE since they would not require any excavation. This work includes the following:

- **Roadway Resurfacing:** The roadway would be milled, followed by asphalt paving of the roadway. This would occur on parts of 14th Street and in select locations for smoothing of the road surface prior to installation of temporary bike lanes, specifically for the 12th Street, 13th Street, and Grand Street bike lanes. No historic street surfaces would be affected; all roadbeds are asphalt. This is a standard NYCDOT maintenance procedure.
- **Thermoplastic Markings:** Painting lane lines, symbols and word messages that would delineate the use of roadway lanes.
- **Flexible Delineators:** Plastic vertical bollards that would delineate the edge between pedestrian space and the roadway.
- **Pedestrian Space:** Asphalt roadway spaces painted beige to designate additions to existing sidewalk space, but flush with the roadway.
- **Red Painted Bus Lanes:** Travel lanes painted red (“terra-cotta”) to designate exclusive bus lanes.
- **Green Painted Bike Lanes:** Travel lanes painted green to designate exclusive bike lanes.

- **Loading Space:** Noted for operational considerations but not specifically marked with a roadway treatment.
- **Detectable Warning Strips:** Mats installed at the edge of pedestrian spaces to delineate the change from roadway to pedestrian space for pedestrians with limited vision or other disabilities.
- **Bus Stop Curb Extensions:** Temporary recycled plastic modular curb pieces that would be attached to the roadway surface and form a bridge to the existing sidewalk using a flap that is deployed over the curb.

NYCDOT would add temporary high-capacity valet bike parking and bike parking sleds throughout Manhattan, but the exact locations are not determined yet. They would most likely be located in the road bed along a portion of the roadway closed to vehicles, but proposed locations would be submitted to all applicable agencies for approval before being installed as per NYCDOT's existing policies. The proposed bus storage locations at Metropolitan Avenue and the temporary ferry landing at North Williamsburg (both in Brooklyn) are not in proximity to any historic resources; therefore, were not included in the APE. The North Williamsburg ferry location has no historic resources and will not have any archaeological excavations. In addition, the subway improvements at Nassau Avenue, Hewes Street and Metropolitan Avenue were not included in the APE since all work would occur within in the existing station structure and none of the stations are historic.

6.5.2.2 *Historic Resources*

There are numerous historic resources in the areas of proposed ASP elements. Maps of the APE and known historic resources identified as listed or eligible on the National Register of Historic Places or designated as historic by the New York City Landmarks Preservation Commission (LPC) within the APE are presented as Figures 11 to 14. Table 15 provides details on the historic resources.

6.5.2.3 *Effects Assessment*

The proposed work within the APE would be located principally within the existing street or parking rights-of-way and would not result in the demolition or physical alteration of any historic resources. A description of the proposed work for each element in the APE and potential effects to historic or archaeological resources is presented below.

14th Street SBS Route

New MetroCard and Coin SBS Fare Machines and Wayfinding Totems would be installed temporarily at locations with new SBS stops. Some of the fare machines may remain permanently, but this has not been determined yet. The installation of the fare machines may require removal of the existing sidewalk and curb to connect to electrical utilities. Specific areas that may be impacted include the following:

- **14th Street and Tenth Avenue:** A small trench would run in the road from the machines across to the north side of West 14th Street to connect to existing utilities. This intersection is located within the Gansevoort Market Historic District (05NR05491). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs would be replaced to match.

- **14th Street and Eighth Avenue:** The machines would be located within 150 feet of New York Savings Bank (06101.007391 and LP-01635); Manufacturers Hanover Trust Company Building (LP-01633); and the Greenwich Village Historic District (90NR00758 and LP-0489). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs would be replaced to match.
- **14th Street and Sixth Avenue:** The machines would be located within 150 feet of 510 Sixth Avenue, New York, NY (NR-Undetermined: 06101.008628) and R.H. Macy & Co. Store, 14th Street Annex (LP-02474). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs will be replaced to match.
- **14th Street and University Place:** The machines would be located within 150 feet of the Lincoln Building (06101.001799 and LP-01536); and Union Square (98NR01315 and LP-00965). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs would be replaced to match.
- **14th Street and Fourth Avenue:** Machines and totems will be located at the northeast corner at East 14th Street. A short trench will run in the road from the new machines on East 14th Street to Fourth Avenue to connect to existing utilities. The machines will be located within 150 feet of the Union Square (NRHP: 98NR01315 & LP-00965) and 14th Street/Union Square Station (NRHP: 06101.015188). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions will remain and any damaged granite curbs will be replaced to match.
- **14th Street and Second Avenue:** The machines would be located within 150 feet of Mabel Dean Bacon Vocation High School (06101.010647), the Hebrew Technical School for Girls (06101.017035), 242 East 15 Street (06101.002710 and LP-00893), and 240 East 15 Street (06101.002709 and LP-00893). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs would be replaced to match. (Note that these machines are for two of the inter-borough bus routes: L1 and L4).
- **14th Street and First Avenue:** The machines would be located within 150 feet of the Church of the Immaculate Conception and Clergy House at 406-414 East 14th Street, New York, NY (06101.001682 and LP-00226/7). The existing sidewalk is concrete with a granite curb and the adjacent roadbed is asphalt. The existing conditions would remain and any damaged granite curbs would be replaced to match.

Excavation for the fare machines and totems would reach a maximum depth of 18 inches within the sidewalk area and related electrical boxes would reach a maximum depth of 30 inches within the sidewalk area. All work would take place within the sidewalk and road bed in previously disturbed areas.

The proposed ticket machine and wayfinding totem locations and related sidewalk and roadbed construction work would not physically or visually impact adjacent historic resources or historic districts and would not impact archaeological resources.

Interborough Bus Route

New MetroCard and Coin SBS Vending Machines would be installed temporarily at locations within the temporary four interborough bus routes. The installation of the fare machines may require removal of the existing sidewalk and curb to connect to electrical utilities.

- **Bushwick Avenue and Grand Street (Brooklyn):** The machines would be installed within 150 feet of the Williamsburg Houses (04701.015499). A portion of the sidewalk would be removed for the installation of the machines and their supporting utilities/junction boxes. A trench would run north along Bushwick Avenue and turn east along Grand Street to connect to nearby utilities. The asphalt road and concrete sidewalk/curb would be restored to match existing.
- **Delancey Street and Essex Street (Manhattan):** The machines would be located within the Lower East Side Historic District (00NR01620). A portion of the sidewalk would be removed for the installation of the machines and their supporting utilities/junction boxes. The existing concrete sidewalks and metal curbs would be restored to match existing.
- **East Houston Street between Mulberry and Mott Streets (Manhattan):** A short trench in the street from the southeast corner of East Houston Street and Mulberry Street would run across Mulberry Street to connect to existing utilities at the southwest corner of the intersection of Mulberry Street and East Houston Street. The machines would be installed within 150 feet of the Puck Building (06101.001564 and LP-01226), the Chinatown and Little Italy Historic District (09NR06033), the SoHo-Cast Iron Historic District Extension (LP-02362), the NoHo Historic District (LP-02039 and 03SD00449), 311-321 Mott Street (06101.014016), NoHo East Historic District (LP-02129 and 04SD00457), and 302 Mott Street (06101.019121). A portion of the sidewalk would be removed for the installation of the machines and their supporting utilities/junction boxes. A portion of the roadbed would be trenched for the connection to utilities. The existing asphalt road surface, concrete sidewalks and granite curbs would be restored to match existing.
- **Delancey Street and Norfolk Street (Manhattan):** A small trench would run in the road from the machines to connect to existing utilities on Norfolk Street. The machines would be located within 150 feet of the Essex Street Market (06101.010494). The existing asphalt road surface, concrete sidewalks and metal curbs would be restored to match existing.

Excavation for the fare machines would reach a maximum depth of 18 inches and electrical boxes would reach a maximum depth of 30 inches within the sidewalk area and street. All work would take place within the sidewalk and road bed in previously disturbed areas.

The proposed ticket machine locations and related sidewalk and roadbed construction work would not physically or visually impact adjacent historic resources or historic districts and would not impact archaeological resources.

Union Square West

As part of the proposed ASP, NYCDOT proposes to temporarily close to vehicular traffic the roadway at Union Square West between 16th and 17th Streets and 14th and 15th Streets to temporarily provide robust pedestrian and cyclist travel space. Union Square West between 15th and 16th Streets will remain open to vehicular traffic. To enhance this additional temporary space, NYCDOT intends to repair portions of the roadway. In 2000, the section of Union Square West between 14th and 15th Streets was reconstructed with contemporary granite pavers and concrete pavement. Over time, large portions of the concrete have cracked and some portions of the granite pavers are sinking. While NYCDOT is still finalizing its plans for Union Square West, the current plan is to remove the cracked concrete and granite pavers at crosswalks and a narrow strip of granite pavers on the west side of the street. The pavers and concrete would be replaced

with asphalt to provide a smooth surface for cyclists and pedestrians. Following the temporary closure of Union Square West to vehicular traffic, the asphalt would remain in place.

Additionally, NYCDOT would restrict private vehicle access along 14th Street and add temporary pedestrian space in the bed of the roadway (asphalt road would be painted beige), including between Union Square West and Union Square East. Portions of the road along East 14th Street below Union Square would be painted to delineate walking areas. NYCDOT's temporary treatments would all be within the existing right of way and, while access to areas of the right of way would be modified for proposed ASP.

The proposed new temporary pedestrian and cyclist spaces on Union Square West and temporary pedestrian spaces on 14th Street between Union Square West and Union Square East would be located within the boundaries of Union Square (see Figure 15), which is a National Historic Landmark (04NR05375) and listed on the State and National Registers of Historic Places. As confirmed by the SHPO, these proposed temporary changes would not have an effect on Union Square's historic features, character, or association with past events from which it derives its significance. Union Square was historically the location for the Labor Movement to stage protests and the surrounding roadways of the park were where the Labor Day marches originated. The proposed changes for the proposed ASP would not affect the layout of the park or roadways and therefore would not have an effect on the historic integrity of Union Square. As Union Square is a National Historic Landmark, in June 2018, the FTA sent a letter to the DOI requesting concurrence on the proposed Section 106 finding of No Effect. This letter also requested concurrence on the proposed Section 4(f) determination (as discussed in Section 6.7).

Williamsburg Bridge Bus Storage

The Proposed Action may include temporary use of a parking lot underneath the Williamsburg Bridge at Delancey Street between Columbia Street and Lewis Street for bus storage. Work would include minor upgrades to existing on-site security fencing and lighting. Two historic resources are located within the APE: 285 Delancey Street South (NR-Eligible: 06101.012208) and Baruch Houses – NYCHA (NR-Eligible: 06101.019184). All improvements would be localized to the existing parking lot and would not have physical or visual effects on adjacent cultural resources.

The proposed temporary changes for the bus parking site would not physically or visually impact adjacent historical resources and would not impact archaeological resources.

Stuyvesant Cove Bus Terminal

Between East 18th and 20th Streets, under the FDR, MTA NYCT would install a temporary parking lot for bus storage and connection to the temporary ferry terminal. This would involve moving jersey barriers and minor adjustment of the asphalt curbs as this area is already used for onsite parking. Additionally, within the temporary parking lot, a temporary SBS stop would be installed with two MetroCard vending machines. The machines will be installed within the parking area and along the Ferry Pedestrian Passageway near the waterfront. The parking area is currently paved asphalt and would remain asphalt. A temporary Swing Room Trailer will be located within the parking lot and will be removed at the completion of the tunnel shutdown.

Two resources are located within the APE: Stuyvesant Town (NR-Eligible: 06101.015023) and Peter Cooper Village (NR-Eligible: 06101.018754). All improvements would be localized to the existing parking

lot and would not have physical or visual effects on adjacent historic resources. Excavation for these measures would reach a maximum depth of 18 inches for the ticket machines and 30 inches for the related electrical boxes. All work would take place within the sidewalk or road bed in previously disturbed areas. There would be no effect to historic or archaeological resources.

The proposed temporary changes for the Stuyvesant Cove Ferry Terminal would not physically or visually impact adjacent historical resources and would not impact archaeological resources.

Summary

Pursuant to Section 106, FTA, in consultation with SHPO (June 25, 2018 SHPO opinion letter provided in Appendix F), determined the Proposed Action would have No Effect on historic resources. FTA is continuing to consult with the Department of Interior regarding the proposed Section 106 finding of No Effect for Union Square because of its National Historic Landmark status. A Construction Protection Procedure would be included with the construction documents requiring protection of all adjacent historical resources. Technical Policy and Procedure Notice #: 10/88 from the NYC DOB for Construction adjacent to Historic Structures would be utilized for all work adjacent to historical resources or within historic districts.

