



Metropolitan Transportation Authority

Capital Program Oversight Committee Meeting

April 2015

Committee Members

T. Prendergast, Chair

F. Ferrer

A. Albert

R. Bickford

A. Cappelli

S. Metzger

J. Molloy

M. Pally

A. Saul

J. Sedore

V. Tessitore

I. Weinshall

C. Wortendyke

Capital Program Oversight Committee Meeting

2 Broadway - 20th Floor Board Room

New York, NY 10004

Monday, 4/27/2015

1:15 - 2:15 PM ET

1. PUBLIC COMMENTS PERIOD

2. APPROVAL OF MINUTES - MARCH 23, 2015

- Minutes from March '15 - Page 3

3. COMMITTEE WORK PLAN

- 2015 - 2016 Work Plan - Page 6

4. NYCT CAPITAL PROGRAM UPDATE

- Signals and Train Control Division - Page 8*
- IEC Project Reviews on CBTC Flushing Line & CBTC Culver Line Test Facility - Page 24*
- Integrated Service Information & Management (ISIM-B) - Page 28*
- Systems and Security Division - Page 36*
- IEC Project Review on VHF Radio - Page 44*
- Update on Track Program - Page 47*

5. CAPITAL PROGRAM STATUS

- Commitments, Completions, and Funding Report - Page 56

6. METRO-NORTH RAILROAD RISK ASSESSMENT

- MNR Risk Assessment - Page 70

Date of next meeting: Monday, May 18, 2015 at 1:45 PM

MINUTES OF MEETING
MTA CAPITAL PROGRAM OVERSIGHT COMMITTEE
March 23, 2015
New York, New York
1:45 P.M.

MTA CPOC members present:

Hon. Thomas Prendergast, Chairman
Hon. Fernando Ferrer
Hon. Andrew Albert
Hon. Susan Metzger
Hon. Mitchell Pally
Hon. James Sedore
Hon. Carl Wortendyke

MTA CPOC members not present:

Hon. Robert Bickford
Hon. Alan Cappelli
Hon. John Molloy
Hon. Andrew Saul
Hon. Vincent Tessitore
Hon. Iris Weinshall

MTA Board members present:

John Ballan
Neal Zuckerman

MTA staff present:

Craig Stewart
Michael Wetherell

MTACC staff present:

Tony D'Amico
Bill Goodrich
Anil Parikh

Independent Engineering Consultant staff present:

Joe DeVitto
Kurt Egger
Kent Haggas
Darlene Rivera

* * *

Chairman Prendergast called the March 23, 2015 meeting of the Capital Program Oversight Committee to order at 1:30 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 February 23, 2015.

Committee Work Plan

Mr. Stewart announced one minor change to the CPOC Work Plan: due to the on-going discussions concerning the Cortlandt Street Station, this presentation will be deferred to the June CPOC meeting.

MTACC Report on 7-Line Extension

Mr. D'Amico reported that all parties are working diligently on a number of fronts to complete testing and commissioning activities by the end of the 2nd Quarter 2015. However, due to the tightness of that schedule, which includes only 2 weeks of float, and the uncertainties associated with foundation drilling and caisson sinking by the Site J developer, it is very likely that the opening of the station will not occur until several weeks following the 2nd Quarter 2015. In its Project Review, the IEC stated that given the risks identified by MTACC and the inherent risks of integrated systems testing and resolution of code compliance/safety & security requirements, MTACC's schedule may not be adequate. In addition, the IEC agrees with MTACC that the challenges to citing a revenue service date include potential delays associated with Site J developer work. The IEC then cited its recommendation that MTACC prioritize the process of formalizing and packaging a state certification plan for the project, which MTACC has, in fact, begun and which the IEC will continue to monitor and verify. 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 Report on Second Avenue Subway

Mr. Parikh reported that the project continues to be on schedule to meet the December 2016 revenue service date, and that the project is on budget. In its Project Review, the IEC reported that the project's schedule indicates that schedule contingency is minimal and more schedule mitigation needs to be realized. The IEC then recommended that MTACC take the following steps to improve confidence in the projected revenue service date: establish interim milestones for the new track work production schedule so that progress can be monitored quarterly; and develop and execute schedule acceleration plans for the remaining work at the 86th Street Station site. 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 Report on East Side Access

Mr. Goodrich reported that the project is on schedule for a December 2022 revenue service date and that the project remains within its \$10.178 billion budget. In its Project Review, the IEC confirmed MTACC's budget and schedule figures. The IEC then expressed concern that the North Manhattan Structures contract is behind the approved recovery schedule, and that sequencing and durations for integrated systems testing for Systems Package 1 are inadequate. With respect to Harold, the IEC stated that the "ESA First" schedule allows an earlier completion of work based on a number of assumptions, including repackaging of future Harold civil contracts, additional money for escalation costs, extension of the FRA Grant beyond 2017, and vetting by LIRR and Amtrak Operations. Also, the recently revised signal hut cutover plan needs to be closely coordinated with the "ESA First" schedule. 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 2015 agencies plan to commit a total of \$3.1 billion dollars, including 34 major commitments that will be tracked throughout the year. Agencies committed a total of \$615 million through February, versus a \$632 million year-to-date goal. With respect to Completions, the agencies plan a total of \$2.6 billion in 2015, including 25 major completions. Agencies completed \$238 million through February, versus a \$291 million year-to-date goal.

Quarterly Traffic Light Report

Mr. Stewart brought the Committee's attention to the Traffic Light Reports for the 4th Quarter 2014 and invited Committee Members' questions, of which there was none.

Quarterly Capital Change Order Report (for information only)

Mr. Stewart brought the Committee's attention to the Quarterly Capital Change Order Report for the 4th Quarter 2014 and invited Committee Members' questions, of which there was none.

Executive Session

Upon motion duly made and seconded, Chairman Prendergast adjourned the public CPOC meeting at 2:10 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 March 23, 2015 meeting of the MTA Capital Program Oversight Committee

Respectfully submitted,
Michael Jew-Geralds
Office of Construction Oversight



2015-2016 CPOC Committee Work Plan

I. Recurring Agenda Items

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

II. Specific Agenda Items

May 2015

B&T Capital Program Update

- Bronx-Whitestone Bridge
- Hugh L. Carey Tunnel
- Queens Midtown Tunnel
- RFK Bridge
- Verrazano-Narrows Bridge

Quarterly LIRR and MNR Positive Train Control (PTC) Update

June 2015

MTACC Capital Program Update

- Cortlandt Street Station
- East Side Access
- No. 7-Line Extension
- Second Avenue Subway

Quarterly Change Order Report

Quarterly Traffic Light Reports

July 2015

NYCT Capital Program Update

- NYCT South Ferry Terminal Complex

NYCT, LIRR, MNR Update on New Fare Payment System

LIRR/MNR Quarterly Positive Train Control (PTC) Update

Update on Minority, Women and Disadvantaged Business Participation

Update on Small Business Development Programs

September 2015

Quarterly MTACC Capital Program Update

Update on Capital Program Security Projects (in Exec Session)

Quarterly Change Order Report

Quarterly Traffic Light Reports

October 2015

NYCT Capital Program Update

November 2015

LIRR and MNR Capital Programs Update

- Quarterly Positive Train Control (PTC) Update

December 2015

Quarterly MTACC Capital Program Update

Quarterly Change Order Report

Quarterly Traffic Light Reports

January 2016

NYCT Capital Program Update

NYCT, LIRR, MNR Update on New Fare Payment System

Update on Minority, Women and Disadvantaged Business Participation

February 2016

B&T Capital Program Update

Quarterly LIRR and MNR Positive Train Control (PTC) Update

March 2016

Quarterly MTACC Capital Program Update

Quarterly Change Order Report

Quarterly Traffic Light Reports

April 2016

NYCT Capital Program Update

Signals and Train Control Division

Nidhish Patel, P.E.
Program Executive

April 2015

Capital Program Oversight Committee



CBTC Flushing Line

- Contractor: Thales Inc.
- Award (S-32723): June 16, 2010
- Project Description: Project will overlay new CBTC system on the Flushing Line between Main St. and the new 34th St. /11th Ave. Terminal. Modernize 1st Ave and Times Square Interlockings and equip fleet with CBTC carborne equipment.

