



**Metropolitan Transportation Authority**

# Capital Program Oversight Committee Meeting

## February 2016

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### Committee Members

T. Prendergast, Chair

F. Ferrer

R. Bickford

A. Cappelli

S. Metzger

J. Molloy

M. Pally

J. Sedore

V. Tessitore

C. Wortendyke

N. Zuckerman

# **Capital Program Oversight Committee Meeting**

**2 Broadway, 20th Floor Board Room  
New York, NY 10004  
Monday, 2/22/2016  
1:15 - 2:15 PM ET**

## **1. PUBLIC COMMENTS PERIOD**

## **2. APPROVAL OF MINUTES JANUARY 25, 2016**

*- Minutes from January '16 - Page 3*

## **3. COMMITTEE WORK PLAN**

*- 2016 - 2017 CPOC Work Plan - Page 6*

## **4. B&T CAPITAL PROGRAM UPDATE**

*- Progress Report on B&T Capital Program - Page 8  
- IEC Project Review on Verrazano Narrows Bridge Upper Deck Replacement - Page 39  
- IEC Project Review on RFK Bridge Bronx Plaza Rehabilitation, Hugh Carey Tunnel Restoration & Queens Midtown Tunnel Reconstruction - Page 43*

## **5. LIRR & MNR POSITIVE TRAIN CONTROL (PTC) UPDATE**

*- Progress Report on PTC - Page 48  
- IEC Project Review on PTC - Page 59*

## **6. MTA ENTERPRISE ASSET MANAGEMENT (EAM) UPDATE**

*- Progress Report on EAM - Page 62*

## **7. MTACC SECOND AVENUE SUBWAY MONTHLY UPDATE**

*- Progress Report on SAS - Page 77  
- IEC Project Review on SAS - Page 81  
- IEC SAS Appendix - Page 83*

## **8. CAPITAL PROGRAM STATUS**

*- Comments, Completions and Funding Report - Page 84*

Date of next meeting: Monday, March 21, 2016 at 1:45 PM

**MINUTES OF MEETING**  
**MTA CAPITAL PROGRAM OVERSIGHT COMMITTEE**  
**January 25, 2016**  
**New York, New York**  
**1:45 P.M.**

MTA CPOC members present:

Hon. Fernando Ferrer  
Hon. Susan Metzger  
Hon. John Molloy  
Hon. Mitchell Pally  
Hon. Carl Wortendyke  
Hon. Neal Zuckerman

MTA CPOC members not present:

Hon. Robert Bickford  
Hon. Alan Cappelli  
Hon. Thomas Prendergast  
Hon. James Sedore  
Hon. Vincent Tessitore

MTA Board members present:

Hon. Andrew Albert  
Hon. Charles Moerdler  
Hon. Polly Trottenberg

MTA Staff Present:

Naeem Din  
Mike Garner  
Michael Wetherell

MTACC Staff Present:

Michael Horodniceanu

NYCT staff present:

Marva Brown  
Wynton Habersham  
John Higgins  
Louis Montanti  
John O'Grady  
Dilip Kumar Patel  
John Santamaria

Independent Engineering Consultant staff present:

Joe DeVito  
Kent Haggas  
Mark Sielucka

\* \* \*

Vice Chairman Ferrer called the January 25, 2016 meeting of the Capital Program Oversight Committee to order at 1:40 P.M.

**Public Comments Period**

There were no public speakers in the public comments portion of the meeting.

## **Meeting Minutes**

Upon motion duly made and seconded, the CPOC members approved the minutes to the previous meeting held on December 14, 2015.

## **Committee Work Plan**

Mr. Wetherell announced that starting in January, at the Board's request, MTACC will provide a monthly update on the Second Avenue Subway.

## **MTACC Second Avenue Subway Monthly Update**

Mr. Horodniceanu outlined a number of measures being taken to ensure that the project meets the December 2016 Revenue Service Date; he then cited a chart indicating the status of various issues/milestones since the December CPOC. In its Project Review, the IEC reported its observation that several key activities had slipped their scheduled completion dates in the six weeks since the December CPOC report. The IEC then provided the following recommendations: the project team should expedite its efforts to complete the new integrated project schedule by integrating the communications testing with the accelerated testing of the station equipment installations; and the project team should complete implementation of an augmented staffing plan for construction management as soon as practical. Further details of the presentations, and Committee Members' comments and questions with respect thereto, are included in the video recording of the meeting maintained in MTA's records.

## **NYCT Stations Division Update**

Just prior to the Station Division Update presentation, Mr. O'Grady gave a brief overview of a number of initiatives that have been put into action by the Governor, including the rapid design and award of 31 station renovations, as well as the following tech-related initiatives: providing Wi-Fi hotspots in stations; accelerating award of the New Fare Payment System; and providing USB ports on trains, buses and in stations. Mr. O'Grady added that each of these initiatives is well into the planning stage, and that further details will be provided to the Committee in future meetings. Mr. Patel then updated the Committee on progress in the Stations Division since the last report, including Component projects in 130 stations, Renewal projects in 38 stations, ADA Accessibility projects in 9 stations, and Elevator and Escalator projects taking place in 13 stations. In its Project Review of the Sea Beach Line Station Renewal, the IEC stated that the project is currently on budget and schedule, but citing a schedule risk due to there being no interim contractual milestone dates, the IEC then recommended that the project team concentrate on monitoring the status of intermediate return-to-service dates, inspection and acceptance dates, and key beneficial use dates. Further details of the presentation by Mr. Patel, and Committee Members' comments and questions with respect thereto, are included in the video recording of the meeting maintained in MTA's records.

## **NYCT Report on Subway Car Procurement**

Ms. Brown updated the Committee on the NYCT Subway Car Fleet, including an overview and delivery schedule of the \$614M R188 Project, the \$736M R179 Project, and the \$3.2B R211 Project. In its Project Review of the R188's, the IEC stated that the project is on budget, but expressed concern that the remaining cost contingency may not cover pending changes to the contract. The then IEC stated that the project schedule has been maintained over the 18 months since the last report in July 2014. With respect to the R179's, the IEC stated that the project is on budget, but expressed concern that the remaining cost contingency may not cover proposed changes, including complete CCTV installation on all cars. In addition, the IEC stated that the carbuilder's schedule has slipped an additional 6 months since the last report in July 2014. Further details of the presentations, and Committee Members' comments and questions with respect thereto, are included in the video recording of the meeting maintained in MTA's records.



### **NYCT Report on Bus Procurement**

Mr. Higgins updated the Committee on NYCT's Bus Procurement Program, including overall goals of the program, and budgets and delivery schedules of the various bus types. Further details of the presentations, and Committee Members' comments and questions with respect thereto, are included in the video recording of the meeting maintained in MTA's records.

### **Update on Minority, Women and Disadvantaged Business Participation Programs**

Mr. Din provided an update on the MTA's MWDBE participation rates. For the January – December 2015 timeframe, the MTA anticipates achieving a 20% participation rate against its 17% DBE goal, but anticipates achieving 11% and 10%, respectively, against its 15% MBE and 15% WBE goals. Mr. Garner then outlined various measures being taken to maximize participation by MWDBE firms in areas such as signal projects, which have historically experienced low participation rates.

### **MTA Capital Program Commitments and Completions**

Mr. Wetherell brought the Committee's attention to the MTA Capital Program Commitments and Completions Report and invited Committee Members' questions, of which there was none.

### **Adjournment**

Upon motion duly made and seconded, Vice Chairman Ferrer adjourned the January 25, 2016 meeting of the MTA Capital Program Oversight Committee at 2:50 PM.

Respectfully submitted,  
Michael Jew-Geralds  
Office of Construction Oversight



## **2016-2017 CPOC Committee Work Plan**

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I. Recurring Agenda Items

Approval of the Minutes  
Committee Work Plan  
Commitments/Completions and Funding Report

II. Specific Agenda Items

March 2016

Quarterly MTACC Capital Program Update

- Cortlandt Street Station
- East Side Access
- Second Avenue Subway

Quarterly Change Order Report

Quarterly Traffic Light Reports

April 2016

NYCT Capital Program Update

- Canarsie Tube Restoration
- Reconstruction of Clifton Shop
- St George Signal Restoration
- South Ferry Station Restoration

NYCT, LIRR, MNR Update on New Fare Payment System

MTACC Monthly Second Avenue Subway Update

May 2016

LIRR and MNR Capital Programs Update

MTACC Monthly Second Avenue Subway Update

June 2016

Quarterly MTACC Capital Program Update

LIRR and MNR Update on Positive Train Control (PTC)

Quarterly Change Order Report

Quarterly Traffic Light Reports

July 2016

NYCT Capital Program Update

MTACC Monthly Second Avenue Subway Update

Update on Minority, Women and Disadvantaged Business Participation

Update on Small Business Development Program

September 2016

Quarterly MTACC Capital Program Update  
Quarterly Change Order Report  
Quarterly Traffic Light Reports

October 2016

LIRR and MNR Capital Programs Update  
LIRR and MNR Update on Positive Train Control (PTC)  
MTACC Monthly Second Avenue Subway Update

November 2016

NYCT Capital Program Update  
NYCT, LIRR, MNR Update on New Fare Payment System  
MTACC Monthly Second Avenue Subway Update

December 2016

Quarterly MTACC Capital Program Update  
Quarterly Change Order Report  
Quarterly Traffic Light Reports

January 2017

NYCT Capital Program Update

- Stations Program Update
- Subway Car Program Update
- Bus Procurement Update

MTACC Monthly Second Avenue Subway Update  
Update on Minority, Women and Disadvantaged Business Participation

February 2017

B&T Capital Program Update  
MTACC Monthly Second Avenue Subway Update

# **Annual CPOC Capital Program Update**

**Joe Keane, P.E.**

**Vice President and Chief Engineer**

**MTA – Bridges and Tunnels**

**February 22, 2016**



# Overview

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- **Status of 2010-2014 and 2015-2019 Capital/Sandy Programs**
- **Major Construction Completions**
- **Recent Major Construction Awards**
- **2015-2019 Program Look Ahead**
- **Verrazano-Narrows Bridge Program Update**
- **Tunnel Program Update**
- **Robert F. Kennedy Bridge Program Update**
- **Design-Build Program Update**



# Status of Capital/Sandy Program Commitments

## Core Capital Program:

### 2010-2014 Program Commitments:

- Total Program: \$2,076M
- Committed to Date: \$1,886M or (91% of Total)

### 2015-2019 Program Commitments:

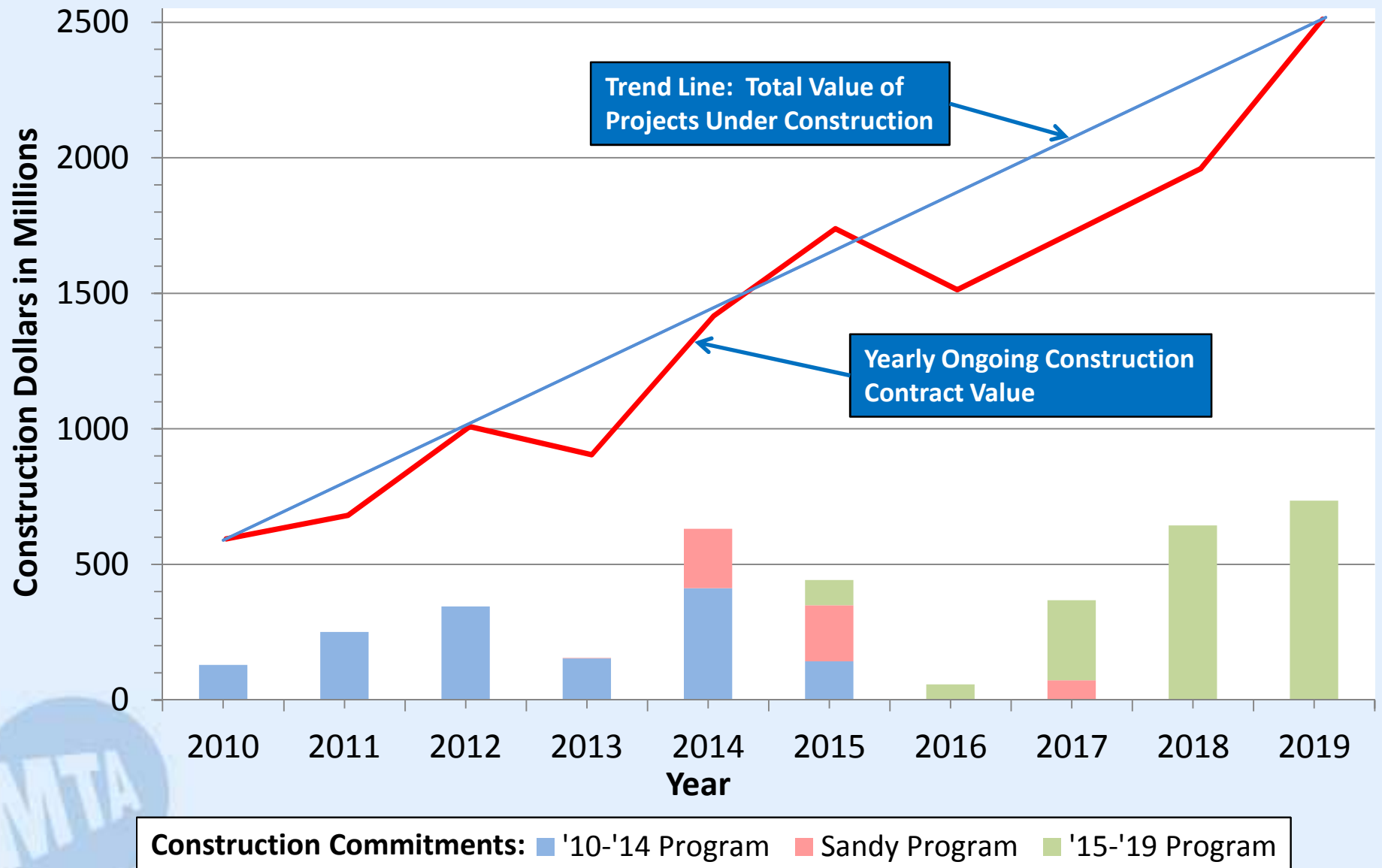
- Total Program: \$2,856M
- Committed to Date: \$138M or (4.8% of Total)

