Appendix 9 | Major Metropolitan Transportation Investments*

*Projects with costs over $100 million and regionally significant projects

1. Plan 2045 Fiscally-Constrained Element
2. Federal Fiscal Years (FFYs) 2017-2021 TIP
3. FFYs 2017-2021 TIP Projects with Completion Dates Beyond 2021
4. Projects from Previous TIPs with Completion Dates within the FFYs 2017-2021 TIP
## 1. PLAN 2045 Fiscally-Constrained Element

### Bronx

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Replacement of three bridges on the Bronx River Parkway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sponsoring Agency</td>
<td>NYSDOT</td>
</tr>
<tr>
<td>Purpose &amp; Need</td>
<td>Existing structural deficiencies were investigated and documented in the subsequent biennial bridge inspections and include conditions such as inadequate load carrying capacity caused by structural deterioration, non-redundant main members and non-conformance with the current NYSDOT seismic criteria. The existing non-standard and non-conforming roadway geometric conditions result in safety and operational deficiencies. The non-standard conditions are associated with traffic congestion and higher than state average accident rates.</td>
</tr>
<tr>
<td>Project Description</td>
<td>Bridge Replacement of three bridges on Bronx River Parkway (BRP). BRP Bridge over Amtrak/ CSX Railroad, BIN 1-07672-9; BRP over East Tremont Avenue, BIN 1-06710-9; Bronx River Parkway Bridge over East 180th Street/Morris Park Ave./NYCTA Yard/NYCDPR Property, BIN 1-06709-9.</td>
</tr>
<tr>
<td>Alternatives Considered</td>
<td>Superstructure and Substructure Rehabilitation, Superstructure Replacement and Substructure Rehabilitation, Bridge Replacement.</td>
</tr>
<tr>
<td>EJ-Environmental-Historic Preservation Implications</td>
<td>No significant environmental impacts. No EJ or historic preservation implications.</td>
</tr>
<tr>
<td>Other Information</td>
<td>PIN X110.19</td>
</tr>
<tr>
<td>Total Projected Cost ($ million)</td>
<td>$270.0</td>
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<tr>
<td>Anticipated Fund Sources &amp; Amounts</td>
<td>Federal &amp; State</td>
</tr>
<tr>
<td>Projected Completion Year</td>
<td>2026</td>
</tr>
</tbody>
</table>
### QUEENS

**Project Name:** Rehabilitation of Brooklyn-Queens Expressway Bridge over 47th St, Queens  
**Sponsoring Agency:** NYSDOT  
**Purpose & Need:** Replace aging deck  
**Project Description:** Bridge rehabilitation of BQE over 47th Street.  
**Alternatives Considered:** No build, deck replacement, superstructure replacement and complete bridge replacement.  
**EJ-Environmental-Historic Preservation Implications:** No significant environmental impacts. No EJ or historic preservation implications. Construction over historic cemetery requires assessment.  
**Other Information:** PIN X731.52  
**Total Projected Cost ($ million):** $195.0  
**Anticipated Fund Sources & Amounts:** Federal & State  
**Projected Completion Year:** 2026

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Kew Gardens Interchange Phase 3: Reconstruction of Parkways</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sponsoring Agency:</strong></td>
<td>NYSDOT</td>
</tr>
<tr>
<td><strong>Purpose &amp; Need:</strong></td>
<td>To improve mobility at Kew Gardens Interchange and to improve access to JFK airport. To address deficiencies on the Kew Gardens Interchange ramps.</td>
</tr>
<tr>
<td><strong>Project Description:</strong></td>
<td>This project would address deficiencies on the Kew Gardens Interchange ramps. It will remove the stop sign at the entrance to WB Jackie Robinson Parkway from EB Grand Central Parkway and construct a deceleration/acceleration lane for the JRP. It will also widen the connector ramps from the GCP to Van Wyck Expressway from two to three lanes. BINs included in this project are 1076039, 105575A, 1065030, 1075220, 1075239 and 1075880. This project will also include five new bridges. It is a Design-Build project.</td>
</tr>
<tr>
<td><strong>Alternatives Considered:</strong></td>
<td>TBD</td>
</tr>
<tr>
<td><strong>EJ-Environmental-Historic Preservation Implications:</strong></td>
<td>TBD</td>
</tr>
<tr>
<td><strong>Other Information:</strong></td>
<td>PIN X051.60</td>
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<td><strong>Total Projected Cost ($ million):</strong></td>
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<td><strong>Anticipated Fund Sources &amp; Amounts:</strong></td>
<td>Federal &amp; State</td>
</tr>
<tr>
<td><strong>Projected Completion Year:</strong></td>
<td>2021</td>
</tr>
</tbody>
</table>
## MULTI-BOROUGH

### Project Name: Brooklyn Bridge  Seismic Retrofit - Strengthening for Lateral Loads

### Sponsoring Agency: NYCDOT

### Purpose & Need:
In 1995, a detailed evaluation for the Brooklyn Bridge was performed, based on hazard levels given in the AASHTO Standard Specifications of the seismic performance. In 1998, NYC DOT adopted the ground motions recommended specifically for the New York City Region by a committee of seismologists and accordingly the seismic condition of the bridge was reevaluated. An addendum to the summary report was submitted in August 2003. The bridge has been classified as a critical bridge by NYCDOT, and as such shall be retrofitted for the two levels of earthquake in accordance with the DOT Design Guidelines. This project includes major retrofit measures to the: Manhattan Approach, Main Bridge, Brooklyn Approach and all ramps.

### Project Description:
Retrofit measures - Manhattan Approach and Ramps - strengthen columns and column base anchorages, strengthen floor-beams and connections to columns, bracings, and footings, replace concrete protection, and retrofit retaining walls and embankments. Main Bridge - strengthen towers. Brooklyn Approach and Ramps - retrofit bearings retaining walls and embankments, strengthen towers and bents, columns and column base anchorages, footings, shear transfer between truss segments, strengthen truss members and connections, floor-beams connections and bracings.

### Alternatives Considered:
1. Bridge retrofit. 2. Do nothing.

### EJ—Environmental-Historic Preservation Implications:
Potential for significant traffic impacts at several locations in Manhattan and Brooklyn which could be mitigated. Environmental monitoring shall be conducted in accordance with the general provisions of the contract. Coordination with Landmarks Preservation Commission and State Historic Preservation Office will be done.

### Other Information: N/A

### Total Projected Cost ($ million): $175.0

### Anticipated Fund Sources & Amounts:
Local: $175 million

### Projected Completion Year: 2028
**Project Name:** Manhattan Bridge Seismic Retrofit - Strengthening for Lateral Loads

**Sponsoring Agency:** NYCDOT

**Purpose & Need:** The Manhattan Bridge is a suspension bridge supported by four cables, 628 suspenders, two towers and anchorages including four stiffening trusses to support two lanes of upper roadway on each north and south side of the bridge and three lanes of lower roadway in the center of the bridge. It also carries two tracks of subway on each north and south side of the bridge. The scope of work includes the Seismic Retrofit of the Bridge structures in accordance with the requirements of critical bridges, using the latest NYC DOT Seismic Design Guidelines and corresponding rock seismic ground motions. The Manhattan Bridge and its approaches have been categorized as Critical. The objective of this seismic project is to retrofit the vulnerabilities of the bridge under 2500-year (upper-level) and 500-year (lower-level) earthquakes; so that the bridge will not collapse and the damages are repairable under upper-level earthquakes, and the bridge will remain in service to normal traffic under lower-level earthquakes.

**Project Description:**

The following is the recommended Scope of Work: Suspended Spans - The truss-to-tower connection details should be modified to provide larger gaps in order to minimize the potential of pounding between the trusses and the towers. Vulnerable superstructure members should be strengthened. The silty sand layer below the Brooklyn Cable Anchorage should be grouted below the mat foundation to provide a firm base. Approach Spans - All approach truss bearings (at piers, abutments and anchorages) should be replaced with isolation bearings. The approach piers and abutments should be reinforced. Primary members/connections of the superstructure framing that are vulnerable should be strengthened. The upper and lower lateral bracing systems for the approach spans should be replaced. Evaluate & Strengthen - All structural members and their connections, expansion joints, cables, suspenders, and anchorages, masonry piers, and abutments, bearings and foundations.

**Alternatives Considered:**

1. Bridge reconstruction. 2. Do nothing.

**EJ-Environmental-Historic Preservation Implications:** Potential for significant traffic impacts at several locations in Manhattan and Brooklyn which could be mitigated. Environmental monitoring shall be conducted in accordance with the general provisions of the contract.