FIGURE 11. AREA OF POTENTIAL EFFECTS: NATIONAL REGISTER OF HISTORIC PLACES LISTED RESOURCES



FIGURE 12. AREA OF POTENTIAL EFFECTS: NATIONAL REGISTER OF HISTORIC PLACES ELIGIBLE RESOURCES (MANHATTAN)



FIGURE 13. AREA OF POTENTIAL EFFECTS: NATIONAL REGISTER OF HISTORIC PLACES ELIGIBLE RESOURCES (BROOKLYN)

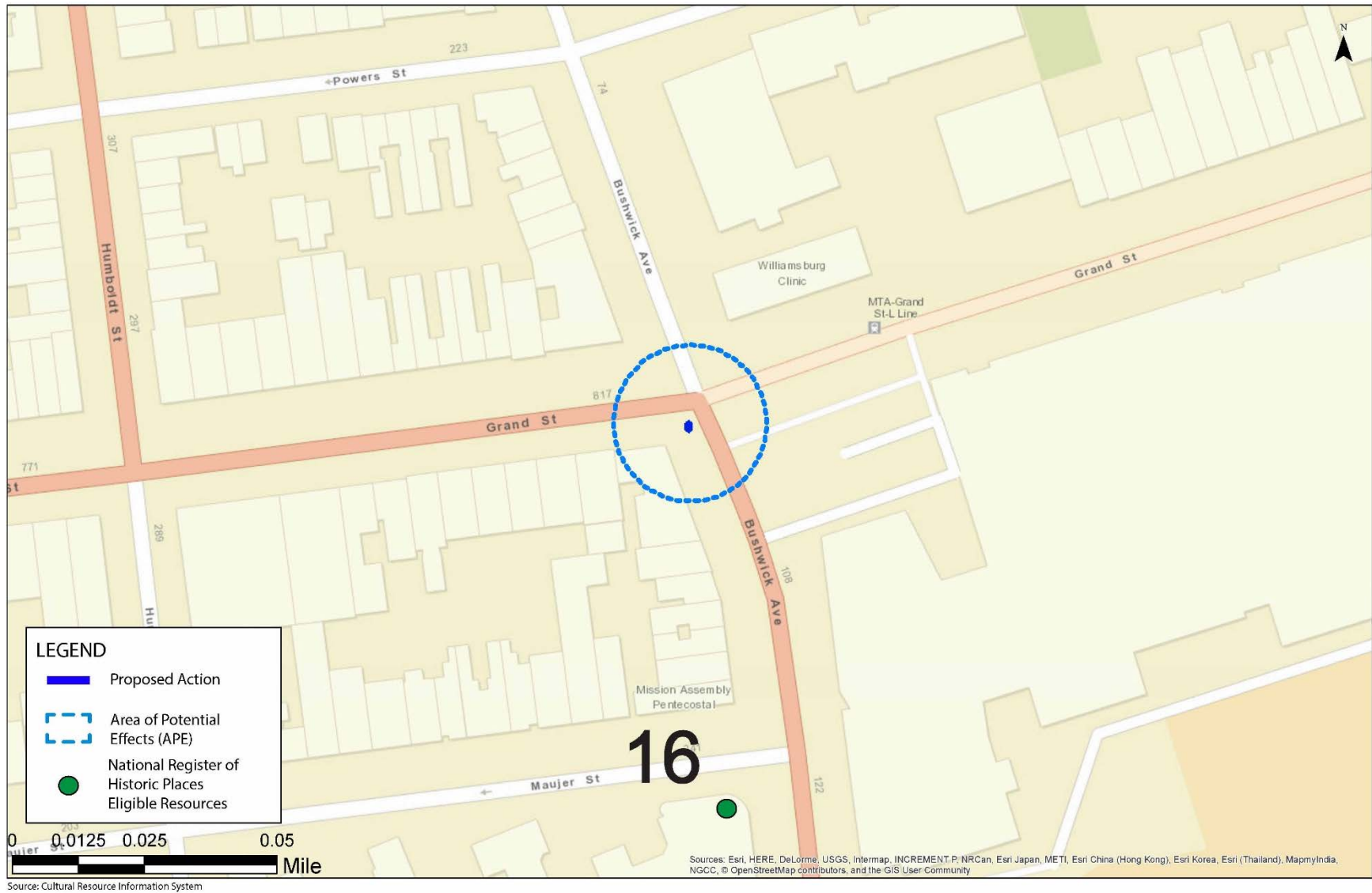


FIGURE 14. AREA OF POTENTIAL EFFECTS: LANDMARKS PRESERVATION COMMISSION HISTORIC RESOURCES



Source: Cultural Resource Information System

TABLE 15. AREA OF POTENTIAL EFFECTS: HISTORIC RESOURCES

ID Number	Name	Address	Resource Number
NR	Lower East Side Historic District	Historic District	00NR01620
NR	Chinatown & Little Italy Historic District	Historic District	09NR06033
NR 1	New York Savings Bank	81 Eighth Avenue	99NR01554
NR 2	The Lincoln Building	1 Union Square West	90NR00835
NR 3	Bank of the Metropolis	31 Union Square West	03NR05128
NR 4	Decker Building	33 Union Square West	03NR05127
NR 5	Church of the Immaculate Conception and Clergy Houses	414 East 14th Street	90NR00641
NR 6	Union Square	Union Square	98NR01315
E 1	510 Sixth Avenue	510 Sixth Avenue	6101.008628
E 2	857 Broadway	857 Broadway	6101.013442
E 3	Parish Building	860 Broadway	6101.013435
E 4	Mabel Dean Bacon Vocation High School	240 Second Avenue	6101.010647
E 5	Hebrew Technical School for Girls	238-246 Second Avenue	6101.017035
E 6	242 East 15 Street	242 East 15th Street	6101.00271
E 7	240 East 15 Street	240 East 15th Street	6101.002709
E 8	Stuyvesant Town	252 First Avenue	6101.015023
E 9	Peter Cooper Village	342 First Avenue	6101.018754
E 10	Public School 110	285 Delancey Street South	6101.012208
E 11	Baruch Houses - NYCHA	284 Delancey Street North	6101.019184
E 12	Puck Building	273 Mulberry Street	6101.001564
E 13	311-321 Mott Street, New York,	311-321 Mott Street	6101.014016
E 14	302 Mott Street, New York, NY	302 Mott Street	6101.019121
E 15	Essex Street Market	78-90 Essex Street	6101.010494
E 16	Williamsburg Houses	122-192 Bushwick Avenue	4701.015499

Notes:

All resources located in Manhattan.

NR: Listed on the National Register of Historic Places (see Figure 11)

E: Eligible for Listing on the National Register of Historic Places (see Figure 12)

TABLE 15. AREA OF POTENTIAL EFFECTS: HISTORIC RESOURCES (CONTINUED)

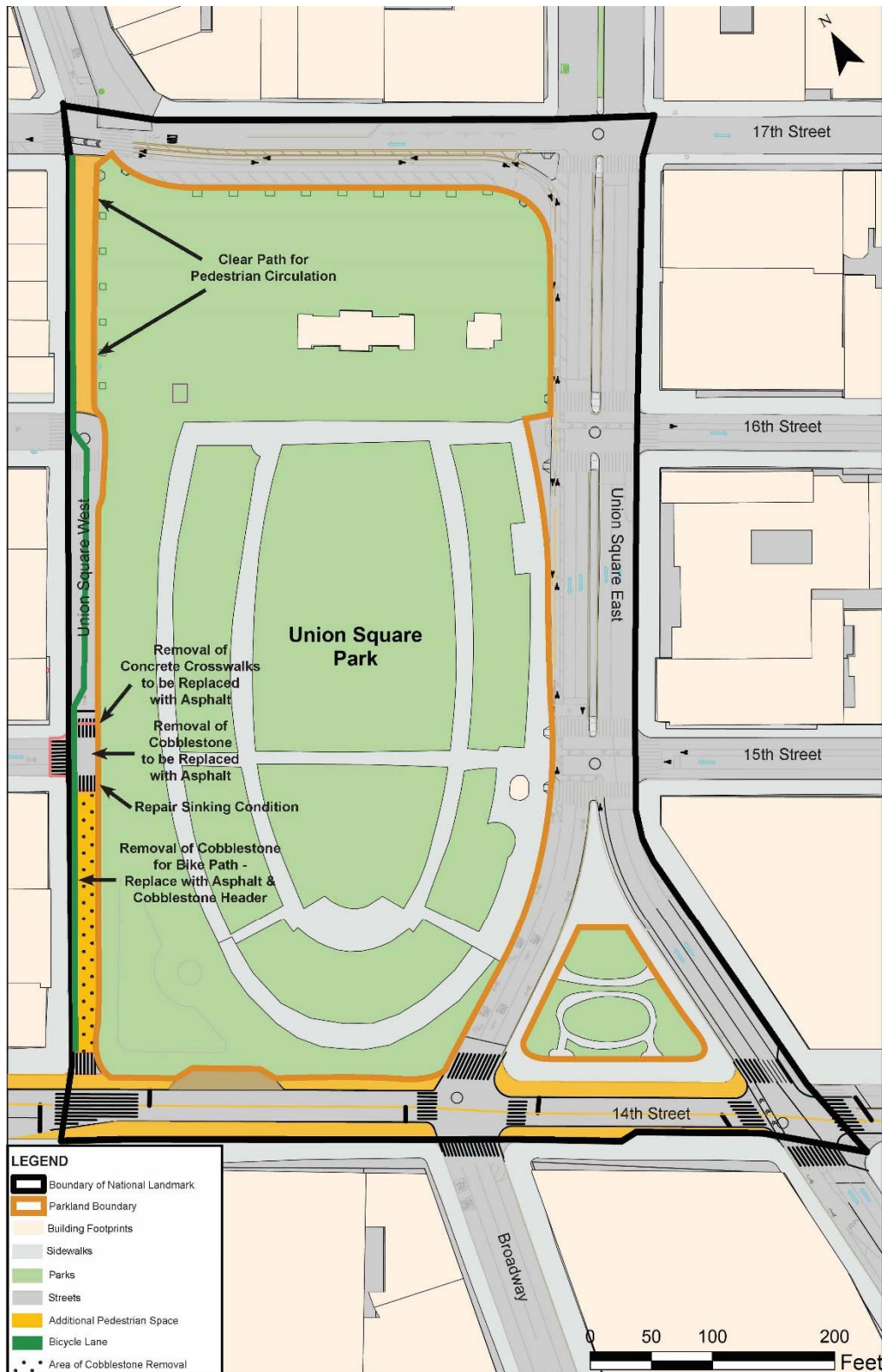
ID Number	Name	Address	Resource Number
LPC	Greenwich Village Historic District	Historic District	LP-00489
LPC	Ladies' Mile Historic District	Historic District	LP-01609
LPC	Noho Historic District	Historic District	LP-02039
LPC	Noho East Historic District	Historic District	LP-02129
LPC	Soho-Cast Iron Historic District	Historic District	LP-00768
LPC	Soho-Cast Iron Historic District Extension	Historic District	LP-02362
LPC 1	R.H. Macy & Co Store 14th Street Annex	56 West 14th Street	Lp-02474
LPC 2	Crawford Clothes Store	8 Union Square South	LP-02177

Notes:

All resources located in Manhattan.

LPC: Designated by the Landmarks Preservation Commission (see Figure 14)

FIGURE 15. POTENTIAL TEMPORARY CONSTRUCTION EFFECTS NEAR UNION SQUARE



6.6 NOISE AND VIBRATION

Both the No Action Alternative and the Proposed Action would have the potential for noise impacts due to the increase in vehicular traffic and changes in traffic patterns during the 15-month L train shutdown. Noise receptors from traffic would include residential and park areas near the approaches to the Williamsburg Bridge and areas along 14th Street. In addition, the Proposed Action would introduce temporary ferry service across the East River.

Principal Conclusion: The Proposed Action temporary ferry service would result in a peak-hour noise exposure below FTA's Moderate Impact Threshold; therefore, no significant adverse impact is anticipated from increased noise levels. Temporary M14 SBS and interborough bus service would not result in significant noise or vibration levels from bus operations. Construction of temporary facilities would be short term in duration and minor and is not expected to produce significant noise and vibration levels. Compared to the No Action Alternative, the Proposed Action would not result in significant adverse noise and vibration impacts.

6.6.1 No Action Alternative

The No Action Alternative would be expected to generate noise resulting from increased traffic volumes from additional bus service and likely additional automobile traffic (personal vehicles, taxis and FHVs). Automobile traffic would be expected to be diverted to the adjacent streets due to high levels of congestion. The increase in bus and automobile volumes on the Williamsburg Bridge and within the 14th Street corridor (including side streets) would result in an increase in noise. The increased noise levels would be temporary and would not be expected to be significant.

There would be no significant noise impacts as a result of the increase in subway service on adjacent lines that would occur under the No Action Alternative. In addition, since there would be no construction activities required under the service plan represented by the No Action Alternative, there would be no construction-related noise impacts.