CBTC Flushing Line

Overall Status

Item	Comments
Schedule	Substantial Completion projected to 2 nd Quarter 2017
Cost	Project is within budget of \$550M

Highlights

Progress


- Wayside: 1st Ave Interlocking In-Service completed Nov. 15, 2014
- Wayside: Hunters Point Interlocking In-Service completed Feb. 28, 2015
- CBTC Functional Testing and Dynamic Testing in progress

180 Day Look Ahead




- Carborne: CBTC equipment to be installed using I/H Forces as per schedule
- Wayside: 74th St Interlocking In-Service planned for 4th Quarter 2015
- CBTC shadow mode will commence from Main St to 111th St
- RTO Train Operator training will commence in 2nd Quarter 2015
- Automatic Train Supervision (ATS) system will be tested in 2nd Quarter 2015

CBTC Flushing Line

Critical Milestones and Issues

Status	Activity	Date Needed	Issues
 Yellow	G.O., Work Train, and Flagging Availability	2015 through 2017	Project remains on schedule, with the previously projected date in 2017, pending the availability of track out of services.

Legend

	Red	Significant impacts with potential impacts on Revenue Service Date, Cost, or Customer Benefit Milestones
	Yellow	Impacts which can lead to cost increases or schedule delays on individual milestones or contracts.
	Green	No Near Term Impact for Design, Procurement & Construction. Successful management of major activity to stay on schedule or budget.

Culver Line CBTC Integrated Test Facility

- Contractor: Siemens and Thales Consortium
- Award (S-32748): September 30, 2011
- Project Description: Update and finalize CBTC Interface and Interoperability (I2S) standards; develop two interoperable safety certified CBTC interfaces. Provide Test Track between 7th Avenue Station and Church Avenue Interlocking on B3 Track.

Culver Line CBTC Integrated Test Facility

Overall Status

Item	Comments
Schedule	Substantial Completion planned for July 2015
Cost	Project is within budget of \$100.4M

Highlights

Progress



- Formal ITF demonstration is 90% complete
- Field Installation is complete
- CBTC Field testing is ongoing (CBTC Field Integration for now)
- Final design for Digimove has been approved
- Endurance Testing of Digimove system is ongoing on the Canarsie Line

180 Day Look Ahead




- Complete Interoperability Formal Demonstration on the Culver test track
- Digimove: Start Revenue Service and retrofit of the Canarsie fleet

Culver Line CBTC Integrated Test Facility

Critical Milestones and Issues

Status	Activity	Date Needed	Issues
 Yellow	Complete Interoperability Testing in the field	End of July 2015	Potential delays if issues are discovered during field testing. Contractor will be working extended shifts in the field to mitigate schedule delays.
 Yellow	In-service of Digimove on the Canarsie Line	2 nd Quarter 2015	Under this contract we are replacing the current speed measurement system with a new system which requires very low maintenance and also has a high reliability/availability. Safety Certification and software defects are causing delays. We are working with the Contractor to mitigate delays to the extent possible. Completion is anticipated by mid 2015.

Legend

	Red	Significant impacts with potential impacts on Revenue Service Date, Cost, or Customer Benefit Milestones
	Yellow	Impacts which can lead to cost increases or schedule delays on individual milestones or contracts.
	Green	No Near Term Impact for Design, Procurement & Construction. Successful management of major activity to stay on schedule or budget.

CBTC Equipment Supplier Interoperability

- Contractor: In Procurement
- Award (S-48002): 2nd Quarter 2015
- Project Description: Provide interoperable CBTC system to meet NYCT I2S standards and safety certify the interoperable system.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none">• RFP Advertised on April 18, 2014. Award projected for 2nd Quarter 2015• Proposals received in September 2014• Negotiations are ongoing
Cost	Total Project Estimate is \$40M per additional supplier

Queens Blvd Line CBTC – Design and Furnish

- Contractor: In Procurement
- Award (S-48004): 2nd Quarter 2015
- Project Description: Design and furnish a CBTC interoperable system including ATS from Kew Gardens / Union Turnpike Station (Queens) to 50th Street – 8th Avenue Station (Manhattan).

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none">• RFP Advertised May 29, 2014• Award projected for 2nd Quarter 2015• Proposals received and negotiations are ongoing• Risk Assessment is ongoing. Workshop has been concluded.
Cost	<ul style="list-style-type: none">• Total Project Estimate is \$150M to \$225M (2010 - 2014 Capital Program)

Queens Blvd Line CBTC – Installer

- Contractor: In Design
- Award (S-48005): 1st Quarter 2016
- Project Description: Install, test and place in-service a CBTC interoperable system including ATS from Kew Gardens / Union Turnpike Station (Queens) to 50th Street – 8th Avenue Station (Manhattan).

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none">• Award projected for 1st Quarter 2016
Cost	<ul style="list-style-type: none">• Total Project Estimate is \$250M to \$325M (2015 - 2019 Capital Program)

2 Interlockings: Union Turnpike & 71st Ave, QBL

- Contractor: Five Star Electric
- Award (S-32769): November 28, 2012
- Project Description: This project will modernize and improve the reliability of the Union Turnpike and 71st Avenue Interlockings on the Queens Line. The interlockings are modernized with conventional relay technology.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none"> • 44% complete; Substantial Completion is on schedule for April 2017 • Sandy river-tube work may impact the completion date
Cost	<ul style="list-style-type: none"> • Project is within budget of \$310M

34th Street Interlocking

- Contractor: TC Electric
- Award (S-32764): April 14, 2014
- Project Description: This project will modernize and improve the reliability of the 34th Street Interlocking on the 6th Avenue Line. The interlocking will be modernized with SSI technology.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none"> • 7% complete; Substantial Completion is on schedule for September 2018 • Sandy river-tube work may impact the completion date
Cost	<ul style="list-style-type: none"> • Project is within budget of \$185M

W4th Street Interlocking

- Contractor: TC Electric
- Award (S-32765): July 30, 2014
- Project Description: This project will modernize and improve the reliability of the W.4th St. Interlocking on the 6th Avenue Line. The interlocking will be modernized with SSI technology.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none"> • 4% complete; Substantial Completion is on schedule for September 2018 • Sandy river-tube work may impact the completion date
Cost	<ul style="list-style-type: none"> • Project is within budget of \$174M

Dyre Avenue Line Signals

- Contractor: JTJ Contracting (J Track/TC Electric/Judlau)
- Award (S-32773): April 14, 2013
- Project Description: This project will provide a complete new fixed block system from East 180th Street to Dyre Ave (the Bronx). Install a new Solid State Interlocking (SSI) system at Dyre Ave and Morris Park provided by Invensys (Siemens) and Mitsubishi. SYSTRA is the Independent Safety Assessor (ISA) consultant.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none">• 34% complete; Substantial Completion is on schedule for July 2017
Cost	<ul style="list-style-type: none">• Project is within budget of \$226M

Roosevelt Avenue Interlocking, QBL

- Contractor: Five Star Electric
- Award (S-32749): January 8, 2013
- Project Description: This project will modernize and improve the reliability of the Roosevelt Avenue Interlocking on the Queens Line. The interlocking will be modernized with conventional relay technology.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none">• 51% complete; Substantial Completion is on schedule for December 2016
Cost	<ul style="list-style-type: none">• Project is within budget of \$103M

Church Avenue Interlocking

- Contractor: LK Comstock
- Award (S-32742): June 30, 2010
- Project Description: This project will modernize and improve the reliability of the Church Ave. Interlocking on the Culver Line. This project is coordinated with the 4th Ave Structures and the Culver CBTC Test Track Projects.

Overall Status

Item	Comments
Schedule	<ul style="list-style-type: none"> • 95% complete; Substantial Completion declared August 28, 2014 • Closeout planned for May 2015
Cost	<ul style="list-style-type: none"> • Project is within budget of \$210M

April 2015 CPOC IEC Project Review



NYCT Signals & Train Control



April 27, 2015

CBTC Flushing Line

- **SCHEDULE:** Based on the 2015 GO schedule in place, the IEC agrees with the projected 2nd Quarter 2017 substantial completion date.
- **BUDGET:** Project is within budget.
- **CRITICAL ISSUES & HIGHLIGHTS:**
 - GO availability is key to progress as the agency noted. Two cancellations have occurred to date and NYCT will work to recover lost time.
 - CBTC car equipment installations is on schedule. The contractor has submitted a plan to increase installation rates. Plan is under review.
 - The IEC concurs that the progress as stated has been completed. The look ahead follows the activities planned for the period.



Culver Line CBTC Integrated Test Facility

- SCHEDULE: The IEC agrees with the schedule.
- BUDGET: There are no issues with the budget.
- CRITICAL ISSUES:

The start of the formal interoperability field demonstration on the test track date is to be determined by May and should start no later than mid-June. A delay in start date may impact the substantial completion date.



