Capital Program Oversight Committee Meeting

May 2016

Committee Members
T. Prendergast, Chair
F. Ferrer
R. Bickford
A. Cappelli
S. Metzger
J. Molloy
M. Pally
J. Sedore
E. Watt
C. Wortendyke
N. Zuckerman
Capital Program Oversight Committee Meeting
Monday, 5/23/2016
1:45 - 2:45 PM ET
2 Broadway, 20th Floor Board Room
New York, NY 10004

1. PUBLIC COMMENTS PERIOD

2. APPROVAL OF MINUTES April 18, 2016
   - Minutes from April ’16 - Page 3

3. COMMITTEE WORK PLAN
   - 2016-2017 CPOC Work Plan - Page 6

4. LIRR CAPITAL PROGRAM UPDATE
   - Progress Report on LIRR Capital Program - Page 8
   - LIRR MLDT 2 Risk Assessment Summary Appendix - Page 36
   - IEC Project Review on Jamaica Capacity Improvements - Page 40
   - IEC Project Review on Main Line Double Track - Page 43

5. MNR CAPITAL PROGRAM UPDATE
   - Progress Report Update on MNR Capital Program - Page 48
   - IEC Project Review on Harmon Shop Replacement - Page 78
   - IEC Project Review on Hudson Line Sandy Restoration - Page 81

6. MTACC SECOND AVENUE SUBWAY MONTHLY UPDATE
   - Progress Report on Second Avenue Subway - Page 85
   - IEC Project Review on Second Avenue Subway - Page 92
   - Second Avenue Subway Appendix - Page 95

7. CAPITAL PROGRAM STATUS
   - Commitments, Completions and Funding Report - Page 96

Date of next meeting: Monday, June 20, 2016 at 1:15 PM
Chairman Prendergast called the April 18, 2016 meeting of the Capital Program Oversight Committee to order at 1:00 P.M.
**Public Comments Period**

There was one public speaker in the public comments portion of the meeting: Mr. Murray Bodin.

**Meeting Minutes**

Upon motion duly made and seconded, the CPOC members approved the minutes to the previous meeting held on March 21, 2016.

**Committee Work Plan**

Mr. Stewart announced that there were no changes to the CPOC Work Plan.

**NYCT, LIRR and MNR Update on New Fare Payment System**

Mr. McKinney provided an update on the NYCT New Fare Payment System, including agency plans and progress, details on MetroCard replacement strategies, and the current schedule, which includes an initial rollout in mid-2018. Mr. Shiffer and Ms. Cicchesi then provided updates on the LIRR and MNR on-board and mobile ticketing initiatives, as well as the Commuter Railroads’ long-term strategy study. In its Project Review of the NYCT program, the IEC stated that there is a risk that the June 2018 initial rollout milestone may not be met due to several critical activities that must be in place prior to that time. With respect to LIRR and MNR Mobile Ticketing, the IEC stated that, assuming the pilot is successful, the schedule to commence a system-wide rollout for mobile ticketing in June is reasonable. 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 Sandy Recovery & Resiliency Division**

Mr. O’Grady introduced Mr. Kleva and Ms. Jaising. Mr. Kleva then updated the committee on the NYCT Sandy Recovery and Resiliency Program, which comprises the following: stations; under-river tunnels (including the Canarsie Tunnel Program of Projects); yards, terminals and shops; and Competitive Resiliency Projects. He noted that over $2 billion of commitments across 15 projects are planned for 2016. Sonia Jaising then provided an update on the Clifton Shop Design-Build Project, which is scheduled for award in November 2016. In its Project Review on the South Ferry Station Complex, the IEC reported that the project is on budget, expenditures to date reflect the actual percentage of project completion, and that in the IEC’s opinion, the remaining project contingency is sufficient to reach substantial completion. With respect to schedule, the IEC noted that the contractor has met all contractual milestones to date. Citing major project risks associated with late changes to CCTV, phone, wireless and PA systems, the IEC concluded that, based on the steps being taken by NYCT, most delay risks resulting from these changes can be mitigated. 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.

**MTACC Second Avenue Subway Monthly Update**

Mr. Parikh outlined the status of various Program issues/milestones since the March 2016 update. In its Monthly Update, the IEC noted that the March target dates for installations at the Lexington Ave./63rd Street Station were all met and that local testing is now underway. The IEC then cited its concerns related to schedule targets for interim milestones, the forecasted escalator and elevator completions for 72nd Street Station, and the testing schedule for major station equipment systems. 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.
MTA Capital Program Commitments and Completions

Mr. Stewart reported that in 2016 agencies plan to commit a total of $6.6 billion dollars, including 41 major commitments. He then stated that the MTA is reporting on ten major commitments: eight were committed on time or early, one was committed late, and one was delayed beyond March (and was awarded on April 11). By year end, the MTA forecasts meeting its annual commitment goal of $6.6 billion. With respect to completions, the agencies plan a total of $4.6 billion in 2016, including 43 major completions. Agencies completed $270 million through March, versus a $412 million year-to-date goal. By year end, the MTA forecasts meeting its annual completion goal of $4.6 billion.

Executive Session

Upon motion duly made and seconded, Chairman Prendergast adjourned the public CPOC meeting at 1:55 PM to go into Executive Session.

Adjournment

Upon motion duly made and seconded, Chairman Prendergast adjourned the Executive Session, reconvened the public session and then immediately adjourned the April 18, 2016 meeting of the MTA Capital Program Oversight Committee at 2:15 PM.

Respectfully submitted,
Michael Jew-Geralds
Office of Construction Oversight
2016-2017 CPOC Committee Work Plan

I. Recurring Agenda Items

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

II. Specific Agenda Items

June 2016
Quarterly MTACC Capital Program Update
  • Cortlandt Street Station
  • East Side Access
  • Second Avenue Subway
LIRR and MNR Update on Positive Train Control (PTC)
Quarterly Change Order Report
Quarterly Traffic Light Reports

July 2016
NYCT Capital Program Update
  • 2015-2019 Capital Program Overview
  • Signals and Train Control
MTACC Monthly Second Avenue Subway Update

September 2016
Quarterly MTACC Capital Program Update
Update on Minority, Women and Disadvantaged Business Participation
Update on Small Business Development Program
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
Update on Capital Program Security Projects (in Exec Session)

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
Update on Minority, Women and Disadvantaged Business Participation

February 2017
B&T Capital Program Update
LIRR and MNR Update on Positive Train Control (PTC)

March 2017
Quarterly MTACC Capital Program Update
Quarterly Change Order Report
Quarterly Traffic Light Reports

April 2017
NYCT Capital Program Update
Update on Capital Program Security Projects (in Exec Session)

May 2017
LIRR and MNR Capital Programs Update
Capital Program Oversight Committee

Long Island Rail Road
Capital Program Program Overview

May 2016
2016 LIRR Capital Program Goals

- **$472M**: COMMITMENTS
- **$129M**: STARTS
- **11**: COMPLETIONS
- **$52M**: CLOSEOUTS
- **$202M**: ACTUAL as of April 30, 2016

2016 PLAN

MTA

Master Page # 9 of 103 - Capital Program Oversight Committee Meeting 5/23/2016
2016 Major Starts and Completions

Major Starts:

Construction
- Post Avenue Bridge
- Wantagh Station
- Flushing- Main Street Station
- Hicksville Station
- Jamaica Capacity Improvements (JCI) – Platform F
- Nostrand Station
- Double Track – Phase 2
- 2016 Track Program
- Infrastructure Component Replacement