**Other Information:** N/A

**Total Projected Cost ($ million):** $175.0

**Anticipated Fund Sources & Amounts:** Local: $175 million

**Projected Completion Year:** 2025
### Project Name: Ed Koch Queensboro Bridge Seismic Retrofit - Strengthening for Lateral Loads

<table>
<thead>
<tr>
<th>Sponsoring Agency:</th>
<th>NYC DOT</th>
</tr>
</thead>
</table>

### Purpose & Need:
In 1995, a detailed evaluation, based on hazard levels given in the AASHTO Standard Specifications of the seismic performance for the Queensboro Bridge was performed. In 1998, NYC DOT adopted the ground motions recommended specifically for the New York City Region by a committee of seismologists and accordingly the seismic condition of the bridge was reevaluated. An addendum to the summary report was submitted in August 2003. The bridge has been classified as a critical bridge by NYC DOT, and as such shall be retrofitted for the two levels of earthquake in accordance with DOT Design Guidelines. Major Retrofit measures to Manhattan Approach, Main Bridge, Queens Approach and all Ramps.

### Project Description:
The following is the recommended Scope of Work:

1. Retrofit measures - Manhattan Approach and Ramps - strengthen columns and column base anchorages, strengthen floor beams and connections to columns, bracings and footings, replace concrete protection, retrofit retaining walls and embankments.

2. Main Bridge - strengthen piers and towers, retrofit fixed bearings.

3. Queens Approach and Ramps - retrofit bearings retaining walls and embankments, strengthen towers and bents, columns and column base anchorages, footings, shear transfer between truss segments, strengthen truss members and connections, floor beams connections and bracings.

### Alternatives Considered:
1. Bridge reconstruction. 2. Do nothing.

### EJ-Environmental-Historic Preservation Implications:
Potential for significant traffic impacts at several locations in Manhattan and Queens which could be mitigated. Environmental monitoring shall be conducted in accordance with the general provisions of the contract.

### Other Information:
N/A

### Total Projected Cost ($ million):
$175.0

### Anticipated Fund Sources & Amounts:
Local: $175 million

### Projected Completion Year:
2025
NASSAU COUNTY

Project Name: Nassau Hub Transit Initiative

Sponsoring Agency: Nassau County

Purpose & Need

Nassau County has determined that a number of key, pervasive transportation and related problems exist within the Study Area. These problems stem from current and projected roadway congestion; the lack of frequent, direct and convenient transit service; and large-lot, dispersed development patterns that encourage auto trips and contribute to environmental degradation. These problems limit the County’s ability to grow, capitalize on economic development opportunities, and preserve the high quality suburban lifestyle that residents and businesses have come to expect. Nassau County has completed an Alternatives Analysis (AA) to address transportation problems in the area known as the Nassau Hub. The AA comprises the first phase of the Nassau Hub Study, the purpose of which is to define new transportation options and identify land use strategies that will help promote economic development, create jobs in the Study Area, and improve access and mobility; this, in turn, will enhance the quality of life for all Nassau County residents. The AA examined opportunities for introducing realistic and practical transit improvements within the Hub Study Area, and was conducted in cooperation with the Federal Transit Administration (FTA) and in accordance with FTA requirements. The purpose of the AA is to select a Locally Preferred Alternative (LPA). This AA Report documents the technical studies and public and agency involvement comprising the AA process and recommends the LPA.

Project Description:

Nassau County completed an Alternatives Analysis (AA) in 2014 that identified a Locally Preferred Alternative (LPA) for a transit alignment using Modern Streetcar in mid-Nassau connecting the Villages of Hempstead and Mineola via Roosevelt Field to help address transportation problems in the area known as the Nassau Hub. The full LPA would consist of a route approximately 6.5 miles long, serving about 14 stations in its roughly 28-minute run from Hempstead to Mineola via Roosevelt Field. The LPA was also seen as the option that would best satisfy study goals and objectives by bringing a new transit link to Central Nassau that would help maximize the economic potential of the Hub.

However, recognizing existing financial constraints to construct the full LPA, and reflecting the Nassau County’s interest to implement the modern streetcar service over time, an Initial Operating Segment (IOS) has been defined as a financially feasible first phase of the LPA for near-term implementation. This IOS would operate using a bus rapid transit (BRT) service to connect the Village of Hempstead with Roosevelt Field as the first phase. The Nassau Hub BRT IOS would create a new premium bus service linking key destinations in central Nassau County. The IOS was also seen as having independent utility vis-à-vis the full LPA. The Project route would be 4 miles in length and contain roughly nine BRT stations. The Nassau Hub BRT IOS’ southern terminus would be at the Rosa Parks-Hempstead Transit Center located in the Village of Hempstead. The Rosa Parks-Hempstead Transit Center is an intermodal facility, offering convenient and extensive transfers among the local Nassau Inter County Express (NICE) Bus routes and to/from Long Island Rail Road (LIRR) commuter rail service. The next phase of this study is to conduct an Environmental Review in cooperation with the Federal Transit Administration (FTA) and
in accordance with FTA requirements. Note that the completion date shown is an estimated target for completing the Environmental Review, with a firmer date to be provided once a more detailed schedule has been developed for the entire environmental review process.

Next steps are to complete the environmental review for the IOS during 2016-2017, the detailed design during 2018-2019, and construction beginning in 2020 with beneficial use in 2021. Full LPA design and construction are currently envisioned for a 2030-2035 timeframe.

Alternatives Considered

Initially, multiple routes and modes were considered for the new transit service, ranging from jitneys, conventional buses and other more traditional bus options to commuter rail and other fixed guideway options to modern streetcars and bus rapid transit (BRT)/premium bus vehicles. All systems considered were intended to accommodate higher capacity, improve speed, provide greater passenger convenience and comfort, and improve reliability and predictability of service.

EJ-Environmental-Historic Preservation Implications

An analysis of New York State Department of Environmental Conservation (NYSDEC) Potential Environmental Justice Areas (PEJAs) and auto-ownership data was performed to map areas of potential Environmental Justice (EJ) concern. Two PEJAs consist of U.S. Census block groups of 250 to 500 households each that have populations that meet or exceed statistical thresholds related to minority population and household income. While auto availability is not universally identified as a measure of potential lower-income status, in suburban areas that are typically more auto-dependent than are areas such as Manhattan, lack of access to an automobile is also considered a reliable indicator of economic status, particularly when viewed in terms of other demographic data. Throughout the Study Area, the percentage of residences without access to an automobile (“zero-auto households”) ranges from a low of zero to a high of 25 percent of residences per Census tract. Portions of the Study Area within the Village of Garden City, portions of the Village of Mineola, and portions of the Town of North Hempstead were found to have low percentages of zero-auto households, ranging from 0 percent to 2 percent. Conversely, between 16 percent and 25 percent of households within the tracts constituting the PEJA area in the Village of Hempstead were zero-auto households. Approximately 7 percent of households within the Uniondale portion of the PEJA were also zero-auto households.

None of the final Short-List Alternatives would result in disproportionately high and adverse impacts to EJ Populations and all of the alternatives may offer benefits to EJ populations as they would serve the retail areas and office parks, providing direct access to entry-level and flexible employment opportunities.

The cultural resource screening used readily available data obtained through a review of State and National Registers of Historic Places (NRHP) resource records; the New York State Historic Preservation Office (NYSHPO) Sphinx database; and consultation with NYSHPO personnel. Key findings were that all final Short-List Alternatives have the potential to affect two individually eligible resources, and the modern streetcar could potentially affect one historic district. The two individually eligible resources, the Nassau Tower/LIRR Mineola Station and the LIRR Electrical Substation located on Main Street in the Village of Mineola, are located in the vicinity of the Village of Mineola station stop that is common to all alternatives. The proposed improvements associated with the new Village of Mineola station – bus
shelter-style waiting areas – would not alter the two historic structures or change their setting; therefore, it is likely that the proposed Village of Mineola station common to all of the alternatives would not have an adverse effect on either historic resource. However, since the IOS will not be going to Mineola these issues will be further examined when the full LPA alignment is implemented.