6.6.2 Proposed Action

6.6.2.1 *Noise Impacts from Traffic*

The Proposed Action would increase bus volumes and incorporate HOV restrictions and bus priorities as part of the proposed ASP. This would result in the diversion of automobile traffic from the bus routes. Over the larger study area, the redistribution of trips by location, mode, or time would not be expected to change overall mobility or traffic patterns. The HOV3+ restriction on the Williamsburg Bridge under the Proposed Action would result in increased carpooling and diversions over multiple East River crossings. While individual locations in the larger network may experience additional volume, the temporary nature of the disruption is not expected to result in significant noise impacts and would be improved over the No Action Alternative. While overall, the volumes on 14th Street during peak hours would be reduced under the Proposed Action with the implementation of the busway, the proportion of the number of buses would temporarily increase in comparison with the No Action Alternative. Since trucks would be limited to local deliveries on 14th Street under the Proposed Action, the number of trucks would be greater under the No

Action Alternative. Noise levels may increase along 14th Street and the approaches to the Williamsburg Bridge, but the increase would be temporary for the duration of the tunnel closure and is not considered a significant adverse impact.

MTA NYCT and NYCDOT will work with NYPD to manage truck traffic diverted from 14th Street due to the busway restrictions to avoid side streets, except for local deliveries. Instead, trucks would be diverted to other major crosstown routes north and south of 14th Street. Based on the traffic simulation models and using a screening threshold from the New York City Environmental Quality Review (CEQR), there would be no doubling of passenger car equivalents (PCE) volumes on the side streets accommodating diverted auto traffic (a PCE value of one). Since the CEQR threshold is an appropriate screening measure, the incremental change would not result in significant adverse noise impacts even under the criteria in the City's *CEQR Technical Manual* for the noise impacts resulting from long-term changes in traffic.

There would be no significant noise impacts as a result of the increase in subway service on adjacent lines that would occur under the Proposed Action.

6.6.2.2 Noise Impacts from Temporary Ferry Service

Noise level estimates associated with the temporary ferry service were determined using data from the CFSFEIS and following methodology in FTA's *Transit Noise and Vibration Impact Assessment Manual* (Report Number FTA-VA-90-1003-06; dated May 2006). The analysis assumed a peak headway of 7.5 minutes, which results in 8 ferry boat landings during the peak operating hour. The FTA noise impact criteria assigns noise exposure assessment based on three potential impact level conditions: No Impact, Moderate Impact, and Severe Impact. The level of impact is determined by estimating a project-generated noise exposure at a representative receptor site relative to what the existing ambient noise conditions are at the same receptor site.

On the Manhattan side of the project study area near the Stuyvesant Cove landing, peak-hour AM and PM ambient noise measurements collected as part of CFSFEIS were 68 and 64 dBA, respectively. The distance between the Stuyvesant Cove ferry landing and Stuyvesant Cover Park is about 180 feet. Additionally, the nearest residential properties to the landing area are located within the Stuyvesant Town apartment complex with the nearest apartment building located over 400 feet away. The equivalent noise level (Leq) from the additional ferry service at 50 feet is estimated to be 64 dBA. Assuming a conservative 3 decibels per doubling of distance drop off rate, noise exposure from the temporary ferry service operations would result in an Leq noise exposure level of 59 dBA at the Stuyvesant Cove Park and about 55 dBA at the nearest Stuyvesant Town apartment building. This indicates an increase of a maximum of 1 dBA as a result of the temporary ferry service at Stuyvesant Cover, remaining below the FTA Moderate Impact threshold.

On the Brooklyn side of the project study area, the North Williamsburg landing was not part of the CFSFEIS; therefore, no ambient noise level readings are available. However, the temporary ferry service noise exposure levels can be estimated at the nearest sensitive property and compared to general typical ambient background noise levels that would normally occur in communities such as Williamsburg. The closest noise sensitive property to the North Williamsburg landing is the rear façade of a residential tower located at 2 North 6th Place. This apartment building is approximately 300 feet away from the landing area. Typical daytime ambient noise levels during peak hours would generally be above an Leq level of 60 dBA.

It is estimated that the temporary ferry service would result in a peak-hour noise exposure at the residential receptor of about 57 dBA; therefore, no significant adverse impact is anticipated.

6.6.2.3 *Vibration*

The temporary M14 SBS and interborough bus services would not result in significant vibration levels from bus operations along the service routes or diverted traffic on surrounding streets, since buses and passenger vehicles have rubber tires and suspension systems that provide vibration isolation. NYCDOT will maintain the roadways per agency standards to prevent large potholes or other poor pavement conditions. Therefore, perceptible vibration levels are not expected from either of the temporary service plans.

6.6.2.4 *Construction*

Construction for the Proposed Action would be limited to a temporary ferry landing at North Williamsburg, a bus terminal and pedestrian path at Stuyvesant Cove, overnight bus storage lots, and temporary street treatments along the bus service routes. Construction of these temporary facilities would last a total of seven months, and is not expected to entail work activities that would produce significant noise and vibration levels. Appropriate construction methods will be required by MTA NYCT of the construction contractor, including adherence to the New York City Noise Control Code, to minimize construction impacts.

6.7 SOCIAL RESOURCES AND ECONOMIC IMPACTS

Principal Conclusion: The Proposed Action would have no significant adverse impacts with respect to land use; acquisitions, displacements, and relocations; neighborhoods and populations; and public services.

6.7.1 No Action Alternative

Under the No Action Alternative, the temporary services would be consistent with existing land uses and would not require any acquisitions, displacement or relocations. However, the transportation impacts from the No Action Alternative (as described in Section 6.1) would have adverse impacts to the neighborhoods and populations that would be inadequately served by the temporary services and that would experience increased traffic congestion during the 15-month L train closure. In addition, there is a risk that public services would be adversely affected by the increased traffic and be unable to adequately serve the populations within the service area.

In the No Action baseline, land use patterns in and around the stations of the L train would not be expected to change over the temporary closure period. In Brooklyn, no stations would close and intra-Brooklyn ridership on the L train would remain. Interborough riders east and south of the Bedford Avenue Station would still be expected to use Brooklyn stations to access transfer points to other subway lines. The stations are in dense urban neighborhoods with established residential communities and commercial nodes and corridors. While some shifting of usage patterns may occur on a temporary basis, the No Action Alternative is not likely to permanently alter development patterns and the existing economic baseline of these communities.

In Manhattan, the temporary 15-month closure will result in no subway service at the First and Third Avenue stations while the Union Square, Sixth Avenue, and Eighth Avenue stations would continue to serve all the north-south subway lines in Manhattan. The No Action can be expected to generate more street-level trips by all modes (walking, biking, autos/taxis, and buses) from L train riders that would now enter the corridor on different modes of travel, or will have already made connections to north-south subways. While 14th Street would be more congested with surface traffic and pedestrians, circulation on the street would still be providing the basis for existing businesses in the corridor that serve residents and the corridor's regional draw of local and regional workers and visitors. The 14th Street corridor is a vibrant, high density and mixed-use area and the suspension of L train service may shift usage patterns on a temporary basis but would not permanently alter development patterns; no direct or indirect business closures would be anticipated including to the east where there would be no subway connections at First and Third Avenues.

6.7.2 Proposed Action

The Proposed Action would not result in significant impacts with respect to land use; acquisitions, displacements, and relocations; neighborhoods and populations; and public services.

6.7.2.1 Land Use

The proposed temporary services would result in no permanent effects or temporary inconsistencies with existing land uses. The proposed temporary ferry service would operate from existing ferry facilities at

Stuyvesant Cove in Manhattan and the North Williamsburg ferry landing in Brooklyn that are used for citywide ferry service. Temporary modifications to the existing North Williamsburg ferry landing, potentially including an additional ferry landing on the existing adjacent pier, would be consistent with the existing ferry use at this location. The proposed temporary storage yards for bus parking in Queens and Manhattan would be compatible with the existing parking and storage facility uses of these sites. The proposed temporary M14 SBS service and the proposed temporary interborough bus service would both operate within the existing street right-of-way, and the provision of these temporary alternative services and associated temporary street treatments would have no long-term effect on surrounding land uses. Although automobile traffic would be diverted from 14th Street to adjacent side streets as a result of the proposed busway, the traffic volumes would be spread over many crosstown options and there would be no significant adverse land use impacts due to increased traffic.

6.7.2.2 Acquisitions, Displacements, and Relocations

The Proposed Action would result in no significant impacts with respect to acquisitions, displacements, and relocations. No persons and businesses would be permanently displaced as a direct result of the proposed ASP.

There would be temporary displacements of short-term parking lot customers at two sites under consideration as follows:

- **Temporary Stuyvesant Cove bus terminal:** The proposed temporary M14 SBS bus terminal at the Stuyvesant Cove ferry landing would displace the current vehicle parking during MTA NYCT's occupancy of the property. MTA NYCT would enter into an agreement with the private operator of this parking facility to provide compensation for its use of the property. Daily and monthly parking customers of the private operator would need to park elsewhere for the duration of the proposed ASP.
- **Metropolitan Avenue:** This privately owned industrial parking lot is used for short-term parking of various vehicles (e.g. coach and school buses, freight trucks, cars, and movie trailers). The owner's representative has informed MTA that it has the ability to terminate those arrangements on short notice and provide substitute parking for the short-term users at other locations for the duration of the proposed ASP need.

There would be no temporary displacements at the remaining two temporary bus parking sites under consideration. The PANYNJ site would be vacant during MTA's proposed hours of use and the Williamsburg Bridge site is also anticipated to be vacant, pending further discussion with the City of New York on a suitable alternate location for materials currently stored on the site.

6.7.2.3 Neighborhoods and Economic Effects

Compared with the No Action, the proposed ASP would result in a beneficial impact with respect to neighborhoods, populations, and economic effects. The proposed temporary services are intended to minimize the effect of the L train service disruption during the 15-month closure of the Canarsie Tunnel on the populations and communities that rely on the L train for transportation (as well as the larger Brooklyn population using other subway lines that would be accommodating L train riders), and would be supportive of existing land uses along the project corridor by providing alternative transit options to and within the affected neighborhoods.

Compared with the No Action Alternative, the proposed ASP would noticeably give more access to transportation alternatives in the 14th Street Corridor and in the Williamsburg neighborhood. Along the 14th Street corridor, the temporary SBS service and additional pedestrian space and bike lanes would enhance mobility benefiting existing businesses with easier access to customers. Commercial and residential activities (including local deliveries and passenger pick-up and drop-off) along 14th Street would remain in place with the proposed ASP as to minimize disruption to businesses or residents along the corridor.

In Williamsburg, Bedford Avenue Station would remain in service as the western terminus of the Brooklyn-only service on the L train and customers would continue to access the station for that purpose, or to connect to the G train. The availability of temporary interborough bus service (L3 and L4) and ferry service provide other options for riders in the area and would maintain the ability to walk to transit as well as provide similar access to local commercial districts. This would also be the case further to the east at the Grand Street terminus of the temporary interborough buses (L1 and L2) which meets the existing L train station area. Compared with the No Action, the remainder of the L train corridor and economic activity around stations would be about the same with the proposed ASP and no adverse impact would be expected compared with the No Action.

Citywide, the proposed ASP provides a benefit to workers and employers in providing the maximum flexibility and system reliability to the most customers during the L train closure.