Interlockings

The status of these projects was reported on in the 4nd Quarter Traffic Light report 2014 at the March 2015 CPOC meeting. Each last achieved a “Green” reporting status.

- 34th Street Interlocking
- W 4th Street Interlocking
- Roosevelt Avenue Interlocking
- Dyre Avenue Line Signals
- 2 Interlockings: Union Turnpike & 71st Avenue



Signals & Train Control Program

Integrated Service Information & Management, B Division (ISIM-B)

Deborah Chin, P.E.

Program Officer & Acting Chief Systems Engineer

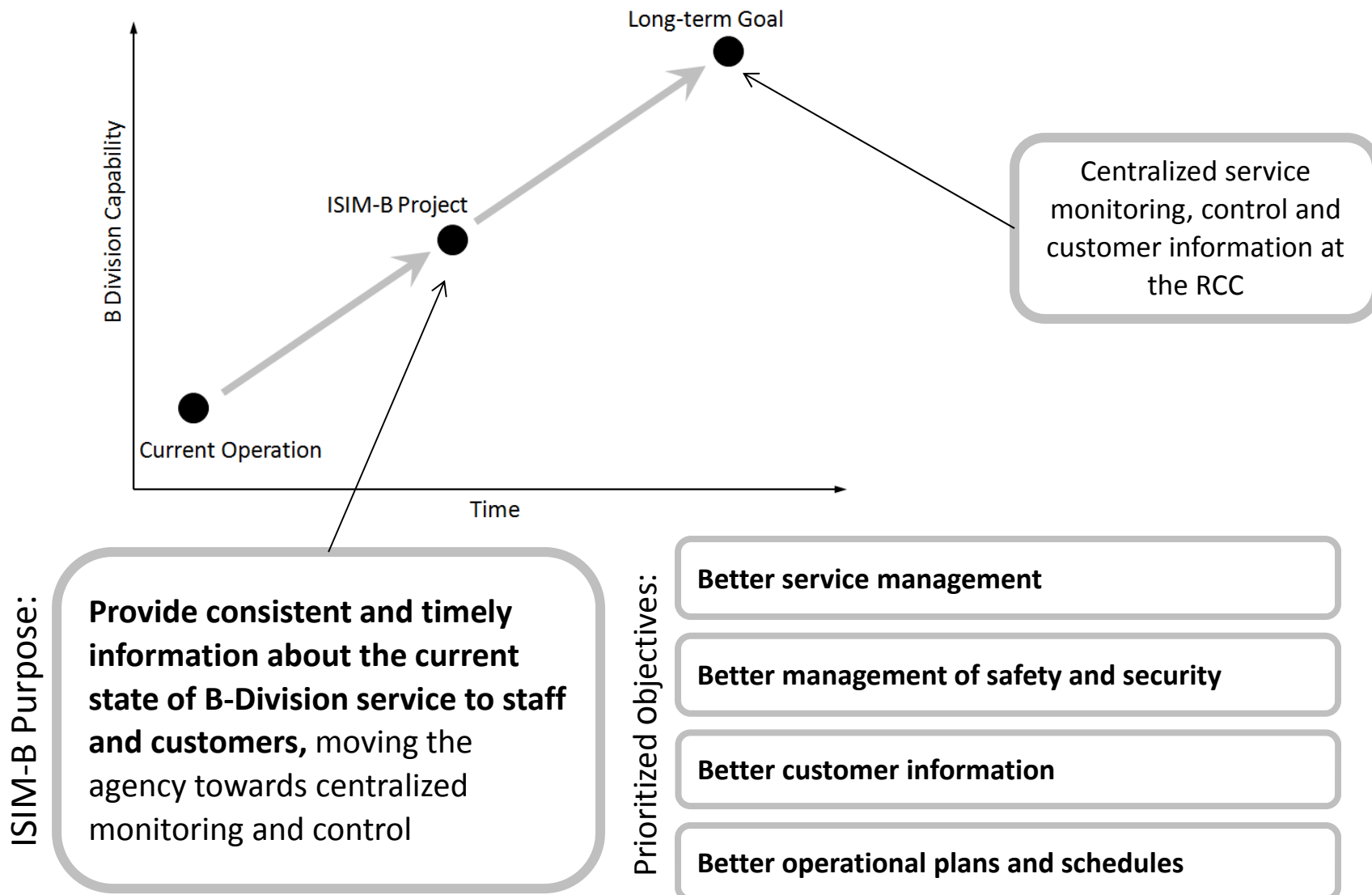
Capital Program Oversight Committee

April 2015

MTA New York City Transit

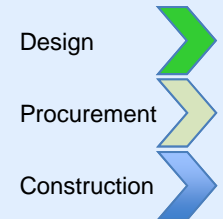
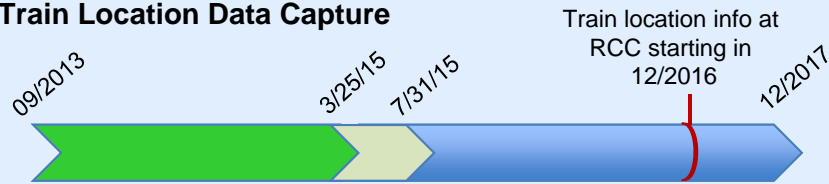