## Sandy Program Commitments:

- Planned to Date: \$563M
- Actual to Date: \$534.5M or (95% of Planned)



# Construction Commitments & Ongoing Construction Trend



# Status of Capital/Sandy Program Commitments

## 2015 Commitments:

- Planned: \$573M
- Actual: \$526M (92% of Planned)
  - Breakdown of Actual Commitments
    - 2010-2014 Program (Core): \$170M
    - 2010-2014 Program (Sandy): \$223M
    - 2015-2019 Program (Core): \$133M

## 2016 Commitments:

- Planned: \$106M





# Status of Capital/Sandy Program Completions

**2010-2014 Program Completions: Approximately 25% of the Program has been completed.**

## **2015 Completions:**

- Planned: \$209M (10 Completions)
- Actual: \$215M (11 Completions or 103% of Total)
- **Major 2015 Completions:**
  - **BW-89C:** Reconstruction of the Queens Approach at the Bronx-Whitestone Bridge (BWB), Completed on schedule with punch list items in January 2015, **Construction Budget: \$114M**
  - **BW-15:** Necklace Lighting at the BWB, Completed in November, 2015, **Construction Budget: \$9.4M**
  - **MP-06:** Substructure and Underwater Work at the Marine Parkway Bridge (MPB), Completed in October, 2015, **Construction Budget: \$15.7M**

## **2016 Completions:**

- Planned: \$146M (10 Completions)

Bridges and Tunnels

# Major Construction Completions



Bridges and Tunnels

# Major Completion: Necklace Lighting at the Bronx-Whitestone Bridge (BWB)

## Scope of Work:

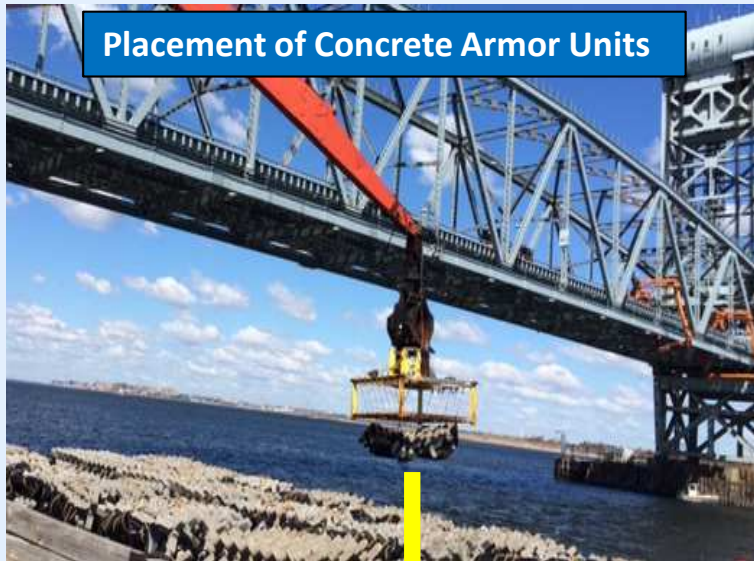
- Replace deteriorated necklace lighting system with new LED lighting system
- Replace existing cable monitoring system with state of the art Acoustic Monitoring System
- Associated electrical systems and ancillary work



## Project Schedule & Budget:

- Awarded: July 2013
- Substantial Completion: November, 2015
- Construction Budget: \$9.4M with a duration of 26 months
- Project completed within established budget contingencies and two months time extension due to access and weather delays

# Major Completion: Substructure and Underwater Work at the Marine Parkway Bridge (MPB)

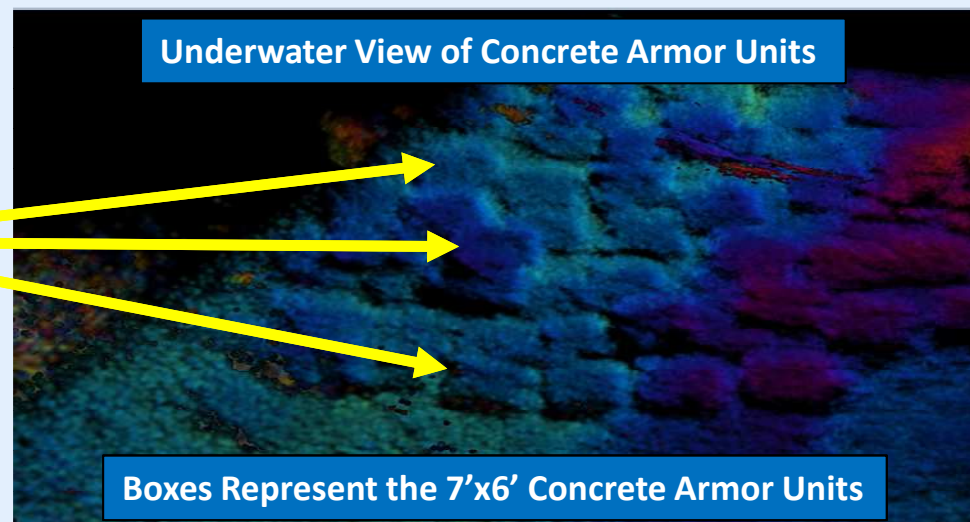


## Scope of Work:

- Installation of pier scour protection countermeasures
- Concrete repairs to the substructure

## Project Schedule & Budget:

- Awarded: November 2013
- Substantial Completion: October 2015
- Construction Budget: \$15.7M
- Duration: 22 months
- Completed within established budget contingencies and four months time extension due to site conditions and weather delays



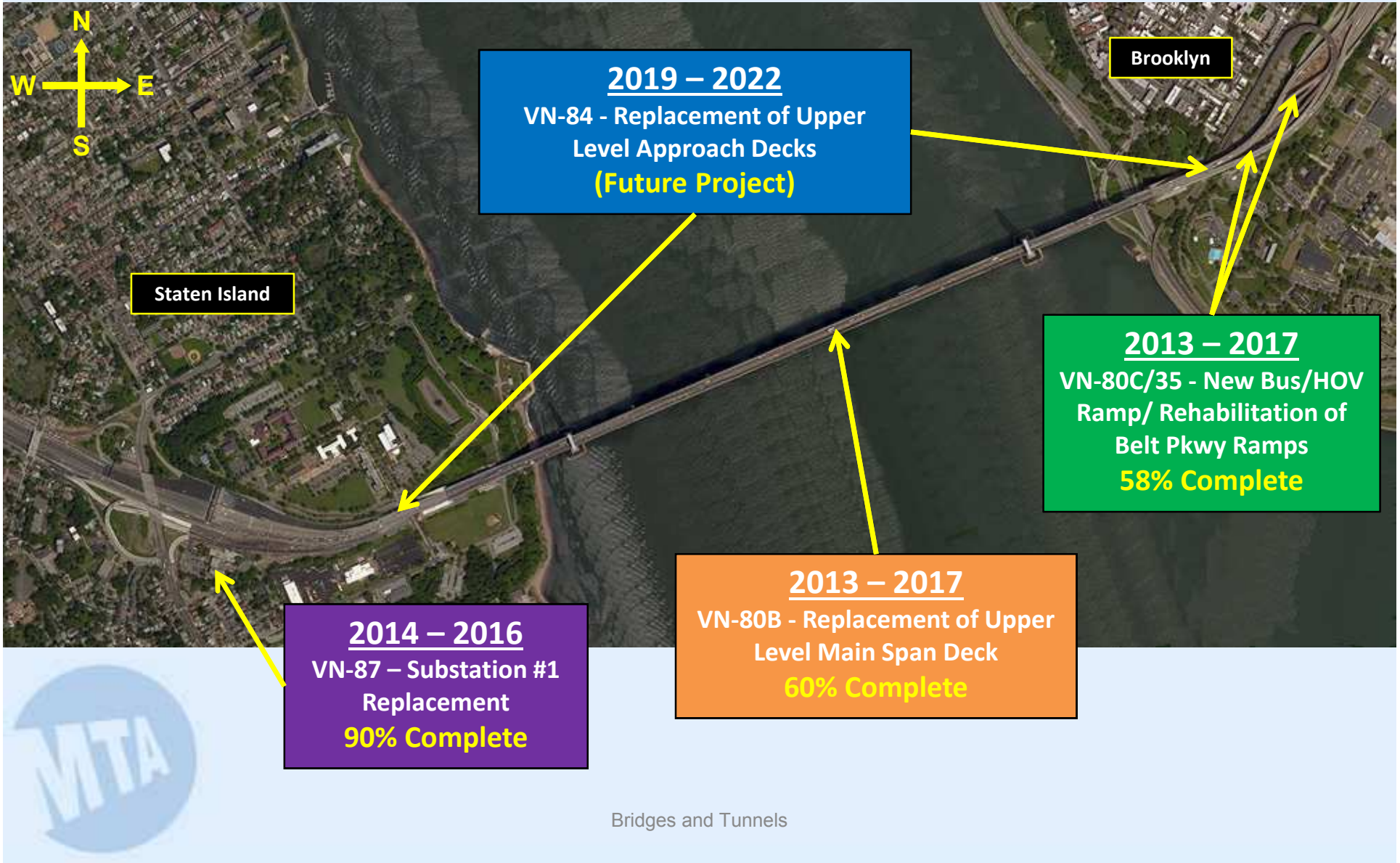
# **Verrazano-Narrows Bridge (VNB) Program Update**



Bridges and Tunnels

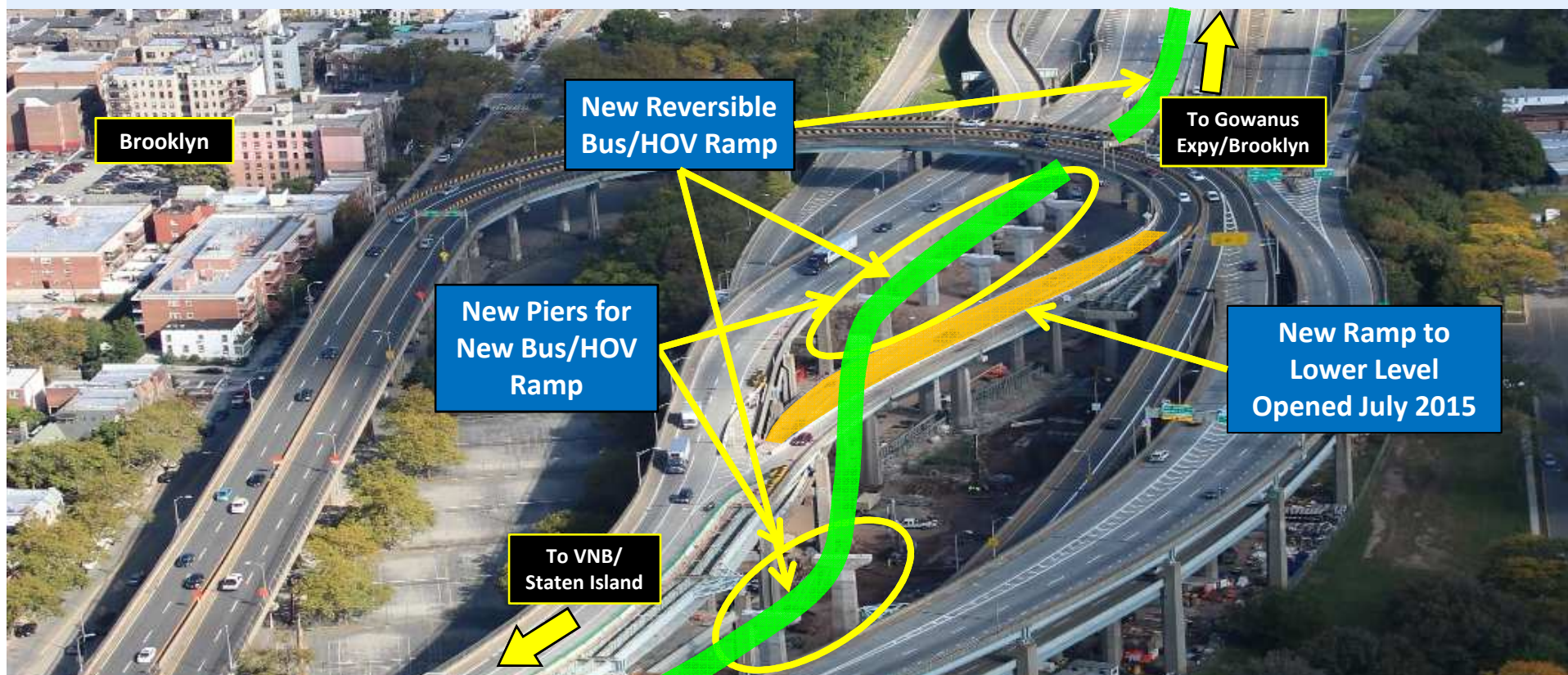


# Verrazano-Narrows Bridge (VNB) Program Update





# Ongoing Projects at the VNB: New Bus/HOV Ramp/Rehabilitation of the Belt Parkway Ramps



## Scope of Work:

- Construct a new reversible Bus/HOV Ramp to Upper Level
- Steel repairs and concrete rehabilitation of the Belt Parkway Ramps