6.7.2.4 Public Services

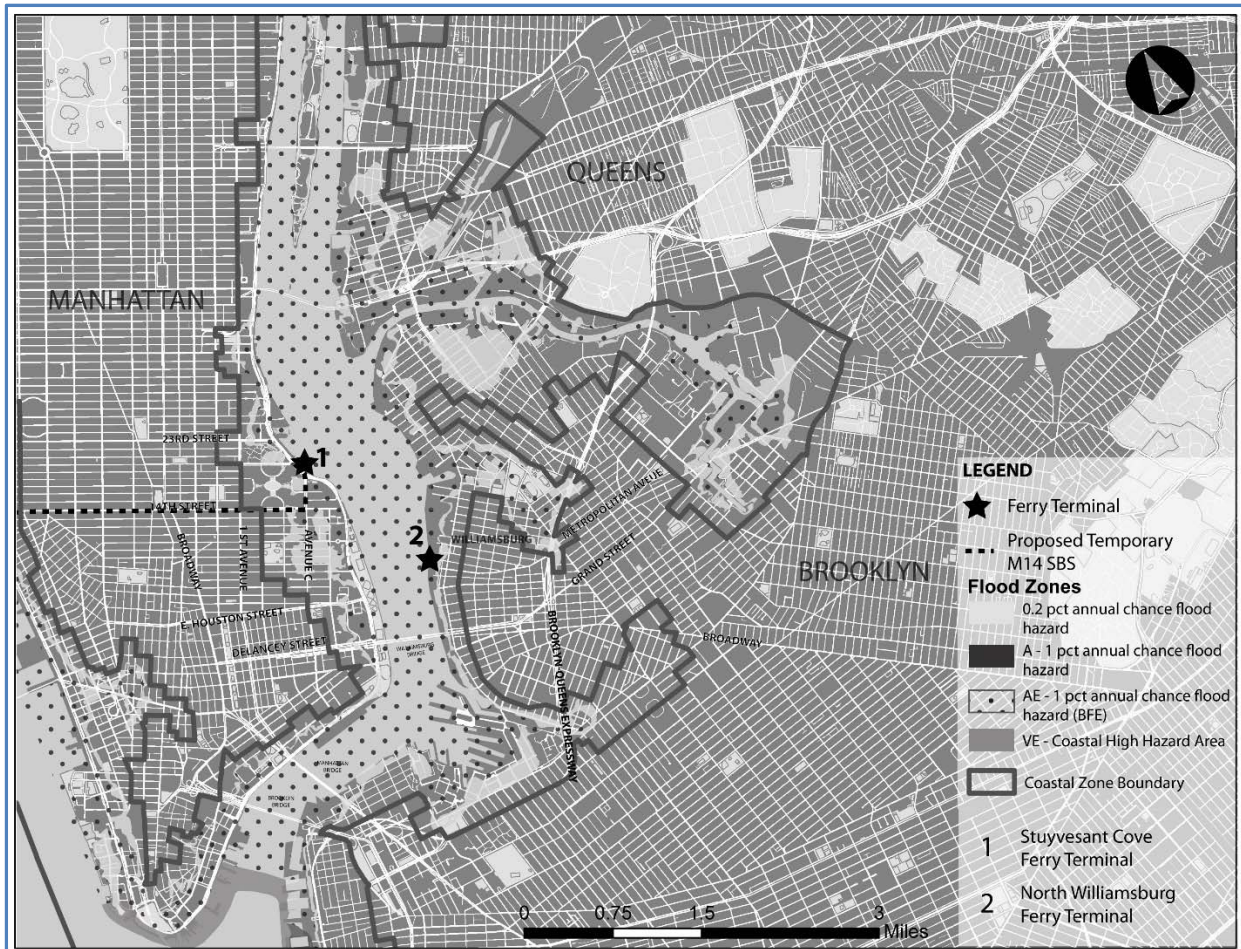
The Proposed Action would result in no significant impacts with respect to public services. The proposed ASP would not displace or obstruct access to any community facilities and services within the affected areas, and all temporary street treatments and operational restrictions would allow for travel by emergency response vehicles; therefore, there would be no impact to public services.

6.8 WATER RESOURCES

Water resources within the study area, including floodplains and coastal zones, are presented in Figure 16.

Principal Conclusion: The Proposed Action would have no significant adverse impacts to water resources. Elements in the floodplains would be designed to be flood resistant and would not affect flood levels, flood risk, or the flow of flood waters within or around the project sites. Due to the temporary nature and limited extent of project activities in the coastal zone, the Proposed Action would be consistent with the state coastal policies.

FIGURE 16. FLOODPLAINS AND COASTAL ZONE



6.8.1 No Action Alternative

There would be no construction activities or changes to services under the No Action Alternative that would occur within water, floodplain or coastal zone resources.

6.8.2 Proposed Action

The Proposed Action would include construction activities within the East River, floodplains, and the coastal zone. The proposed temporary ferry service would require the construction of a new temporary ferry landing at the existing North Williamsburg ferry landing, at the adjacent the Empire Pier, to add new passenger capacity.

Project elements located within the floodplain, such as the temporary bus terminal at Stuyvesant Cove and temporary pedestrian access modifications within Stuyvesant Cove Park, would not result in the construction of permanent structures or a permanent increase in impermeable surfaces. There would be negligible temporary increases in impermeable surfaces. The temporary ferry landing modifications in North Williamsburg would be designed to be flood resistant and would not affect flood levels, flood risk, or the flow of flood waters within or around the project sites. Therefore, there would be no significant impacts to the floodplain.

6.8.2.1 Floodplain

Executive Order 11988, “Floodplain Management,” and USDOT ORDER 5650.2, “Floodplain Management and Protection,” require that proper consideration be given to avoidance and mitigation of adverse floodplain impacts in federally funded actions in a floodplain. The Proposed Action would require installation of a temporary ferry landing adjacent to Empire Pier in Brooklyn and ancillary landside site improvements (security fences, etc.) within the floodplain to accommodate boarding of passengers. However, the Proposed Action would not include actions that would significantly alter the configuration or function of existing floodplains in the project area. The Proposed Action would not increase the probability of loss of human life; would not result in flood-related loss of vital transportation services or facilities; and would not have a noticeable impact on the natural and beneficial floodplain values compared to the existing condition. Therefore, FTA has determined that the Proposed Action does not constitute a Significant Encroachment as defined in USDOT ORDER 5650.2 (4) (p) and does not significantly alter the quality of the human environment.

6.8.2.2 Coastal Zone Management Act

The Federal Coastal Zone Management Act of 1972 recognizes the nation’s coastal resources and directs coastal states to create Coastal Zone Management Programs. In 1981, New York State adopted the Waterfront Revitalization of Coastal Areas and Inland Waterways Act in response to the federal action. The New York City Waterfront Revitalization Program (WRP) establishes the City’s policies for waterfront planning, preservation and development projects to ensure consistency over the long term and is authorized by the New York State Waterfront Revitalization Act. Proposed actions that are subject local, state or federal discretionary review, and that are within New York City’s Coastal Zone, must be reviewed and assessed for their consistency with the New York City Waterfront Revitalization Program (WRP) which has been approved as part of the State’s Coastal Management Program.

The ferry landings would be located within the New York State designated coastal zone and within New York City. Therefore, MTA NYCT has completed consistency review documentation through submission of a letter and New York City Waterfront Revitalization Program Consistency Assessment Form in consultation with New York City and the New York State Department of State (NYS DOS) (see Appendix F). Due to the temporary nature and limited extent of project activities in the coastal zone, the Proposed

Action would generally not be applicable to many of the City policies and consistent with the following city coastal policies:

- **Policy 2** – *Support water-dependent and industrial uses in New York City coastal areas that are well-suited to their continued operation*
 - **Policy 2.1** – *Promote water-dependent and industrial uses in Significant Maritime and Industrial Areas:* The proposed activity includes the Maspeth Bus Depot that would be located at 46-81 Metropolitan Avenue in Maspeth, New York. This site is currently a paved parking lot that would be used as a bus depot to hold overnight buses for the inter-borough shuttle bus service during the 15-month project span. The area would be repaved to make the site level and no further changes would be made to the existing site. Even though the site is within an area designated as a Significant Maritime and Industrial Area (SMIA), and use of the site for the proposed activity would not be considered a water-dependent use, the site does not currently promote water-dependent or industrial uses and the temporary use of the site by a non-water-dependent use would not preclude such use at a later date. Therefore, the preferred alternative would be consistent with Policies 2 and 2.1.
 - **Policy 2.5** – *Incorporate consideration of climate change and sea level rise into the planning and design of waterfront industrial development and infrastructure, pursuant to WRP Policy 6.2.* The proposed activity includes construction of a temporary ferry landing at Empire Pier in North Williamsburg, Brooklyn to provide a resilient transit alternative to L train riders who travel between Brooklyn and Manhattan during the 15-month shutdown of the Canarsie Tunnel. The design of the ferry landing includes measures to protect the landing from major storm surge or tidal events. For example, the anchor piles for the ferry landing would extend to an elevation of approximately 24 feet NAVD88, approximately 14 feet above the current 100-year flood elevation at the landing, to account for storm surge and to prevent the landing from detaching from the anchor piles during a combination of high tide and storm event. Emergency plans would be developed for the landing to ensure that landing infrastructure (such as gangways) and amenities would be secured prior to a storm event. These and similar measures would allow the ferry service to resume operations immediately following a storm event. Therefore, the proposed activity would be consistent with Policy 2.5
- **Policy 4** – *Protect and restore the quality and function of ecological systems within the New York City coastal area.*
 - **Policies 4.7/4.8** – *Protect vulnerable plant, fish and wildlife species, and rare ecological communities. Design and develop land and water uses to maximize their integration or compatibility with the identified ecological community/ Maintain and protect living aquatic resources.* The construction or operation of the temporary ferry landing would not adversely affect water quality or the habitat of the East River. In-water construction activities would not generate underwater noise levels that could potentially impact vulnerable species such as sturgeon or other fish. Turbidity generated from pile installation and removal activities would be prevented from potentially impacting aquatic species through the use of silt curtains. Construction barges and the barge landing platform would not contact the river bottom. MTA New York City Transit is engaged in consultation with NOAA National Marine Fisheries Service (NMFS) and will comply with time of year restrictions on in-water construction activities and other conditions issued with the USACE Permit for construction of the ferry landing. The same techniques would be utilized for the removal

of the temporary facilities expected to occur shortly after the resumption of L train service in 2020. Therefore, the proposed activity is consistent with Policy 4, 4.7, and 4.8.

- **Policy 6** – *Minimize loss of life, structures, infrastructure and natural resources caused by flooding and erosion and increase resilience to future conditions created by climate change.* Policy 6 speaks to reducing risks posed by current and future coastal hazards, especially major storms that are likely to increase due to climate change and sea level rise. The proposed temporary facility will be built to reduce risks posed by current coastal hazards and would be expected to be removed by 2020. During the time it is in place and operational, the proposed resilient ferry terminal would support emergency response and disaster recovery efforts in the event of a future storm and resultant flooding. Therefore, the proposed activity is consistent with Policy 6.
 - Policy 6.2 – *Integrate consideration of the latest New York City projections of climate change and sea level rise (as published in New York City Panel on Climate Change 2015 Report, Chapter 2: Sea Level Rise and Coastal Storms) into the planning and design of projects in the city’s Coastal Zone.* Three of the temporary proposed activity elements are located within the 1 percent Annual Chance of Flooding as mapped. The temporary ferry landing, which involves in-water construction, is the most vulnerable to coastal flooding and erosion and, if a permanent fixture, to future conditions created by climate change. Since the new facility would only be in use through 2020, it is unlikely to have a future implication.

Nonetheless, City guidance was followed to consider the temporary facility, including completion of the Consistency Assessment Form (see Appendix F). Since the Proposed Action will be complete and removed within the baseline period, this is the point of comparison for evaluating coastal flooding. The key element of the infrastructure would be the anchor piers, which would be built to a height of 23.45 NAVD88, approximately 14 feet above current flood elevation. The access piles and platforms would be lower in elevation similar to the existing pier it would be connected with. The floating barge, while typically at an elevation similar to the access platform, would rise and fall with changing water levels and since it would be securely attached to the anchor piles rising well above flood elevations, it would not be vulnerable to separation.

Overall, as described above, the design of the temporary ferry landing includes measures to protect the landing from major storm surge or tidal events. Emergency plans would be developed for the landing to ensure that landing infrastructure (such as gangways) and amenities would be secured prior to a storm event. These and similar measures would allow the ferry service to resume operations immediately following a storm event. Therefore, the proposed activity would be consistent with Policy 6.5.

- **Policy 7** – *Minimize environmental degradation and negative impacts on public health from solid waste, toxic pollutants, hazardous materials, and industrial materials that may pose risk to the environment and public health and safety:* The proposed activity would not require any ground disturbance that might expose previously contaminated soil to the public or to the water. Any contamination associated with the Maspeth Bus Depot site would like remain in its existing condition. Therefore, the proposed activity is consistent with Policy 7.
 - Policy 7.1 – *Manage solid waste material, hazardous waste, toxic pollutants, substances hazardous to the environment, and the unenclosed storage of industrial materials to protect public health, control pollution and prevention degradation of coastal ecosystems.* In securing and upgrading

pavement and maintenance of the existing parking facility for temporary use as a bus depot, the proposed activity would effectively minimize potential environmental hazards. Construction and removal of the ferry landing at Empire Pier in North Williamsburg, Brooklyn may result in limited turbidity, which will be intermittent and temporary. Silt curtains and other best management practices specified in permit conditions will be complied with to minimize impacts and prevent degradation of aquatic ecosystems. Therefore, the proposed activity is consistent with Policy 7.1.