Other Information

As previously noted, the modern streetcar Locally Preferred Alternative (LPA) is proposed to be implemented in phases and the Initial Operating Segment (IOS) has been identified for first-phase implementation. The alignment and modern streetcar technology comprising the LPA are recommended as the long-term vision for improving transit in the Nassau Hub. The LPA was selected because it would best satisfy the Study’s goals and objectives, address the purpose and need for transit improvement, and alleviate the underlying transportation and economic development-related issues identified in the Study Area. However, recognizing existing financial constraints to construction of the full LPA and reflecting the desire to generate ridership growth over time, the IOS, as defined, is viewed as a financially feasible first phase of the LPA for near-term implementation. The IOS is also proposed as an early phase to provide a reasonable timeframe for some large-scale development proposals, which are currently in flux along segments of the LPA corridor, to become better defined. These developments are anticipated to generate additional demand for travel in the Hub area that could be accommodated with later implementation of the LPA’s second phase. Therefore, the IOS would initially be advanced with the intent to build ridership and brand the system, with the remainder of the LPA occurring at some point in the future as planned development comes on line and funding becomes available. The IOS is proposed to operate initially using premium bus technology, similar to bus rapid transit (BRT) vehicles. When proposed developments are completed and funding is identified and available, the balance of the LPA alignment would be constructed and BRT/premium bus vehicles would be replaced with modern streetcars. The design of the physical features of the IOS would permit conversion to modern streetcar in the future. The IOS would incorporate various physical elements of the overall LPA so that the infrastructure developed for the IOS would remain functional and be integral to the full LPA.

| Total Projected Capital Cost ($ million): $400.0 (Full LPA; in 2012 $) |
| Projected Completion for full LPA: 2035 |
| Total Projected Capital Cost ($ million): $95 million (For IOS; in 2012 $) – CMAQ, Local, Sec. 5309 (Small Starts) |
| Projected Completion: 2021 |
FIGURE A9.1: NASSAU HUB STUDY AREA MAP
### 2. FEDERAL FISCAL YEARS 2017-2021 TIP

<table>
<thead>
<tr>
<th>BRONX</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project Name:</strong> Replacement of Bruckner Expressway Bridge over Westchester Creek (Unionport Bridge)</td>
</tr>
<tr>
<td><strong>Sponsoring Agency:</strong> NYCDOT</td>
</tr>
<tr>
<td><strong>Purpose &amp; Need:</strong> The Bruckner Expressway Bridge over Westchester Creek, also known as the Unionport Bridge, is a movable bridge located in the midst of the Bruckner interchange in the Bronx, New York, and is owned by NYCDOT. The bridge is an important link between the Cross Bronx Expressway (I-95), Bruckner Expressway (I-278), and the Hutchinson River Parkway. The existing bridge was constructed in the early 1950s and carries three eastbound lanes and two westbound lanes of the Bruckner Expressway Service Road traffic over the Westchester Creek. The Unionport Bridge was previously studied for rehabilitation, but due to inspection findings and multiple red flags associated with the movable span, a full replacement was deemed necessary. Rehabilitation options were further found to non-viable due to the need for extended traffic closures during construction. The structural condition of the bridge is rapidly deteriorating and replacement is critical to maintaining this important arterial roadway. Traffic congestion across the bridge and on many of the roadways and intersections within the project area are a significant issue. The existing non-standard features on the bridge are associated with safety-related features such as lane widths, shoulders, curve radii and pedestrian facilities.</td>
</tr>
<tr>
<td><strong>Project Description:</strong> The existing bridge will be replaced in its entirety with a new widened bridge consisting of two single leaf bascule bridges. The new bridge will provide three 12-foot travel lanes in each direction with a minimum of three foot shoulders, an eight foot sidewalk at the south facia and a 12-foot wide combined bikeway/sidewalk on the north facia. In addition, the project will provide a new control house, new utilities, machinery and electrical systems, fender system and dolphins, new street lights and traffic signals. Most of the existing non-standard features will be eliminated, and the basic maintenance of the bridge will be improved. Additional improvement measures will be implemented at the Brush Avenue intersection to enhance traffic safety and operation.</td>
</tr>
<tr>
<td><strong>Alternatives Considered:</strong> 1. Null/No Build. 2. Rehabilitation. 3. Vertical Lift Bridge. 4. Eight Leaf Bascule Bridge. 5. Two Single Leaf Bascule Bridge with Grade Separation.</td>
</tr>
<tr>
<td><strong>EJ-Environmental-Historic Preservation Implications:</strong> The City's Environmental Quality Review (CEQR) of the Environmental Assessment Statement (EAS) concludes that the project will have no adverse impact on the environment. The project also has no Historic Preservation Implications.</td>
</tr>
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<td><strong>Other Information:</strong> Contract #: HBX1131; TIP PIN: X77243</td>
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<tr>
<td><strong>Other Main Stakeholders:</strong> FHWA, NYSDOT, USCG, USACE, NYSDEC, NYCDEP</td>
</tr>
<tr>
<td><strong>Total Projected Cost ($ million):</strong> $292.0</td>
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<tr>
<td><strong>Anticipated Fund Sources &amp; Amounts:</strong> Federal: $148.887 million; Local: $143.113 million</td>
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<tr>
<td><strong>Projected Completion Year:</strong> 2021</td>
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<tr>
<td><strong>Project Name:</strong></td>
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<td><strong>Sponsoring Agency:</strong></td>
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<tr>
<td><strong>Project Description:</strong></td>
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<td><strong>EJ-Environmental-Historic Preservation Implications:</strong></td>
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<td><strong>Other Information:</strong></td>
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<td><strong>Total Projected Cost ($ million):</strong></td>
</tr>
<tr>
<td><strong>Anticipated Fund Sources &amp; Amounts:</strong></td>
</tr>
<tr>
<td><strong>Projected Completion Year:</strong></td>
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</tbody>
</table>
**Project Name:** Rehabilitation of Two (2) Bridges on the Major Deegan Expressway

**Sponsoring Agency:** NYSDOT

**Purpose & Need:** To address structural deficiencies of the Major Deegan Expressway (MDE) Southbound (SB) viaduct and the MDE Northbound (NB) inactive subway structure that are at the end of their design life.

**Project Description:** The subject project proposes to eliminate the existing viaduct and construct a new MDE SB roadway on fill with new retaining wall along the west fascia line. The proposed reconstruction will include staged demolition of the existing SB viaduct and construction of new MDE SB roadway on fill while maintaining traffic during construction. The embankment fill will be supported and confined between the existing east side wall between MDE NB and SB, and the proposed retaining wall along the west side. In addition, it includes adding a continuous auxiliary lane on MDE NB from Sedgwick Avenue on-ramp to the I-95 exit to provide operational improvements. Furthermore, a new entrance ramp from Sedgwick Avenue to MDE NB will be added to improve traffic flow. The project is located in Bronx County and the limits are from Depot Place to W. 161st Street.

**Alternatives Considered:** Rehabilitation, Replacement, and Elimination of the 2 structurally deficient bridges.

**EJ-Environmental-Historic Preservation Implications:** No significant environmental impacts. No EJ or historic preservation implications.

**Other Information:** PIN X720.39

**Total Projected Cost ($ million):** $182.0

**Anticipated Fund Sources & Amounts:** Federal & State

**Projected Completion Year:** 2022
Project Name: Rehabilitation of the West 79th Street Bridge over AMTRAK and Rotunda Complex

Sponsoring Agency: NYCDOT

Purpose & Need: This project will provide for the rehabilitation of seven structures to restore the structural integrity and provide for a 50 year service life. These structures are located in the Borough of Manhattan. As-built record drawings indicate that the Rotunda and Boat Basin structures were constructed in 1936 as part of the West 79th Street Grade Crossing Elimination project by the New York Central Railroad. The structures were installed in their current configuration, and there is no indication that any significant structural rehabilitation has taken place since. The existing structures exhibit signs of structural deterioration and are seismically inadequate.

Project Description: This project will improve the structural integrity of the seven structures by:

1. Providing steel plates on the deteriorated steel members to provide the required section properties to safely carry the loads.

2. Deteriorated areas of concrete on the abutments and bearing walls will be removed and reconstructed by clearing the existing reinforcement steel, installing new steel reinforcement as needed and placing new concrete to restore the structural integrity.

3. The existing traffic circle asphalt wearing surface will be removed, areas of deterioration in the concrete deck will be removed and reconstructed in a similar fashion to the abutment and wall reconstruction, and then a new wearing surface will be installed to provide protection for the reconstructed deck and restore a smooth riding surface. New roadway joints will be installed and scuppers provided as necessary to provide for the adequate drainage as determined in design.