## Project Schedule & Budget:

- Awarded: December 2013
- Construction Budget: \$88.5M with a duration of 42 months
- Project is 58% complete and is on budget and on schedule (projected completion date is late 2017)



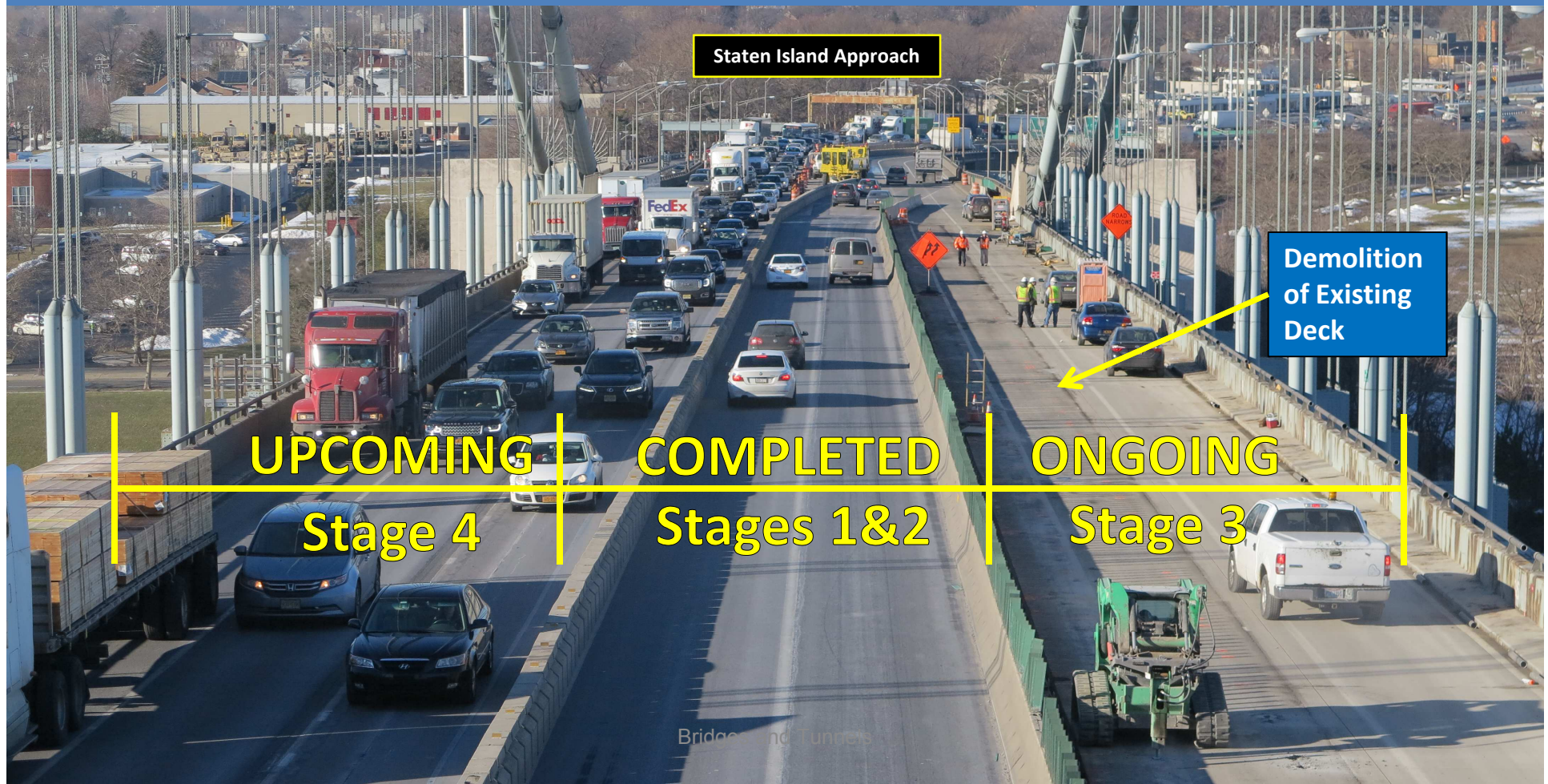
# Ongoing Projects at the VNB: Replacement of the Upper Level Deck

## Scope of Work:

- Deck Replacement
- Reconfigure deck to accommodate Bus/HOV Lane (7<sup>th</sup> lane)
- New LED roadway lighting and sign structures

## Project Schedule & Budget:

- Awarded: November 2012
- Construction Budget: \$248M with a duration of 60 months
- Project is 60% complete and is on budget and on schedule (projected completion date is late 2017)

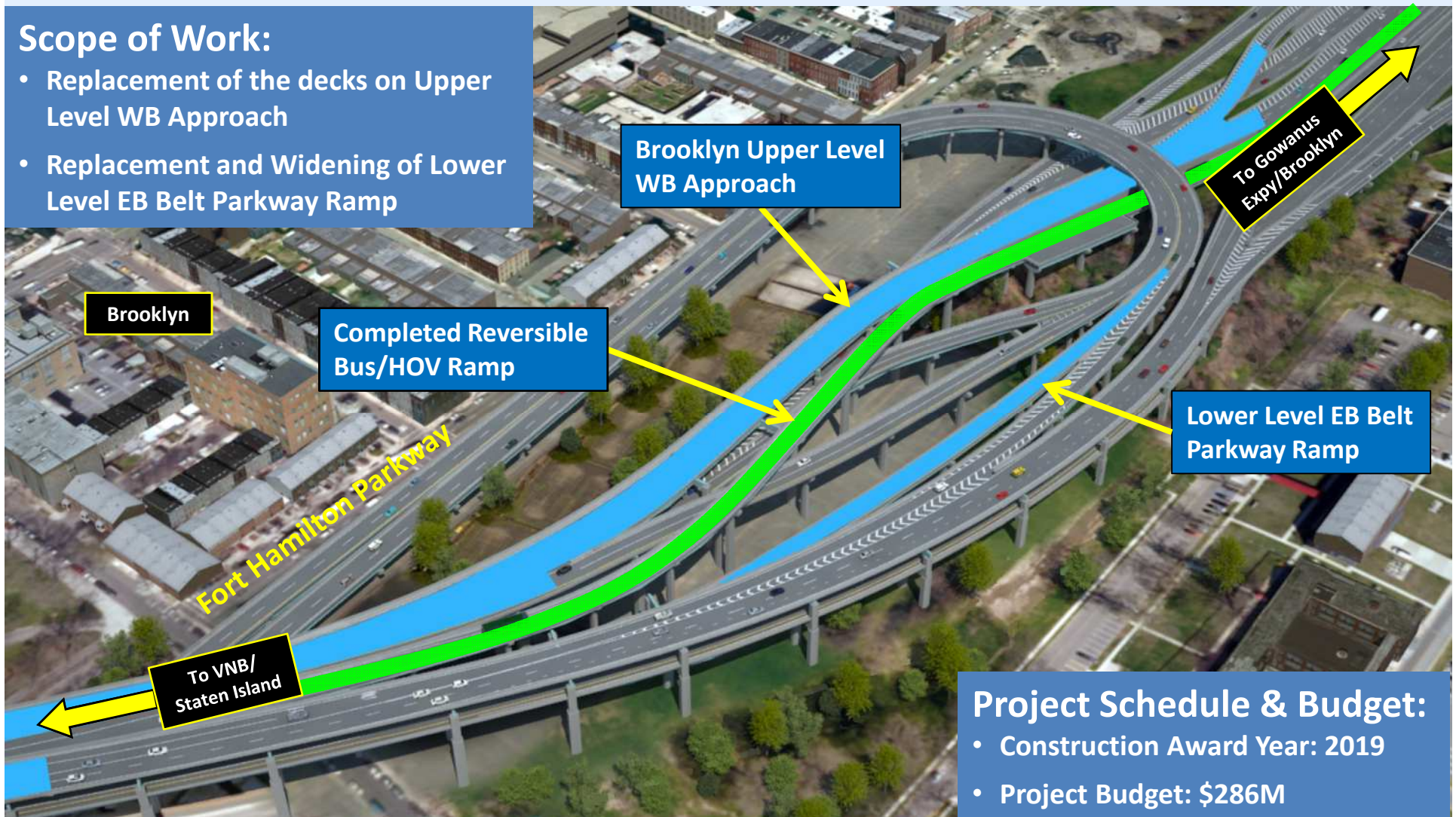




# Upcoming Projects at the VNB: Replacement of Upper Level Approach Decks

## Scope of Work:

- Replacement of the decks on Upper Level WB Approach
- Replacement and Widening of Lower Level EB Belt Parkway Ramp



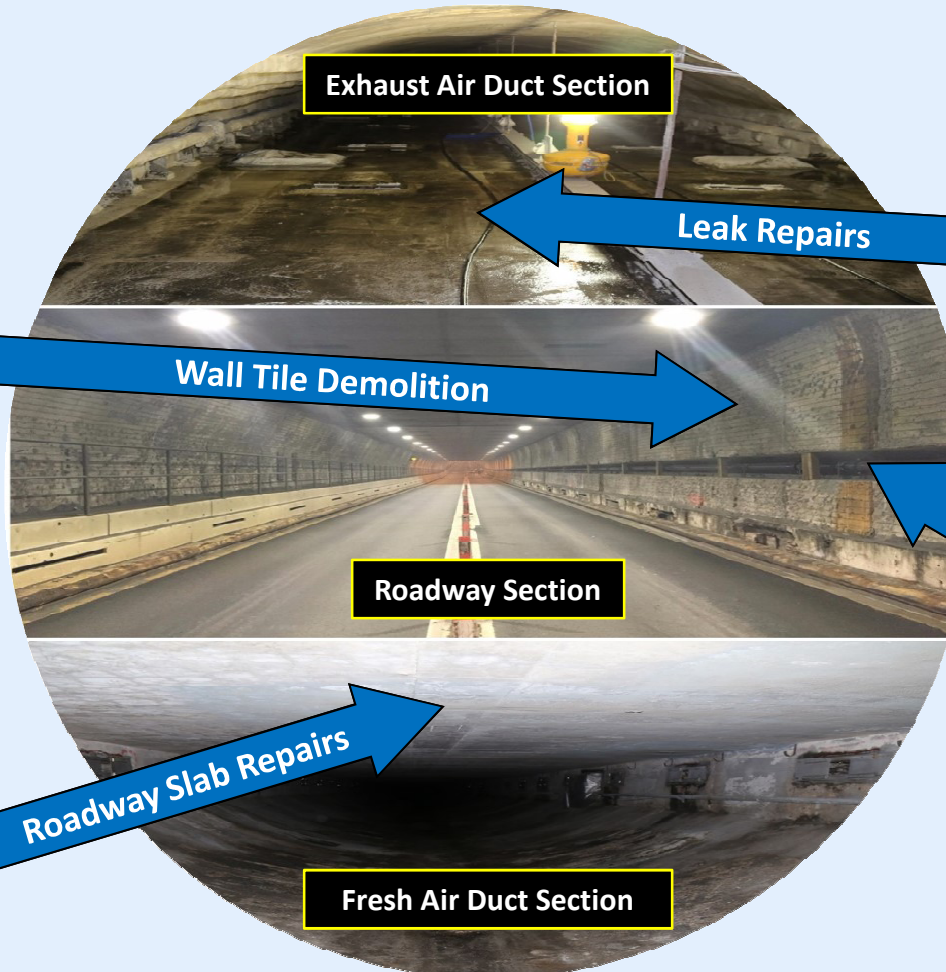
# Tunnel Program Update

Bridges and Tunnels





# Restoration of the Hugh L. Carey and Queens Midtown Tunnels



# Restoration of the Hugh L. Carey Tunnel

## Scope of Work:

- Replacement of interior finishes
- Rehabilitation/upgrade of Electrical, Communication and Mechanical Systems
- Rehabilitation of the Brooklyn Toll Plaza

## Project Schedule & Budget:

- Awarded: December 2014
- Construction Budget: \$296.1M with a duration of 48 months
- Project is 15% complete and on budget and on schedule