- **Policy 8** – *Provide public access to, from, and along New York City’s coastal waters.*
 - Policies 8.1/8.3 – *Preserve, protect, maintain, and enhance physical, visual and recreational access to the waterfront/Provide visual access to the waterfront where physically practical.* The proposed ferry landing is located adjacent to existing NYCEDC ferry terminal and publicly accessible open space along the waterfront that currently provides visual access to the waterfront. The proposed landing is temporary and would not interrupt open space adjacent to the ferry terminal or access to the waterfront and would be consistent with the current ferry use. Therefore, the proposed activity is consistent with Policies 8.1 and 8.3.
 - *Policy 8.5 – Preserve the public interest in and use of lands and water held in public trust by the State and City.* The temporary ferry landing would be located on a private pier that would be transferred over to the New York City Department of Parks and Recreation (DPR). The pier would be maintained as a public pier while the temporary ferry service is in place. After the 15-month operational period, the ferry terminal would be removed and the parking lot would be returned to its original state. This temporary use of the private pier would not add to lands held in public trust. Therefore, the proposed activity is consistent with Policy 8.5
- **Policy 9** – *Protect scenic resources that contribute to the visual quality of the New York City coastal area.*
 - *Policy 9.1 – Protect and improve visual quality associated with New York City’s urban context and the historic and working waterfront.* The proposed activity would protect visual quality associated with New York City’s urban context and waterfront, but would not improve visual quality on the existing sites. The temporary action would not construct structures that would adverse impact the visual quality of the waterfront. Therefore, the proposed activity is consistent with Policy 9.1.
 - *Policy 9.2 – Protect and enhance scenic values associated with natural resources.* The proposed activity would protect, but not enhance, scenic values associated with natural resources. Therefore, the proposed activity is consistent with Policy 9.2.

6.9 CONSTRUCTION

Principal Conclusion: Construction activities for the Proposed Action would be limited to primarily temporary accommodations (and removal) to allow for the proposed ASP, including a temporary ferry landing at North Williamsburg, a bus terminal and pedestrian path at Stuyvesant Cove, overnight bus storage lots, and temporary street treatments along the bus service routes. Construction of these temporary facilities would be short term in duration and minor in scope, and is not expected to entail work activities that would produce significant air emission, noise and vibration levels, or traffic impacts. Adherence to permitting requirements for the construction of the ferry landing at North Williamsburg would ensure no significant adverse impacts to biological and water resources. Permanent improvement would be limited to circulation improvements at existing subway stations through stairway re-openings and enhanced turnstile control areas. Overall, there would no significant adverse impacts from construction activities.

Implementation of the proposed ASP would require minor construction to prepare the facilities various ASP elements as described in Table 1. Roadway resurfacing generally requires removal of the top few inches of asphalt. Along 14th Street, deteriorated granite curbs, which are currently installed at a depth of approximately 18 inches, would be removed and replaced where necessary to allow for installation of the temporary bus loading areas.

A summary of construction activity categorized by Proposed Action element is summarized below:

- **Subway Enhancements.** This work would consist of minimal construction work (concrete/steel) and operational changes all located within MTA NYCT's station envelope. All work would be conducted in coordination with tunnel repair in an effort to minimize and avoid conflicts with the proposed ASP.
- **Bus Enhancements.** This work would consist of street treatments including signage, full street resurfacing and/or spot repair in select locations such as Union Square West, sidewalk extensions utilizing temporary materials, and installation of both real-time information/wayfinding totems and SBS ticket machines with associated electrical connection. SBS fare machine foundations would be placed 6 inches below sidewalk level, while conduits for fare machine electrical power would be placed 18 inches below the surface. NYCDOT wayfinding totems would have foundations extending 18 inches below the surface, and the subsurface electrical boxes placed between power sources and the fare machines and wayfinders would extend 30 inches below grade. The overnight bus storage facilities would require minimal preparatory work, such as mobile lighting or security features, since buses are using those locations already.
- **Ferry Service.** The North Williamsburg temporary ferry landing would accommodate one (1) ferry boat and would consist of an access platform, a gangway, ferry landing barge, and guide piles with donut fenders. The access platform would be connected to the existing Empire Pier, would be supported by four (4), 16-inch diameter steel piles and would provide access to the ferry landing barge. The ferry landing barge would be supported by six (6) 36-inch diameter steel anchor piles. Four (4) 36-inch diameter steel guide piles with donut fenders would be located north of the ferry landing to guide the ferry as it approaches the landing. The constructed project footprint would be approximately 0.1033 acre, which includes 0.0018 acre associated with piles, and 0.1015 acre associated with the supported landing and access platforms.

Construction would begin on January 1, 2019 and would continue for a duration of approximately two months, ending on or about February 28, 2019. Installation would occur from equipment mounted on spud barges, in water depths estimated to range from approximately 10 feet to 22 feet (3 m to 6.7 m). The work barges would float during all stages of the tide. Barges and motorized equipment would implement protections to avoid spills into the East River, and a spill kit would be present onsite in case of inadvertent spills. The use of a full-depth turbidity curtain would be employed to limit turbidity and contain floating debris. The general construction sequencing would occur as follows:

- The Contractor would mobilize equipment to the project site;
- BMPs, including turbidity barrier, would be deployed;
- Piles would be driven with a vibratory hammer to the extent practical;
- Landing and access platforms would be placed in position and secured;
- Work completes; BMPs are removed;
- Contractor would demobilize from site.

Once the temporary ferry landing is no longer needed, similar construction methods and sequence would be followed to remove the temporary ferry landing.

All work would be performed in accordance with environmental conditions and commitments of authorizing permits, including those issued by New York State Department of Environmental Conservation (NYSDEC) and the U.S. Army Corps of Engineers (USACE).

The landing at Stuyvesant Cove has already been built by the City of New York so there would be no in-water construction work at this location. The construction of the pedestrian ramps and ticket vending machines at Stuyvesant Cove would require minor surface preparation work limited to approximately 18 inches below grade and electrical boxes placed 30 inches below grade.

- **Bicycle Enhancements.** The bicycle enhancements would involve street painting, thermoplastic markings, installation of plastic bollards, concrete pedestrian islands and plastic bollards, and installation of bike parking racks and sleds all of which would be installed with shallow ground penetrations not exceeding 18 inches.
- **Pedestrian Enhancements.** There would be pedestrian enhancements along the 14th Street corridor which would include sidewalk widening and SBS loading areas. This work would involve surface street work including street painting, plastic bollards, and plastic sidewalk extensions at bus stops. There would be locations along the route, such as at Union Square West, where the street and curbs must be stabilized/made level to do new work. The ground intrusive work would not be expected to exceed 18 inches below grade.

The total duration of the construction period for all project elements would be approximately 7 months (September 2018 – March 2019), although individual elements would require significantly less time to construct. It is anticipated that seasonal warm weather street treatments would start in September of 2018 and last several months as weather permits. The in-water ferry work would be done in accordance with the regulatory permits. All work would be completed no later than March 2019 to achieve MTA NYCT's anticipated April 2019 shutdown of the Canarsie Tunnel.

Once the L train service is fully restored, these temporary elements would be removed. Removal activities would be undertaken over approximately a two-month period. For street treatments, the removal would be

similar in duration and method as other street maintenance activities by NYCDOT. Removal of the in-water temporary facilities would be coordinated with regulatory agencies as may be established in permit conditions and would be short in duration (less than two months). All temporary installations would be removed unless additional planning analyses, agency coordination, public outreach (if necessary), and supplemental environmental consideration are undertaken as part of a permanent strategy.

Due to the small scale of the work activities (no heavy construction except for North Williamsburg in-water work) and the limited duration of the proposed ASP construction, no significant adverse impacts are anticipated. However, MTA NYCT, NYCDOT and their contractors would follow best management practices, AASHTO guidelines, and adhere to the NYC Noise Code to minimize public impacts and complaints.

6.9.1 Water Quality

Pile installation for most landings would be accomplished by either vibration hammering or a low speed vibratory drilling process, both of which result in minimal resuspension of bottom sediment. Sediment resuspension and increases in turbidity due to pile driving would be temporary, intermittent, and highly localized and confined to the immediate vicinity of the pile being driven. Resuspended sediment would be anticipated to dissipate shortly after each pile was installed. Any contaminants resuspended due to sediment disturbance would also be anticipated to dissipate rapidly and would not result in significant adverse long-term impacts to water quality in the East River. Where feasible and as required by regulatory agencies, a turbidity curtain would be used during pile installation and removal to minimize increases in suspended sediment. Any bottom sediment removed from within piles during pile installation would be disposed in accordance with applicable state requirements and would not have the potential to result in significant adverse impacts to the East River. In accordance with NOAA NMFS guidance, MTA NYCT has conducted underwater acoustics, turbidity, and vessel strike effects analyses required to obtain a Not Likely to Adversely Affect (NLAA) Determination from NOAA NMFS Protected Resource Division, subject to required measures to minimize harm during construction. Based on the analyses contained in Section 6.3.2, the ferry landing would not adversely affect Atlantic or Shortnose sturgeon, per Section 7 of the Endangered Species Act. MTA NYCT will continue to coordinate with NOAA NMFS to obtain the NLAA based on these effects analyses.

MTA NYCT also conducted an Essential Fish Habitat (EFH) assessment (see Appendix H) to determine whether the overwater coverage of the ferry landing elements would have the potential to result in adverse impacts on aquatic resources. Based on the EFH assessment, the proposed ferry landing would not adversely affect aquatic resources. MTA NYCT would continue to coordinate with NOAA NMFS to obtain approval of the EFH assessment. Consultation with NOAA Protected Resource Division and Habitat Conservation Division would be completed prior to issuance of a Section 10 permit.

Construction of the proposed ferry landing would require a permit from the USACE under Section 10 of the Rivers and Harbors Act. Since the site does not have NYSDEC regulated littoral zone wetlands (i.e., depths are greater than 6 feet at Mean Low Water), a NYSDEC Tidal Wetlands Permit would not be required. Since construction of the proposed ferry landing would not require excavation or fill in waters of the U.S., NYSDEC Water Quality Certification would not be required. MTA NYCT under the Public Authorities Law is exempt from Article 15 (Protection of Waters) of the New York Environmental

Conservation Law (ECL) and therefore, a NYSDEC Protection of Waters Permit would not be required. MTA NYCT has confirmed the required permits for the ferry landing at a meeting with the NYSDEC on June 4, 2018 and with the USACE on June 15, 2018.

6.9.2 Aquatic Resources

As discussed above, no significant adverse impacts to water quality would be anticipated to result from any in-water activities; therefore, water conditions for fish and other aquatic biota in the East River would not be deteriorated by construction activities for the proposed landing. Any sediment suspension during in-water construction activities would be temporary, minimal, and highly localized and would be anticipated to be well below physiological impact thresholds of adult and larval fish and benthic macroinvertebrates inhabiting the estuarine habitats of the East River.

Estuarine species are inherently adapted to and tolerant of highly variable and elevated concentrations of suspended sediments, and all in-water work would be completed during time periods approved by NMFS and NYSDEC as to avoid the most sensitive time periods of important fish species.

Losses of bottom habitat within the footprints of piles at the proposed landing would be 0.0018 acres. This represents a negligible reduction in the quantity of benthic habitat and benthic organisms in the East River and would not significantly impact populations of benthic fauna or their predators higher in the food web.

Noises produced by vibratory installation methods that would be used to install and remove piles would be minimal and well below both the injury and behavioral impact thresholds established by NMFS. Use of an impact hammer would be limited to cases where impact hammering of piles for the last few feet is needed due to encountering rock and therefore, would not be anticipated to present an underwater noise hazard to fish.

Should pile installation and in-water construction activity cause any fish to temporarily avoid the portion of the East River that is in the vicinity of the work area, the extent of the area that would be affected at any one time would be negligible relative to the amount of suitable habitat that would remain available nearby such that no permanent or significant adverse impacts to those individuals would be anticipated to occur. Pile installation for the proposed landing would not be anticipated to generate underwater noises that would have significant adverse impacts to fish of the East River.

6.10 GREENHOUSE GAS EMISSIONS

Greenhouse Gas Emissions (GHG) are an important consideration in evaluating transportation projects since the transport sector is a leading contributor to Greenhouse Gas Emissions in the United States and globally. In general, dense urban environments with access to mass transit provide among the most favorable “carbon footprints” since typical vehicle emissions are reduced on a per capita base with lower regional vehicle miles traveled (VMT) and higher proportion of transit trips. As noted in the “Inventory of New York City Greenhouse Gas Emissions in 2015” (published in April 2017), “New York City has one of [the] most extensive mass transit systems in the world, with subways, buses, commuter railways, and ferries contributing to the city’s low per capita GHG emissions levels” (page 23) (https://www.dec.ny.gov/docs/administration_pdf/nycghg.pdf).

FTA’s “Greenhouse Gas Emissions from Transit Projects: Programmatic Assessment,” (January 2017, FTA Report No. 0097) provides guidance for transit agencies implementing new transit service relating to the assessment of GHG emissions and recommends incorporation of the Programmatic Assessment (FTA PA) by reference where new service is similar to prototypical transit projects included in a “typology matrix” contained in the FTA PA.