Design
- Station Enhancement Project Substation Replacements

Major Completions:

Construction
- Ellison Ave. Bridge
- Colonial Road Bridge
- Main Line Double Track Phase 1- Civil and Site Work
- JCI- Johnson Ave Yard Reconfiguration

Design
- Buckram Rd Bridge
- Post Avenue Bridge
- Flushing Main Street Bridge Rehabilitation
- Mid-Suffolk Yard
- Morris Park Locomotive Shop

- 2010-2014 Capital Program
- 2015-2019 Capital Program
Line Structures
Bridge Openings
(Design-Build)

Ellison Avenue Bridge

Prior to Construction

New Bridge Opened on
April 15, 2016

Colonial Road Bridge

Prior to Construction

New Bridge Opened on
May 12, 2016
Post Ave Bridge Replacement
(Design-Build)

STATUS/SCHEDULE:
• Prelim Design was Completed in Feb 2016
• Start Construction 1st Quarter 2017
• Construction Completion 2nd Quarter 2018

BUDGET: $17M
Preliminary Design - Buckram Road Bridge Replacement
(Design-Build)

Preliminary Design Completion in June 2016
Start Construction 1st Quarter 2017
Construction Completion 3rd Quarter 2018

BUDGET: $23M

2015-2019 Capital Program

Existing 2 Span Bridge Structure

Option for Single Span Bridge Structure
Passenger Stations
Wantagh Station Platform Replacement

**Status/Schedule:**
- Notice of Award March 2016
- Final Completion January 2018

**Budget:** $24M

Deteriorated Platform Substructure

Deteriorated & Spalled Concrete Platform
Hicksville Station Improvements

Status/Schedule
- Design Completed in July 2015
- Construction Start: 2nd Quarter 2016
- Construction Completion: 2nd Quarter 2018

Budget: $69M
Nostrand Avenue Station Rehabilitation

2015-2019 Capital Program

Status/Schedule
• Construction Award 4th Quarter 2016
• Construction Completion 1st Quarter 2019

Budget: $21M
Study & Conceptual Design
Stations Enhancement Project

Status/Schedule
- Design Award Forecast: June 2016
- Construction Award Forecast: 2nd Quarter 2017

Budget: $25M

2015-2019 Capital Program
Shops and Yards
Mid-Suffolk Yard
(Design-Build)

**Status/Schedule**

- Preliminary Design Completion: June 2016
- Design-Build Contract Award: 1st Quarter 2017
- Construction Completion: 3rd Quarter 2019
Morris Park Locomotive Shop and Employee Facility (Design-Build)

New Locomotive Shop and Employee Facility (conceptual rendering)

Status/Schedule
• Preliminary Design Completion July 2016
• Design/Build Contract Award 1st Quarter 2017
• Construction Completion 3rd Quarter 2019

Budget: $108M

Construction in 2015-2019 Capital Program

Existing Round House Repair Facility
Track
Jamaica Capacity Improvements - Phase I

Status/Schedule
Johnson Yard Reconfiguration (Design-Build)
- Yard Reconfiguration - COMPLETED – April 2016

South Bypass Track
- LIRR Force Account Construction
  South Bypass under Construction
  Work Started – Feb 2016
  Forecast Completion (including cutover) – Sep 2016

Platform F Construction
- Award Jul 2016 F
- Completion 2nd Quarter 2019 F

Universal Crossovers to facilitate Phase 2
- Union, Metropolitan, and Beaver Crossovers
- Forecast Completion 3rd Quarter 2020

Phase I Budget: $302M
Main Line Double Track Project

Phase I - West of Central Islip to Ronkonkoma

Status/Schedule

- Substantial Completion of Civil and Site Work
  May 2016

- Track and Systems Installation
  Aug 2015 (Actual) – Dec 2017

Budget: $138M

New Retaining Wall Construction

New Switch Installations

New Mechanized Track Installation
Double Track Project Phase II

Phase II - Farmingdale to West of Central Islip

**Status/Schedule**
- Award of Phase 2 Civil and Site Work
  June 2016
- Award of Phase 1 & 2 Signal Equipment
  July 2016
- Project Completion (under review)

**Budget:** $250M
The Risk Assessment for Main Line Double Track Phase 2 identified significant cost/schedule risks, and recommended that LIRR seek mitigation opportunities. Below are the most significant risks identified in Golder Associates’ Report dated April 22, 2016:

- Lead time for delivery of signal equipment
- Coordination of utility pole relocation
- Delays to the early civil/site work
- Track settlement resulting from temporary support of excavation
- Potential need to upgrade power transformers for wayside equipment
Signals and Communications
Babylon Interlocking Renewal

Status/Schedule

• Design Start 1st Quarter 2017
• Design Completion 1st Quarter 2018
• Construction Completion 4th Quarter 2020

BUDGET: $52M

2015-2019 Capital Program
Power Substation Replacements

Meadowbrook, Bellmore, Ocean Ave
- Design Start: 2nd Quarter 2016
- Construction Start: 3rd Quarter 2017

Queens Breaker, Murray Hill
- Design Start: 2nd Quarter 2017
- Construction Start: 3rd Quarter 2018

Jamaica
- Design Start: 2nd Quarter 2017
- Construction Start: 3rd Quarter 2019

Budget: $81M

2015-2019 Capital Program
# Power Systems – Component Replacement

## Power System Replacement Scope

<table>
<thead>
<tr>
<th>Asset</th>
<th>Quantity (Approved Scope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Rail Cable</td>
<td>8500 LF</td>
</tr>
<tr>
<td>3rd Rail Disconnect Switches</td>
<td>85 EA</td>
</tr>
<tr>
<td>3rd Rail Protection Board</td>
<td>400,000 LF</td>
</tr>
<tr>
<td>3rd Rail Composite Rail</td>
<td>90,000 LF</td>
</tr>
<tr>
<td>3rd Rail Feeder Cable Upgrade</td>
<td>16,000 LF</td>
</tr>
<tr>
<td>Negative Reactor Upgrade</td>
<td>20 EA</td>
</tr>
<tr>
<td>Substation Battery Replacement</td>
<td>6 EA</td>
</tr>
<tr>
<td>Signal Power Motor Generator Replacement</td>
<td>6 EA</td>
</tr>
<tr>
<td>DC Relay Controls Replacement</td>
<td>18 EA</td>
</tr>
<tr>
<td>Signal Power Line Replacement</td>
<td>5 EA</td>
</tr>
<tr>
<td>Power Pole Replacement</td>
<td>99 EA</td>
</tr>
<tr>
<td>4,160 Volt Feeders</td>
<td>4 EA</td>
</tr>
<tr>
<td>Atlantic Avenue Tunnel Lighting</td>
<td>See Note</td>
</tr>
</tbody>
</table>

### Power Substation Component Replacement Scope

<table>
<thead>
<tr>
<th>Asset</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Generator</td>
<td>2</td>
</tr>
<tr>
<td>Structural Repairs</td>
<td>16</td>
</tr>
<tr>
<td>Substation Painting and Transformer Coating</td>
<td>9</td>
</tr>
<tr>
<td>Roof Replacement</td>
<td>9</td>
</tr>
<tr>
<td>Transformer Replacement</td>
<td>29</td>
</tr>
<tr>
<td>Breaker Replacement</td>
<td>3</td>
</tr>
<tr>
<td>RTU Replacement</td>
<td>92</td>
</tr>
<tr>
<td>Ballast Replacement</td>
<td>120</td>
</tr>
</tbody>
</table>