4. Seismic retrofits will be provided as determined during the analyses of the structures by plating areas of the structural steel that need to be strengthened or by encapsulating substructure components in concrete or possible fiber wraps to resist the seismic loads.

The rehabilitated structures will provide for safe transportation and service and maximize benefits while minimizing adverse impacts.

Alternatives Considered:

Rotunda Complex:

A Bridge Reconstruction Project Report (BRPR) was completed in October 2006 which evaluated six feasible alternatives of varying degrees of work which are summarized as follows:

1. Minimal rehabilitation as required in order to temporarily stop the advancement of deterioration.
2. Comprehensive rehabilitation to obtain structure-wide state of good repair.
3. Total replacement.

The BRPR recommended Alternative 2 as the preferred approach. Now that Federal funding has been secured for this project, a Design Approval Document will be prepared as part of the Final Design phase and will re-document the alternative evaluation process.
Amtrak Bridge:

A Bridge Reconstruction Project Report (BRPR) was completed in October 2006 which evaluated six feasible alternatives of varying degrees of work which are summarized as follows:

1. Replace the existing asphalt overlay in conjunction with the rehabilitation of the existing superstructure and substructure.
2. Replace the existing concrete deck in conjunction with the rehabilitation of the existing superstructure and substructure.
3. Replace the existing deck; replace the existing superstructure with a new steel superstructure in conjunction with the rehabilitation of the existing substructure.
4. Replace the existing deck; replace the existing superstructure with a new prestressed concrete superstructure in conjunction with the rehabilitation of the existing substructure.
5. Replace the entire structure (existing substructure to remain) with a new steel superstructure and a new reinforced concrete pier bent.
6. Replace the entire structure (existing substructure to remain) with a new prestressed concrete superstructure and a new reinforced concrete pier bent.

The BRPR recommended Alternative 2 as the preferred approach. Now that Federal funding has been secured for this project, a Design Approval Document will be prepared as part of the Final Design phase and will re-document the alternative process.

EJ-Environmental-Historic Preservation Implications:

During the development of the BRPR the New York State Office of Parks, Recreation and Historic Preservation was contacted regarding the structures. The Riverside Park Rotunda is listed on the State and National Register of Historic Places as a contributing component of the Riverside Park nomination. Now that Federal funding has been secured for this project, a Design Approval Document will be prepared as part of the Final Design phase and will re-document these analyses.

Other Information: TIP PIN X77050

W. 79th STREET BRIDGE OVER AMTRAK (BIN 2-22929-0)
W. 79th STREET PEDESTRIAN PLAZA OVER BOAT BASIN GARAGE (BIN 2-26771-7)
W. 79th STREET TRAFFIC CIRCLE OVER PEDESTRIAN PLAZA (BIN 2-26771-8)
W. 79th STREET RAMP TO SOUTHBOUND HHP (BIN 2-26771-A)
W. 79th STREET RAMP TO GARAGE (BIN 2-26771-B)
W. 79th STREET RAMP FROM GARAGE (BIN 2-26771-C)
W. 79th STREET RAMP FROM SOUTHBOUND HHP (BIN 2-26771)

Total Projected Cost ($ million): $127.445

Anticipated Fund Sources & Amounts: Federal: $37.248M, Local: $90.197M

Projected Completion Year: 2021
### STATEN ISLAND

| **Project Name:** Bayonne Bridge Navigational Clearance Project |
|-----------------|-------------------------------------------------------------|
| **Sponsoring Agency:** Port Authority of NY & NJ |

**Purpose & Need:** The Bayonne Bridge Navigational Clearance project will raise the roadway of the Bayonne Bridge to 215 feet to accommodate larger, more efficient ships anticipated after the Panama Canal expansion. The bridge’s original navigational clearance of 151 feet has been an ongoing concern for the maritime industry as much larger container ships are expected to call at east coast ports. Allowing these vessels access to New York port facilities will provide a more sustainable and competitive Port region.

The project’s scope includes the replacement of the existing main span deck and the NY and NJ approach structures and access ramps, at a higher elevation. The project will provide standard 12-foot lanes, median safety barrier and shoulders, a bikeway and a future transit corridor.

**Project Description:** The project entails construction of a new roadway deck within the constraints of the existing arch structure, to raise the air draft of the structure from 151’ to 215’. The completed replacement deck will not change the number of traffic lanes (two in each direction). It will include safety enhancements and a widened pedestrian way accommodating walkers and cyclists. The project will extend the life of the crossing.

**Alternatives Considered:** In advance of the NEPA process, PANYNJ evaluated alternatives ranging from bridge modifications, replacement, and non-bridge alternatives. As part of the environmental review process, environmental impacts associated with the No Build and Raise the Roadway alternatives were assessed.

**EJ-Environmental-Historic Preservation Implications:** An Environmental Justice analysis was conducted as part of the NEPA process and concluded that the project would not result in any disproportionately high and adverse effects on minority or low-income populations during operation or construction. From the historic preservation perspective, as part of the Section 106 process conducted in accordance with the National Historic Preservation Act (NHPA), it was determined that the project would adversely affect the NR-eligible Bayonne Bridge by removal and replacement of historic features of the bridge. A Programmatic Agreement to resolve this adverse effect was developed and executed in May 2013 among the US Coast Guard, PANYNJ, New York and New Jersey State Historic Preservation Officers, and the Advisory Council on Historic Preservation. Proposed measures to resolve this adverse effect are included in the environmental documentation prepared as part of the NEPA process. After concluding a comprehensive public review, the USCG issued a Finding of No Significant Impact (FONSI) for the project and issued a Final Environmental Assessment for public review in May 2013.

**Other Information:** The project has been included in both the NYMTC and North Jersey Transportation Planning Authority current TIPs and long-term plans. PANYNJ will fund this project from its self-financed capital program resources, so it will not impact the fiscally constrained MPO plans.

**Total Projected Cost ($ million):** $1,600.0

**Anticipated Fund Sources & Amounts:** PANYNJ will self-fund/no impact on fiscally constrained MPO plans.

**Projected Completion Year:** 2019
**Project Name:** Replacement of the Goethals Bridge between Elizabeth, New Jersey and Staten Island, New York along the I-278 Corridor  

**Sponsoring Agency:** Port Authority of NY & NJ  

**Purpose & Need:** The Port Authority of NY and NJ, under its Goethals Bridge Modernization Program (GBMP), proposed to replace the existing Goethals Bridge. The purpose and need for the project is to replace the functionally obsolete existing structure with a bridge designed to modern standards that will provide more reliable service, as well as the flexibility to meet long-term needs for local and regional movement of people and goods. The existing bridge has narrow lanes, no emergency shoulders, and a pronounced bend in the alignment of the approach span in New Jersey, impeding efficient traffic flow and the ability to clear even minor incidents quickly. Increasing auto and truck volumes across the bridge magnify the impact of these deficiencies. Opened to traffic in 1928, the Goethals Bridge requires ongoing repairs, maintenance, and rehabilitation at escalating costs; The constraints of its narrow span limit the extent to which traffic management technologies can be applied to improve traffic flows, and preclude accommodation of future transit service or priority-lane treatment. The existing bridge’s design does not support efficient trucking operations. Currently the Goethals Bridge does not provide pedestrian/bicycle access. Overall, it is the most vulnerable segment of the I-278 corridor, limiting the potential to accommodate diversion of traffic from other routes in the event of emergency.  

**Project Description:** The Goethals Bridge project will replace the existing structure with a crossing that includes three 12-foot-wide lanes in each direction, full shoulders, a pedestrian/bicycle way, and other improvements. The design incorporates load-bearing capacity and space between its side-by-side roadway decks to add a dedicated transit right-of-way should future conditions warrant. The replacement will tie in to the roadway network at the same locations as the existing bridge, which will be demolished after two-way service can be operated on the replacement structure.  

**Alternatives Considered:** As required by NEPA, the DEIS evaluated the potential impacts of the No-Build alternative, representing future conditions in the study area if no action is taken to replace or improve the Goethals Bridge. The types of alternatives considered in the environmental review process included the following: bridge replacement south or north of the existing Goethals Bridge (the Port Authority’s proposal); rehabilitation for significant extension of the existing bridge’s life span; other structural replacement or improvement alternatives (requiring construction of transportation infrastructure); non-structural improvement alternatives (not requiring construction of transportation infrastructure, such as charging higher tolls during rush hour to encourage travel during other periods to reduce congestion); and reasonable alternatives identified through the scoping process.  