For the proposed ASP, which is the temporary implementation of transportation options, the Proposed Action represents a program of various modifications to transit service (e.g., increased service on neighboring subway lines, temporary ferry service, temporary expanded interborough bus service), as well as implementation of improvements to existing roadways to facilitate a temporary bus rapid transit system (including HOV lanes on the Williamsburg Bridge, bus priority lanes, and enhanced service along 14th Street), and enhancements to non-motorized modes (improvements to bike lanes on 12th Street and 13th Street and enhancements of sidewalks along 14th Street). With the exception of the new temporary ferry service (the analysis of GHG emissions of which is not included in the FTA PA), the Proposed Action is most similar to implementation of a bus rapid transit (BRT) service.

The FTA PA evaluation reveals that “[t]he majority of the GHG emissions generated from the BRT projects in the sample are estimated to be operations-related downstream emissions (e.g., the tailpipe emissions), followed by construction-related upstream emissions (e.g., the emissions associated with the extraction, transport, and production of the materials used in the construction of the facilities).” Compared to new BRT system as analyzed in the FTA PA, the Proposed Action would not require construction of any new pavement or creation of new rights-of-way which are elements of “upstream” GHG emission calculations. Similarly, the implementation of non-motorized improvements for bicyclists and pedestrians further enhances minimization of GHG emissions.

The FTA PA concludes that “on average, BRT and streetcar projects are expected to generate relatively low levels of GHG emissions primarily due to their low infrastructure needs and low annual transit VMT” (FTA PA, page 30) and that “[c]alculating project-specific GHG emissions for BRT projects is expected to provide only limited information beyond the information collected and considered in this programmatic analysis. Therefore, it is recommended that NEPA reviews for individual BRT projects incorporate this programmatic assessment by reference” (FTA PA, page 30).

With respect to the additional temporary ferry service, which would generate additional GHG emissions from the additional ferries operating over 15 months, the Canarsie Tunnel Rehabilitation Temporary Ferry Service RFP released by NYCEDC on April 13, 2018, notes that preferences would be given to vessels with enhanced emission controlled Tier 3 engines or better. Tier 3 engines are primarily used to reduce the emission of pollutants, primarily NO_x. Overall the incremental change on a regional basis would be very small and would be a temporary incremental increase in GHG emissions.

Compared with the No Action condition, the proposed ASP provides for a total overall daily VMT reduction of 25,000 vehicle miles during the AM peak period over the 15-month project duration due to HOV restrictions on bridges and automobile and truck prohibitions on 14th Street. While operation of additional vehicles associated with the Proposed Action and minor construction associated with ferry landings would generate new GHG emissions, the GHG emissions avoided through an overall reduction in VMT over the 15-month period of implementation would likely more than offset any new GHG emissions from project-related vehicles or construction. Based on the FTA PA and guidance, no further substantiation of GHG emissions is necessary for the proposed ASP as proposed.

In addition to the temporary benefits, the Proposed Action would generate significant long-term benefits for transit riders within one of the most densely populated cities in the United States. Cities with large transit ridership such as New York City have smaller carbon footprints than automobile-dependent ones. New York City's multi-faceted transit system enables dense energy-efficient land use patterns that allow New York City residents to achieve a per capita GHG emission significantly lower than the average American. Any opportunity to strengthen the access to transit and the long-term viability and sustainability of the transit system made possible by the Canarsie Tunnel rehabilitation and other improvements is an important component in continuing to minimize and reduce GHG emissions in New York City. The short-term reduction in VMT compared to the No Action alternative would be in addition to the potential long-term (permanent) reduction in VMT (due to the increased availability and convenience of the lower-emissions subway transit alternative) associated with the Core Capacity project (which is expected to increase train service capacity on the L Line by 10%).¹⁹

¹⁹ <https://www.transit.dot.gov/sites/fta.dot.gov/files/NY-New-York-Canarsie-Line-FY-18-Profile.pdf>

6.11 ENVIRONMENTAL JUSTICE

Principal Conclusion: The Proposed Action would have no significant adverse impacts to environmental and social conditions or disproportionate significant adverse impact on environmental justice (EJ) communities. Compared to the No Action, there would be improved mobility and travel conditions for diverted L train riders as well as for riders on the other subway lines serving Brooklyn and Manhattan, particularly on the J/M/Z lines, due to the proposed temporary interborough bus services and the temporary ferry service. No disproportionate adverse effects on mapped environmental justice communities would be expected with the proposed ASP.

6.11.1 Background

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires all federal agencies to identify and address disproportionate and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations. U.S. DOT Order 5610.2(a), *Environmental Justice in Minority and Low-Income Populations*,²⁰ was issued to implement Executive Order 12898. U.S. DOT Order 5610.2(a) defines minorities as people who are Black, Hispanic, Asian American, American Indian, or Alaskan Native. The U.S. DOT Order defines a low-income population as “any readily identifiable group” of persons whose median household income is at or below the poverty guidelines of the U.S. Department of Health and Human Services.

NYSDEC’s mapping of potential EJ areas was used to identify the locations of EJ communities within the affected areas (Appendix G, Figures G-1 through G-3). As shown on these EJ maps, a large portion of the area served by the Proposed Action, particularly in Brooklyn and the Lower East Side/Chinatown neighborhoods of Manhattan, consists of EJ areas. Similarly, large portions of Brooklyn served by other subway lines expected to experience additional ridership during the L train closure are also considered EJ communities. Except for the easternmost section, the proposed temporary M14 SBS route would not be within an EJ area; however, the temporary interborough bus service would travel through mostly EJ areas along its four routes within both Brooklyn and Manhattan. The North Williamsburg ferry landing is also within an EJ area. These temporary ferry and bus routes were selected based on travel demand analysis, public consultation, and allocation of limited resources to provide the most direct service between Brooklyn and Manhattan that would provide connections for diverted L train riders to other subway or bus lines.

6.11.2 Transportation

The proposed ASP has been developed to address the travel needs of L train riders during the 15-month tunnel closure. As such, the temporary ASP would serve to minimize the effect throughout the service area of the L train tunnel closure. Compared to the No Action Alternative, the Proposed Action would provide greater flexibility and continued transit mobility to the service area, including to the environmental justice (EJ) communities served by the L train and throughout Brooklyn and Manhattan.

²⁰ <https://www.transit.dot.gov/regulations-and-guidance/fta-circulars/environmental-justice-policy-guidance-federal-transit>.

6.11.2.1 Cumulative Effects on Travel

The project area with the highest potential increases and cumulative increases in travel time resulting from the tunnel closure coincide with the Williamsburg area, which includes substantial areas with EJ populations. Compared with the No Action, the proposed ASP provides improved service levels and reliability on the remaining Brooklyn-Manhattan subway lines and provides for much faster interborough bus trips and along the temporary 14th Street SBS busway. These are beneficial impacts that accrue to all riders including those in EJ communities.

Appendix G, Figures G-4 and G-5 present the results of time savings under the proposed ASP condition compared with the No Action condition. Large areas of Brooklyn that are considered EJ communities would have at least a modest time savings of 0.5 to 2.5 minutes per rider. The cumulative effect over the tens of thousands of subway riders in these areas is substantial.

Further to the west in Brooklyn, around the Bedford Avenue station, there are more noticeable time savings of 3 minutes or more per rider as the proposed ASP provides the temporary interborough bus service and the temporary ferry service serving the ridership that is most isolated by L train service. This highest level of time savings is serving both EJ and non-EJ mapped areas. Similarly, in Manhattan along the 14th Street corridor, the SBS services that connect the easternmost portions of the corridor (east of Union Square) with the corridor also offer substantial time savings of five minutes or more per rider compared with the No Action. This is a beneficial impact of the proposed ASP and it is noted that a large portion of these highest time saving areas are located in EJ communities to the south and east of 14th Street.

6.11.2.2 Access to ASP Bus and Ferry service

As noted above, the proposed ASP's temporary interborough bus service, M14 SBS bus service, and ferry enhance connectivity for areas that are most isolated from other transit options during the tunnel closure, including in the Williamsburg area in Brooklyn and the easternmost portions of the 14th Street corridor. The ability to utilize these services benefits both EJ and non-EJ communities. The new interborough bus services are primarily routes within EJ communities and the westernmost portions of Williamsburg and the easternmost portions of the 14th Street corridor that have closest proximity to the temporary ferry service are also serving both EJ and non-EJ communities. In addition, the ability to access these alternate service modes has a beneficial impact on the remaining subway ridership by providing for an approximately 20 percent reduction in demand from riders diverted from the L Line to other subway lines operating between Manhattan and Brooklyn. MTA NYCT estimates that this would reduce congestion and increase reliability on other modes.

6.11.2.3 Traffic Congestion and Parking

Traffic could increase on side streets along the 14th Street corridor but the temporary projected increase with the proposed ASP would largely be offset by reduced overall travel delays for users of all modes and is not considered a significant adverse impact. There would be up to 970 on-street parking spaces (including a mix of day commercial parking, restricted daytime "No Standing" areas, as well as typical alternate side street parking) temporarily displaced to accommodate bicycle lanes and other enhancements. Areas of potential temporary traffic increases and temporary parking displacement, while not considered a significant adverse impact of the proposed ASP, would occur in both EJ and non-EJ communities (most notably in the 14th Street corridor) and would not be disproportionate to EJ communities.

6.11.3 Air Quality

Compared to the No Action Alternative the only area that may potentially experience increased traffic volumes are the side streets in the vicinity of 14th Street. While this area would experience additional traffic with the proposed ASP, these side streets are predominantly in non-EJ communities. Therefore, there are no disproportionate effects on EJ communities.

6.11.4 Biological Resources

There are no anticipated adverse impacts associated with implementation of the proposed ASP on biological resources. Therefore, there are no disproportionate effects on EJ communities.

6.11.5 Hazardous Materials

There are no anticipated adverse impacts associated with implementation of the proposed ASP relating to hazardous materials. Therefore, there are no disproportionate effects on EJ communities.

6.11.6 Historic, Cultural, Archaeological Resources

There are no anticipated adverse impacts associated with implementation of the proposed ASP on historic or archeological resources. Therefore, there are no disproportionate effects on EJ communities.

6.11.7 Noise and Vibration

The proposed ASP includes the addition of ferry service which would result in increased noise levels in the vicinity of the two ferry landings, one of which is in an EJ community and one of which is not. Thus, the impacts are not considered disproportionate.

6.11.8 Social Resources and Economic Impacts

The Proposed Action would not result in significant adverse impacts on social and economic conditions. Compared to the No Action Alternative, the proposed ASP offers benefits to L train riders and the larger community in that the Proposed Action would not result in disproportionate significant adverse environmental impacts to EJ communities.

6.11.8.1 Land Acquisitions, Displacements, and Relocations

As shown on the EJ maps, the three potential overnight bus storage lots on the west side of midtown Manhattan for the temporary M14 SBS service and the potential storage lot at 46-81 Metropolitan Avenue in Queens for the interborough service would be in EJ communities. The potential overnight storage lot located underneath the Williamsburg Bridge between Columbia and Lewis Streets in Manhattan would not be in a potential EJ area.

MTA NYCT undertook an extensive review of MTA properties, New York City-owned and other public transportation use properties (NYCDOT, PANYNJ, NJT, maritime infrastructure properties), and private properties, including suggestions from NYCDOT, to identify the potential overnight storage yards, and

initially identified nine sites through this process that that could meet its overnight storage needs. The five sites under consideration were selected as the preferred options based on their proximity to both the service routes and MTA NYCT bus depots, where they would be fueled and maintained, with both factors intended to minimize impacts to the surrounding community; their underutilized condition; and their ability to accommodate all the buses on a single site or cluster of nearby sites.

The three lots on Manhattan's West Side could accommodate the buses needed for the temporary M14 SBS and would be proximate to both MTA NYCT's Michael J. Quill Bus Depot and the temporary M14 SBS route. These lots are used by NJ TRANSIT for daytime bus storage and are principally located within the network of roadways accessing the Lincoln Tunnel, including the dedicated bus ramps connecting the tunnel and the Port Authority Midtown Bus Terminal, and have a relatively low concentration of residential and community uses in their immediate vicinities. The potential storage lot at 46-81 Metropolitan Avenue in Queens would accommodate the interborough bus fleet, would be near MTA NYCT's Grand Avenue Bus Depot, and would provide a direct connection to the interborough service route. This lot is currently used for truck and private bus parking on a month-to-month basis and is in an industrial area with limited surrounding residential or community uses.

Due to the existing mostly transportation and industrial settings of these potential sites and the relatively short duration of their use for bus storage, no significant impact on the surrounding communities is expected. In addition, the temporary service plans would not take, relocate, or affect any community resource or facility for either its construction or operation. These sites are in or adjacent to mapped EJ communities, but are largely located in areas with similar transportation infrastructure and are not changing existing uses on the parcels for the temporary storage of buses. Overall, this would not reflect a disproportionate effect on an EJ community.