# Restoration of the Queens Midtown Tunnel

## Scope of Work:

- Replacement of interior finishes
- Rehabilitation/upgrade of Electrical, Communication and Mechanical Systems
- Rehabilitation of the Manhattan Exit Plaza

## Project Schedule & Budget:

- Awarded: April 2015
- Construction Budget: \$245.5M with a duration of 48 months
- Project is 7% complete and on budget and on schedule



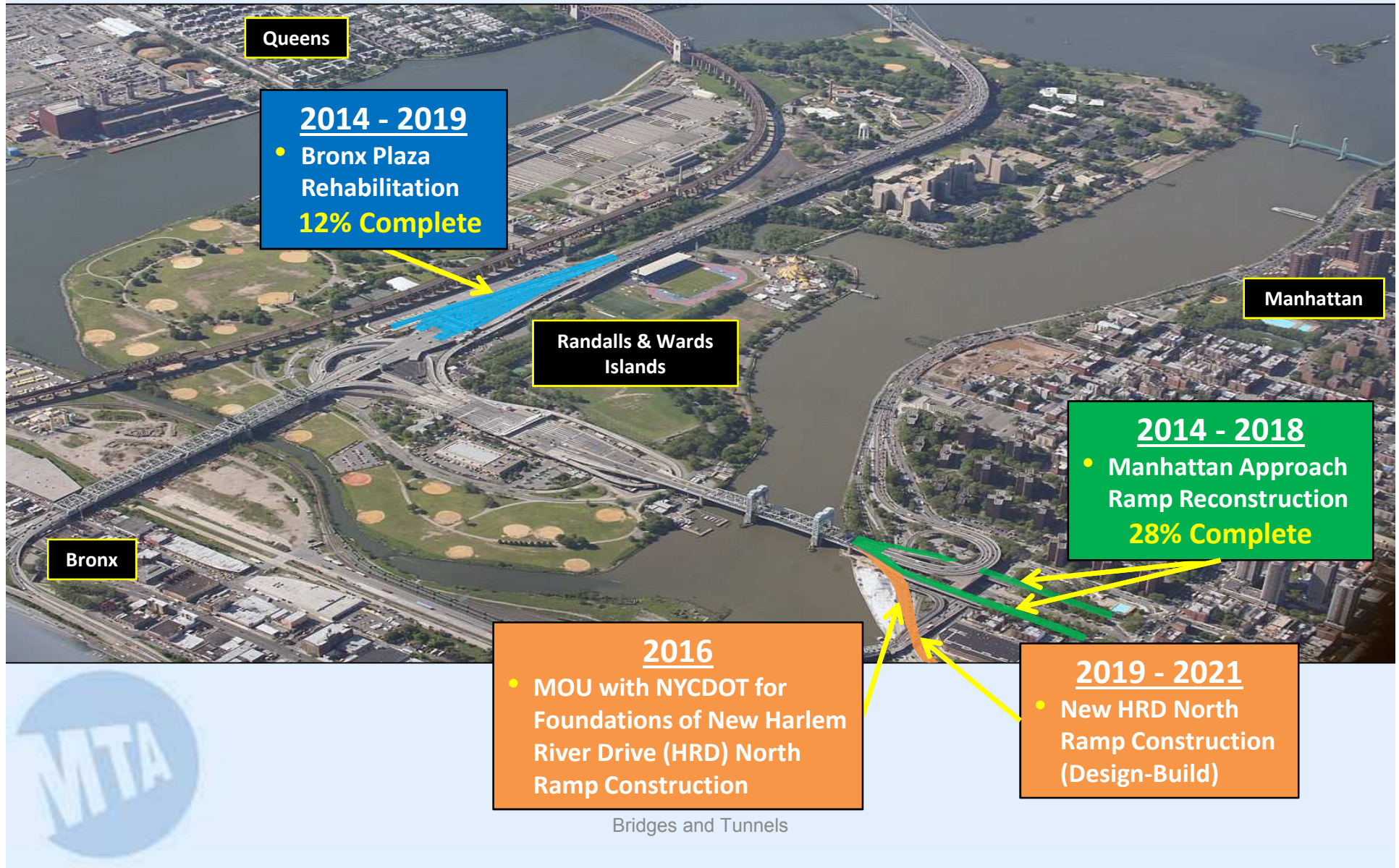
# **Robert F. Kennedy Bridge (RFK) Program Update**



Bridges and Tunnels

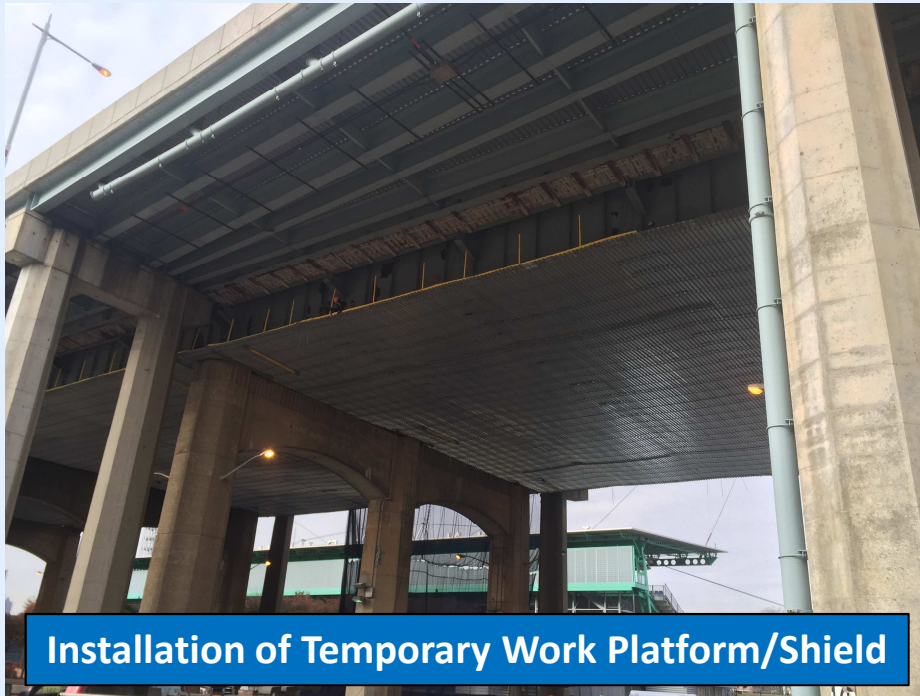


# Robert F. Kennedy Bridge (RFK) Program Update





# Ongoing Projects at the RFK: Bronx Plaza Rehabilitation



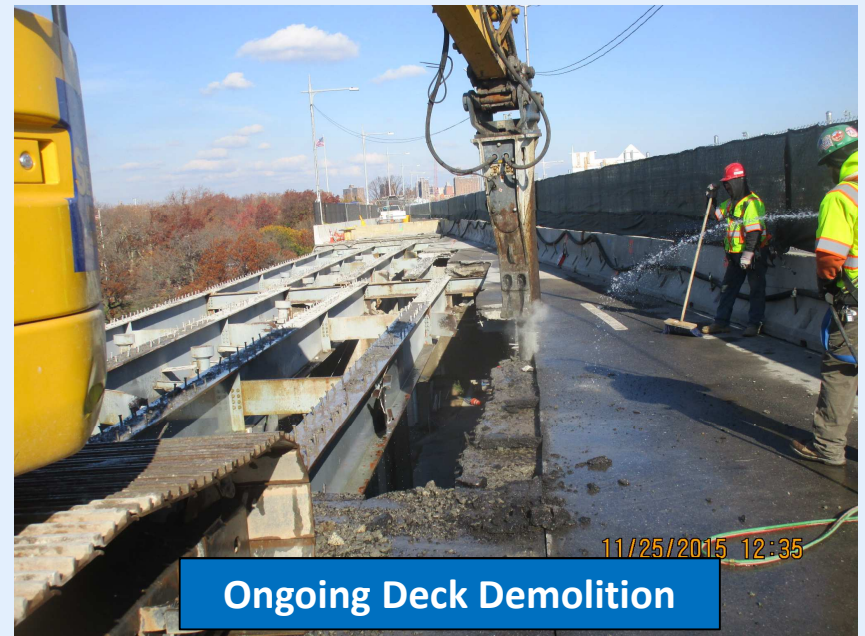
Installation of Temporary Work Platform/Shield

## Project Schedule & Budget:

- Awarded: December 2014
- Construction Budget: \$224M with a duration of 54 months
- Project is 12% complete and is on budget and on schedule

## Scope of Work:

- Replace roadway deck and upgrade supporting structure
- Replace toll plaza infrastructure
- Utility and lighting upgrades
- Deck replaced in 4 stages to minimize traffic impact



Ongoing Deck Demolition



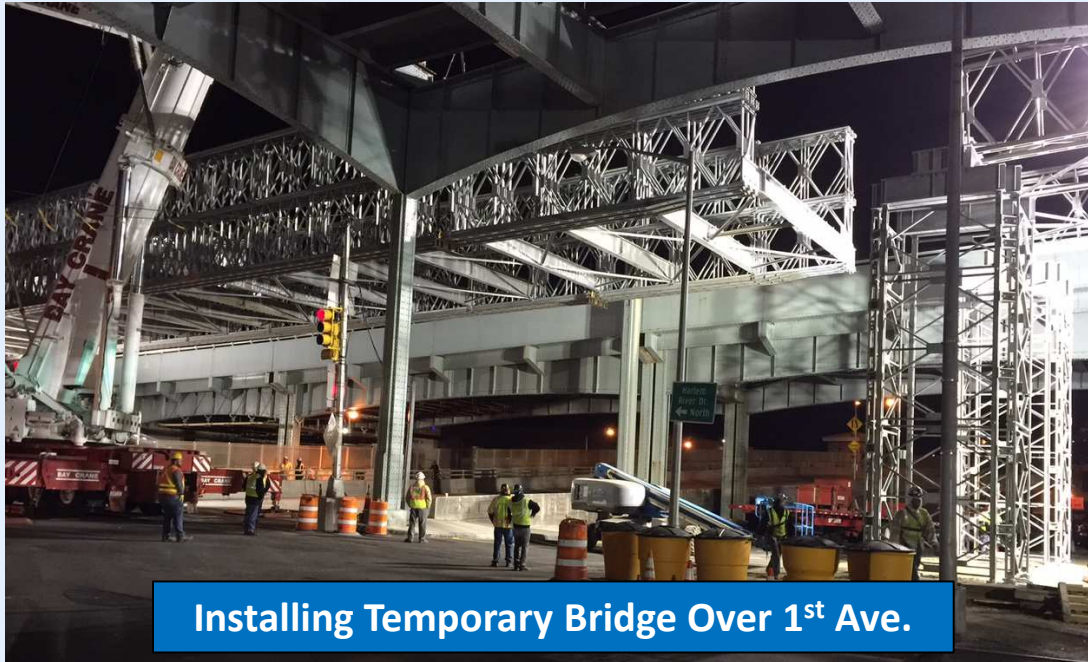
# Ongoing Projects at the RFK: Reconstruction of the Manhattan Approach Ramps