**EJ-Environmental-Historic Preservation Implications:** No EJ implications.  

Given the identification of "populations of concern" within the Goethals Bridge Study Area (see Section 4.5.6), an Environmental Justice assessment was conducted to determine if a disproportionate share of the Proposed Project's adverse environmental impacts would be borne by low-income and/or minority populations. As presented in Appendix D.4, this review examined the extent to which populations of concern concentrated in or immediately adjacent to the Proposed Project would experience disproportionately high and adverse environmental impacts as a result of the Proposed Project. Despite the residential displacements that would occur within the City of Elizabeth’s neighborhood located between Krakow Street and Bay Way, the assessment concluded that the Proposed Project would not
result in any disproportionate adverse impacts to minority and/or low-income residents. Temporary minor disturbances to some residents living within the broader Goethals Bridge Study Area may occur during construction.

As a result of the architectural resource investigations conducted in 2007 and subsequent consultation with the state historic preservation offices (SHPOs) in each state, a total of 90 properties were either previously identified or evaluated as part of the current EIS process (see FEIS Section 4.8 and Appendices E.1, E.2 and E.3). The studies identified eleven of these resources listed in or eligible for listing in the National Register of Historic Places. The effects of the Proposed Project on these 11 historic properties have been evaluated pursuant to Section 106 of the National Historic Preservation Act and associated implementing regulations found in Title 36 CFR 800. The complete effects assessment is contained in Appendix E.5. Based on the results of the effects assessment, the Proposed Project will have an adverse effect on three historic properties within architectural APEs; the Goethals Bridge, the Staten Island Railroad Historic District, and the Staten Island Railway Lift Truss Bridge over Arthur Kill.

Other Information: PIN X77047

Total Projected Cost ($M): 1,500.0

Anticipated Fund Sources & Amounts: P3/ DBFM/ PANYNJ TPC limited to $540 million

Projected Completion Year: 2019
## Project Name: Rehabilitation of Brooklyn Bridge Approach Arches and Towers

### Sponsoring Agency: NYCDOT

### Purpose & Need: The Brooklyn Bridge is classified as a Critical Bridge and must continue to function as a part of the lifeline, social/survival network and as an important link for civil defense, police, fire department and/or public health agencies to respond to a disaster situation. The bridge is classified as a landmark structure. The analysis will require special consideration for unreinforced masonry towers. Since the original construction, limited repairs have been made to preserve the structural integrity of the Manhattan Approach Arches. Biennial and other special inspections have noted that the Approach Arches require rehabilitation. Several common deterioration conditions have been identified. They include damage and deterioration to the foundations, brick transverse and barrel walls and the floor system. The deterioration is most significant in Arch Blocks A, B, and C. The rehabilitation contract will address items of work not addressed in any of the previous contracts.

### Project Description: The following major items of work will be performed:

2. Strengthening of substructures of Manhattan Approach Arches.
3. Rehabilitation of Towers.
5. Rehabilitation of Brooklyn Approach Masonry Arches (Arches I through III).

### Alternatives Considered: 1. Bridge reconstruction. 2. Do nothing.

### EJ-Environmental-Historic Preservation Implications: Bridge Arches contain asbestos and other contaminated materials. Environmental monitoring shall be conducted in accordance with the general provisions of the contract.

### Other Information: TIP PIN X76126

### Total Projected Cost ($million): $287.5

### Anticipated Fund Sources & Amounts: Local: $287.5 million

### Projected Completion Year: 2021
**Project Name:** Rehabilitation of Broadway Bridge over the Harlem River  

**Sponsoring Agency:** NYCDOT  

**Purpose & Need:** The in-depth inspection, structural and seismic analysis found the bridge to be fair condition overall. There are some primary members that cannot carry HS-20 truck members. There are various structural, mechanical, electrical and geometric deficiencies; and the traffic study indicates that the bridge now operates at a level of Service of D during the PM peak hours.  

**Project Description:** The Broadway Bridge is the northern most of a series of movable bridges over the Harlem River owned and operated by NYCDOT. The bridge is a two tiered vertical lift bridge. The upper deck carries MTA NYCT’s #1 subway line. The lower deck carries two northbound and three southbound lanes of vehicular traffic. It also has two-seven foot wide sidewalks for pedestrians. The scope of work includes replacement of lift span grating and other gratings and concrete decks; replacement of stringers in lift span; repair floor beams and select truss members; rehabilitation of control house and gateman’s shelters; installation of new aerial or droop cables; replacement of barrier and warning gates; provision of new motors, auxiliary span drives and auxiliary power supply systems; replacement of selected ropes, operating machinery and span lock machinery; replacement of fenders and elevators and installation of a new bird prevention system.  

**Alternatives Considered:** 1. Rehabilitation in place. 2. On-line replacement with new superstructure. 3. On-line replacement with new superstructure and substructure. 4. Off-line replacement.  

**EJ-Environmental-Historic Preservation Implications:** It is anticipated that, upon completion of the City’s Environmental Quality Review (CEQR) of the Environmental Assessment Statement (EAS), this project will not adversely impact the environment. The project has no Historic Preservation Implications.  

**Other Information:** Contract # HBM1147. TIP PIN X75753.  
Other Main Stake Holders: FHWA, NYSDOT, NYCTA, MNRR, USCG, NYSDEC, USACOE  

**Total Projected Cost ($ million):** $158.451  

**Anticipated Fund Sources & Amounts:** Federal: $66.92 million, Local: $91.531 million  

**Projected Completion Year:** 2020
**Project Name:** Ed Koch Queensboro Bridge Replacement of Upper Roadways

**Sponsoring Agency:** NYC DOT

**Purpose & Need:** The Upper Roadways were replaced with the new deck, opening in 1982, over 30 years ago. The grid deck installed has a service life of 30 years. The roadway design is supposed to be for cars only (No Commercial Vehicles). There are buses operating on the upper roadways every day. Moreover, the Upper Roadways carried the truck traffic during Contract 4 execution (Lower Roadways Replacement) for about four years. This further reduced the load carrying capacity of the Upper Roadways. Some reduction in strength and/or service life of the upper roadway decks has resulted due to normal wear and tear and high traffic volume of approximately 180,000 vehicles per day. It has been deemed prudent to plan for the replacement of the grid deck for both upper roadways.

A significantly lighter deck system will be evaluated and, if recommended, will be installed and will reduce the overall bridge dead load. The bridge can benefit from measures to reduce dead load which ultimately will extend its service life. Replacing the existing grid deck with a lighter deck system such as light-weight concrete filled grid deck or an orthotropic deck should achieve this result.

**Project Description:** The 3/8 inch overlay placed in the original contract was replaced in the late 1990s and again in 2002. The latest placement was micro-surfacing which has a useful life of 5 to 7 years. Each time the overlay was removed more and more of the grid deck required repair. The Upper Roadway was rated 4.189 in the last inspection. The following major items will be done: complete demolition of the existing roadways on Main Bridge and complete the overlay Approaches including new modular joint system, new suppers, new bridge median and outer barriers, new lighting and electrical improvements, steel repairs and incidental bridge painting and environmental protection and hazardous material removal.

**Alternatives Considered:** 1. Bridge reconstruction. 2. Do nothing.

**EJ-Environmental-Historic Preservation Implications:** Potential for significant traffic impacts at several locations in Manhattan and Queens which could be mitigated. Environmental monitoring shall be conducted in accordance with the general provisions of the contract.