6.11.8.2 *Neighborhoods and Economic Impacts*

Like the No Action, there would be no anticipated direct or indirect business closures associated with the proposed ASP in Brooklyn or Manhattan. Citywide, the proposed ASP provides a benefit to workers and employers in providing the maximum flexibility and system reliability to the most customers during the L train closure and, as noted in Section 6.9, the proposed ASP is expected to have an overall benefit to L train riders and all subway riders in comparison with the No Action. This beneficial impact would be for all areas including both EJ and Non-EJ communities and there would be no disproportionate impact on mapped EJ communities.

In Williamsburg, Bedford Avenue Station would remain in service as the western terminus of the Brooklyn-only service on the L train and customers would continue to access the station for that purpose and to connect with the G train. The availability of temporary interborough bus service (L3 and L4) and ferry service provide other options for riders (including customers and employee to local businesses) in the area would maintain the ability to walk to transit and would provide similar access to local commercial districts. This would also be the case further to the east at the Grand Street terminus of the temporary interborough buses (L1 and L2) which meets the existing L train station area. Compared with the No Action, the remainder of the L train corridor and economic activity around stations would be about the same with the proposed ASP and no adverse impact would be expected compared with the No Action. As a result, there would no disproportionate adverse impact on EJ communities within these localized service areas or the larger L-train ridership service area.

6.11.9 Water Resources

There are no anticipated adverse impacts associated with implementation of the proposed ASP on water resources. Therefore, there are no disproportionate effects on EJ communities.

6.11.10 Construction

There are no anticipated adverse impacts associated with implementation of the proposed ASP resulting from construction activities to implement the temporary measures of the proposed ASP. Therefore, there are no disproportionate effects on EJ communities.

6.11.11 Greenhouse Gas Emissions

There are no anticipated adverse impacts associated with implementation of the proposed ASP on regional Greenhouse Gas Emissions. The proposed ASP enhances transit connectivity and the overall project to rehabilitate the tunnel is a beneficial impact in the ability to preserve and increase the reliability of critical transit infrastructure that lowers per capita emissions. Therefore, there are no disproportionate effects on EJ communities.

6.11.12 Public Outreach

MTA NYCT has held meetings in EJ communities as the proposed ASP has been developed. A number of the community boards along the L train corridor are in EJ communities and MTA NYCT has briefed boards as new information has been released. Town Halls have been open to all members of the public. Additionally, at the request of the EJ community in Canarsie, when this project was initially announced – before development of the proposed ASP – MTA NYCT held a town hall in Canarsie specifically targeted towards informing this EJ community of plans for the project and how it would affect this community in particular.

To date, MTA NYCT has held numerous meetings with EJ communities (a list of all meetings, including those in EJ communities, since release of the proposed ASP is included in Appendix C). Spanish interpreters have been provided at all public meetings MTA NYCT has held to date. In addition, at these events, these translators have spoken to Spanish language press about this project on MTA NYCT's behalf.

The notice of availability for this document is being published in Spanish and Chinese and distributed to Spanish and Chinese local newspapers in order to maximize the feedback received from non-English speaking communities along the L train corridor and in areas that are affected by the proposed ASP. As plans continue to develop, MTA NYCT will continue to keep these communities informed and solicit feedback from them.

6.12 SUMMARY

The Proposed Action is designed to provide viable transportation alternatives to the most customers during the anticipated 15-month period during which the Canarsie Tunnel would be closed to L train service. In evaluating the environmental effects of the Proposed Action during the temporary 15-month construction period, the Proposed Action elements were found to provide transportation benefits in terms of travel times and mobility choices and reduced congestion than with the No Action Alternative. MTA NYCT has been working on the Proposed Action in coordination with NYCDOT as the local agency responsible for traffic and transportation management in New York City as well as NYCEDC, the agency overseeing implementation of the citywide ferry service. The collaborative planning effort seeks to maximize opportunities to provide temporary services and to coordinate with other ongoing transportation improvements being implemented by NYCDOT or other agencies.

The No Action scenario, in which the Canarsie Tunnel would be taken out of service for required repairs for a 15-month period, would result in overcrowding of alternative subway lines and other disruptions to transportation, even with implementation of the measures that MTA NYCT routinely implements during construction work. The Proposed Action would minimize to the extent feasible the disruption occasioned by the closure of the tunnel during this 15-month period and would not itself result in significant adverse environmental impacts. Conditions for subway riders would be substantially improved compared to the No Action. Similarly, in the busy 14th Street corridor levels of passenger delays and traffic delays would be improved while accommodating a substantial increase in crosstown bus ridership.

7. Section 4(f) of the Department of Transportation Act

Section 4(f) of the U.S. Department of Transportation Act of 1966 (DOT Act) (49 U.S.C. §303; 23 CFR Part 774) regulates the use of land from publicly owned parks, recreation areas, wildlife and waterfowl refuge areas, or public and private historical sites by U.S. DOT agencies. Section 4(f) applies to all agencies within the U.S. DOT, including the FTA. The FTA may not approve the use, as defined in 23 CFR §774.17, of Section 4(f) property unless a determination is made that there is no feasible and prudent avoidance alternative to the use of land from the property; and the action includes all possible planning to minimize harm to the property resulting from such use; or the FTA determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures) committed to by the applicant, would have a *de minimis* impact, as defined in 23 CFR §774.17, on the property.

For historic sites, *de minimis* impact means that the FTA has determined, in accordance with 36 CFR Part 800, that no historic property is affected by the project or that the project would have “no adverse effect” on the historic property in question. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

Principal Conclusion: FTA is proposing the impacts at three Section 4(f) properties would be *de minimis*. The Proposed Action would have minor, temporary impacts at the following Section 4(f) properties: (1) North 5th Street Pier and Park, (2) Stuyvesant Cove Park, and (3) Union Square National Historic Landmark. The proposed temporary alterations would be consistent with the existing uses and would not adversely affect the public’s use of these properties or result in the impairment of their recreational or historic features. MTA NYCT is consulting with the NYCEDC, the official with jurisdiction of Stuyvesant Cove Park, and with NYCDPR the officials with jurisdiction of North 5th Street Pier and Park, regarding the proposed Section 4(f) *de minimis* impact determination. In addition, FTA is coordinating with the Department of Interior (DOI), an official with jurisdiction over Union Square (a National Historic Landmark), regarding the proposed *de minimis* impact determination for Union Square. Please see Appendix F for coordination correspondence with these agencies.

7.1 NO ACTION ALTERNATIVE

There would be no impacts or use of parks, recreational areas, historic properties or other Section 4(f) properties under the No Action Alternative.

7.2 PROPOSED ACTION

Temporary closure of the Canarsie Tunnel presents a unique challenge, because it would disrupt nearly 400,000 weekday L train riders. While NYCT typically provides alternative transportation services to

accommodate displaced riders (such as temporary shuttle bus service between stations and temporary increases to subway service on adjacent lines), the L train disruption would require a more substantial plan. Of the approximately 400,000 daily riders, approximately 125,000 use the L train for connections within Brooklyn; this service would continue to operate during the tunnel closure, albeit at a reduced frequency. Since intra-Brooklyn L train service would continue, approximately 275,000 riders would need to divert to other transportation options as a result of the tunnel closure, including 225,000 riders who use the L train to connect between Brooklyn and Manhattan and 50,000 who use the L train only in Manhattan.

As established in Chapter 2, Purpose and Need, the proposed ASP is intended to provide transportation alternatives to the greatest possible number of diverted L train riders balanced against the needs of residents near existing L train service and other users of the transportation network.

Under the Proposed Action, there would be minor, temporary impacts at three Section 4(f) properties, including one recreation area, one park, and one historic property. The general locations of these properties are shown in Appendix D, Figure D-21, and summarized in Table 16 below.

TABLE 16. SECTION 4(f) PROPERTIES

Fig. D-21 Map Ref	Property	Property Type	Size (acres)	Impact on Property	Jurisdiction	Context and Setting
1	Stuyvesant Cove	Recreation Area	1.90	±7,012 ft ²	NYCEDC/ Solar 1	Primarily used for passive outdoor recreation and is part of a larger public esplanade for the Manhattan side of the East River. It would soon also be used for transportation on the NYC Ferry service. The recreation area is located on the East River in a densely packed urban area. Access is from all sides, excluding the East River.
2	North 5th Street Pier and Park	Park	1.17	±68 ft ²	NYCDPR (Anticipated)	The park, created by new development along the waterfront based on City of New York regulations, is primarily used for outdoor recreation and is a transportation access point for ferries. It is part of a larger public esplanade on the Brooklyn side of the East River. The park (with the pier) is located within a densely packed urban area. Access is on all sides from designated paths.
3	Union Square National Historic Landmark	Historic	2.41	N/A	NYCDOT/ NYCDPR/ SHPO	Union Square comprises Union Square Park as well as the streets surrounding it. Primarily used for passive outdoor recreation, public gatherings and civic uses such as farmers' markets, and transportation, it is within a densely packed urban area. Access is on all sides.

7.2.1 Stuyvesant Cove

The Stuyvesant Cove ferry landing is being completed and ready for use by NYCEDC and is located adjacent to Stuyvesant Cove Park; a public recreation area that is owned by NYC Small Business Services, run by the NYCEDC, and managed by Solar 1, a non-profit organization contracted to manage and maintain the park. Stuyvesant Cove Park is not a mapped city park.

At Stuyvesant Cove Park, a temporary path would be constructed through the park to provide a direct connection for passengers between the ferry landing and temporary bus terminal. Three ticket vending machines would be set up in locations near the bus terminal and ferry landing. The path would cut through a landscaped garden area of the park, which is a visual feature that contributes to the aesthetic quality of the park but does not provide passive or active recreational features, although the path would also bisect the bike path along the park's western edge. Arriving and disembarking ferry passengers would be crossing the bicycle and pedestrian traffic north/south along the East River Greenway. This crossing would not be signal-controlled, but the mixing area would be delineated through markings and signage along the pathway. Current designs have ferry passengers crossing the pathway across a raised crosswalk to further delineate the mixing area and to communicate to pathway users to yield to crossing pedestrian traffic. This design is consistent with similar pathway crossings throughout the city, as well as city, state and national design best practices.

The proposed temporary alterations at this park and recreation area would be consistent with the ferry infrastructure in place for the existing and future planned ferry services at these locations, and the proposed temporary ferry service and associated alterations to park space would not affect the public's use of these parks or result in the impairment of their recreational activities and features. MTA NYCT is coordinating with the NYCDPR, NYCEDC, and NYCDOT regarding the temporary uses of areas of these parks, including agreements for provisions to provide increased maintenance and security services during the temporary ferry services, and for restoration of the parks to their original condition at the end of the ferry service. Therefore, a *de minimis* impact determination is appropriate because the Proposed Project would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

7.2.2 North 5th Street Pier and Park

The proposed temporary ferry service would require temporary, minor alterations at North 5th Street Pier and Park in North Williamsburg to accommodate temporary MTA NYCT ferry passengers at these locations. The existing NYC Ferry Service North Williamsburg ferry landing is adjacent to North 5th Street Pier and Park, which is under the jurisdiction of the NYCDPR. At North 5th Street Pier and Park, up to seven ticket vending machines may be installed in the park near the existing ferry landing pier or the existing Empire Pier. In addition, minor alterations would need to be made to the pier for the connection to the ferry landing gangway. The Empire Pier currently is not publicly accessible but is expected to be incorporated into the park and opened to the public this year (2018). The park would be restored to an agreed upon condition at the end of the ferry service. Therefore, a *de minimis* impact determination is appropriate for North 5th Street Pier and Park because the Proposed Project would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f).

The proposed temporary alterations at both North 5th Street Pier and Park and Stuyvesant Cove Park would be consistent with the ferry infrastructure in place for the existing and future planned ferry services at these locations. The proposed temporary ferry service and associated alterations to the park space would not affect the public's use of these parks, including agreements for provisions to provide increased maintenance and security services during the temporary ferry service, and for restoration of the parks to their original condition at the end of the ferry service. For further details, see Appendix F for 4(f) letters addressed to NYCDPR (North 5th Street Pier and Park) and NYCEDC (Stuyvesant Cove Park).

7.2.3 Union Square

As described in Section 6.5, the proposed new temporary pedestrian spaces on Union Square West from West 14th to West 15th Streets and West 16th to West 17th Streets and addition of pedestrian spaces on 14th Street between Union Square East and Union Square West would be located within the boundaries of Union Square, which is a National Historic Landmark and listed on the State and National Registers of Historic Places. These temporary vehicle restrictions would be removed upon completion of the Project and restoration of the L train service but the asphalt repairs would remain. The SHPO is an official with jurisdiction of Union Square because it is a historic resource and the NYCDPR is also an official with jurisdiction pursuant to local law. In this case, since Union Square is a National Historic Landmark, the DOI is also an official with jurisdiction. The SHPO has opined that there would be No Effect to the resource as a result of the Proposed Action. Union Square West and 14th Street between Union Square West and Union Square East is, and has always been, used, managed, and operated as a public right-of-way. The Proposed Action would not require use of the recreational component of Union Square (see Appendix F for correspondence with NYCDPR).