Note 1: The project includes the removal/replacement of lighting and associated hardware in two sections of the tunnel: Ralph Ave to East New York and East New York to Dunton.
Annual Track Program  
Cyclical Track Renewal  

2015-2019 Capital Program  

<table>
<thead>
<tr>
<th>ELEMENTS OF WORK</th>
<th>2016 Goal</th>
<th>2016 Actual as of 4/30/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood Ties (ea)</td>
<td>15,340</td>
<td>4,297</td>
</tr>
<tr>
<td>Concrete Ties (ea)</td>
<td>17,000</td>
<td>12,698</td>
</tr>
<tr>
<td>Grade Crossing Renewal (ea)</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Switch Replacement (ea)</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Continuous Welded Rail (CWR) (ft)</td>
<td>89,160</td>
<td>51,288</td>
</tr>
<tr>
<td>Surfacing (miles)</td>
<td>72</td>
<td>22.7</td>
</tr>
<tr>
<td>Field Welds (ea)</td>
<td>800</td>
<td>233</td>
</tr>
<tr>
<td>Surface Interlocking Switches</td>
<td>44</td>
<td>13</td>
</tr>
</tbody>
</table>

Budget: $60M
Communications Component Replacement

The purpose of this project is to replace the deteriorated line poles (total 575 poles, 115 per year at current funding) and applicable hardware at various locations along the railroad Right of Way (ROW). These poles carry the cable lines providing services to the LIRR Communication System including: fiber optic cable (data, telephone, CCTV), Signal cabling & supervisory, and Substation control lines.

Budget: $7.7M
The Risk Assessment for Main Line Double Track Phase 2 identified significant cost/schedule risks, and recommended that LIRR seek mitigation opportunities.

For each of the most significant risks identified in the RA Report, the LIRR will be implementing the corresponding Mitigation Strategies list below:

• **Long Lead Time for Delivery of Signal Equipment**: As part of the procurement process, the LIRR has requested that the vendor meet a very aggressive delivery schedule. The delivery dates being requested are expected to significantly improve the project completion date. This will be accomplished by using a standardized design approach to the extent possible, to reduce the design time and enable the early release of signal huts and cases for fabrication.

• **Coordination of Utility Pole Relocation**: Based on the design documents the number of pole relocations are minimal compared to Phase 1 construction. Also, LIRR is committed to having the Force Account resources available when needed to support the pole removals and installations.

• **Delays to the early Civil/Site work**: During procurement process, the Civil/Site Work completion date will be accelerated to support the early track infrastructure and systems installation work.

• **Temporary Support of Excavation**: Track settlement encountered during Phase I while driving sheeting has been mitigated. A monitoring systems will be put in place to minimize occurrence, and the Contractor will be using specialized Hi-Frequency equipment when installing sheeting to minimize potential movement.

• **Required Transformer Upgrades**: Load study associated with additional switch machines will be conducted to analyze if transformer upgrade is necessary for Phase 2. If required, early coordination with LIRR Departments will help mitigate risk.
Project Description

The LIRR Main Line Double Track Phase 2 Project consists of the design and construction of a new track parallel to the existing single track for approximately 7.4 miles between Farmingdale and Central Islip on the Main Line. The civil work will be performed by a third party design build contractor, and the installation of track, switches, third rail and signals to be performed by LIRR force account labor. The project scope also includes new station platforms at Wyandanch and Pinelawn. Phase 2, consist of Segments 2 and 3, and will include all remaining track and station work. Segment 2 is 1.3 miles long. Segment 3 is 6.1 miles long plus a single crossover ¾ miles further west in the vicinity of Farmingdale Station. Phase two is projected to be constructed starting in the year 2016. The design for the Segment 2 and 3 civil contracts are being completed, and the third party construction contracts are scheduled to be awarded in the second quarter of 2016, pending funding approval.

Risk Assessment Findings

Based upon simulation results at the 80% Confidence Level, the Risk Informed project duration adds 8 months to the baseline schedule duration. Long Island Rail Road has identified mitigation measures and will manage to the schedule. The Risk Informed estimate results at the 80% Confidence Level of the total project cost is $256 million. The project budget totals $250 million which falls below the Risk Informed Cost.

Risk Informed Cost and Schedule Results

<table>
<thead>
<tr>
<th>Top Cost Risks (Cost Sensitivity)</th>
<th>Top Schedule Risks (Duration Sensitivity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$M</td>
<td>Days</td>
</tr>
<tr>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>7.5</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>50</td>
</tr>
<tr>
<td>8.5</td>
<td>75</td>
</tr>
<tr>
<td>9</td>
<td>100</td>
</tr>
<tr>
<td>9.5</td>
<td></td>
</tr>
</tbody>
</table>

- Construction Extended Overhead
- Total DB Station Direct Cost
- Temp Excavation Support
- Wyandanch Overpass and Elevator

- Delay Delivery of Signal Equipment
- Transformer Upgrades Required
- Weather Delays
- Utility Pole Relocation
<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigation Measure</th>
<th>Resources Required</th>
<th>Time Frame for Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delay in Delivery of Signal Equipment</td>
<td>As part of the procurement process, the LIRR has requested vendors' proposals be based on an accelerated delivery schedule. The delivery dates being requested are expected to significantly improve the project completion date. This will be accomplished by streamlining the design approach to the extent possible, enabling the early release of signal huts and cases for fabrication.</td>
<td>Procurement and project management staff</td>
<td>Award of the signal contract (June-July 2016)</td>
</tr>
<tr>
<td>Transformer upgrades required</td>
<td>Load study associated with additional switch machines will be conducted to analyze if transformer upgrade is necessary for Phase 2. If required, early coordination with LIRR Departments will help mitigate risk.</td>
<td>LIRR consultant, project management and support departments</td>
<td>January 2017, prior to phase 2 system installation</td>
</tr>
<tr>
<td>Weather Delays</td>
<td>As part of the contract documents, the contractor is required to monitor schedule and provide recovery/work-around plans to maintain schedule. Temperature restrictions included in contract for installation/removal of sheeting.</td>
<td>Contractor and Force Account resources</td>
<td>Project Duration</td>
</tr>
<tr>
<td>Coordination of Utility Pole Relocation</td>
<td>Based on the design documents the number of pole relocations are minimal compared to Phase 1 construction. Also, LIRR is committed to having the Force Account resources available when needed to support the pole removals and installations.</td>
<td>Force Account resources</td>
<td>December 2016</td>
</tr>
</tbody>
</table>
# Summary of Major Cost and Schedule Risks & Mitigations