**Other Information:** PIN X772.83

**Total Projected Cost ($ million):** $250.0

**Anticipated Fund Sources & Amounts:** Local: $250 million

**Projected Completion Year:** 2021
<table>
<thead>
<tr>
<th><strong>Project Name:</strong> Replacement of the Kosciuszko Bridge over Newtown Creek from Morgan Avenue to the Long Island Expressway Interchange</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sponsoring Agency:</strong> NYSDOT</td>
</tr>
<tr>
<td><strong>Purpose &amp; Need:</strong> The project addresses the structural, safety and operational deficiencies associated with the Kosciuszko Bridge. The existing bridge is a deteriorating structure that requires frequent maintenance and repairs. The bridge contains several non-standard geometric elements, including an existing vertical profile that is not in compliance with modern standards for an interstate highway, resulting in unacceptably high accident rates and excessive delays to traffic.</td>
</tr>
<tr>
<td><strong>Project Description:</strong> Bridge replacement to provide operational improvements and address structural integrity issues and motorists safety.</td>
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<tr>
<td><strong>Alternatives Considered:</strong> The EIS investigated both rehabilitation and replacement alternatives. These considered constructing new permanent or temporary bridge structures, on (either) one or both sides of the existing bridge. The selected alternative is a bridge replacement that involves constructing a new permanent EB structure on the EB side of the existing bridge and a new permanent WB structure within the footprint of the existing bridge.</td>
</tr>
<tr>
<td><strong>EJ-Environmental-Historic Preservation Implications:</strong> As described in the EIS, impacts to an existing playground located near the bridge will be mitigated by providing additional and improved parkland. Since the project is located within an area with a long history of industrial uses, contamination is common in the soil and groundwater throughout the project limits. As noted in the EIS, construction will require removal or containment of contaminated materials, requiring the implementation of site specific health &amp; safety protocols, air monitoring, and soil &amp; groundwater management plans.</td>
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<tr>
<td><strong>Other Information:</strong> PIN X731.24 and X729.77</td>
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<tr>
<td><strong>Total Projected Cost ($ million):</strong> $685.0 (Phase 1) and $330.495 (Phase 2)</td>
</tr>
<tr>
<td><strong>Anticipated Fund Sources &amp; Amounts:</strong> Federal &amp; State</td>
</tr>
<tr>
<td><strong>Projected Completion Year:</strong> 2017 (Phase 1) and 2020 (Phase 2)</td>
</tr>
</tbody>
</table>
Project Name: Improve Kew Gardens Interchange (Phase 2B)

Sponsoring Agency: NYSDOT

Purpose & Need: To repair structural and operational deficiencies, including deteriorating and progressing fatigue cracks due to high truck volumes, fatigue prone details and pin and hanger details not in accordance with the current design requirements. Also identified for correction are non-standard or non-conforming geometric features within the project limits associated with traffic congestion and high average accident rates approximately six times the state average on similar highways.

Project Description: The project improvements will eliminate structural deficiencies; provide standard travel lanes, shoulder widths, and improved sight distance. The project also provides improved roadway geometry in achieving standard sight distances.

Alternatives Considered: Bridge reconstruction/bridge replacement; bridge rehabilitation/deck replacement; do-nothing.

EJ-Environmental-Historic Preservation Implications: No significant environmental impacts. No EJ or historic preservation implications.

Other Information: PIN X735.75

Total Projected Cost ($ million): $155.0

Anticipated Fund Sources & Amounts: Federal & State

Projected Completion Year: 2020
### BRONX

**Project Name:** Cross-Bronx Expressway Bridges Rehabilitation  

**Sponsoring Agency:** NYSDOT

**Purpose & Need:** To rehabilitate the deteriorated bridge structures.

**Project Description:** Rehabilitation of bridges on Cross-Bronx Expressway between Boston Post Road exit to Bronx River Parkway exit in Bronx County, to address structural deficiency issues.

**Alternatives Considered:** No build, Deck Replacement, Superstructure Replacement and complete Replacement.

**EJ-Environmental-Historic Preservation Implications:** No significant environmental impacts. No EJ or historic preservation implications.

**Other Information:** PIN X727.07

**Total Projected Cost ($ million):** $269.0

**Anticipated Fund Sources & Amounts:** Federal & State

**Projected Completion Year:** 2022
**Project Name:** Rehabilitation of Brooklyn-Queens Expressway (BQE)/ Interstate 278 (I-278) from Sands Street to Atlantic Avenue

**Sponsoring Agency:** NYC DOT

**Purpose & Need:** The need for the project is based on the following conditions observed in this segment of the BQE:

Infrastructure deterioration - Infrastructure deterioration has been noted especially in the concrete superstructures and substructures. Signs of deterioration include scaling, efflorescence, transverse cracking, map cracking, and spalling with exposed and corroded rebar at the underdeck. The lack of waterproofing membrane on cantilever structures allows permeation of water and de-icing salts into the concrete, accelerating deterioration. Water leakage through failed expansion joint seals has also contributed to structural deterioration.

Non-standard features, including vertical and horizontal clearance issues - Non-standard features in the existing design include narrow lanes, lack of shoulders, short merge/weave distances near on-ramps and off-ramps that result in non-standard acceleration and deceleration lanes, nonstandard horizontal curvature, and limited safe stopping sight distances.

Safety and operational concerns - The crash rate within the project limits exceeds the statewide average for roadways of identical classification to the BQE. Crash rates for all collision types, at some locations within project limits are over five times the statewide average in the eastbound direction and nearly 10 times the statewide average in the westbound direction.

Based on the description of need noted above, the purpose of this project is to address the following:

1. The deteriorating structural conditions of the 21 Bridges within the project limits. The Project will seek to address the observed deteriorating structural conditions.
2. The nonstandard geometrics identified within this segment of highway, including narrow lanes, lack of shoulders, short merge/weave distances near on/off ramps that contribute to crash rates above the statewide average, and affect efficient operation. The Project will seek to address these nonstandard features that contribute to high crash rates and levels of congestion on the roadway within project limits.
3. The nonstandard vertical clearances along this segment of the BQE that contribute to crashes and force larger trucks to exit the highway and traverse local streets, creating congestion in the local community and adversely affecting quality of life. The project will seek to eliminate the diversion of large trucks onto local streets by addressing deficient nonstandard vertical clearances within the project limits.
4. The lack of connectivity between the highway and key local arterials i.e. streets designated as major truck routes, and other major through streets in the Brooklyn Heights, Downtown Brooklyn, DUMBO, and Cobble Hill neighborhoods as well as the Brooklyn and Manhattan Bridge gateways to Manhattan. Currently the BQE within the project limits has a number of nonstandard highway design features that reduce the efficiency of the connectivity between the highway and key local arterials. These nonstandard features include tight turning radii on the ramps, limited or no acceleration and
Deceleration lanes at entrance and exit points, narrow travel lanes, and insufficient sight distances. The Project will seek to address these deficient and/or discontinuous connections.

**Project Description:** This project is for the rehabilitation or replacement of approximately 1.5 miles of the Brooklyn-Queens Expressway (BQE)/ Interstate 278 (I-278) in the Borough of Brooklyn, New York, with a significant portion of its length supported by 21 bridges, including a unique 0.4-mile long triple-cantilever structure. The Project extends between Sands Street at the eastern limit and Atlantic Avenue at the western limit—including the entire Atlantic Avenue interchange. NYC DOT owns this segment of the BQE. The project seeks to repair infrastructure deterioration and operational improvements including vertical and horizontal clearance issues and safety concerns.

**Alternatives Considered:** 21 bridges are located within this stretch of BQE. Based on the existing infrastructure deterioration, non-standard features, and safety concerns, these bridges may require rehabilitation or replacement.

**EJ-Environmental-Historic Preservation Implications:** Not known at this time.

**Other Information:** TIP PIN X77332

<table>
<thead>
<tr>
<th>Total Projected Cost (M$):</th>
<th>$1,709.776</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anticipated Fund Sources &amp; Amounts:</td>
<td>Federal: $1 million; Local: $1,709.776 million</td>
</tr>
<tr>
<td>Projected Completion Year:</td>
<td>2025</td>
</tr>
</tbody>
</table>
**Project Name:** Reconstruction of 11th Avenue Viaduct over LIRR/Amtrak West Side Yard

**Sponsoring Agency:** NYCDOT

**Purpose & Need:** This project will replace the existing Viaduct with an entirely new structure, designed and constructed in conformance with current standards. The existing Viaduct is seismically inadequate, contains non-standard geometric features and exhibits deterioration typical for a structure in service since 1939. In addition, the existing Viaduct requires extensive modification to accommodate work associated with the No. 7 Line Extension as well as utility upgrades made in conjunction with the Hudson Yards Redevelopment, including installation of platforms over the LIRR West Side Yard and construction of associated air rights buildings.

**Project Description:** This project will improve the structural integrity of a multi-span Viaduct and provide infrastructure support for the Hudson Yards Redevelopment. The new bridge will provide for safe transportation service and maximize benefits while minimizing adverse impacts.

**Alternatives Considered:** Prior to securing Federal funding for this project, a Bridge Reconstruction Project Report dated June 2005 was prepared that evaluated six feasible alternatives consisting of varying degrees of rehabilitation and reconstruction.