The Union Square historic site is located between East 14th and East 17th Streets and Union Square West and Union Square East. The park, together with the streets that surround it, is counted as one contributing site as the streets are important for their association with the first Labor Day parade on September 5, 1882.

The modifications to Union Square are minor and limited to the existing transportation right-of-way. The Proposed Project would expand pedestrian and bicycle space within existing right-of-way. The modifications would not adversely affect the features, attributes, or activities qualifying Union Square for protection under Section 4(f). As an historic resource, FTA is proposing a determination of No Effect on the historic property, pursuant to Section 106, and is coordinating with DOI. Therefore, a *de minimis* impact determination for Union Square is appropriate.

7.2.4 Section 4(f) Coordination

The potential impacts of the proposed modifications to the North 5th Street Pier and Park, Stuyvesant Cove Park, and Union Square are proposed to be *de minimis*, pursuant to Section 4(f) of the U.S. Department of Transportation Act of 1966 as amended and 23 CFR Part 774.

Prior to making *de minimis* impact determinations under 23 CFR §774.3(b), coordination with officials with jurisdiction is required. For historic properties, FTA is required to inform officials with jurisdiction of FTA's intent to make a *de minimis* impact determination based on their

concurrence in the finding of “no adverse effect” or “no historic properties affected.” For parks, recreation areas, and wildlife and waterfowl refuges, public notice and an opportunity for public review and comment concerning the effects on the protected activities, features, or attributes of the property must be provided. This requirement can be satisfied in conjunction with other public involvement procedures, such as a comment period provided on a NEPA document. The FTA is required to inform the official(s) with jurisdiction of its intent to make a *de minimis* impact finding. Following an opportunity for public review and comment, the official(s) with jurisdiction over the Section 4(f) resource must concur in writing that the project would not adversely affect the activities, features, or attributes that make the property eligible for Section 4(f) protection. This concurrence may be combined with other comments on the project provided by the official(s).

FTA, in coordination with the MTA NYCT, is consulting with the NYCEDC, the official with jurisdiction of Stuyvesant Cove Park, and with NYCDPR, the official with jurisdiction of North 5th Street Pier and Park, regarding the proposed Section 4(f) *de minimis* impact determination in accordance with Section 4(f) of the DOT Act. In addition, FTA, in coordination with the MTA NYCT, is coordinating with the DOI, an official with jurisdiction of Union Square, regarding the proposed *de minimis* impact determination. Please see Appendix F for coordination correspondence. Opportunity for public review and comment would be satisfied in conjunction with the public comment period for this SEA and Section 4(f) Review.

8. Measures to Minimize Harm

The following Measures to Minimize Harm have been incorporated into the Proposed Action:

1. MTA NYCT would commit to operating subway service on alternate subway lines in the robust service pattern described in this SEA document during all time periods to ensure that as many displaced L train customers can be accommodated within the subway system as possible, so as to ensure that the effect of the Proposed Action on traffic flow is not significant.
2. Once the proposed ASP is implemented, MTA NYCT, in coordination with NYCDOT, would monitor traffic conditions in a dynamic and responsive manner, and adjust traffic approaches to optimize performance during the anticipated 15-month construction schedule in order to minimize impacts.
3. MTA NYCT would work with NYCDOT to ensure that NYCDOT maintains roadways per agency standards to prevent large potholes or other poor pavement conditions to ensure vibration levels from bus operations or diverted traffic on surrounding streets are not significant.
4. MTA NYCT would work with NYCDOT to ensure that NYCDOT's Freight Mobility Group continues its regular, ongoing outreach to representatives of the trucking industry to educate commercial drivers of their appropriate route options. Trucks diverted off of 14th Street due to the busway would need to find other permitted routes north or south of the corridor and use that route to get as close as possible to their delivery location.

MTA NYCT, in coordination with NYCDOT, would also notify the NYPD Transportation Division's Truck Enforcement Unit of proposed routing changes associated with the L Train Tunnel Closure and coordinate with them on education and enforcement events.

5. After the 15-month construction period, MTA NYCT, in coordination with NYCDOT, would ensure removal of all temporary ASP elements (except for some permanent elements, such as station circulation improvements, roadway resurfacing, and, potentially, fare machine/totems on 14th Street) unless additional planning, agency coordination, appropriate public outreach, and/or appropriate supplemental environmental analysis is undertaken as part of a permanent strategy.
6. MTA NYCT would continue to coordinate with NYCEDC and NYCDPR regarding the temporary use of areas of public parks or recreational areas. After the 15-month construction period, MTA NYCT would restore the park and recreational areas to agreed-upon conditions.
7. MTA NYCT would adhere to the detailed performance specifications for ferry service, as detailed in Section 5.2.4 of this SEA
8. MTA NYCT, in coordination with NYCDOT, would adhere to all conditions and specifications related to any required federal, state, or local permit and would ensure all applicable federal, state, and local standards and requirements would be met, including, but not limited to, New York City Noise Control Code to minimize construction noise and vibration impacts, development and implementation of a Construction Protection Procedure requiring protection of all adjacent historical resources during

construction, development and implementation of a Construction Health and Safety Plan to avoid exposure of workers and the public to any hazardous materials during construction.

9. MTA NYCT's supplemental bus fleet would include 15 electric buses and diesel buses that achieve 95% particulate matter capture to ensure that no significant adverse air quality impacts occur.
10. MTA NYCT would adhere to the recommendations of NOAA as required through any applicable USACE permit(s) related to in-water work.
11. MTA NYCT would not require displaced L riders to pay an additional MTA NYCT fare on NYCT services, including the proposed temporary MTA NYCT ferry service, consistent with current MTA policy.

9. Public Participation and Outreach

In May 2017, MTANYCT and NYCDOT presented a concept ASP to the public. Prior to that MTA NYCT and NYCDOT held several meetings to inform elected officials, community boards and transit riders of the need to close the tunnel and to develop alternative services to mitigate the impacts of the closure. Specifically, in February and March of 2017, four public workshops were held in an effort to get public input on service mitigations. Both MTA NYCT²¹ and NYCDOT²² have also maintained Project webpages. The outreach has kept the public informed of the urgency of the Project and the development of the proposed ASP.

In the summer of 2017, MTA NYCT and NYCDOT presented updates to all 13 community boards in the L train service area, presenting the latest in closure and rehabilitation plans and the development of the proposed ASP. The proposed ASP was presented publicly in December 2017, and five additional open houses were held (two in Manhattan, two in Brooklyn, and one in Queens), along with presentations to all the community boards. Town Hall meetings were held in Manhattan and Brooklyn on May 9 and May 16, 2018, respectively and both MTA NYCT and NYCDOT presented the proposed ASP to the New York City Council at a June 27, 2018, Transportation Committee hearing. MTA NYCT and NYCDOT have maintained open communications with elected officials, government agencies, advocacy groups and key stakeholders. See Appendix C for a detailed summary of the meetings that have been held to date.

The ongoing outreach has sought to address the public's concerns with specific details on the proposed ASP, including schedules, routes, and potential impacts. NYCT and NYCDOT will continue to communicate with the public as the tunnel closure approaches and throughout closure and implementation of the proposed ASP.

This SEA will be made available for public review and comment for 30 days, from July 20, 2018 to August 19, 2018. An announcement will be printed in the following newspapers: *The New York Post*, *New York Daily News*, *Metro*, *AM New York*, *El Especialito*, and *Sing Tao*. The document will be available at MTA NYCT's offices at 2 Broadway, New York, NY (17th floor) and the locations listed in Table 17. In addition, this SEA will be posted on MTA NYCT and NYCDOT's websites.

Written comments should be postmarked by August 19, 2018, and can be submitted to the following:

Metropolitan Transportation Authority
2 Broadway
New York, NY 10004
Attn: Mr. Luke DePalma, NYCT Assistant Director of Government and Community Relations

Federal Transit Administration
One Bowling Green, Room 429
New York, NY 10004
Attn: Ms. Nina Chung, Community Planner

²¹ <http://web.mta.info/sandy/rebuildingCanarsieTunnel.html>

²² <http://www.nyc.gov/html/dot/html/about/ltrainclosure.shtml>

A Public Meeting will be held at 2 Broadway, New York, NY on August 6, 2018, from 5:00 p.m. to 8:00 p.m. Following a presentation at the Public Meeting, individuals will be given the opportunity to publicly comment on this SEA and comments will be recorded by a stenographer. All comments received during the public comment period, including those made at the Public Meeting, will be compiled and a response prepared, as appropriate. All written comments must be postmarked by August 19, 2018 to be included in the environmental record.

TABLE 17. REPOSITORY SITES FOR THE SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

Borough	Office	Address
Brooklyn	Borough President Eric Adams	209 Joralemon Street Brooklyn, NY 11201
	CB1	435 Graham Avenue Brooklyn, NY 11211
	CB4	1420 Bushwick Avenue Brooklyn, NY 11207
	CB5	404 Pine Street Brooklyn, NY 11208
	CB16	444 Thomas S Boyland Street #103 Brooklyn, NY 11212
	CB18	1097 Bergen Avenue Brooklyn, NY 11234
	Library in CB1	Leonard Branch 81 Devoe Street Brooklyn, NY 11211
	Library in CB4	Dekalb Branch 790 Bushwick Avenue Brooklyn, NY 11221
	Library in CB5	New Lots Branch 665 New Lots Avenue Brooklyn, NY 11207
	Library in CB16	Stone Branch 581 Mother Gaston Boulevard Brooklyn, NY 11212
	Library in CB18	Canarsie Branch 1580 Rockaway Parkway Brooklyn, NY 11236
Manhattan	Borough President Gale Brewer	1 Centre Street New York, NY 10007
	CB2	3 Washington Square Village #1A New York, NY 10012
	CB3	59 E 4th Street New York, NY 10003
	CB4	330 W 42nd Street Suite #2618 New York, NY 10036
	CB5	450 7th Avenue Rm. 2109 New York, NY 10123
	CB6	Manhattan Community Board 6 P.O. Box 1672 New York, NY 10159
	Library in CB2	Jefferson Market Library 425 Avenue of the Americas New York, NY 10011
	Library in CB3	New York Public Library Tompkins Square Branch 331 East 10th Street New York, NY 10009
	Library in CB4	Muhlenberg 209 West 23rd Street New York, NY 10011
	Library in CB5	Andrew Heiskell Braille and Talking Book 40 West 20th Street New York, NY 10011

TABLE 17. REPOSITORY SITES FOR THE SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT (CONTINUED)

Borough	Office	Address
Manhattan (cont'd)	Library in CB6	Epiphany Library 228 E 23rd Street New York, NY 10010
	NYC Transit Government & Community Relations	2 Broadway New York, NY 10004
	NYC Transit Customer Service	3 Stone Street New York, NY 10004
	Federal Transit Administration, Region 2	One Bowling Green, Room 429 New York, NY 10004 (Call for appointment: 212-668-2170)
Queens	Borough President Melinda Katz	120-55 Queens Blvd Kew Gardens, NY 11424
	CB5	61-23 Myrtle Avenue Flushing, NY 11385
	Library in CB5	Queens Library at Ridgewood 20-12 Madison Street Queens, NY 11385

CB: Community Board

10. Preparers

10.1 FEDERAL TRANSIT ADMINISTRATION

Donald Burns
Helen Serassio

Nina Chung
Daniel Moser

10.2 MTA NEW YORK CITY TRANSIT

Judith McClain
Angelo Elmi
Laura Jardieanu
Joseph Ehrlich
Jay Krantz

Buckley Yung
Deneisha Cox
Derek Braithwaite
Jeffrey Hanft

10.3 MTA HEADQUARTERS

Louis Oliva
Debra Pollack

Stephanie DeLisle
Crystal Cummings

10.4 NEW YORK CITY DEPARTMENT OF TRANSPORTATION

Eric Beaton
Sean Quinn
Susan Pondish
Hannah Roth
Aaron Sugiura

Jeffry Peel
Michelle Craven
Haley Stein (NYC Law Department)
Avraham Metal

10.5 WSP USA, INC.

Peter Liebowitz
Nicole Weymouth
Alice Lovegrove
Helen Ginzburg
Arthur Morrone
Denise Huang
Michael Lucia

Andrea Rosenthal
Rachel Van Metre
Victoria Hallas
Jennifer Wynn
Michael Babin
Graham Trelstad