<table>
<thead>
<tr>
<th>Risks</th>
<th>Mitigation Measure</th>
<th>Resources Required</th>
<th>Time Frame for Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Top Cost Risks</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Delays to the early Civil/Site work</td>
<td>The Design-Build RFP for the early Civil/Site Work will include incentives for contractors’ accelerated completion of work, which will permit the early start of track infrastructure and systems installation work.</td>
<td>Contractor and LIRR project management</td>
<td>June 2016</td>
</tr>
<tr>
<td>Temporary Excavation Support (Sheet Pile)</td>
<td>Track settlement encountered during Phase I while driving sheeting has been mitigated. A monitoring systems will be put in place to minimize occurrence, and the Contractor will be using specialized Hi-Frequency equipment when installing sheeting to minimize potential.</td>
<td>Contractor and LIRR project management</td>
<td>Project Duration</td>
</tr>
<tr>
<td>DB Station Direct Cost</td>
<td>During preliminary engineering, LIRR and consultant will evaluate the access/egress requirements for the new Wyandanch Station platform. Should a pedestrian overpass need to be considered, it will be included as an option in the platform design-build contract scope of work.</td>
<td>LIRR project management</td>
<td>Preliminary Engineering Phase (August 2016 – May 2017)</td>
</tr>
</tbody>
</table>
May 2016 CPOC
IEC Project Review

Jamaica Capacity Improvements – Phase I

May 23, 2016
Schedule & Budget Review

Jamaica Capacity Improvements (JCI) – Phase I

- **Schedule:** The JCI – Phase I project is scheduled to be completed prior to the target date for ESA opening day service.
  - The Johnson Yard design/build project reached substantial completion on April 20, 2016, as scheduled.
  - The bid date for the Platform F construction contract was postponed to the end of May 2016 due to contractor requests for additional time to develop their bids.

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

The IEC concurs with the progress reported by the LIRR.
IEC Observations

To date, the IEC is satisfied with the agency’s continuous risk mitigation efforts. Some recent examples are as follows:

- **Working In the Vicinity of Active Tracks**: LIRR has included strict contract provisions for separating work areas, using flagging and track foul time during crane operations and/or taking tracks out of service.

- **Coordination Between 3rd Party Contractor and Force Account Crews**: Work scope is clearly delineated within stages. Coordination meetings are being scheduled frequently.
MAY 2016 CPOC
IEC Project Review
♦
Main Line Double Track

May 23, 2016
Schedule Review

• The IEC concurs with the LIRR’s explanation of the project schedule delays.

• In the opinion of the IEC the agency is taking appropriate steps to mitigate schedule delays.
Budget Review

• The expenditures to date reflect the correct percentage of project completion.

• The IEC awaits the LIRR’s revised project cost estimate, in order to review the potential impact of various project delays on the total project budget and contingency.

• In the opinion of the IEC, changes to the project schedule may significantly impact the project contingency.
Risk

• The IEC facilitated and participated in a risk assessment workshop with the LIRR for the Main Line Double Track Phase 2, on March 16 and 17, 2016, to identify the project risks and opportunities.

• Preliminary results show that in order to meet schedule goals stated by the LIRR, the agency will need to negotiate expedited delivery of systems equipment. This has the potential to increase project cost and add schedule risks. As a result, the project budget may need to be increased.
IEC Recommendations

- The IEC recommends that the agency establishes interim contractual milestones for the remaining third party contracts, and concentrates on monitoring the status of intermediate inspection and acceptance dates to gauge Force Account performance and to mitigate project risks and issues.

This would allow the PM team to sequence the project schedule and mitigate delays in a more efficient manner.
Capital Program Oversight Committee

MTA Metro-North Railroad
Capital Program Highlights

May 2016
2010 – 2014 Capital Program = $1.5B

- Rolling Stock, 15.9%
- Shops and Yards, 19.6%
- Communication and Signals, 17.7%
- Structures, 5.0%
- West of Hudson Infrastructure, 3.1%
- Power, 6.8%
- Track, 11.5%
- Grand Central Terminal, 6.0%
- Outlying Stations/Parking, 9.5%
- Miscellaneous, 4.9%

2015 – 2019 Capital Program = $2.3B

- Rolling Stock, 22.9%
- Shops and Yards, 20.3%
- Communications and Signals, 8.3%
- West of Hudson Infrastructure, 2.9%
- Structures, 6.5%
- Track, 10.3%
- Grand Central Terminal, 9.0%
- Outlying Stations/Parking, 8.3%
2016 Commitment Performance
Actual Through April 30, 2016

Performance
Value $ million

Annual Plan
YTD Actual

$414.5*
$27.2
$7.0

$450.0
$400.0
$350.0
$300.0
$250.0
$200.0
$150.0
$100.0
$50.0
$0.0

MTA Metro-North Railroad

*Includes $16.2M from 2015 carryovers

†Includes 9 projects from 2015 carryovers
## Major Planned 2016 Commitments

<table>
<thead>
<tr>
<th>Projects</th>
<th>($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive Train Control</td>
<td>$102.3</td>
</tr>
<tr>
<td>GCT PA /VIS Head End, Big Boards and Displays</td>
<td>$21.9</td>
</tr>
<tr>
<td>Customer Communications – Outlying Stations</td>
<td>$28.5</td>
</tr>
<tr>
<td>2016 Cyclical Track Program</td>
<td>$22.0</td>
</tr>
<tr>
<td>Harlem &amp; Hudson Power Rehabilitation</td>
<td>$15.0</td>
</tr>
<tr>
<td>Rock Slope Remediation (West of Hudson)</td>
<td>$15.0</td>
</tr>
<tr>
<td>Rock Slope Remediation (East of Hudson)</td>
<td>$14.7</td>
</tr>
<tr>
<td>GCT Train Shed/Tunnel Structure</td>
<td>$13.2</td>
</tr>
<tr>
<td>Undergrade Bridge Rehabilitation</td>
<td>$13.0</td>
</tr>
<tr>
<td>Turnouts – Mainline/High Speed</td>
<td>$12.5</td>
</tr>
<tr>
<td>MoW Equipment Purchase</td>
<td>$10.1</td>
</tr>
</tbody>
</table>
2016 Completions Performance
Actual Through April 30, 2016

- Performance Value $ million
  - Annual Plan: $139.1*
  - YTD Actual:
    - MNR: $5.1
    - Sandy: $0.0

- Performance # of Projects
  - Annual Plan: 16†
  - YTD Actual:
    - MNR: 1
    - Sandy: 0

*Includes $41.6M from 2015 carryovers
†Includes 7 projects from 2015 carryovers
## Major Planned 2016 Completions

<table>
<thead>
<tr>
<th>Projects</th>
<th>($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014 Cyclical Track Program (completed)</td>
<td>$13.6</td>
</tr>
<tr>
<td>Fordham Station Improvements</td>
<td>$15.1</td>
</tr>
<tr>
<td>GCT Leaks Remediation Phase II</td>
<td>$18.6</td>
</tr>
<tr>
<td>Signal System Replacement – New Haven Line</td>
<td>$38.7</td>
</tr>
</tbody>
</table>
# Fordham Station

**In-Bound and Out-Bound Platforms Canopies**

**Platform Canopy installation in-progress on Outbound Platform 80% Complete**

<table>
<thead>
<tr>
<th>Budget</th>
<th>$ 20 M</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scope</strong></td>
<td>This station improvement project will increase safety and enhance customer experience, with upgrade to the platforms, improved access points (ADA accessible Ramp/Sidewalk) and passenger amenities</td>
</tr>
</tbody>
</table>
|  | • New tactile warning strip  
|  | • Enclosed heating shelters, Benches  
|  | • New lighting, PA system, Signage, Information Monitor |
| **Forecasted Completion Date** | June 2016 |
| **Project Status** | On-time and within budget |

MTA Metro-North Railroad
# GCT Leaks Remediaion

| Demolition of deteriorated structural steel due to leaks at 42nd Street and Vanderbilt Avenue | Restored structural steel at 42nd Street and Vanderbilt Avenue | Paved Vanderbilt Avenue |

## Budget
$32 M (MTA $19 M + NYCDOT $13 M)

## Scope
The repairs will greatly reduce water infiltration from surrounding areas and improve the 100-year old waterproofing system.