ISIM-B Program Overview

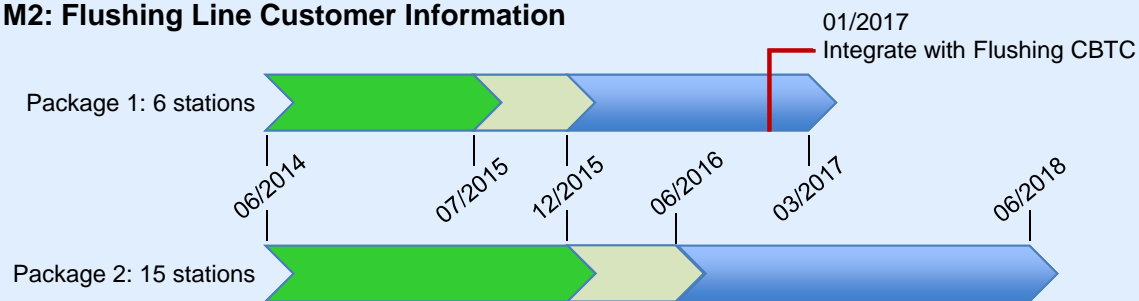


Schedule

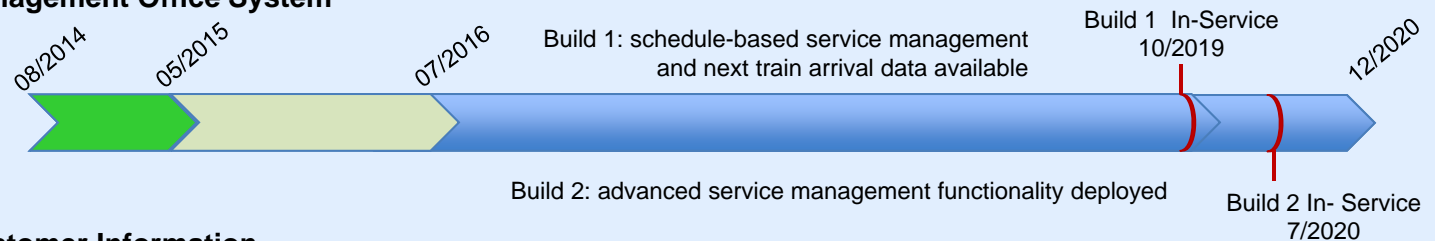
M1: Train Location Data Capture



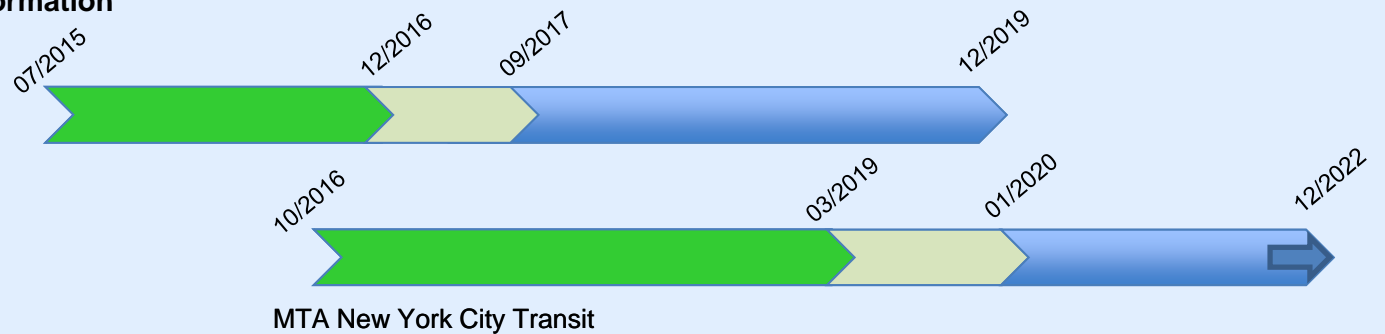
M2: Flushing Line Customer Information



M3: Rail Traffic Management Office System



M4: B Division Customer Information



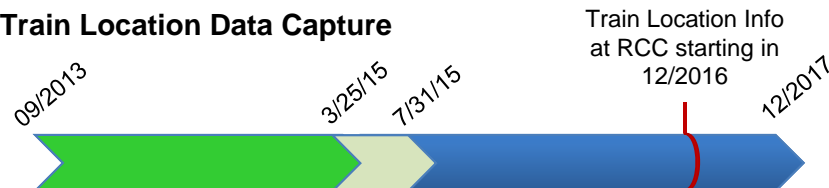
ISIM-B: Module 1 – Train Location Data Capture

- Current Status: In Procurement
- Award (W-32784): July 2015
- Project Description: Furnish and install Programmable Logic Controllers (PLCs) at 26 Master Tower/Tower locations on the B Division to acquire signaling field data and provide train location information on workstations at the Rail Control Center. This data is required for the ISIM-B traffic management system (Module 3) and Queens Blvd West CBTC-Automatic Train Supervision (ATS) system.

Overall Status (W-32784 ISIM-B Module 1)

Item	Comments
Schedule	Final Design Completion: March 25, 2015 (A); 29-month construction duration. IFB Advertisement in April 2015. Award in July 2015.
Cost	Total Project Estimate \$30-\$50M. (2010-2014 Capital Program).

M1: Train Location Data Capture



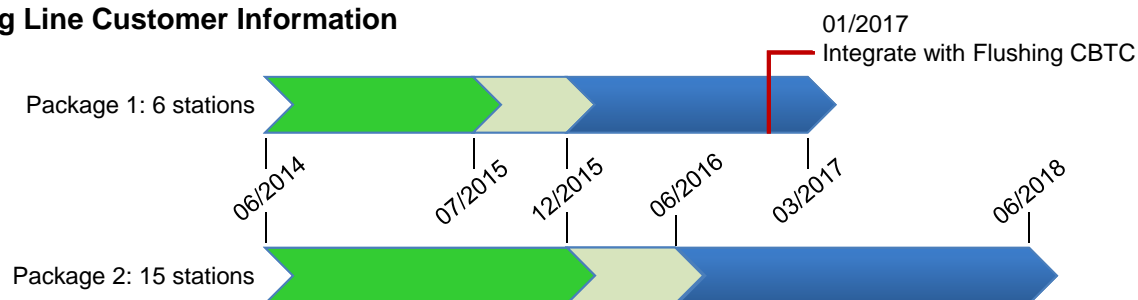
ISIM-B: Module 2 – Flushing Line Customer Communications

- Current Status: In Design
- Award (W-32785): 4th Quarter 2015 (first phase)
- Project Description: Furnish and install new Public Address and Customer Information Screens with real time train arrival information to the 21 stations along the Flushing 7 Line with data from new CBTC system.

Overall Status (W-32785 ISIM-B Module 2)

Item	Comments
Schedule	<p>Design and Procure in Two Phases: Phase I: 6 Locations; Design ongoing; 15-month construction duration. IFB Advertisement in 3rd Quarter 2015. Award in 4th Quarter 2015.</p> <p>Phase II: 15 Locations; Design ongoing; 24-month construction duration. IFB Advertisement in 1st Quarter 2016. Award in 2nd Quarter 2016</p>
Cost	Total Project Estimate is \$40-\$60M. (2010-2014 Capital Program).

M2: Flushing Line Customer Information



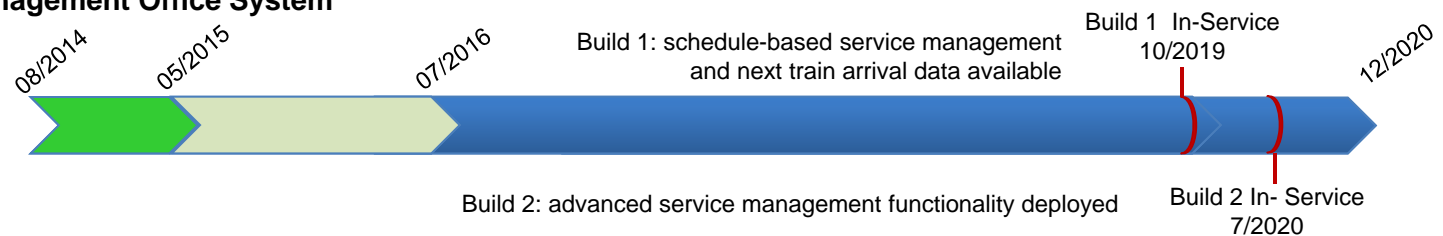
ISIM-B: Module 3 – Rail Traffic Management Office System

- Current Status: In Design
- Award (W-32789): 3rd Quarter 2016
- Project Description: Rail traffic management system for managing rail service across the B Division, including the provision of remote workstations at approximately 44 field locations.

Overall Status (W-32789 ISIM-B Module 3)

Item	Comments
Schedule	Design Complete in May 2015; 53-month construction duration. RFP Advertisement in 2nd Quarter 2015. Award in 3 rd Quarter 2016.
Cost	Total Project Estimate is \$130-\$160M (2010-2014 and 2015-2019 Capital Programs).

M3: Rail Traffic Management Office System



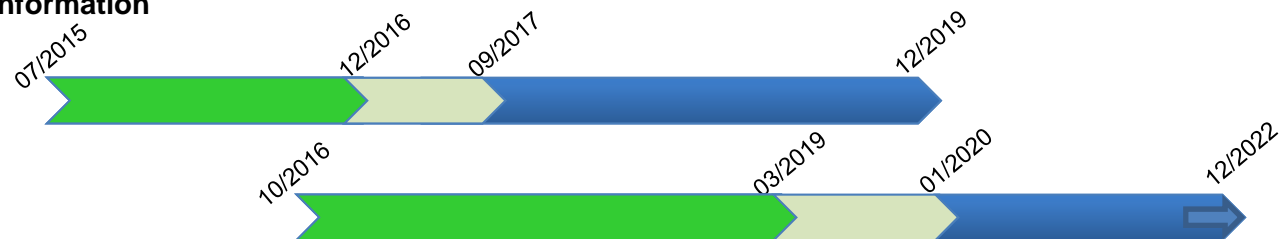
ISIM-B: Module 4 – B Division Customer Information

- Current Status: In Master Plan development
- Award: 3rd Quarter 2017 (first phase)
- Project Description: Deliver real-time train arrival information via web/mobile apps and to all B Division stations; install/replace PA/CIS at 178 stations.

Overall Status (ISIM-B Module 4)

Item	Comments
Schedule	<p>Master Plan Completion in June</p> <p>Design and Contract in multiple phases contingent upon funding:</p> <p>Phase I: Approx. 45-50 Locations; Advertisement in 1st Qtr. 2017. Award in 3rd Qtr. 2017.</p> <p>Phase II: Approx. 128-133 Locations; Advertisement in 2nd Qtr. 2019. Award in 1st Qtr. 2020.</p>
Cost	<p>Total Project Estimate is \$400M - \$450M</p> <p>(2010-2014, 2015-2019 and 2020-2024 Capital Programs).</p>

M4: B Division Customer Information



Interim Train Arrival Information

- Current Status: In Design
- Award: 2nd Quarter 2015 (maintenance contract task)
- Project Description: Extend existing NYCT legacy systems to include select modernized B Division lines to provide real-time train arrival information to mobile applications at 35 stations and via customer information signs (CIS) at 22 stations

		Mobile Apps	CIS/Cabinets as part of Contracts W-32697/W32694
Concourse B D	145 St to 205 St	12 stations	5 sta. with PA/CIS (mid 2017)
West End D	9 th Av to Stillwell Av	13 stations	8 sta. with PA/CIS (mid 2016)
Sea Beach N	8 th Av to Stillwell Av	10 stations	5 sta. with PA/CIS (late 2017) 4 sta. with PA/CIS (2018)

Overall Interim ISIM Status

Item	Comments
Schedule	ATS work for Sea Beach and West End Lines negotiated with ATS-A Contractor. ATS work for Concourse Line will be done in-house. Targeted Completion – 1 st Quarter 2016
Cost	Total Project Estimate is \$3.0M. (2015-2019 Capital Program).