Bridges and Tunnels



# Ongoing Projects at the RFK: Rehabilitation of the Manhattan Approach Ramps



## Scope of Work:

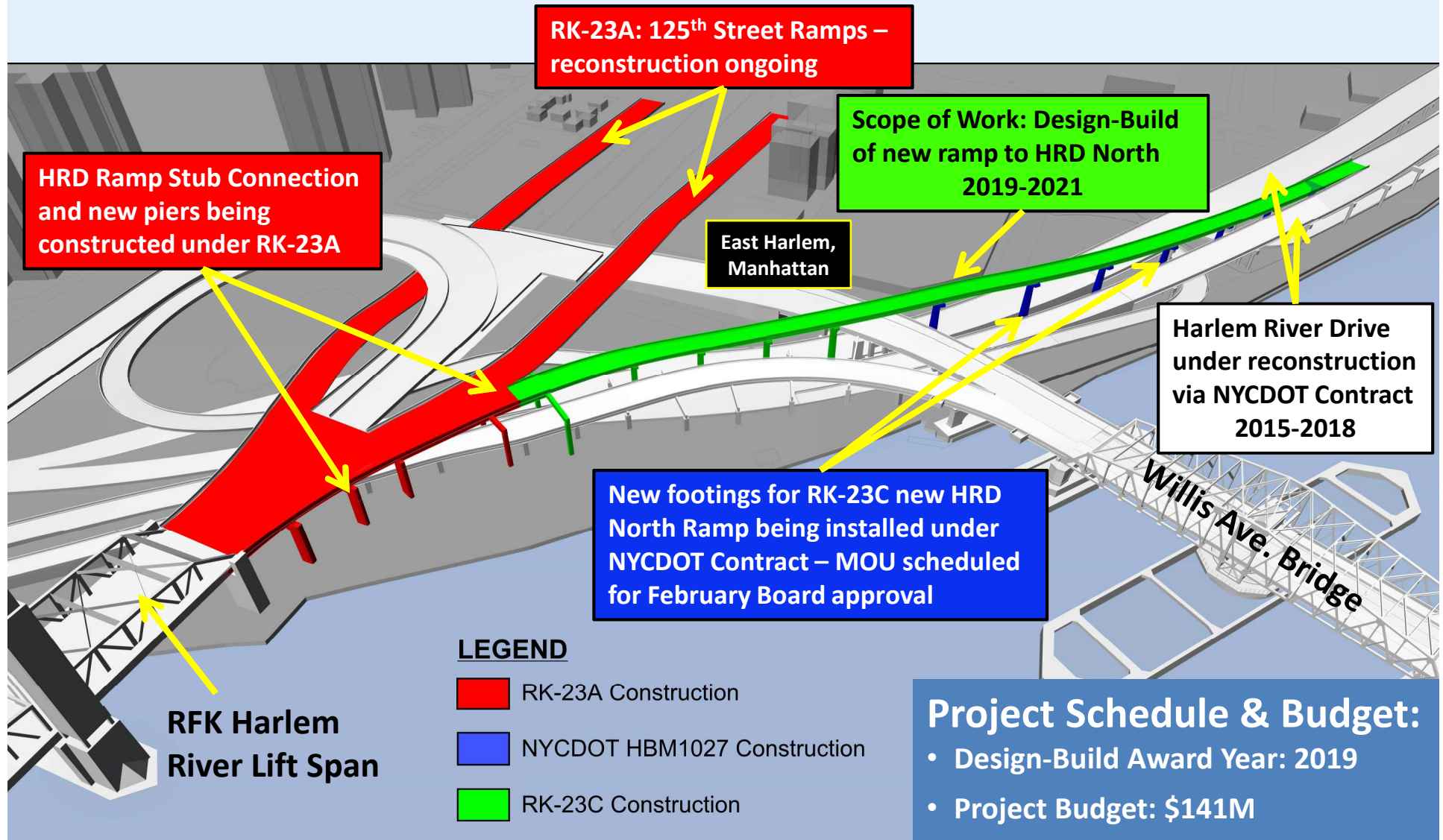
- Structural replacement and rehabilitation
- Construct connection stub for new proposed Harlem River Drive Ramp
- Utility upgrades (new LED roadway lighting and fire standpipe)
- Traffic impacts on off-bound ramp mitigated using temporary bridge

## Project Schedule & Budget:

- Awarded: December 2014
- Construction Budget: \$71.5M with a duration of 31 months
- Project is 28% complete and is on budget and on schedule



# Upcoming Projects at the RFK: New Harlem River Drive (HRD) North Ramp



Bridges and Tunnels

# **B&T Design-Build (D-B) Program Update**



Bridges and Tunnels

# Design-Build Program Update

## Use of Design-Build:

**Completed:** B&T has completed 12 Design-Build projects to date.

**Ongoing:** B&T has 4 ongoing Design-Build projects:

- **RK-65R2:** Training Facility at the Robert F. Kennedy Bridge (\$12.5M) (70% Complete)
- **VN-87:** Substation #1 Rehabilitation at the Verrazano-Narrows Bridge (\$12M) (90% Complete)
- **MP-21:** Rehab of Rockaway Point Blvd Overpass and Jacob Riis Park Pedestrian Bridge at the Marine Parkway Bridge (\$14M) (63% Complete)
- **CB-99S/MP-99S:** Replacement of Mechanical & Electrical Equipment at the Marine Parkway Bridge and Cross Bay Bridge (\$20.5M) (Early Stages)

**Upcoming: Approximately 22% of the 15-19 program will be Design-Build Projects**

- Typical projects range from new buildings, substations and technology based projects, to new ramp construction at the RFK
- Design-Build values range from \$4M to \$100M

Bridges and Tunnels



# Ongoing Design-Build (D-B) Projects



Bridges and Tunnels



# Ongoing Design-Build Project at the Verrazano-Narrows Bridge (VNB): New Substation



## Scope of Work:

- Design-Build Project to construct a new High Voltage Switchgear Substation and Backup Generator

## Project Schedule & Budget:

- Awarded: February 2014
- Design-Build Budget: \$12M with a duration of 27 months
- Project is 90% complete and on budget and on schedule



# Ongoing Design-Build Project at the Robert F. Kennedy Bridge (RFK): B&T Training Facility

## Scope of Work:

- Design-Build Project to construct a 15,000 sq.ft. Pre-Engineered Training Facility

## Project Schedule & Budget:

- Awarded: June 2014
- Design-Build Budget: \$13.1M with a duration of 21 months
- Project is 70% complete and on budget
- Substantial completion is predicted for Spring 2016



Bridges and Tunnels



# Ongoing D-B Project at the MPB/CBB: Replacement of Electrical and Mechanical Equipment



Marine Parkway Bridge (MPB)

## Scope of Work:

- New pre-engineered elevated substation enclosures, new switchgear and transformers
- New emergency generator



Cross Bay Bridge (CBB)

## Project Schedule & Budget:

- Awarded: November 2015
- Design-Build Budget: \$22.3M with a duration of 27 months
- Project is in the early stage of the Design-Build

# Ongoing D-B Project at the MPB: Rehabilitation of Rockaway Point Blvd. and Jacob Riis Pedestrian Overpass



Rockaway Point Blvd Overpass at the Marine Parkway Bridge (MPB)

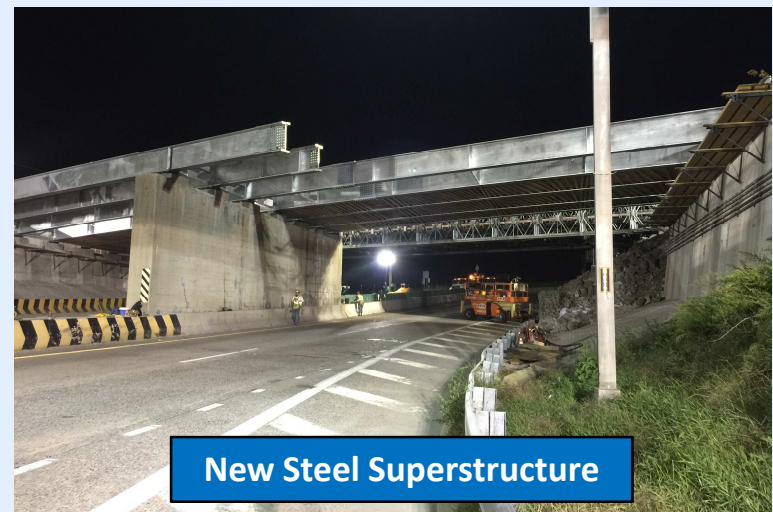


## Scope of Work:

- Deck replacement and structural rehabilitation of Rockaway Point Blvd Overpass
- Repairs to Jacob Riis Pedestrian Overpass

## Project Schedule & Budget:

- Awarded: January 2015
- Design-Build Budget: \$14.3M with a duration of 20 months
- Project is 63% complete and is on budget and on schedule
- Major Milestone achieved: New Overpass re-opened by Thanksgiving 2015





# February CPOC IEC Project Review



## Verrazano Narrows Bridge Upper Deck Replacement

February 22, 2016



# Budget Review

## Verrazano Narrows Bridge Upper Deck Replacement (VN80B):

- **Budget:** The project is on budget and the expenditures to date reflect the percent of project completion.



# Schedule Review

- **Schedule** – Based on the approved updated schedule, the project is on schedule for substantial completion in November 2017.
- The quantity of steel orthotropic panels delivered and installed meet the critical path requirements of the project schedule. All of these panels have met B&T's quality requirements.
- The manufacturing of the remaining panels is proceeding on schedule.



# Observations

The following project risks have been encountered and appropriately mitigated by the agency:

- Additional retrofit or repairs necessary during installation.
  - *B&T continues to investigate field conditions to determine the extent of retrofit needed, and executes required retrofit and repairs, with minimal schedule impact.*
- Orthotropic panel fabrication and shipment delays.
  - *Two (2) shipments of orthotropic deck panels remain. B&T continues to closely manage production to ensure delays will not occur.*

In the opinion of the IEC the project is well managed and appropriate steps are taken to mitigate cost and schedule risks.



# **February 2016 CPOC IEC Project Review**



**RK-65A**

**RFK Bridge Bronx Plaza Rehabilitation  
&**

**BB-28/28S, BB-54**

**Hugh Carey Tunnel Restoration  
&**

**QM-18, QM-40/40S**

**Queens Midtown Tunnel Reconstruction**

**February 22, 2016**



# IEC RK-65A Review

- **Bronx Toll Plaza (RK-65A)**
  - **Budget**
    - The project is currently within budget and sufficient contingency remains in the budget.
  - **Schedule**
    - The project is currently on schedule.





# IEC BB-28/28S,BB-54 Review

- **Hugh Carey Tunnel Restoration (BB-28/28s, BB-54)**
  - **Budget**
    - The project is within budget and sufficient contingency remains in the budget.
  - **Schedule**
    - The project is currently on schedule and with sufficient project schedule contingency.



# IEC QM-40/40S,QM18 Review

- **Queens Midtown Tunnel Restoration (QM-40/40s, QM-18)**
  - **Budget**
    - The project is within budget and there are no issues with project budget contingency .
  - **Schedule**
    - The project is on schedule
    - The latest contractor's schedule submission is under review.



# IEC Observations

- **RK-65A**
  - The IEC recognizes the Agency's executive partnering sessions as being instrumental in addressing and finding solutions to early construction issues.
  - The IEC believes these executive partnering sessions should be maintained.



# **February 2016 CPOC LIRR/MNR PTC Project Update**

February 22, 2016





## Budget / Schedule

- **Budget**
  - The Railroads' current estimated Project Cost remains \$968M
- **Schedule**
  - Congress approved PTC implementation extension to December 31, 2018
    - LIRR/MNR will meet the PTC deadline.
    - Wayside and On-Board subsystem deliveries continue to support the installation of Pilot locations in advance of final design completion.
    - LIRR/MNR shall commence operational pilot testing the 2<sup>nd</sup> quarter 2016.



## Update since September 2015 CPOC

- Implementation Plan submitted to the FRA on January 27, 2016.
  - Updated schedule reflects December 31, 2018.
  - Waterbury (MNR) and Speonk-Montauk (LIRR) will be signalized concurrently with PTC.
- Completed hardware designs for the wayside equipment on the pilot segments, and finalizing hardware design for M7.
- Continued to install wayside (including ground base communication network) and on-board equipment for Pilot segments. (See slides 7-10 for % completions of major PTC hardware categories).
- Progressing Office subsystem development and finalizing fiber, power and ventilation needs.
- Continue conducting factory acceptance, environmental and electromagnetic interference/compatibility tests for wayside equipment.



## Update since September 2015 CPOC

- Test tracks are being Identified for pre-revenue testing.
- Progressed communications design to a 90% level which allows Railroads to finalize the Radio Frequency (RF) network for the PTC system.
- Preparing applications to FCC and Tribal Nations for approval of construction permits for antenna and antenna pole installations.
- MNR conducted Civil Speed Transponder Testing on the New Haven Line (CP261 – CP274).
- MNR has satisfied all FCC requests for information with respect to license modifications for spectrum in Fairfield, New Haven, Orange and Dutchess counties. A final decision is expected by early April 2016.
- Continue to work with tenant railroads on interoperability.



## 120 Day Look Ahead

- Start Operational Pilot testing.
- Complete hardware designs, First Article Inspections and Final Design Reviews for all subsystems.
- Continue to install wayside and on-board components to support pilot segments.
- Submit applications to the FCC and Tribal Nations for approval to commence remaining antenna and antenna pole installations
- Complete M7 designs, and commence delivery and installations of production level kits.
- MNR will place civil speed transponders on the New Haven Line (CP261 Milford –CP274 New Haven) into revenue service to support Amtrak and Freight traffic.