- **Alternative 1** - New overlay, retain superstructure and substructure.
- **Alternative 2** - New deck, rehabilitate superstructure and substructure.
- **Alternative 3** - New deck, rehabilitate substructure. North of West 33rd St. new steel stringers, south of West 33rd St. rehabilitate superstructure.
- **Alternative 4** - New deck, steel stringers, steel pier caps and columns from W. 33rd St., north. New deck, rehabilitate superstructure and substructure south of W. 33rd St.
- **Alternative 5** - New structure (including substructures), steel superstructure from W. 33rd St., north. New deck, rehabilitate superstructure and substructure south of W. 33rd St.
- **Alternative 6** - New structure (including substructures) using prestressed concrete superstructure from W. 33rd St., north. New deck, rehabilitate superstructure and substructure south of W. 33rd St.

The June 2005 BRPR recommended Alternative 2 as the preferred approach. In May 2006, an Addendum to the BRPR was prepared that changed the project scope to complete replacement due to impacts of the No. 7 Line Extension below 11th Avenue and the Hudson Yards Redevelopment.

Now that Federal funding has been secured for this project, a Design Approval Document will be prepared as part of the Final Design phase that will re-document the alternative evaluation process.
**EJ-Environmental-Historic Preservation Implications:** Prior to securing Federal funding for this project, a Bridge Reconstruction Project Report dated June 2005 was prepared that evaluated the impacts of replacement of the existing Viaduct. No environmental justice implications were identified. The New York City Landmarks Preservation Commission reviewed this structure and determined that it has no architectural or archaeological significance.

**Other Information:** BIN 2-24501-0; Contract No. HBM1120; PIN 84199MNBR454, TIP PIN X76425

**Total Projected Cost ($ million):** $118.512

**Anticipated Fund Sources & Amounts:** Federal: $9.312 million; Local: $109.2 million

**Projected Completion Year:** 2022
QUEENS

Project Name: Great Streets Vision Zero – Queens Boulevard

Sponsoring Agency: NYC DOT

Purpose & Need: Queens Boulevard has been identified as a Vision Zero Priority Corridor. Queens Boulevard is currently one of the busiest and highest-crash thoroughfares in Queens. The redesign not only improves safety but also seeks to transform this corridor into a pleasant human experience. This Great Street is to be a new public space that draws from Queens’ own cultural and natural contexts, facilitates a wide range of physical and social activities, and strengthens connections between neighbors and neighborhoods.

Project Description: Queens Boulevard is a 6.3 mile thoroughfare that runs diagonally through Queens, connecting Long Island City in the northwest to Jamaica in the southeast through a street network that is mostly laid out in a grid form. In Long Island City, Queens Boulevard connects to the Ed Koch Queensboro Bridge. The project corridor is bounded by Roosevelt Avenue to the west and Jamaica Avenue to the east. Various urban typologies and complexities are encountered by those traversing along the corridor. This project scope has divided the project into four locational segments based on the Community Board (CB) boundaries and anticipated operational phasing. The segments are as follows:

Segment 1 –Roosevelt Avenue to 73rd Street (7,300 LF/1.4 miles).
Segment 2 –73rd Street to Eliot Avenue (6,800 LF/1.3 miles).
Segment 3 –Eliot Avenue to Union Turnpike – (12,400 LF/2.3 miles).
Segment 4 –Union Turnpike to Jamaica Avenue – (6,600 LF/1.3 miles).

This project makes permanent the interim geometric improvements developed for the Queens Boulevard operational project, between Roosevelt Avenue and 73 Street (Segment 1). It then continues a similar treatment east to Union Turnpike (Segment 2 and 3), and eventually to Jamaica Avenue (Segment 4). While not all areas of the corridor function exactly the same, the typical section widens the existing service malls to calm traffic and provide a raised bike path, pedestrian walkway, new trees, benches, wayfinding, green infrastructure, and urban art. In addition, street reconstruction, resurfacing and geometric changes are proposed at nine priority intersection and complex locations.

Alternatives Considered: The proposed corridor safety improvements will address the high demand to improve and provide infrastructure for pedestrians, bicyclists, and public transit riders on Queens Boulevard. The improvements will expand New York City’s bicycle and pedestrian networks, creating vital connections across Queens Boulevard to residential neighborhoods and commercial areas. The project proposes to make vital safety improvements for using all modes on Queens Boulevard. The project design is based on extensive data analysis, observation, and outreach.

EJ-Environmental-Historic Preservation Implications: The project corridor passes through a number of minority, low-income and limited English-proficient communities. The project sponsor will work with these communities through rigorous community outreach and engagement process to determine preferred design treatments as well as provide information about construction and project timelines.
The project sponsor will also engage with business owners to mitigate any negative impacts resulting from project design and construction. This will include developing new curbside regulations and truck loading/unloading zones to accommodate retail businesses. Environmental impacts are expected to be minimal because the capital project is a permanent build out of a temporary in-house project.

**Other Information:** In 2014, Mayor Bill de Blasio introduced Vision Zero, an initiative to end all traffic fatalities in New York City. The Queens Boulevard corridor project is located on a Vision Zero Priority Corridor, meaning it has among the highest rate of pedestrians killed or severely injured in Queens in the last five years. Additionally, there are numerous Vision Zero Priority Intersections along the project corridor and segments of the corridor that are within Vision Zero Priority Areas. Making improvements on Vision Zero Priority Corridors are a top priority for the de Blasio administration. NYC DOT conducted extensive outreach, with residents, business owners, advocates, and elected officials, and will continue to collect feedback as part of the project outreach.

PIN X773.38

**Total Projected Cost ($ million):** $103.0

**Anticipated Fund Sources & Amounts:** Federal: $2 million, Local: $101 million

**Projected Completion Year:** 2024
4. PROJECTS FROM PREVIOUS TIPS WITH COMPLETION DATE WITHIN THE FFYS 2017-2021 TIP

The Gerritsen Inlet bridge on Belt Parkway
Photo Source: NYC DOT
## BROOKLYN

**Project Name:** Replacement of the Belt Parkway Bridge over Gerritsen Inlet

**Sponsoring Agency:** NYCDOT

### Purpose & Need:
The project replaces the existing bridge with an entirely new structure to address the structural and safety deficiencies associated with the existing bridge. The existing bridge is a deteriorating structure that requires frequent maintenance and repairs. The bridge contains several non-standard geometric elements that are not in keeping with current design standards.

### Project Description:
This project is part of the improvement to the structural integrity of 10 bridges, providing effective and safe transportation service on the bridges, and maximizing benefits while minimizing adverse impacts. Three (3) lanes are maintained in both the eastbound and westbound directions of the Parkway, before, during and after construction of the bridge. Overall traffic flow through the corridor should improve when standard width lanes and shoulders are established at the completion of construction.

### Alternatives Considered:
5 alternatives considered:

1. No Build option.
2. Major rehabilitation of the bridge, including superstructure, deck and slabs but original designs would remain. This would require phased construction and reduction of travel lanes during each stage.
3. Widen the bridge.
4. Same as #2 but build temporary bridges during construction.
5. Replace the bridge.

### EJ-Environmental-Historic Preservation Implications:
No EJ implications. Impacts are only temporary during construction and were fully evaluated in the FGEIS document. Potential impacts on commercial activity, leisure and recreational resources near the projects were identified. Beneficial fiscal impacts from employment, wages and salaries, economic output, taxes are anticipated. Significant increases in dust, noise, traffic and air quality are possible near staging areas and are addressed in the contract documents. Temporary negative effects on visual resources, neighborhood character, natural resources, water quality and hazardous materials were evaluated and the necessary mitigation measures will be taken. A wetland mitigation program was subsequently included and completed at a nearby location, independent of the project.

Potential prehistoric archaeological resources may exist beneath the Gerritsen Inlet and be impacted by subsurface disturbances. To prevent impacts, a soil boring program was instituted during design, along with subsequent analysis, testing and mitigation.

### Other Information:

### Total Projected Cost ($ million):
$108.221

### Anticipated Fund Sources & Amounts:
- Federal: $83.382 million
- State: $15 million
- Local: $9.839 million

### Projected Completion Year:
2018
**Project Name:** Replacement of the Belt Parkway Bridge over Mill Basin

**Sponsoring Agency:** NYC DOT

**Purpose & Need:** The project replaces the existing bridge with an entirely new structure to address the structural and safety deficiencies associated with the existing bridge. The existing bridge is a deteriorating structure that requires frequent maintenance and repairs. The bridge contains several non-standard geometric elements that are not in keeping with current design standards.