Systems & Security Division

Mark Bienstock, P.E.
Program Officer

Capital Program Oversight Committee

April 27, 2015

MTA New York City Transit



VHF Radio System Upgrade (Trains)

- Awarded: February 10, 2012
- Contractor: Alcatel-Lucent USA
- Project Description: This project will install new VHF radio base station equipment for Subways to replace legacy equipment that can only operate in wideband mode. The new radio equipment is configured to operate in narrowband mode to meet the FCC mandate.



VHF Radio System Upgrade (Subways)

Overall Status

Item	Comments
Schedule	Substantial Completion forecast is Sept 19, 2016 - 50 days behind schedule
Cost	Within Budget of \$221M

Highlights

Progress

- Placed in service of 13 out of 115 VHF base stations.
- Completed installation of VHF Radio equipment at outdoor locations.
- Completed installation of equipment at Rail Control Center and Back-up Command Center.

180 Day Look Ahead

- Complete VHF Radio Base Station cutovers at remaining 15 outdoor locations.
- Complete installation of consoles at Dispatcher/Tower locations covering outdoor locations and continue installation for remaining sites.

VHF Radio System Upgrade (Subways)



Base station cabinet




Rail Control Center






Back-up Command Center

VHF Radio System Upgrade (Subways)

Critical Milestones and Issues

Status	Activity	Date Needed	Issues
 Yellow	Beneficial Use for 26 Outdoor Base Stations and 8 Transit Bureau Locations	July 2015	<ul style="list-style-type: none">▪ Technical issues with installation of Dispatcher Consoles.▪ Alcatel-Lucent has developed a mitigation strategy and has submitted a revised project schedule.

	Red	Significant impacts with potential impacts on Revenue Service Date, Cost, or Customer Benefit Milestones
	Yellow	Impacts which can lead to cost increases or schedule delays on individual milestones or contracts.
	Green	No Near Term Impact for Design, Procurement & Construction. Successful management of major activity to stay on schedule or budget.

Bus Command Center & Bus Radio System

- Bus Command Center (C-43753)
 - Design and construct a new modern, secure command center for NYCT and MTA Bus operations.
- Bus Radio System (W-32366)
 - Design, furnish, and install a new digital bus radio communications system for NYCT and MTA Bus.



New Bus Command Center



Project Schedule

Milestone	Bus Command Center C-43753	Bus Radio System W-32366
PE Completion	2/28/2014 (A)	2/7/2014 (A)
FE Completion	5/23/2014 (A)	4/7/2014 (A)
Advertise	8/28/2014 (A)	9/25/2014 (A)
Award	6/30/2015	8/30/2015
Beneficial Use	6/30/2017	6/30/2020
Substantial Completion	6/30/2017	6/30/2020
Closeout	12/31/2017	2/28/2021
Projected Cost	\$72M	\$225-300M

- Bus Command Center: Bids received & qualification is underway.
- Bus Radio System: Proposals received and are being reviewed.



April 2015 CPOC IEC Project Review



VHF Radio

April 27, 2015



Project Status Review

NYCT correctly states the project's status and issues.

- **BUDGET** – There are no issues.
- **SCHEDULE** – Based on March data, the contract end date for completing all sites will not be achieved unless the current rate of site cut overs per month increases. Completing outdoor sites by beginning of July, will require 2 sites/week cut over and then maintaining that rate to meet the end date.

Contract Event	FCC Waiver Date	W32686 Contract Date	Oct 2014 Forecast	Current Forecast	Sites Completed	Metrics	Project Complete
26 Outdoor Locations Complete	8/14	9/14	3/15	7/15	2	36 mos. elapsed 16 mos. remain 70% Time Elapsed	45%
Remaining 89 Sites Complete	7/16	7/16	7/16	7/16	7	9 sites cutover out 75 of 115 sites in progress	

Project Status Review Remarks

- NYCT achieved all of the 180 Day Look Ahead objectives stated in the October 2014 CPOC slide presentation except the beneficial use (BU) milestone of the outdoor sites.
- The delay, in part, is attributable to ramp up of work leading up to site cut overs and the actual steps involved to switching over to new equipment. There has been an improvement in the process.
- Much of the work is in place for increasing the cut over rate and achieving BU for outdoor sites by July 2015. Based on progress to date, the IEC believes there will be a delay of 1 month in meeting this date.



NYCT Track & Switch Capital Program

David Knights
Chief Officer, Track
Department of Subways

April 2015



Mainline Track, Switch and Continuous Welded Rail Capital Reconstruction Program Production 1984 - 2014

Mainline Track Reconstruction Program

- Between 1984 and December 2014, approximately **382** mainline track miles were reconstructed.
- Achieved and maintained in State of Good Repair since 1991.

Mainline Switch Reconstruction Program

- Between 1984 and December 2014, **1,227** mainline switches were reconstructed.
- Achieved and maintained in State of Good Repair since 1997.

Continuous Welded Rail Initiative (CWR)

- Between 2004 and December 2014, approximately **30** miles of CWR were reconstructed.



2010 – 2014

Capital Track & Switch Programs

Projects	Production Levels
Mainline Track Reconstruction	56 miles
Mainline Switch Reconstruction	126
Yard Track	3 miles
Yard Switches	29
CWR Initiative	8 miles



Proposed 2015 – 2019 Capital Track & Switch Programs

Projects	2015-2019 Production Levels	2015-2016 Milestones
Mainline Track Reconstruction	50 miles	20 miles
Mainline Switch Reconstruction	137	43
Yard Track	2 miles	1 miles
Yard Switches	20	8
CWR New Initiative	29 miles	13 miles