## LIRR PTC Project Photos



Transponders



M7 Undercar Scanner Antenna



M7 Roof Top Antennas



Wayside Interface Units (WIU)

## MNR PTC Project Photos



Transponders installed between the rails on the New Haven Line

### Aspect Display Unit



Cab Car

P32



## Appendix

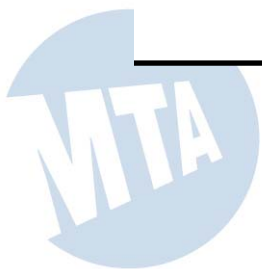
### MNR Pilot Wayside Equipment Installation Tracking

MNR Pilot 1 (Bridgeport to New Haven)				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	403	308	95	76%
Wayside Interface Unit (WIU) Locations	10	1	9	10%
Communication Cases	10	0	10	0%
Poles / Antennas	10	4	6	40%
MNR Pilot 2 (Tarrytown – Croton Harmon)				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	80	0	80	0%
Wayside Interface Unit (WIU) Locations	2	2	0	100%
Communication Cases	6	0	6	0%
Poles / Antennas	6	4	2	67%
MNR System Total				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	4593	507	4086	11%
Wayside Interface Unit (WIU) Locations	104	3	101	3%
Communication Cases	104	0	104	0%
Poles / Antennas	104	8	104	8%

## Appendix

### MNR On-Board Equipment Installation Tracking

Car Type	Total Quantity	MNR Pilot 1 Location (Bridgeport to New Haven)		Pilot 2 Location (Tarrytown – Croton Harmon)	
		Planned	Actual	Planned	Actual
M7	168	NA	NA	4	NA
Cab Car C34/38	32	1	0	1	0
Cab Car C12/19/21	19	1	0	1	0
M3	69	NA	NA	4	0
BL20	12	2	0	1	0
BL14	2	0	0	0	0
P32	31	2	0	2	0
GP35	7	1	0	1	0
M8 Car	215	4	0	NA	NA
<b>Totals</b>	<b>555</b>	<b>11</b>	<b>0</b>	<b>14</b>	<b>0</b>





## Appendix

### LIRR Pilot Wayside Equipment Installation Tracking

LIRR Pilot 1 (Babylon to Patchogue)				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	200	0	200	0%
Wayside Interface Unit (WIU) Locations	16	1	15	6%
Communication Cases	6	0	6	0%
Poles / Antennas	6	6	0	100%

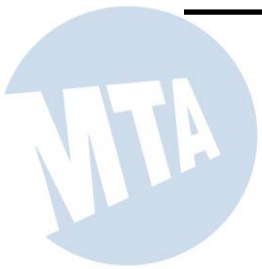
LIRR Pilot 2 (Port Washington to Harold)				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	135	85	50	63%
Wayside Interface Units Locations	8	6	2	75%
Communication Cases	9	0	9	0%
Poles / Antennas	9	9	0	100%

LIRR System Total				
PTC Equipment	Target Quantity	Actuals to Date	Remaining	% Complete
Transponders	4464	85	4379	2%
Wayside Interface Units Locations	126	7	119	6%
Communication Cases	117	0	117	0%
Poles / Antennas	117	15	102	13%

## Appendix

### LIRR On-Board Equipment Installation Tracking

Car Type	Total Quantity	Pilot 1		Pilot 2	
		Babylon to Patchogue		Port Washington to Harold	
		Planned	Actual	Planned	Actual
M7	418	NA	NA	4	0
DE/ DM	45	4	0	NA	NA
C3	23	4	0	NA	NA
E10/E15	19	2	0	NA	NA
NYAR GP38	4	2	0	NA	NA
NYAR E15	4	2	0	NA	NA
TC-82	1	NA	NA	NA	NA
M9	66	NA	NA	NA	NA
<b>Totals</b>	<b>580</b>	<b>14</b>	<b>0</b>	<b>4</b>	<b>0</b>



# **FEBRUARY 2016 CPOC IEC Project Review**



## **Positive Train Control**



**February 22, 2016**

# Project Status Review

- **BUDGET** – There have been no cost issues affecting the project estimate since last reported in September 2015.
- **SCHEDULE** – The final system design is delayed and closing the remaining design issues is likely to extend to end of 2016. This does not prevent installing equipment needed for Pilot tests. The software first phase release is 4 months late and is now scheduled for the second quarter 2016. Based on metrics available and testing to be done, the IEC sees a risk to the release date.
- IEC is concerned about the possibility of impact to the project end date due to the extension of Pilot Testing and the vehicle on board equipment installation plan.





# Project Observations

- The PTC equipment on board installation start has been delayed at least one year. The original plan should be updated to align with available resources and material deliveries considering the lost time. The IEC sees risk in the ramp up time required to achieve the production rate needed to meet the project end date.
- The IEC concurs with the contractor's move to go forward with the test track. This move has the advantage of conducting equipment demonstrations and tests in advance of actual installations.
- Finalizing all system requirements and mapping to contract specifications to be a priority for the project.
- The railroads are encouraged to make a concerted effort to hold the Pilot test end date of December 2016. This validates the final design and frees up project resources for work following the Pilot.





**MTA**

## ENTERPRISE ASSET MANAGEMENT

Capital Program Oversight Committee  
February 2016

# What is asset management?

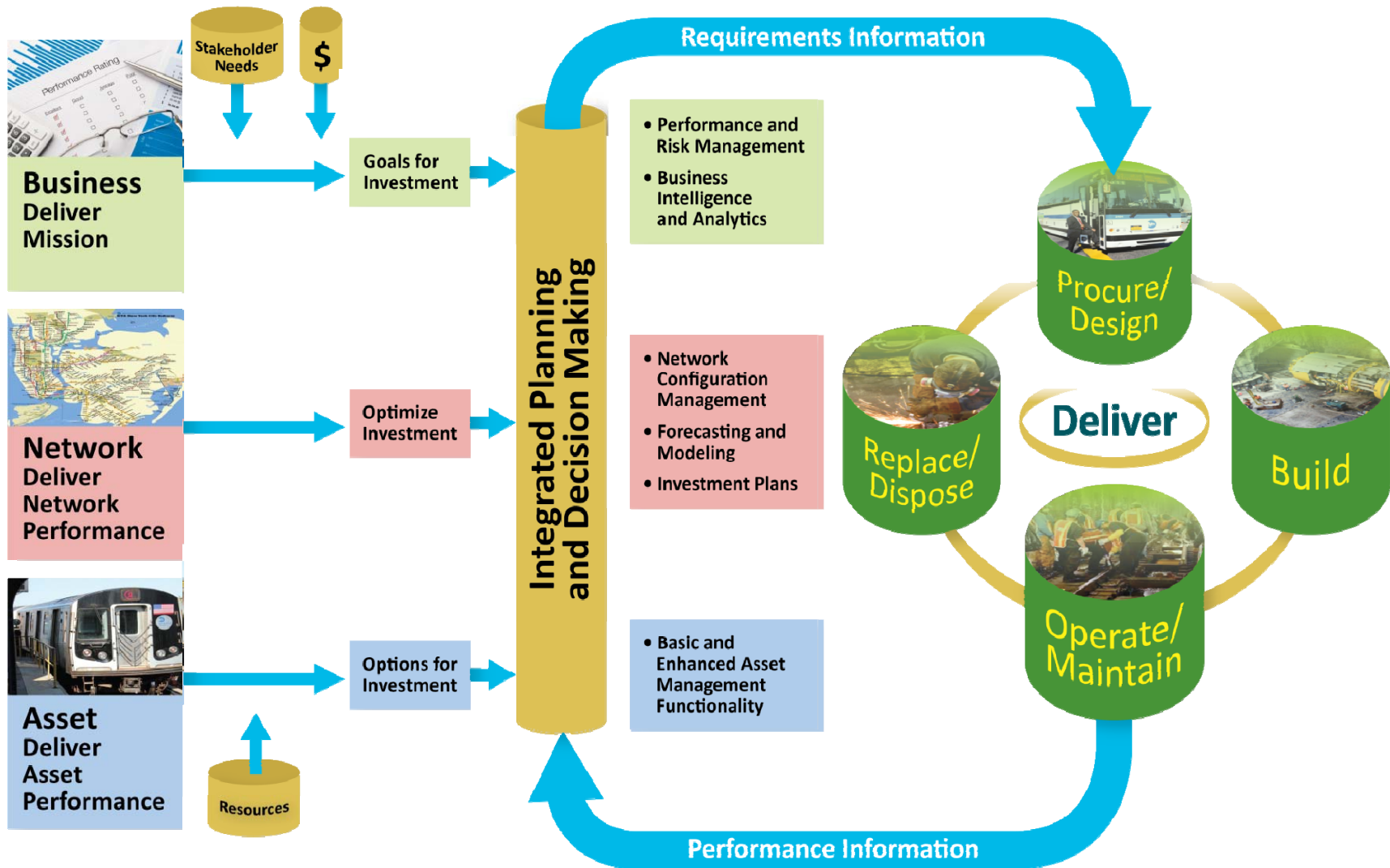


Asset management is the “coordinated activity of an organization **to realize value from assets**” (ISO 55000)



An Asset Management System is the organization’s asset management policy, strategy, objectives, plan(s) and the activities, processes and organizational structures necessary for their development, implementation and continual improvement

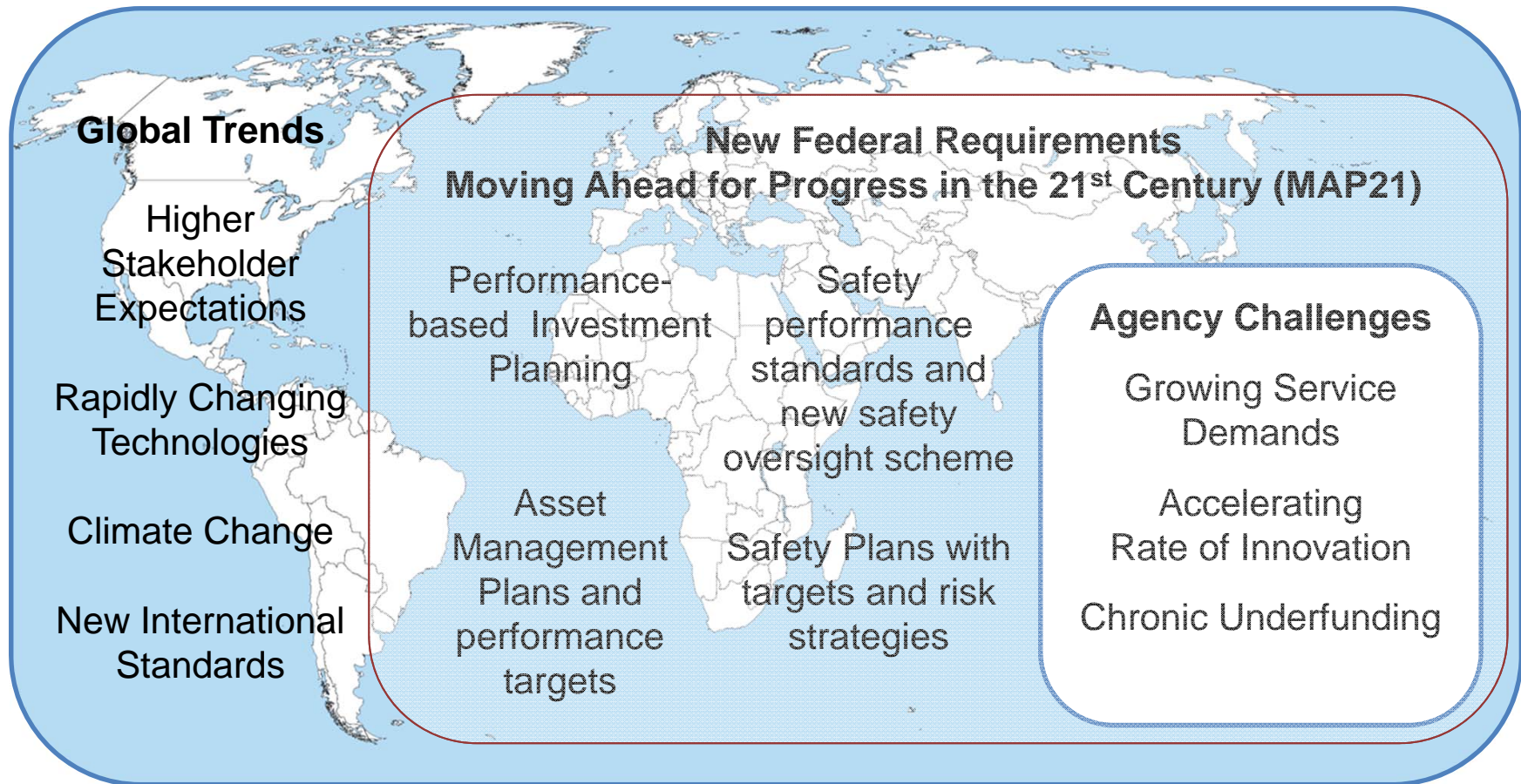
# What does asset management look like?



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# Why now?