The five elements of the project are:

- Park Avenue Viaduct
- Vanderbilt Avenue and sidewalks
- 42nd Street sidewalk and curb lane
- Vanderbilt Avenue, 42nd to 45th Street traffic light foundations and pedestrian ramps
- NYCDOT Bridges spanning 45th Street

## Forecasted Completion Date
December 2016

## Project Status
On-time and within budget

MTA Metro-North Railroad
# Signal System Replacement
## New Haven Line

<table>
<thead>
<tr>
<th>Budget</th>
<th>$ 39 M</th>
</tr>
</thead>
</table>
| **Scope** | Design and construct a new communications and signal system for the New York State portion of the New Haven Line (extending approximately three miles into Connecticut). This project begins to replace the oldest signal system on the railroad and will optimize block spacing to improve capacities and trip time on this section of the New Haven Line.  

The section between CP-217 and CP-223 (New Rochelle to Rye) was placed into service in November 2015.  

The final cutover for the section between CP-223 to CP 229 (Rye, NY to Greenwich, CT) is scheduled for June 2016. |
| **Forecasted Completion Date** | December 2016 |
| **Project Status** | On-time and within budget |

MTA Metro-North Railroad
## GCT Train Shed

**Prior condition of a structural steel member as a result of water seepage**

**Repaired structural steel member**

<table>
<thead>
<tr>
<th>Budget</th>
<th>$25 M</th>
</tr>
</thead>
</table>
| **Scope** | Repairs in the train shed, including repairs to roof structure (including sidewalks), expansion joints located in the roof above, column, portion of platform on Track 101 and repairs to ceiling over the M42 substation.  
  - Shop drawing submittals and review are ongoing.  
  - Deleading of steel and fabrication and delivery of new steel are ongoing.  
  - Steel repairs are progressing, with the repairs and final coat of paint completed in many of the areas. |
| **Forecasted Completion Date** | February 2017 |
| **Project Status** | On-time and within budget |

MTA Metro-North Railroad
Major Project
Superstorm Sandy Restoration/Resiliency
Superstorm Sandy Restoration Projects

C&S/Power Restoration Phase I, from Greystone (CP19) to Croton-Harmon (CP35) - $164.1M

Substation Upgrades (Croton-Harmon, Tarrytown, Riverdale) - $43.8M

C&S/Power Restoration Phase II, from Greystone (CP19) to the Bronx (CP5) - $136.8M

MTA Metro-North Railroad

Key:
- Rail Station
- Wheelchair or ADA Accessible station
- Connecting rail service

© 2011 Metropolitan Transportation Authority
Design-Build

30 Mile Hudson Line Power and C&S Infrastructure Restoration (Phase I + Phase II): $301 M

Awarded Design-Build Phase I: 05/2015
Completion: 06/2017

Option: Design-Build Phase II – Anticipated to commence 2Q of 2017
Completion: July, 2019

Status

- Excavation/installation of power, communication, & signal trough (approximately 95% complete on track 4 side)

- Elevated platforms to house critical equipment (located near the Ossining Station):
  - Steel fabrication underway.
  - 3 out of 6 footings complete near track 4

- Track 3 outage is anticipated to commence in July 2016

- Overall the Design-Builder’s schedule depicts a two(2) month delay in project completion date. Design-Builder continues to look for ways to mitigate delays and recover schedule.

- Project currently on budget.

MTA Metro-North Railroad
Sandy Hudson Line Restoration
Design-Build

Concrete Placement for Duct Banks

Signal Power Conduit / Manhole installed

C&S Trough installation

MTA Metro-North Railroad
**Sandy Hudson Line Restoration: Replace 3 Hudson Line Substations: $44 M**

**DC Substation Award: 12/2014**
**Completion: 12/2016**

**Riverdale**
- Substation elevated vault foundation and conduit installation are complete.
- Factory acceptance tests for the electrical equipment are underway with final testing anticipated in June 2016.
- Delivery of the prefabricated substation and electrical equipment is anticipated in July 2016.

**Tarrytown**
- Substation elevated vault foundation and conduit installation are complete.
- Factory acceptance tests for the electrical equipment are underway with final testing anticipated in June 2016.
- Delivery of the prefabricated substation and electrical equipment is anticipated in August 2016.

**Croton-Harmon**
- Substation elevated vault foundation and conduit installation are complete.
- Fabrication of the substation and its associated electrical equipment is underway.
- Delivery of the prefabricated substation and electrical equipment is anticipated in September 2016.

**Final wiring, testing and commissioning for three substations to be completed by December 2016.**
Tarrytown Substation A-25

Elevated vault foundation for new A-25 Tarrytown substation

Positive cable pulls to track 4
Riverdale Substation A-13

Elevated vault foundation for new A-13 Riverdale Substation

Foundation for new crew quarters adjacent to A-13 Riverdale Substation

MTA Metro-North Railroad
Harmon Substation A-33

Elevated vault foundation for new A-33 Harmon Substation

Foundation footings for new elevated platform adjacent to track 3

MTA Metro-North Railroad
Major Project
Harmon Shop Replacement
## Design-Build

**Scope: Phase V - Stages I and II**

### Stage I-1:
- **Facility**: Consist Shop Facility
- **Complete**: January 2018
- **Major Areas**:
  - Two Ten-Car Consist Tracks
  - Working Storeroom
  - Lockers, Lunch Room

### Stage I-2:
- **Facility**: EMU Annex
- **Program**: 2010-14 (Concurrent w/I-1)
- **Complete**: January 2018
- **Major Areas**:
  - Wheel and Axle Shop
  - Machine, Carpentry, Sheet Metal, Tread Brake, Armature Shops, Plant Maint., Air Room, Compressor Repair
  - Lockers, Lunch Room

### Stage II:
- **Facility**: EMU Running Repair and Support Shops
- **Program**: 2015-19
- **Complete**: 2nd Quarter 2022
- **Major Areas**:
  - Ten Vehicle Repair Bays
  - Truck, HVAC, Toilet Repair, Battery and Paint Shops, Clean Room
  - Storeroom
  - Training Department, Office Spaces

---

MTA Metro-North Railroad
Design-Build
Phase V - Stage I
Project Budget and Schedule

### Current Budget

| Total Project (including soft costs) | $315,590,606 |

### Current Schedule

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Award</th>
<th>Complete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design-Build Phase V, Stage I</td>
<td>12/30/14</td>
<td>01/15/18</td>
</tr>
<tr>
<td>• Final Design</td>
<td>1/1/15</td>
<td>03/01/16</td>
</tr>
<tr>
<td>• Construction</td>
<td>4/1/15</td>
<td>01/15/18</td>
</tr>
</tbody>
</table>
Design-Build
Croton-Harmon
Phase V – Stage I

Status

- Foundation for Consist Shop Facility and EMU Annex are underway
- Structural steel for EMU Annex anticipated by May 2016
- Structural steel for Consist Shop Facility anticipated by September 2016
- Project is on budget and on schedule for completion in January 2018
Phase V - Stage I Progress Photos

Consist Shop facility concrete floor slabs, excavations and installation of electrical duct banks, water and storm drains utilities.

Installation of compacted aggregate piers for the Consist Shop foundations at north end.