Continuous Welded Rail Initiative

Program scope: Install CWR, transit products and resilient fastener plates



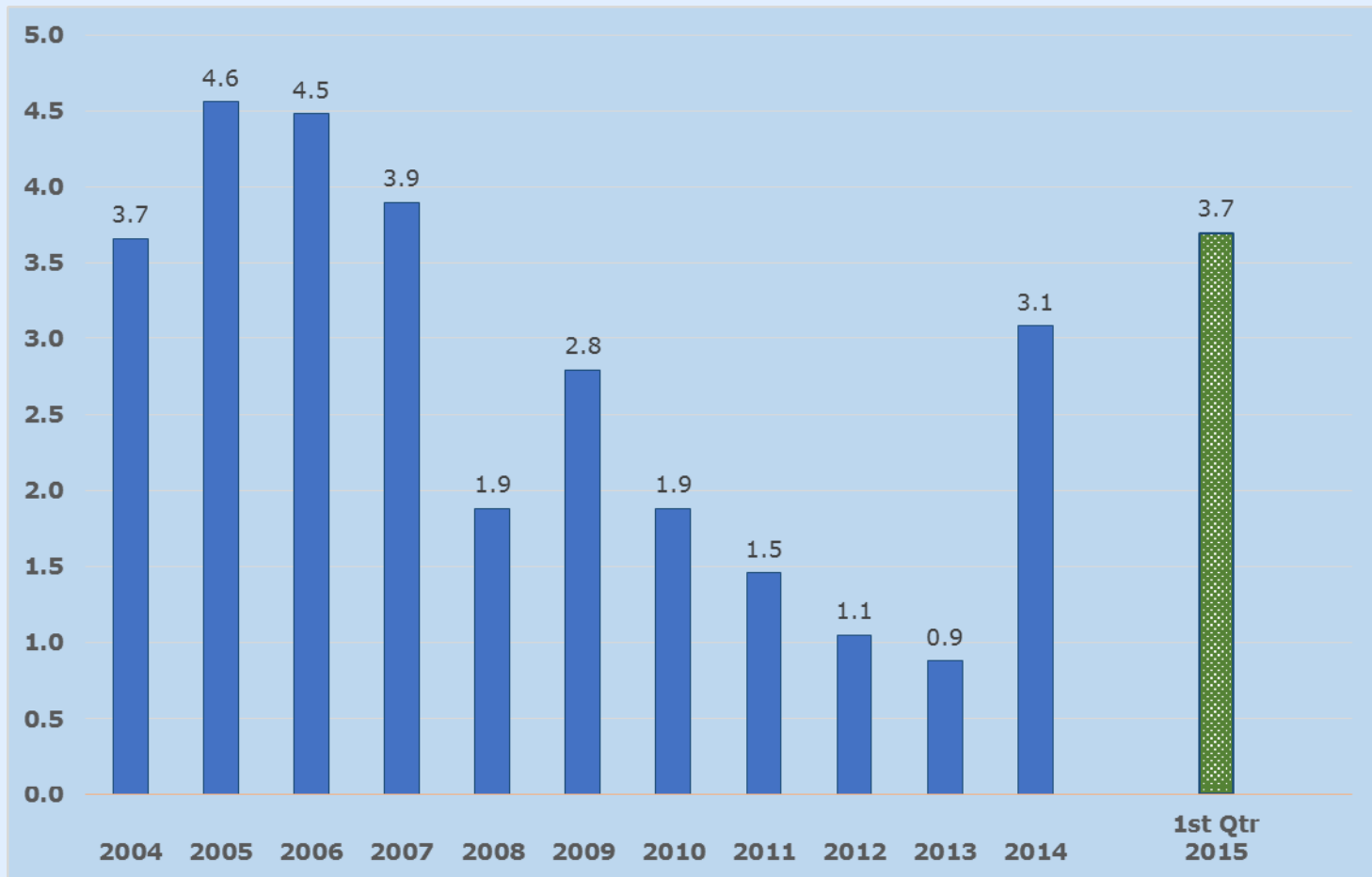
Greenpoint Tube

Benefits

- Increased reliability
- Reduce breaks at critical locations
- Eliminate water conditions
- Reduce maintenance via longer track life
- Improve high traffic track conditions
- Reduce noise/vibration levels by 7-10dBA
- Conform with railroad and transit standards

Continuous Welded Rail Initiative 2004 – Present

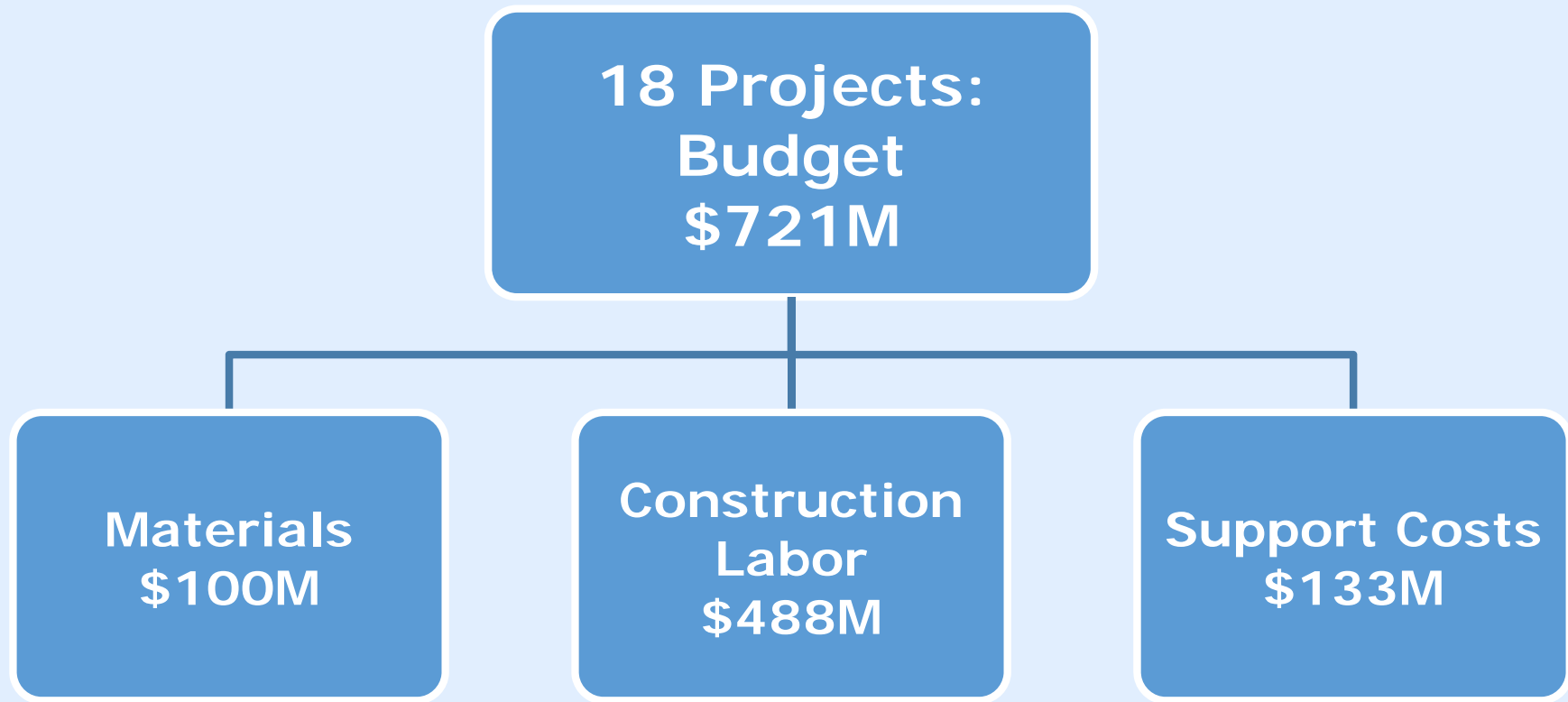
Track Miles



Total Installed To Date: 33.3 Track Miles



Proposed 2015-2016 Track, Switch & CWR Budget



Proposed 2015-2016 Planned Major Projects

Projects	Production Levels	Funding
8th Avenue	5 miles 4 switches	\$126M
Queens Boulevard	5 miles 4 switches	\$132M
CWR Initiative	13 miles	\$153M



West 4th Street 6th Avenue Interlocking



Reconstruction of 4 Switches



MTA Capital Program Commitments & Completions

through March 31st, 2015

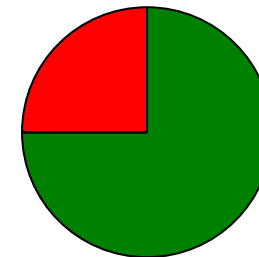
Capital Projects – Major Commitments – March 2015

34 major commitments are planned for 2015, totaling \$3.1 billion. Only projects funded in approved capital plans are included. Projects scheduled for the 15-19 plan will be added subsequent to plan approval. Through March, eight projects are being tracked. Two projects are late: Cortlandt Station Reconstruction (\$110M) and NYCT's 1st Qtr Track & Switch Program (\$1M). Additional year-to-date commitments will be reported on as the year progresses.

Through March, agencies have committed \$719 million versus a \$916 million YTD goal. The YTD shortfall is predominantly due to MTACC and NYCT non-major projects delayed within the year, partially offset by high bids at NYCT, LIRR and MTA Bus Company. By year-end, the MTA forecasts committing 105% of its \$3.1 billion goal due to unplanned commitments and increased estimates at NYCT and LIRR.

The MTA continues to track 2014 major commitment goals that slipped beyond 2014. These are reported quarterly under a separate section.

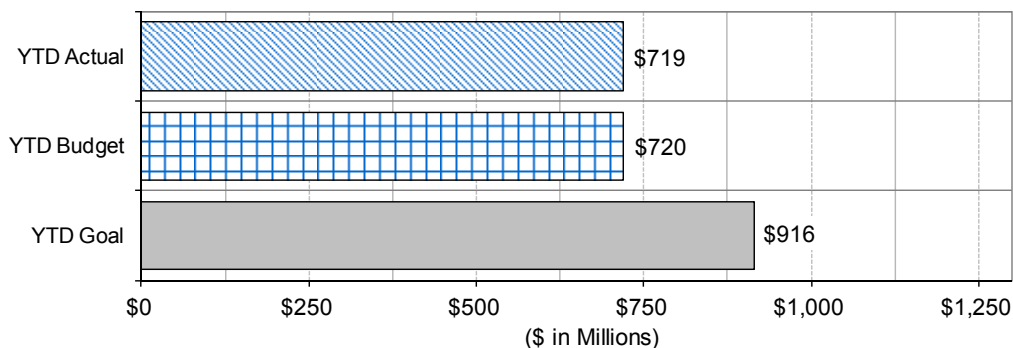
Year-to-Date Major Commitments



GREEN	=Commitments made/forecast within Goal	6	75%	Change from Prior Month ↑ 3
YELLOW	= Commitments delayed beyond Goal (already achieved)	0	-	-
RED	= Commitments delayed beyond Goal (not yet achieved)	2	25%	↑ 1
		8	100%	↑ 4