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Other asset-intensive originations have applied asset management to improve reliability, asset utilization and lower cost

**CSX** (USA) attributes over **\$1 billion** in year over year productivity improvements

**Network Rail** (UK) reports **improved** performance by **30%** while reducing the cost of maintaining, renewing and operating infrastructure by **27%**

**MTR** (Hong Kong) rolling stock has improved **reliability by 350%** and

**Florida Turnpike Authority** credits EAM to improving their bond ratings

**Ausgrid** (Australia) uses their EAM program to reduce insurance premiums

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Sources: NY MTA EAM Benefit Realization Management Framework, WSP Parsons Brinckerhoff 2015  
IET/IAM Asset Management Conference Presentation by MTR. November 2010,  
<http://theiam.org/es/magazine/march-2011/staying-right-track>, CSX Presentation at IBM Pulse Conference March 2012



# EAM Strategic Business Outcomes

- **Safety & Service We Provide**
  - Improving safety and reliability through better asset management
- **Our Capital Efficiency**
  - Efficient use of operating and capital resources
- **How We Make Decisions**
  - Optimize asset investment decisions through integrated data, informed capital and maintenance decision making consistent with best practice
- **How We Operate**
  - Achieving and sustaining a fit for purpose transportation system

The November plan includes an investment of \$43 million annually (on average) for EAM

An addition \$66 million has been allocated in the 2015-19 Capital Program to upgrade asset management information systems

With these investments, the MTA will begin overhauling the entire asset management system including:

- Meeting new **Federal requirements** and international standards
- Developing asset management policies, strategies and plans
- Introducing **whole-life cost analysis** and decision support tools
- Standardizing EAM business processes across agencies
- Upgrading to an “**enterprise**” **information systems** including mobility
- Streamlining material management
- Training, organizational development and change management

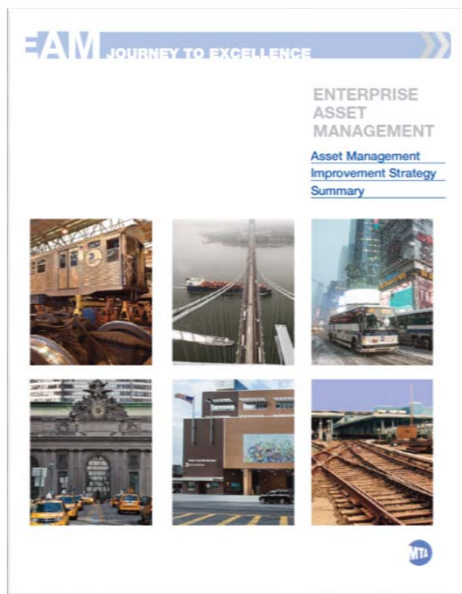


The MTA has been laying the groundwork for this EAM “Journey” for several years

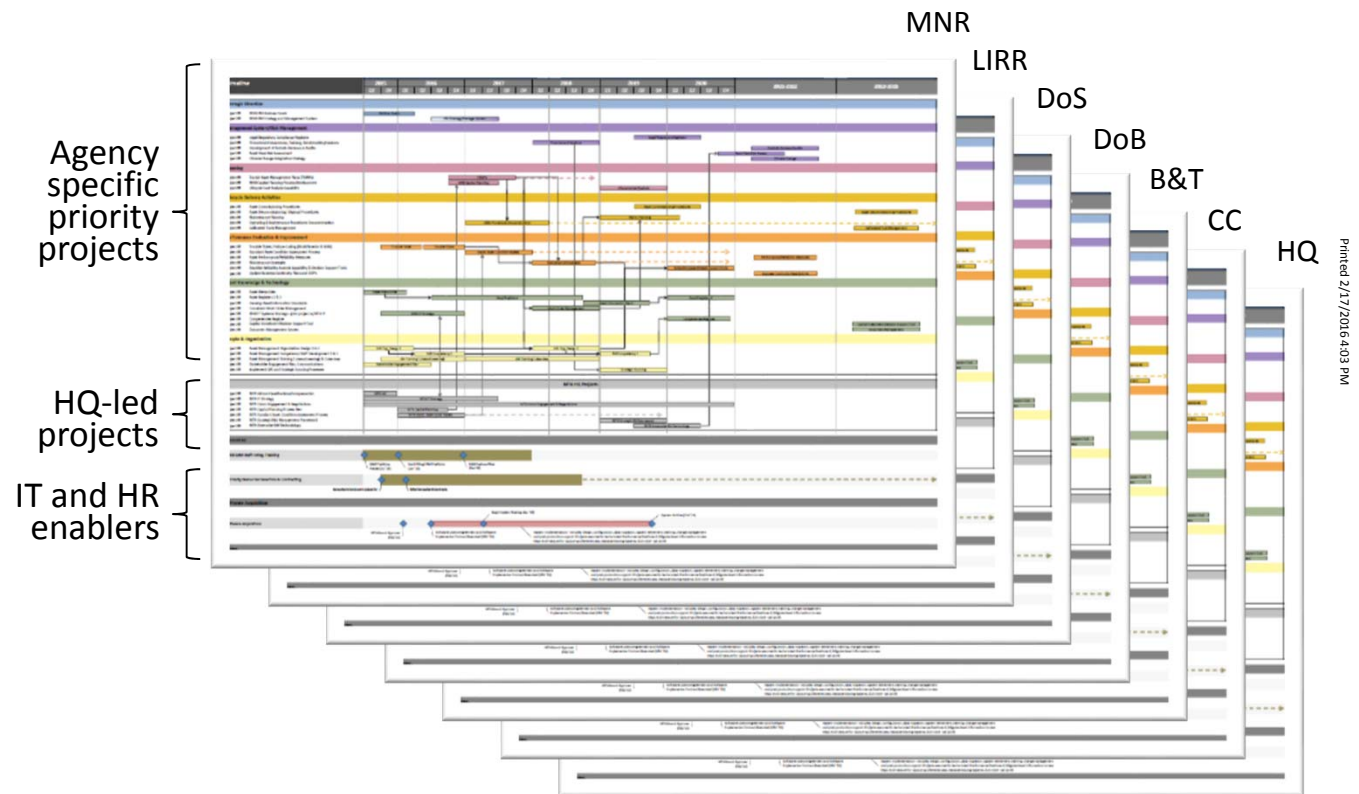
2012	•	MTA All Agency Coordinating Committee
2013	•	MTA Asset Management Policy
2013	•	MTA All Agency Kick-off
2014	•	Proof of Concepts and Program Definition
2015	•	Improvement Strategy, Gap Assessments, and Plans
2016		Phase 1 – Basic EAM
2018		Phase 2 – Advanced EAM
2020		Phase 3 – World Class EAM

Each agency has completed a gap assessment and roadmap based on international best practices

## MTA Strategy



## Agency Plans



The roadmaps identified over 200 opportunities which have been prioritized based each agency's needs

**Strategic Direction** - policies, strategies and plans as well as processes, performance metrics, and governance.

**Planning and Risk Management** - condition, criticality, and risk methodologies, investment prioritization and outages

**Maintenance, Reliability and Project Delivery** – work order, material, incidents and defects management, capital delivery and hand-over

**Asset Information and Systems** – better life-cycle management, decision support, analytics, asset registries and work management

**Capabilities and Culture** –resources and change management to sustain asset management as business as usual

# The focus is on front line improvements in maintenance, reliability and project delivery

- Establishing preventative, predictive and reliability strategies for all critical assets
- Supporting maintenance and reliability using technologies
- Improving engineering, operational readiness and change control through building information, configuration management and lean practices
- Optimizing supply stream and parts availability



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Technology and services are being procured to support development of asset management practices, processes and information systems

### **Procurement Milestones**

- Feb16 Consulting Retainer Contract targeted for MTA Board
- 2Q16 Software Solution targeted for MTA Board
- 2Q16 Systems Integration Retainer Contract targeted for MTA Board

### **Information System Milestones**

- 2Q16 Set up instance of software solution for interim solutions
- 4Q16 Award Standard Design/Build Work Assignment
- 4Q17 Complete Testing of Standard Design/Build
- 1Q18 Begin Roll-out of Standard Build



# Training has begun in asset management, maintenance and reliability for staff, managers and executives

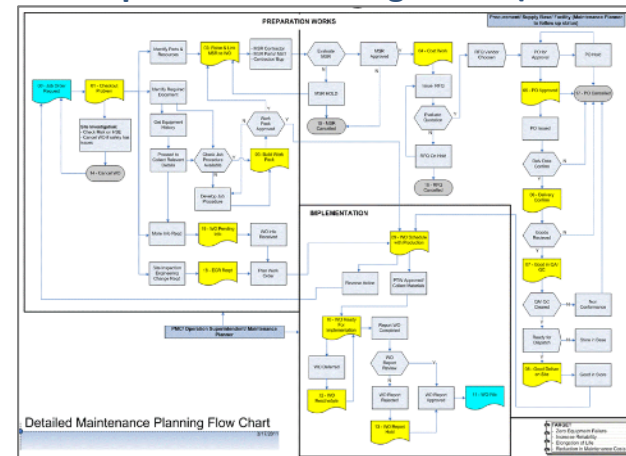
## Basic Asset Management Training (AMCL)

Module	Module Title
Briefing	Executive Briefing
Primer Part 1	Introduction to the Benefits of Asset Management
Primer Part 2	Foundations of Asset Management: the Asset Management System
Principles Part 1	Asset Management: Delivering Corporate Objectives
Principles Part 2	Asset Management Risk and Review
Principles Part 3	Whole-life Asset Planning
Principles Part 4	Optimizing the Asset Lifecycle
Principles Part 5	People and Organizations in Asset Management
Principles Part 6	Managing Asset Information, Knowledge and Data



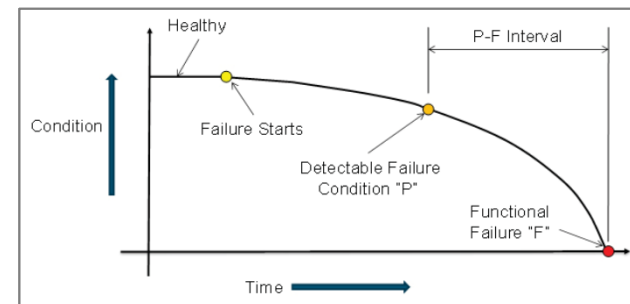
February 22, 2016

## The role that Maintenance Planning and Scheduling plays in Enterprise Asset Management (ABS Genesis)



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## Application of Reliability Centered Maintenance (RCM) to Critical Infrastructure Assets (Atkins)



CPOC

# Governance, management, and resources are in place



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# **Second Avenue Subway Update to Transit Committee/CPOC**

**February 22, 2016**



## SAS Status

- Contractors started their acceleration work on January 4, 2016
- Negotiation with contractors for the cost of accelerating the work in order to meet December 2016 RSD have been completed
- Facility Power was energized at 96<sup>th</sup> Street Station
- The crossover north of 72<sup>nd</sup> Street was installed





# SAS Issue/Milestone Status

Issue/Milestone		Date Reported as of Dec. 2015 CPOC	Current Forecast/ Actual Date	Change Since Jan Report	Potential Impact on Revenue Service Date
<b>Permanent Power</b>					
<b>96<sup>th</sup> Street</b>	Energized	1/4/2016	2/8/2016 (F) 2/3/2016 (A)	<b>Completed</b>	
<b>86<sup>th</sup> Street</b>	Complete installation and 3 <sup>rd</sup> Party Testing	2/20/2016	2/20/2016 (A)	<b>Completed</b>	Contractor completed installation and 3rd party testing except for work added based on Lessons Learned for 96th Street Station
	ConEd Complete Inspection/Approval	3/25/2016	3/25/2016	No Change	ConEd has started inspection in order to maintain energization date of 4/29/2016
	Energized	4/29/2016	4/29/2016	No Change	Supports the December 2016 RSD
<b>72<sup>nd</sup> Street</b>	Complete installation and 3 <sup>rd</sup> Party Testing	2/15/2016	2/20/2016 (A)	<b>Completed</b>	Contractor completed installation and 3rd party testing except for work added based on Lessons Learned for 96th Street Station
	ConEd Complete Inspection/Approval	3/16/2016	3/16/2016	No Change	ConEd has started inspection in order to maintain energization date of 4/15/2016
	Energized	3/31/2016	4/15/2016	No Change	Supports the December 2016 RSD



# SAS Issue/Milestone Status

Issue/Milestone	Date Needed (as of Dec. 2015 CPOC)	Current Forecast/ Actual Date	Change Since Last Report	Potential Impact on Revenue Service Date
<b>72nd St Finish Contract</b>				
Entrance 1 MEP & Cavern Finishes	3/16/2016	4/30/2016	Six weeks delay	No impact to December 2016 RSD
Progress of construction of Entrance 2	6/30/2016	6/30/2016	No Change	Contractor continue installation of three escalators at Entrance 2
<b>Systems Contract</b>				
Trackwork in Zone 8 (Crossover North of 72 <sup>nd</sup> Street Station)	1/30/2016	1/30/2016 (A)	<b>Completed</b>	
<b>Status of Integrated Acceleration Schedule</b>				
Contractor acceleration schedules accepted	2/28/2016	2/22/2016	<b>Completed</b>	
Additional testing and inspection personnel plan (NYCT)	1/25/2016	1/25/2016 (A)	<b>Completed</b>	NYCT facility is ready as of 1/25/2016 and NYCT has identified dedicated resources to support SAS testing and commissioning work

# February 2016 CPOC IEC Status Review



## Second Avenue Subway

February 22, 2016



# SAS Status Review

The Project Team has generally maintained its schedule for progressing installation of permanent power and station equipment in January. The Project Team expects to update the integrated project schedule by incorporating the accelerated testing & commissioning activities of each contract by early March.

However the IEC notes that several start dates for major tests have been rescheduled.

The project's cost contingency will be reduced to approximately \$50M by approval of the proposed acceleration agreements with the contractors.

The project remains with a moderate risk of delay to completion in December 2016. The top schedule risk – continuing design & scope changes during construction – has not been mitigated.