Installation of formwork, rebar and foundations at the EMU (Electric Multiple Unit) Annex.

Excavation and installation of medium voltage (13.2Kv) and communication duct banks and manholes.
Upcoming Projects
Design-Build

Enhanced Stations
GCT PA / VIS Head End, Big Boards and Displays
Customer Communications – Outlying Stations
Mount Vernon Overhead Bridge at 14th Ave
Croton-Harmon Main Shop Replacement, Phase V, Stage II
A Best Practices Design Consultant is being sought to advise on industry best practices as a means to enhance the aesthetic and amenities of the stations, passenger’s experience, and improve stations through design innovation and excellence, all with minimal disruptions to customers.

Architectural enhancements such as: artistic lighting and lighting of historic stations as well as other type of enhancement opportunities will be explored as part of this effort.

By year’s end it is anticipated that a design–build contract will be awarded to implement the enhancements.

These improvements will be coordinated with the phased Customer Communications project which will deploy customer information technology providing real-time train information.

<table>
<thead>
<tr>
<th>Forecasted Award Year</th>
<th>Project Budget ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q4 2016</td>
<td>$16.5</td>
</tr>
</tbody>
</table>
Design-Build
GCT PA / VIS Head End, Big Boards and Displays

**Existing**

**Proposed**

**Hudson Line Departures**

<table>
<thead>
<tr>
<th>TIME</th>
<th>TRACK</th>
<th>DESTINATION</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:51</td>
<td>15</td>
<td>Poughkeepsie</td>
<td>Tarrytown – 1st Stop</td>
</tr>
<tr>
<td>1:43</td>
<td>38</td>
<td>Croton-Harmon</td>
<td>Marble Hill – 1st Stop</td>
</tr>
<tr>
<td>2:20</td>
<td>114</td>
<td>Croton-Harmon</td>
<td>Yankees – E 153rd St – 1st Stop</td>
</tr>
<tr>
<td>2:43</td>
<td>34</td>
<td>Poughkeepsie</td>
<td>Tarrytown – 1st Stop</td>
</tr>
<tr>
<td>2:51</td>
<td>40</td>
<td>Poughkeepsie</td>
<td>Tarrytown – 1st Stop</td>
</tr>
<tr>
<td>3:00</td>
<td>16</td>
<td>Croton-Harmon</td>
<td>Marble Hill – 1st Stop</td>
</tr>
</tbody>
</table>

**Big Board Departure Board in the Main Concourse**

**Gateboard**

MTA Metro-North Railroad
Design-Build

GCT PA / VIS Head End, Big Boards and Displays

Existing

Proposed

Arrival/Departure Board in Historic Enclosure

<table>
<thead>
<tr>
<th>Forecasted Award Year</th>
<th>Project Budget ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q1 2017</td>
<td>$45</td>
</tr>
</tbody>
</table>

MTA Metro-North Railroad
Customer Communications project includes work to deploy the latest customer information technology and provide real-time information through departure boards and announcements.

The work will be split into various packages, grouped by stations.

<table>
<thead>
<tr>
<th>Forecasted Award Year</th>
<th>Project Budget ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>$60</td>
</tr>
</tbody>
</table>
Design-Build  
Mount Vernon Overhead Bridge at 14th Ave

| 14th Ave – City of Mt. Vernon |  
|-----------------------------|---|
| **Forecasted Award Year**   | **Project Budget ($ millions)** |
| Q1 2017                     | $6  |

MTA Metro-North Railroad
Design Build
Croton-Harmon Main Shop Replacement
Phase V - Stage II

<table>
<thead>
<tr>
<th>Forecasted Award Year</th>
<th>Project Budget ($ millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2018</td>
<td>$430</td>
</tr>
</tbody>
</table>
May 2016 CPOC
IEC Project Review

Harmon Consist Shop Replacement
Phase V, Stage 1

May 23, 2016
Schedule & Budget Review

Harmon Consist Shop Replacement Phase V-Stage 1

• **Schedule:** Presently the project is 20 workdays behind the baseline substantial completion date of December 14, 2017 due to delays associated with the demolition of the existing building.

• **Budget:** The project is currently within budget. The expenditures to date reflect the actual percentage of project completion.

• In the opinion of the IEC, the remaining project contingency is sufficient to reach substantial completion.

The IEC agrees with the agency’s reporting of schedule and budget.
IEC Findings

• **Schedule:** The project delay resulting from demolition issues had been showing approximately 4 months. Most of that was mitigated by MNR working with the DB contractor to resequence the schedule. The building demolition is now complete and the delay remains at 20 workdays.

• **Schedule Risk:** A major risk to the project is testing and commissioning of equipment and systems. The DB team will submit commissioning procedures beginning this month and extending through 2016. Commissioning activities will start in 2017. There is presently sufficient time for testing and commissioning.

• To date the IEC is satisfied with the agency’s continuous risk mitigation efforts.
Schedule & Budget Review

Hudson Line Sandy Restoration/Resiliency

• **Schedule:** The IEC agrees with MNR that the overall Phase I project is currently delayed by approximately two months.
  – The first continuous track outage (inbound local track) should be completed by the end of May 2016.

• **Budget:** The Phase I project is presently within budget. To date there have been no change orders of note.
IEC Findings

Agency Recovery Efforts

**Schedule:** An earlier contractor’s schedule delay was mitigated by the team to two months in part through working to achieve the necessary trough/duct bank installation production rates.

- MNR and the design/build team continue to look for ways to streamline the work and increase the production rates to recover the two months.
IEC Findings & Recommendations

• **Productivity Rates for Installing the Cable Trough**
  To date the IEC has not observed that the contractor has achieved the production rates planned in the recovery. The IEC will continue to monitor the production rates in future stages.

• **Force Account**
  MNR has provided the number of flaggers per day as outlined in the contract. The contractor has requested additional flaggers to increase productivity. Additional flaggers have not been available thus far.
  
  – The IEC recommends that MNR find a way to provide the contractor with additional flaggers in order to meet the planned production rates.
SAS Status