Budget Analysis

2015 Annual Goal	\$3,133	(\$ in millions)
2015 Annual Forecast	105%	of Annual Goal
Forecast left to Commit	78%	(\$2,581)



Year-to-Date Agency Breakdown

2015 Goals	Prior month variance		
	GREEN	YELLOW	RED
New York City Transit			
3	+2 GREEN	----	----
Long Island Rail Road			
3	+1 GREEN	----	----
Metro-North Railroad			
	----	----	----
Bridges and Tunnels			
	----	----	----
Capital Construction Company			
1	----	----	+1 RED
MTA Bus Company			
	----	----	----
MTA Police Department			
	----	----	----

Capital Projects – Major Commitments – March 2015 – Schedule Variances

Actual Results Shaded

Project	Commitment	Goal	Forecast	Project	Commitment	Goal	Forecast
2 All-Agency Red Commitments (1 new this month)							
NYCT							
<i>Track & Switches</i>							
2015 Track & Switch Program (11 Projects) - 1st Qtr	Construction Award	Feb-15 \$180.4M	May-15 \$180.4M				
The overall commitment has been delayed due to re-scheduling of Jerome Line track work until May (\$1M out of \$180.4M goal). All 10 other projects have been committed on-time.							
MTACC							
<i>Cortlandt Station</i>							
Cortlandt Station Reconstruction - (New Item)	Construction Award	Mar-15 \$110.0M	Apr-15 \$110.0M				
Delay due to extended negotiations to transfer the contract to the MTA.							

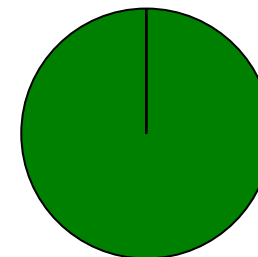
Capital Projects – Major Completions – March 2015

25 major completions are planned for 2015, totaling \$2.6 billion. Through March, three major completions were planned and achieved: NYCT 1st Quarter Track Program, Sandy Repairs at Montague Tube, and B&T's Bronx Whitestone deck replacement. Additional year-to-date completions will be reported on as the year progresses.

Through March, agencies completed \$563 million versus a \$658 million YTD goal. The YTD shortfall is mostly due to delay of NYCT non-major goals within year, partially offset by early completion of non-major goals.

By year-end, the MTA forecasts meeting 102% of its \$2.6 billion goal due to increased estimates for a number of year-end NYCT projects and early forecast for NYCT non-goal completions, partially offset by delayed non-major Metro-North project beyond year-end.

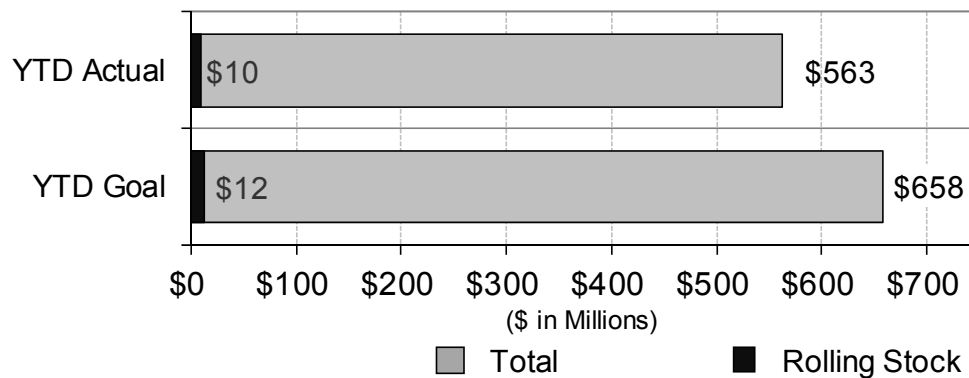
Year-to-Date Major Completions



	Count	Percent	Change from Prior Month
GREEN = Completions made/forecast within Goal	3	100%	↑ 2
YELLOW = Completions delayed beyond Goal (already achieved)	0	-	-
RED = Completions delayed beyond Goal (not yet achieved)	0	-	-
	3	100%	↑ 2

Budget Analysis

2015 Annual Goal	\$2,551	(\$ in millions)
2015 Annual Forecast	102%	of Annual Goal
Forecast left to Complete	78%	(\$2,028)



Year-to-Date Agency Breakdown

2015 Goals	Prior month variance		
	GREEN	YELLOW	RED
New York City Transit			
2	+2 GREEN	----	----
Long Island Rail Road			
	----	----	----
Metro-North Railroad			
	----	----	----
Bridges and Tunnels			
1	----	----	----
Capital Construction Company			
	----	----	----
MTA Bus Company			
	----	----	----
MTA Police Department			
	----	----	----

MTA Capital Program Commitments & Completions Quarterly Report of 2014 Delays

2014 Major Commitments – Quarterly Update – March 2015

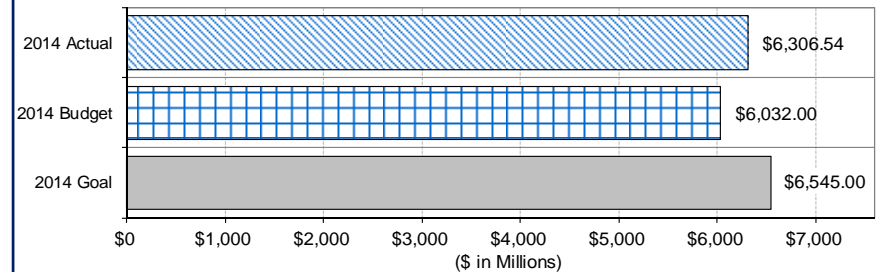
Major goals delayed beyond year-end continue to be tracked until committed. The status of these projects are reported on a quarterly basis. Variances are discussed on the following pages.

Within 2014, \$5.8B was committed, including 39 major commitments. The remaining 16 major commitments slipped beyond year-end, representing a total value of \$1.3 billion. Of these projects, 13 are currently forecast for commitment within 2015. Two NYCT Sandy goals are now forecast for commitment in 2016 and one MTA Bus Sandy goal recently slipped to 2016.

Through March, Renewal of 3 Sea Beach Stations & Retaining Walls and GCT Concourse & Cavern Finishes (CM014B) were committed.

Budget Analysis

2014 Goal \$6,545.0 (\$ in millions)
Left to Commit 4% (\$238)



Actual		MTA-wide 2014 Major Commitments																								Post 2015	
		Jan-14	Feb-14	Mar-14	Apr-14	May-14	Jun-14	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15	Jul-15	Aug-15	Sep-15	Oct-15	Nov-15	Dec-15		
Goal	Total 2014	55	2	1	3	1	7	2	1	1	2	2	2	15	1	1	0	2	0	5	1	1	0	1	0	1	3
Jan-14	2	2																									
Feb-14	4			1	1	1	1																				
Mar-14	5		1	2		2																					
Apr-14	3					2			1																		
May-14	2					2																					
Jun-14	6						1	1			1			1											1	1	
Jul-14	6									1	2	1			1		1										
Aug-14	4																		2	1						1	
Sep-14	3											1	2														
Oct-14	5												3						2								
Nov-14	8												5	1			1						1				
Dec-14	7												4						1	1						1	

This chart tracks when all 2014 major commitments are forecast/achieved versus original goal, starting with those that were committed within 2014, followed by those that slipped beyond 2014. Green represents projects that were achieved on-time, yellow represents projects that were delayed but have since been completed, and red represents projects that are still delayed. Projects that are red will become yellow when they are committed.