# Recommendations Log

Recommendation	Agency Action	Status
<b>January 2016</b> Expedite their efforts to complete the new integrated project schedule. This schedule should then be detailed with weekly checkpoints to identify critical delays for mitigation and recovery.	A meeting was held with systems and stations contractors and agreement was reached on alignment of system's contractors accelerated schedule with the stations contractors accelerated schedules. The Project plans to approve all contract acceleration schedule by February 22, 2016. The Project plans to then complete the new integrated project schedule by March 7, 2016. This schedule will be detailed with weekly checkpoints to identify critical delays.	IN-PROGRESS
<b>January 2016</b> Complete implementation of an augmented staffing plan for construction management as soon as practical.	Twenty-two new people have been added to the construction management staff to support the implementation of the acceleration effort. These individuals have been placed at each station contract and the systems contract. Additional people are being interviewed to fill key positions to manage the Observation List, resolve issues with facility power, and interface with communications installation and testing. It is planned to have all the necessary additional personnel in place by mid-March 2016.	IN-PROGRESS



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# **MTA Capital Program Commitments & Completions**

## **through January 31<sup>st</sup>, 2016**



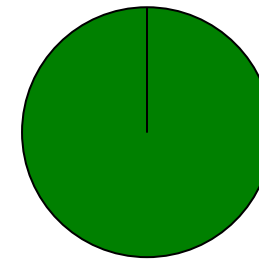
## Capital Projects – Major Commitments – January 2016

41 major commitments are planned for 2016. The 41 commitments include 18 for NYCT, ten for the LIRR, five for MNR, two for B&T, five for MTACC and one for MTA PD. The total MTA commitment goal for 2016 is \$6.6 billion. The \$6.6 billion is mostly due to NYCT (\$3.7 billion) and MTACC (\$1.9 billion). Several large commitments are included: NYCT's Canarsie Tube Restoration and Core Capacity Improvements, East Side Access' Grand Central Terminal Caverns award, agency annual track programs and several bus purchases.

Through January, agencies have committed \$251 million versus a \$323 million YTD goal. The favorable result is mainly due to earlier than expected commitments of several small projects at NYCT. By year-end, the MTA forecasts committing 100% of its \$6.6 billion goal.

The MTA will also continue to track 2014 and 2015 major commitment goals that slipped beyond 2015. This will be done in quarterly reports.

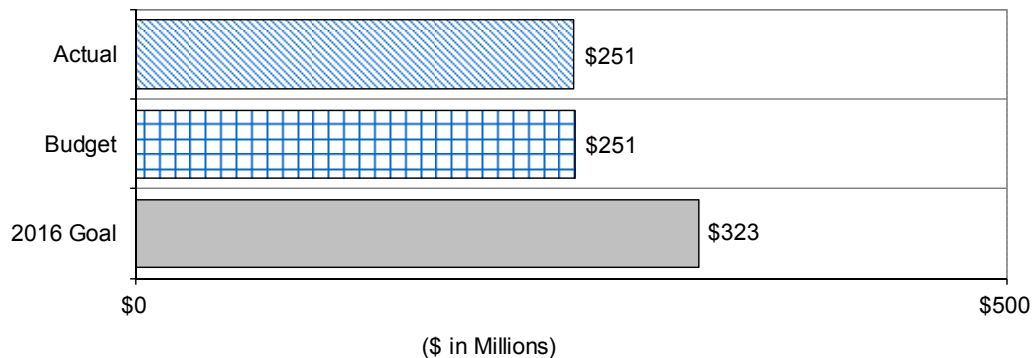
## Year-to-Date Major Commitments



	Count	Percent	Change from Prior Month
<b>GREEN</b> = Commitments made/forecast within Goal	2	100%	↑ 2
<b>YELLOW</b> = Commitments delayed beyond Goal (already achieved)	0	-	-
<b>RED</b> = Commitments delayed beyond Goal (not yet achieved)	0	-	-
	2	100%	↑ 2

## Budget Analysis

2016 Annual Goal	\$6,600	(\$ in millions)
2016 Forecast	100%	of Annual Goal
Forecast left to Commit	96%	(\$6,321)



## Year-to-Date Agency Breakdown

2016 Goals	Prior month variance		
	GREEN	YELLOW	RED
<b>New York City Transit</b>			
1	+1 GREEN	----	----
<b>Long Island Rail Road</b>			
1	+1 GREEN	----	----
<b>Metro-North Railroad</b>			
	----	----	----
<b>Bridges and Tunnels</b>			
	----	----	----
<b>Capital Construction Company</b>			
	----	----	----
<b>MTA Bus Company</b>			
	----	----	----
<b>MTA Police Department</b>			
	----	----	----

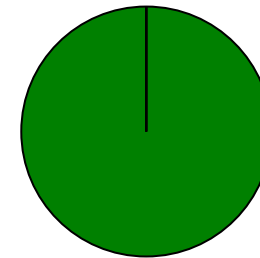
## Capital Projects – Major Completions – January 2016

43 major completions are planned for 2016. The 43 completions include 17 for NYCT, six for the LIRR, four for MNR, six for B&T, six for MTACC and four for MTA Bus. The total MTA completion goal for 2016 is \$4.6 billion. The \$4.6 billion is largely due to completion goals at two agencies: NYCT (\$2.4 billion) and MTACC (\$1.7 billion). Major completions include significant milestones in the 2<sup>nd</sup> Ave Subway Phase 1 project.

Through January, agencies have completed \$213 million versus a \$31 million YTD goal. The better than expected performance is mostly due to the early completion of standard bus deliveries for NYCT. By year-end, the MTA forecasts achieving its \$4.6 billion goal.

The MTA will also continue to track 2014 and 2015 major completion goals that slipped beyond 2015.

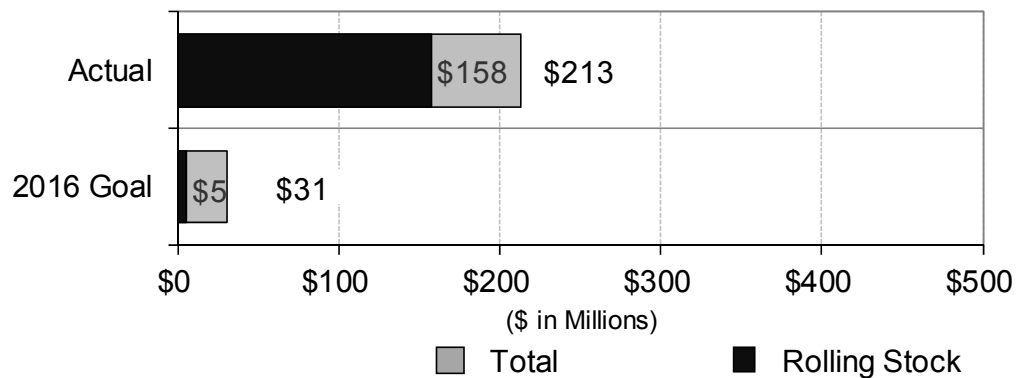
## Year-to-Date Major Completions



	Count	Percent	Change from Prior Month
<b>GREEN</b> = Completions made/forecast within Goal	2	100%	↑ 2
<b>YELLOW</b> = Completions delayed beyond Goal (already achieved)	0	-	-
<b>RED</b> = Completions delayed beyond Goal (not yet achieved)	0	-	-
	2	100%	↑ 2

## Budget Analysis

2016 Annual Goal	\$4,629	(\$ in millions)
2016 Forecast	101%	of Annual Goal
Forecast left to Complete	95%	(\$4,447)



## Year-to-Date Agency Breakdown

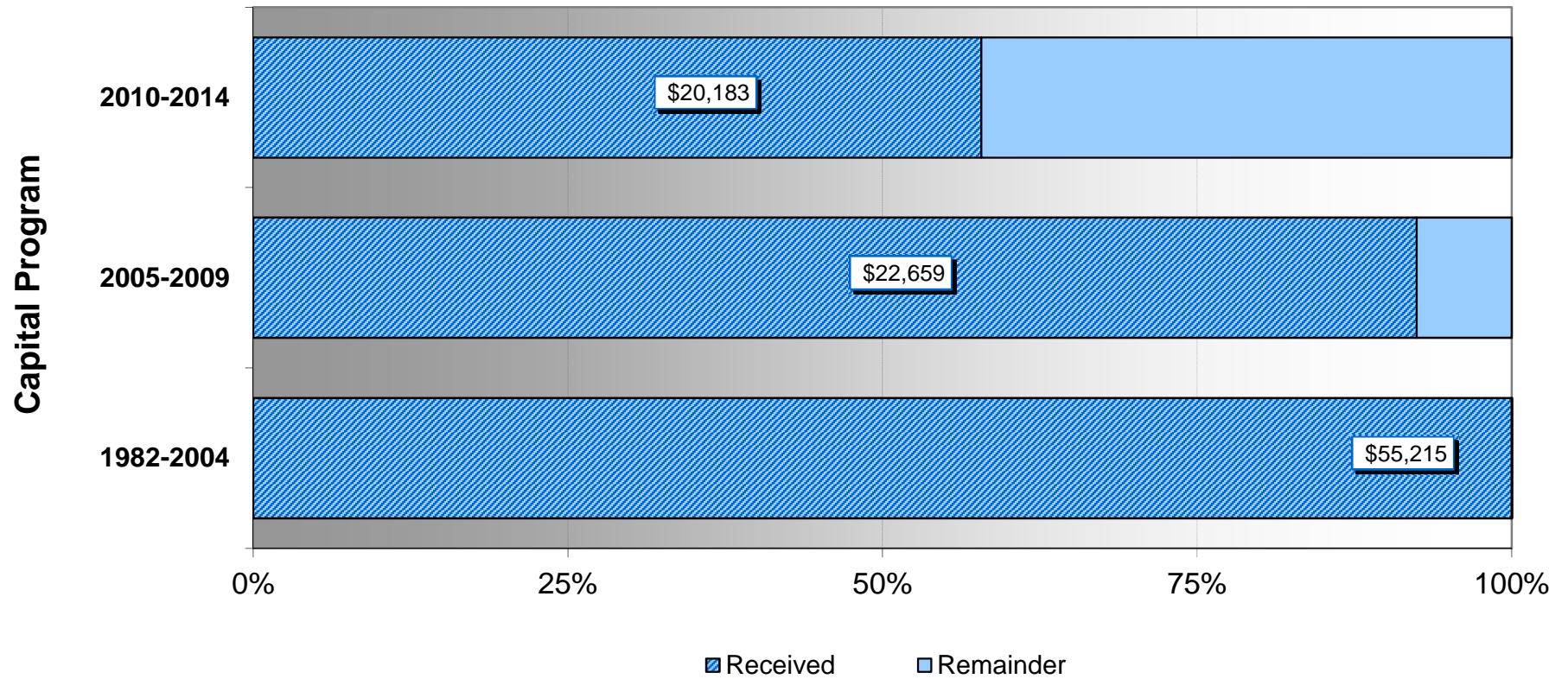
2016 Goals	Prior month variance		
	GREEN	YELLOW	RED
New York City Transit			
1	+1 GREEN	----	----
Long Island Rail Road			
	----	----	----
Metro-North Railroad			
	----	----	----
Bridges and Tunnels			
	----	----	----
Capital Construction Company			
	----	----	----
MTA Bus Company			
1	+1 GREEN	----	----
MTA Police Department			
	----	----	----

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## Status of MTA Capital Program Funding

## Capital Funding (January 31, 2016)

\$ in millions





## Capital Funding Detail (January 31, 2016)

\$ in millions

### 2005-2009 Program

	Funding Plan	Receipts		
	<u>Current</u>	<u>Thru December</u>	<u>This month</u>	<u>Received to date</u>
Federal Formula and Flexible Funds	\$5,186	\$5,186	\$ -	\$5,186
Federal New Start	2,810	2,018	203.42	2,222
Federal Security	323	262	-	262
Federal Other	11	11	-	11
Federal ARRA - Stimulus	654	654	-	654
City of New York	418	409	-	409
City #7 Line Extension Funds	2,367	2,195	9	2,204
MTA Bus Federal and City Match	149	142	-	142
Asset Sales and Program Income	1,184	565	(2)	563
State Transportation Bond Act	1,450	1,064	-	1,064
MTA Bonds (Including LGA)	3,039	3,039	-	3,039
B&T Bonds	1,153	1,153	-	1,153
Bonds from New Sources	5,624	5,624	-	5,624
Other (Including Operating to Capital)	138	126	-	126
<b>Total</b>	<b>24,507</b>	<b>22,448</b>	<b>211</b>	<b>22,659</b>

### 2010-2014 Program

	Funding Plan	Receipts		
	<u>Current</u>	<u>Thru December</u>	<u>This month</u>	<u>Received to date</u>
Federal Formula, Flexible, Misc	\$5,839	\$5,614	\$ -	\$5,614
Federal High Speed Rail	295	295	-	295
Federal Security	206	100	-	100
Federal RIFF Loan	-	-	-	-
City Capital Funds	778	574	-	574
State Assistance	770	150	-	150
MTA Bus Federal and City Match	132	69	-	69
MTA Bonds (Payroll Mobility Tax)	12,703	8,347	72	8,419
Other (Including Operating to Capital)	1,531	625	12.8	638
B&T Bonds	2,111	931	-	931
Hurricane Sandy Recovery				
Insurance Proceeds/Federal Reimbursement	9,376	3,177	-	3,177
PAYGO	160	160	-	160
Sandy Recovery MTA Bonds	758	-	-	-
Sandy Recovery B&T Bonds	230	55	-	55
<b>Total</b>	<b>34,889</b>	<b>20,098</b>	<b>85</b>	<b>20,183</b>