- On target to meet December 2016 RSD.
- 96th Street Station power distribution completed for systems contract to facilitate Level 3-4 Testing.
- Facility Power energization was achieved at 72nd Street on April 29.
- 72nd Street Station has made significant gains in installation of escalators, elevators and tunnel vent fans this past month.
- Systems contractor has completed installation of all track work. The remaining 400 linear feet of third rail out of the 22,000 linear feet will be completed by end of May.
- Systems contractor has also completed installation of traction power work at 96th Street station.
<table>
<thead>
<tr>
<th>Issue/Milestone</th>
<th>Target Date (as of Mar. 2016 CPOC)</th>
<th>Current Forecast Date</th>
<th>Change Since Last Report</th>
<th>Potential Impact on Revenue Service Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lex. /63rd St Finishes Contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level 3-4 Testing</td>
<td>4/30/2016</td>
<td>5/31/2016</td>
<td>31 days loss of float</td>
<td>Contractor encountered technical issues which delayed water mist testing, revision to stair pressurization procedure, Inergen testing and elevator dispatcher programming. No impact on RSD.</td>
</tr>
<tr>
<td>Issue/Milestone</td>
<td>Target Date (as of Mar. 2016 CPOC)</td>
<td>Current Forecast Date</td>
<td>Change Since Last Report</td>
<td>Potential Impact on Revenue Service Date</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>72nd St Finishes Contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escalator Installation</td>
<td>10/28/2016</td>
<td>10/28/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Elevator Installation</td>
<td>9/1/2016</td>
<td>9/30/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Tunnel Vent Fans Installation</td>
<td>5/31/2016</td>
<td>6/15/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>HVAC Installation</td>
<td>5/31/2016</td>
<td>6/15/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Fire Life Safety Installation</td>
<td></td>
<td>5/31/2016</td>
<td>On Target</td>
<td>This item was not included in the March 2016 CPOC Report, however, the project considers it to be a significant milestone and thereby is including it going forward. Potential delay in delivery of water mist components is expected to erode float up to 31 days. No impact on RSD.</td>
</tr>
<tr>
<td>Level 3-4 Testing</td>
<td>8/31/2016</td>
<td>8/31/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Level 3 to 5 Testing Elevator/Escalator</td>
<td>11/30/2016</td>
<td>11/30/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Issue/Milestone</td>
<td>Target Date (as of Mar. 2016 CPOC)</td>
<td>Current Forecast Date</td>
<td>Change Since Last Report</td>
<td>Potential Impact on Revenue Service Date</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td><strong>86th St Finishes Contract</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent Power Energization</td>
<td>4/30/2016</td>
<td>5/25/2016</td>
<td>25 days loss of float</td>
<td>ConEdison inspections revealed improper electrical relay installation. This required rework of relay installation and thereby delayed completion of ConEdison inspection. No impact on RSD.</td>
</tr>
<tr>
<td>Elevator and Escalator Installation</td>
<td>6/1/2016</td>
<td>6/21/2016</td>
<td>No change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Tunnel Vent Fans Installation</td>
<td>5/31/2016</td>
<td>On Target</td>
<td></td>
<td>These items were not included in the March 2016 CPOC Report, however, the project considers them to be significant milestones and thereby is including them going forward.</td>
</tr>
<tr>
<td>HVAC Installation</td>
<td>5/31/2016</td>
<td>On Target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fire Life Safety Installation</td>
<td>5/31/2016</td>
<td>On Target</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ancillary 1 and 2 Structures</td>
<td>4/30/2016</td>
<td>5/20/2016</td>
<td>20 days loss of float</td>
<td>Ancillary 1 was completed on 5/12/2016. Ancillary 2 will be completed by 5/20/2016. The delay was due to the fact that the contractor enhanced a future activity (dry cooler installations and station emergency control room[SECR]) by delaying completion of the roof concrete, but all the critical work required for HVAC was completed. No impact on RSD.</td>
</tr>
<tr>
<td>Level 3-4 Testing</td>
<td>8/1/2016</td>
<td>8/1/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Issue/Milestone</td>
<td>Target Date (as of Mar. 2016 CPOC)</td>
<td>Current Forecast Date</td>
<td>Change Since Last Report</td>
<td>Potential Impact on Revenue Service Date</td>
</tr>
<tr>
<td>---------------------------------------</td>
<td>------------------------------------</td>
<td>-----------------------</td>
<td>--------------------------</td>
<td>------------------------------------------</td>
</tr>
<tr>
<td>96th St Finishes Contract</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Escalator Installation</td>
<td>5/15/2016</td>
<td>6/30/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Elevator Installation</td>
<td>7/13/2016</td>
<td>7/31/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Tunnel Vent Fans Installation</td>
<td>6/21/2016</td>
<td>5/31/2016</td>
<td>No Change</td>
<td>Contractor will install dampers on 05/27/2016; Termination will take 3 days not a week, because wire coiling will be done concurrently with damper installation.</td>
</tr>
<tr>
<td>HVAC Installation</td>
<td>5/31/2016</td>
<td>5/31/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Fire Life Safety Installation</td>
<td>6/13/2016</td>
<td>5/31/2016</td>
<td>No Change</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Level 3-4 Testing</td>
<td>8/1/2016</td>
<td>8/1/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
</tbody>
</table>
## SAS Issue/Milestone Status

<table>
<thead>
<tr>
<th>Issue/Milestone</th>
<th>Target Date (as of Mar. 2016 CPOC)</th>
<th>Current Forecast Date</th>
<th>Change Since Last Report</th>
<th>Potential Impact on Revenue Service Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Systems Contract</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Systems Installation (Fire Alarm, PA/CIS)</td>
<td>8/31/2016</td>
<td>8/31/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td>Communication Systems Installation (Police Radio)</td>
<td>10/15/2016</td>
<td>10/15/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
<tr>
<td><strong>Traction Power Energization</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Track Work</td>
<td>5/15/2016</td>
<td>4/29/2016 A</td>
<td>Complete</td>
<td>Track work is complete; the remaining 400 linear feet of third rail out of the 22,000 linear feet will be completed by end of May.</td>
</tr>
<tr>
<td>Signal Work</td>
<td>7/18/2016</td>
<td>7/18/2016</td>
<td>On Target</td>
<td>No impact on RSD.</td>
</tr>
</tbody>
</table>
SAS May Update

The IEC observed that 2 of the 4 Target Dates for installations and testing in April were met. The completion of local testing at the Lexington Ave/63rd Street Station suffered a month’s delay. The IEC’s review of current project forecasts for upcoming schedule milestones raised these concerns:

- The forecasts are on-target for about 70% of the upcoming interim tracking milestones identified at the March CPOC meeting.
- There is no improvement in the forecasted elevator and escalator completions at the 72nd Street Station, which remain close to impacting the target RSD.
- The testing schedule for major station equipment has been additionally compressed by the rescheduling of the start of local testing for several systems.
SAS May Update

A review of project reports related to prior IEC concerns revealed:

- The contractor’s work effort at the 72nd Street Station site has improved.

- The backlog of changes without formal direction-to-proceed continues to present a risk to the completion of the testing program.

- Monthly project construction expenditures have increased to $39M in April but increases to an average of $49M are needed to support the schedule to complete all remaining contract work by December 2016.
## Recommendations Log

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Agency Action</th>
<th>Status</th>
</tr>
</thead>
</table>
| **January 2016**  
Complete implementation of an augmented staffing plan for construction management as soon as practical. | The Project’s augmented staffing plan for construction management was satisfied with the addition of seven new hires in April 2016. | COMPLETE |
MTA Capital Program
Commitments & Completions

through
April 30th, 2016
Through April, agencies are reporting on ten major commitments: six were on time, two were early, and two were delayed but have since been committed. NYCT’s PSLAN 188 Stations award (a $50 million actual) and East Side Access’ Grand Central Terminal Caverns award (a $712 million actual) were late, but were committed in March and April, respectively.

Year to date, agencies have committed $1.8 billion versus a $1.9 billion goal. The shortfall versus goal is mainly due to a favorable bid for East Side Access’ Grand Central Terminal Caverns award. By year-end, the MTA forecasts meeting its $6.6 billion goal.
## Capital Projects – Major Commitments – April 2016 – Schedule Variances

<table>
<thead>
<tr>
<th>Project</th>
<th>Commitment</th>
<th>Goal</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2 All-Agency Yellow Commitments (1 new this month)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NYCT</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passenger Station LAN: 188 Stations</td>
<td>Construction Award</td>
<td>Feb-16</td>
<td>Mar-16 (A)</td>
</tr>
<tr>
<td>Award was delayed because of additional time required to secure necessary approvals for budget changes and authorizations to approve the commitment.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MTACC</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Side Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grand Central Terminal Station Caverns &amp; Track (New Item)</td>
<td>Construction Award</td>
<td>Feb-16</td>
<td>Apr-16 (A)</td>
</tr>
<tr>
<td>The delay was due to MTACC finalizing open issues prior to issuing a notice to proceed, which was issued in April. The award value reflects a favorable bid.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Capital Projects – Major Completions – April 2016

Through April, agencies are reporting on seven major completions: three were achieved on time, two were early, and two are delayed. Delays include an East Side Access structures contract and NYCT’s station renewals for the Liberty Line stations.