**Project Description:** This project is part of the improvement to the structural integrity of 10 bridges, providing effective and safe transportation service on the bridges, and maximizing benefits while minimizing adverse impacts. Three (3) lanes are maintained in both the eastbound and westbound directions of the Parkway, before, during and after construction of the bridge. Overall traffic flow through the corridor should improve when standard width lanes and shoulders are established at the completion of construction.

**Alternatives Considered:**

5 alternatives considered:

1. No Build option.
2. Major rehabilitation of the bridge, including superstructure, deck and slabs but original designs would remain. This would require phased construction and reduction of travel lanes during each stage.
3. Widen the bridge.
4. Same as #2 but build temporary bridges during construction.
5. Replace the bridge.

**EJ-Environmental-Historic Preservation Implications:** No EJ implications.

Impacts are only temporary during construction and were fully evaluated in the Final Generic EIS document. Potential impacts on commercial activity, leisure and recreational resources near the projects were identified. Beneficial fiscal impacts from employment, wages and salaries, economic output, taxes are anticipated. Significant increases in dust, noise, traffic and air quality are possible near staging areas and are addressed in the contract documents. Temporary negative effects on visual resources, neighborhood character, natural resources, water quality and hazardous materials were evaluated and the necessary mitigation measures will be taken. A wetland mitigation program was subsequently included and completed at a nearby location, independent of the project.

Potential prehistoric archaeological resources may exist beneath the Mill Basin and be impacted by subsurface disturbances. To prevent impacts, a soil boring program was instituted during design, along with subsequent analysis, testing and mitigation.

**Other Information:** BIN# 2231479. 2011-2015 TIP PIN X021.52.

**Total Projected Cost ($ million):** $263.684

**Anticipated Fund Sources & Amounts:** Federal: $165.5 million, State: $20.969 million, Local $77.215 million

**Projected Completion Year:** 2021
**Project Name:** Harlem River Drive Project including Replacement of the Viaduct between the Robert F. Kennedy Bridge and Third Avenue Bridge

**Sponsoring Agency:** NYC DOT

**Purpose & Need:** Replacement of an approximately 1,000 foot section of the Harlem River Drive (HRD) extending from the Robert F. Kennedy (RFK) Bridge at East 123rd Street northward to approximately 200 meters north of the Third Avenue Bridge at Lexington Avenue in Manhattan. This project will eliminate structural deficiencies and provide safety improvements, including standard travel lanes, shoulders and sight distance.

**Project Description:** The HRD section within the project limits has two entrance ramps, one providing southbound access from the Third Avenue Bridge and one providing northbound access from East 127th Street; and three exit ramps, from northbound HRD to East 127th Street; from southbound HRD to Second Avenue, and from southbound HRD to the Robert F. Kennedy Bridge. The HRD section carries 97,483 vehicles daily with 3 lanes in the southbound direction and 2 lanes plus a wide striped shoulder in the northbound direction. This project includes: replacement of the existing Viaduct; installation of a new left hand exit for SB HRD at 127th St.; safety improvements along the corridor through the construction of geometric modifications that will improve sight distance, horizontal alignment, vertical alignment and inadequate lane and shoulder widths; and landscape restoration.

**Alternatives Considered:**

1. Do nothing.
2. Replacement of the existing viaduct including safety improvements and landscaping restoration.

**EJ-Environmental-Historic Preservation Implications:** On September 19, 2011, the project was determined to be NEPA Class II (Programmatic Categorical Exclusion) under USDOT Regulation, 23 CFR 771. New York City Environmental Quality Review Type II Determination was made by NYC DOT on August 19, 2011. No significant environmental impacts. No EJ or historic preservation impacts.

**Other Information:** Fed ID# X071(483), State ID#X071.48. NYC Project ID# 84113MNBR710.

Also in 2011-2015 TIP: PIN X071.48.

The Project now includes $18 million in construction added due to the TBTA foundations for their “Fly-over” connecting the Robert F. Kennedy Bridge and the 127th Street Bridge. A new Tide Gate for the NYCDEP has been added for $650,000.

**Total Projected Cost ($ million): $195.343**

**Anticipated Fund Sources & Amounts:** Federal: $84.4 million, State: $11.6 million, Local: $99.343 million

**Projected Completion Year:** 2018
AMENDMENTS
BY
RESOLUTION
OR
ADMINISTRATIVE MODIFICATION
# NEW YORK METROPOLITAN TRANSPORTATION COUNCIL

Statement of Approach – Major Metropolitan Transportation Investment

## ADDED TO THIS APPENDIX BY ADMINISTRATIVE MODIFICATION ON 10-2-18

<table>
<thead>
<tr>
<th>Project Name: Woodhaven Boulevard Select Bus Service</th>
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<tr>
<td><strong>Sponsoring Agency:</strong> NYC DOT</td>
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<td><strong>Purpose &amp; Need:</strong> NYC DOT held public meetings between 2014 and 2016 to understand the community needs for the Woodhaven bus routes. Issues raised by the community included unreliable and slow bus service, pedestrian safety concerns, and congestion. The goal of this project is to: (1) improve buses frequency and reliably; (2) allow for passengers to access bus stations safely and easily; (3) improve walkability, particularly at street crossings; and (4) allow drivers to get where they need to go at a reasonable and safe speed.</td>
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<td><strong>Project Description:</strong> The Woodhaven Boulevard Select Bus Service (SBS) corridor, runs from Beach 116th Street and Rockaway Beach Boulevard to 61st Street and 39th Avenue. It will provide bus rapid transit (BRT) service and will reduce travel time along the corridor. This 14-mile corridor currently serves over 30,000 transit trips daily.</td>
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<td>The project will make permanent corridor-based improvements such as median stations and/or bus bulb stations. These will make the bus service faster and more reliable as well as making the street safer and more accessible. Improvements will focus on a 6.1 mile segment, which runs from Queens Boulevard at Woodhaven Boulevard to 165th Avenue at Cross Bay Boulevard.</td>
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<td><strong>Alternatives Considered:</strong> In 2004, NYC DOT, MTA New York City Transit (NYCT), and the New York State Department of Transportation (NYSDOT) began studying how BRT could improve transit service in New York City. Through a process that involved detailed analysis and significant public outreach, the agencies developed a set of recommended routes that would be most appropriate for BRT improvements. These first five routes, known as Phase I SBS routes, were implemented beginning in 2008.</td>
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<td>Following the success of the Phase I SBS routes, NYC DOT, NYCT, and MTA Bus Company began development of the next set of routes. This study involved both a detailed technical evaluation of bus routes around New York City, as well as a substantial public outreach process, with workshops involving hundreds of New Yorkers taking place in all five boroughs, as well as an extensive online survey. This analysis resulted in the June 2010 Bus Rapid</td>
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NEW YORK METROPOLITAN TRANSPORTATION COUNCIL
Statement of Approach – Major Metropolitan Transportation Investment

Transit Phase II Study, which identified 16 corridors citywide that were appropriate for BRT implementation (branded as SBS).

The Woodhaven Boulevard corridor was identified as a priority transit need and SBS was chosen as the Locally Preferred Alternative for this corridor in the Phase II study. There was significant community support at two Queens’s public workshops in June 2009. This corridor also provides key north-south connection in an area of Queens where the subways primarily run east-west.

Additionally, in the public outreach process for the Woodhaven Boulevard Congested Corridor Study, Bus Rapid Transit was identified as a preferred solution.

**EJ-Environmental-Historic Preservation Implications:** NYC DOT classified this project as a Categorical Exclusion in July 13, 2015. This project meets the description of 23 CFR 771.118(c); (12): “Action within Existing Operational Right-of-Way that has been disturbed for an existing transportation facility or is maintained for transportation purpose. The actual CE(c) finding will be issued by the FTA at the time of grant award based on information provided in the grant application.”

The project will not have a disproportionately high and adverse impact on minority or low-income populations. A comprehensive outreach process was conducted for the project to date, including a Community Advisory Committee, who has met four times, seven public workshops, community board meetings, and other stakeholder meetings. Specific efforts were made to inform bus riders and residents of these meetings through notices on buses and at bus stops, and notification to community boards.

The project does not have the potential to impact any historic resources that are eligible or listed on the National Register of Historic Places.

**Other Information:** TIP PIN X773.71

**Total Projected Cost ($M):** $236M
**Anticipated Fund Sources & Amounts:** Local: $236M
**Projected Completion Year:** 2028