Two bus procurements have been completed ahead of schedule, offsetting the impact of the delays on the year-to-date completions value. As a result, the MTA has nearly achieved its $585 million year-to-date goal. By year-end, the MTA forecasts meeting or exceeding its $4.6 billion goal.

Budget Analysis

2016 Annual Goal $4,629 ($ in millions)
2016 Forecast 102% of Annual Goal
Forecast left to Complete 88% ($4,153)

Year-to-Date Major Completions

2016 Goals

- New York City Transit
  - 3 GREEN
  - 1 YELLOW
  - +2 GREEN
- Long Island Rail Road
  - ----
- Metro-North Railroad
  - 1 GREEN
  - ----
- Bridges and Tunnels
  - ----
- Capital Construction Company
  - ----
- MTA Bus Company
  - ----
- MTA Police Department
  - ----
<table>
<thead>
<tr>
<th>Project</th>
<th>Completion</th>
<th>Goal</th>
<th>Forecast</th>
</tr>
</thead>
<tbody>
<tr>
<td>NYCT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Renew Five Liberty Line Stations (New Item)</td>
<td>Construction Completion</td>
<td>Apr-16</td>
<td>May-16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$74.7M</td>
<td>$77.7M</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Due to late inspection schedule, substantial completion could not be declared in April, but was declared in early May. Project cost increased due to additional TA Labor services such as GOs, flagging, work trains and inspections required for additional steel work.

<table>
<thead>
<tr>
<th>M TACC</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>East Side Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manhattan South Structures</td>
<td>Construction Completion</td>
<td>Feb-16</td>
<td>May-16</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$249.8M</td>
<td>$249.8M</td>
</tr>
</tbody>
</table>

Slower than anticipated production in underground tunnel work has delayed substantial completion.
Status of MTA Capital Program Funding
Capital Funding (April 30, 2016)

$ in millions

Capital Program

- 2005-2009: $22,667
- 2010-2014: $21,283

Received
Remainder

0%  25%  50%  75%  100%

1982-2004
2005-2009
2010-2014
## Capital Funding Detail (April 30, 2016)

$ in millions

### 2005-2009 Program

<table>
<thead>
<tr>
<th>Funding Plan</th>
<th>Current</th>
<th>Thru March</th>
<th>This month</th>
<th>Received to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Formula and Flexible Funds</td>
<td>$5,186</td>
<td>$5,186</td>
<td>$ -</td>
<td>$5,186</td>
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<tr>
<td>Federal New Start</td>
<td>2,810</td>
<td>2,222</td>
<td>-</td>
<td>2,222</td>
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<tr>
<td>Federal Security</td>
<td>323</td>
<td>262</td>
<td>-</td>
<td>262</td>
</tr>
<tr>
<td>Federal Other</td>
<td>11</td>
<td>11</td>
<td>-</td>
<td>11</td>
</tr>
<tr>
<td>Federal ARRA - Stimulus</td>
<td>654</td>
<td>654</td>
<td>-</td>
<td>654</td>
</tr>
<tr>
<td>City of New York</td>
<td>418</td>
<td>409</td>
<td>-</td>
<td>409</td>
</tr>
<tr>
<td>City #7 Line Extension Funds</td>
<td>2,367</td>
<td>2,204</td>
<td>9</td>
<td>2,213</td>
</tr>
<tr>
<td>MTA Bus Federal and City Match</td>
<td>149</td>
<td>142</td>
<td>-</td>
<td>142</td>
</tr>
<tr>
<td>Asset Sales and Program Income</td>
<td>1,184</td>
<td>563</td>
<td>-</td>
<td>563</td>
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<tr>
<td>State Transportation Bond Act</td>
<td>1,450</td>
<td>1,064</td>
<td>-</td>
<td>1,064</td>
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<tr>
<td>MTA Bonds (Including LGA)</td>
<td>3,039</td>
<td>3,039</td>
<td>-</td>
<td>3,039</td>
</tr>
<tr>
<td>B&amp;T Bonds</td>
<td>1,153</td>
<td>1,153</td>
<td>-</td>
<td>1,153</td>
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<tr>
<td>Bonds from New Sources</td>
<td>5,624</td>
<td>5,624</td>
<td>-</td>
<td>5,624</td>
</tr>
<tr>
<td>Other (Including Operating to Capital)</td>
<td>138</td>
<td>126</td>
<td>-</td>
<td>126</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>24,507</strong></td>
<td><strong>22,659</strong></td>
<td><strong>9</strong></td>
<td><strong>22,667</strong></td>
</tr>
</tbody>
</table>

### 2010-2014 Program

<table>
<thead>
<tr>
<th>Funding Plan</th>
<th>Current</th>
<th>Thru March</th>
<th>This month</th>
<th>Received to date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Formula, Flexible, Misc</td>
<td>$5,839</td>
<td>$5,614</td>
<td>$ -</td>
<td>$5,614</td>
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<tr>
<td>Federal High Speed Rail</td>
<td>295</td>
<td>295</td>
<td>-</td>
<td>295</td>
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<tr>
<td>Federal Security</td>
<td>206</td>
<td>100</td>
<td>-</td>
<td>100</td>
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<tr>
<td>Federal RIFF Loan</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>City Capital Funds</td>
<td>774</td>
<td>575</td>
<td>-</td>
<td>575</td>
</tr>
<tr>
<td>State Assistance</td>
<td>770</td>
<td>150</td>
<td>-</td>
<td>150</td>
</tr>
<tr>
<td>MTA Bus Federal and City Match</td>
<td>132</td>
<td>69</td>
<td>-</td>
<td>69</td>
</tr>
<tr>
<td>MTA Bonds (Payroll Mobility Tax)</td>
<td>12,703</td>
<td>8,424</td>
<td>727</td>
<td>9,150</td>
</tr>
<tr>
<td>Other (Including Operating to Capital)</td>
<td>1,535</td>
<td>642</td>
<td>-</td>
<td>642</td>
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<tr>
<td>B&amp;T Bonds</td>
<td>2,111</td>
<td>1,292</td>
<td>-</td>
<td>1,292</td>
</tr>
<tr>
<td>Hurricane Sandy Recovery</td>
<td></td>
<td></td>
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<tr>
<td>Insurance Proceeds/Federal Reimbursement</td>
<td>9,376</td>
<td>3,177</td>
<td>-</td>
<td>3,177</td>
</tr>
<tr>
<td>PAYGO</td>
<td>160</td>
<td>160</td>
<td>-</td>
<td>160</td>
</tr>
<tr>
<td>Sandy Recovery MTA Bonds</td>
<td>758</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sandy Recovery B&amp;T Bonds</td>
<td>230</td>
<td>59</td>
<td>-</td>
<td>59</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>34,889</strong></td>
<td><strong>20,556</strong></td>
<td><strong>727</strong></td>
<td><strong>21,283</strong></td>
</tr>
</tbody>
</table>