GREEN = Commitments made/forecast within Goal

RED = Commitments delayed beyond Goal (not yet achieved)

YELLOW = Commitments delayed beyond Goal (already achieved)

Prior Year Major Commitments – March 2015 – Schedule Variances

Actual Results Shaded

Project	Commitment	Goal	Forecast	Project	Commitment	Goal	Forecast
14 All-Agency Red Commitments				Sandy Restoration			
NYCT							
Stations							
ADA: Phase 2; 57th Street/7th Ave	Construction Award	Nov-14 \$35.9M	Oct-15 \$43.4M	Rutgers and Cranberry Tubes	Construction Award	Jun-14 \$154.0M	Feb-16 \$165.0M
Delay reflects unforeseen field conditions that needed to be incorporated and, consequently, extended design. Cost increase reflects changes to duct and elevator scope.				The Rutgers tube award has been moved to February, 2016 in order to minimize the impact to the public. Previously Rutgers and Cranberry were a single contract, but are now to be split into separate contracts. To allow for repackaging, the Cranberry award slipped to December, 2014. Project cost adjusted to reflect estimates of separated contracts.			
Station Components: 6 Stations (Jamaica)	Construction Award	Dec-14 \$37.8M	Aug-15 \$52.8M	Clark Street Tube Restoration	Construction Award	Aug-14 \$77.4M	Feb-16 \$77.4M
Delay and cost increase attributed to scope added to the project such as platform slabs, windscreens and girder repairs. Additional delay due to added time needed to incorporate relocation of one elevator into design in order to accommodate duct bank configuration.				Project has been rescheduled as a result of coordination with other tube projects due to several factors, including programmatic concerns, community impacts and service impacts.			
Facilities							
HVAC Repair and Maint. for DCE Facilities Phase 2	Construction Award	Dec-14 \$53.6M	Jun-15 \$46.5M	53rd St. Tube	Construction Award	Nov-14 \$77.6M	Apr-15 \$92.6M
Project delayed to June 2015 while a review of impacts stemming from fleet HVAC considerations progresses. Cost decrease reflects refined estimates.				Award schedule slipped to April due to protracted advertisement and procurement period. Cost increased reflecting a refined engineer's estimate at time of advertisement.			
Bus Replacement				MNR			
Purchase 231 Articulated Buses	Purchase Award	Jun-14 \$245.5M	Dec-15 \$202.0M	Track			
The number of Articulated buses was reduced from 256 to 231 in order to fund the purchase of 72 standard buses. Delay was due to extended negotiations with vendors and an allowance for possible State review prior to award. Cost decrease reflects the reduced number of buses.				2014 Cyclical Track Program	Construction Award	Oct-14 \$12.7M	Jun-15 \$12.8M
				Due to other competing priorities, including the Bronx Remediation Project, work was delayed. \$1.2M was committed in December 2014 for purchase of materials, and \$11.6M is left to commit in 2015.			
Depots				Sandy Restoration			
Bus Command Center	Construction Award	Aug-14 \$53.9M	Jun-15 \$48.7M	Power Infrastructure Restoration: 4 Substations	Construction Award	Oct-14 \$48.5M	Jun-15 \$49.2M
Initial delay due to additional scope added to the contract, which required additional drawings and specifications. Delay beyond year-end due to additional scope addressing comments on structural and foundation design. Most recent delay due to disqualification of low bidder. Cost reflects Memorandum of Understanding with MTA Bus and selected bid.				Delay due to prioritization of design work on Harlem River Lift Bridge facility houses over design of substations. At this time, \$3.3M is left to commit. Cost increase represents a redesign of Brewster substation to incorporate post- Sandy resiliency standards.			

Prior Year Major Commitments – March 2015 – Schedule Variances

Project	Commitment	Goal	Forecast
14 All-Agency Red Commitments (cont'd)			
MTA Bus			
Depots			
Bus Command Center	Construction Award	Aug-14 \$8.7M	Jun-15 \$14.3M
The project award has been delayed due to additional scope added to the contract, such as ADA compliance and electrical work, which require additional drawings and specifications. Most recent delay due to disqualification of low bidder. Cost reflects Memorandum of Understanding with NYCT and selected bid.			
Sandy Restoration			
Depot Rehabilitation at Far Rockaway	Construction Award	Dec-14 \$25.3M	Jan-16 \$25.0M
Delay due to additional time needed for compilation of technical design specifications. Additional one month delay due to pending environmental and code compliance reviews. Reduction in budget reflects a revision in the scope of work for the bus washer relocation.			
MTACC			
East Side Access			
Harold Structures Part 3D (CH057)	Construction Award	Aug-14 \$106.5M	Jul-15 \$122.5M
Award date has been updated to reflect adjustments to the overall Harold schedule and in order to allow for assessment of completed work and resource availability in the area of the Harold interlocking. Cost increase reflects repackaging of Harold work.			
MTA Police Department			
PD Communications			
MTA Police Radio Project	Design-Build Award	Jul-14 \$90.3M	Jun-15 \$90.3M
A delay in starting the procurement process has pushed back the forecasted project award date. Continued delays have been attributable to the pace of the procurement process.			

Actual Results Shaded

Project	Commitment	Goal	Forecast
2 All-Agency Yellow Commitments (1 new)			
NYCT			
Stations			
Sea Beach Line: 3 Stations and Retaining Walls	Construction Award	Nov-14 \$124.3M	Jan-15 (A) \$111.8M
Delay was due to extended advertisement in order to increase competition. Additional one month delay was attributed to approval of DBE goals. Cost decrease reflects budget at award.			
MTACC			
East Side Access			
GCT Concourse & Cavern Finishes (CM014B) - (New Item)	Construction Award	Jul-14 \$195.5M	Feb-15 (A) \$427.7M
There was an additional two- month slip from December to February due to extended procurement process. The initial delay was due to a change in the procurement methodology to an RFP process. Forecast value increased due to the decision to include option in base contract and impact of an unfavorable bid.			

YELLOW = Completions delayed beyond Goal (already achieved)

Prior Year Major Completions – March 2015 – Schedule Variances

Actual Results Shaded

Project	Completion	Goal	Forecast
15 All-Agency Red Completions			
NYCT			
<i>Track & Switch</i>			
Track & Switch Program (4 projects) 3rd Quarter	Construction	Sep-14 \$33.7M	Jun-15 \$36.5M
Completion of work on the Jerome Line has been postponed due to track access and the availability of General Orders. These issues have increased project cost.			
Track & Switch Program (6 projects) 4th Quarter	Construction	Dec-14 \$33.3M	Apr-15 \$33.3M
With the exception of Yard Track and Switch, representing \$3M of the total project cost, the balance of work was completed in 2014.			
<i>Stations</i>			
Station Rehab: Smith- 9th St & 4th Ave	Construction	Jul-14 \$40.7M	May-15 \$44.2M
Due to work coordination issues, completion of rehab work was completed in 2014, excluding manuals, as-built drawings and other deliverables. Additional delay due to pending submission of deliverables by Surety. Cost increase reflects extended project duration.			
<i>Line Structures</i>			
Culver Viaduct Rehab Ph 3	Construction	Oct-14 \$49.8M	Oct-15 \$63.0M
Delay attributed to a number of factors including additional steel and concrete needed due to unforeseen site conditions. Cost increase reflects additional quantities and additional scaffolding necessary to protect the public from work through project duration.			
<i>Buses</i>			
AVLM: Paratransit Vehicles	Procurement	Dec-14 \$35.8M	Dec-15 \$37.0M
Delay and cost increase due to pre-wiring of an additional 433 vehicles.			
LIRR			
<i>Power</i>			
F Circuit Breaker House	Construction	Oct-14 \$7.2M	Oct-15 \$7.2M
Delay due to a re-evaluation of the project's need to be informed by a power load study.			

Project	Completion	Goal	Forecast
LIRR			
<i>Line Structures</i>			
Atlantic Avenue Tunnel Lighting	Construction	Nov-14 \$7.0M	Mar-16 \$7.0M
Delayed due to an unforeseen issue in tunnel ducts that requires additional abatement efforts.			
MNR			
<i>Track</i>			
West of Hudson Track Program	Construction	Jul-14 \$21.2M	Jan-16 \$19.4M
Work on this project has been delayed due to re-deployment of resources for other MNR priority projects. Budget decrease reflects revised cost to complete.			
MTA Bus Company			
<i>Depots</i>			
Relocate Fuel Tanks at Eastchester Depot	Construction	Sep-14 \$12.9M	Jun-15 \$13.8M
Delay and cost increase attributed to additional scope, inclusive of demolition of bus washer due to unforeseen issue with depot wall. Additional delays due to contractor staffing issues and inclement weather.			
MTACC			
<i>East Side Access</i>			
GCT Concourse Finishes Early Work, CM014A	Construction	Apr-14 \$56.7M	Sep-15 \$56.4M
Delay due to the need to re-design the Supervisory Control and Data Acquisition (SCADA) system and delays in delivery of medium voltage switchgear. Additional delay due to mitigation work for leak in facility control room that recently developed.			
Harold Structures Part 2A (CH054A)	Construction	Jun-14 \$80.0M	Jun-15 \$67.4M
Delay due to re-design of the 12 kV feeder duct bank and change order work for storm sewer construction. Budget reduced to reflect final approval of outstanding change orders.			

Prior Year Major Completions – March 2015 – Schedule Variances

Actual Results Shaded

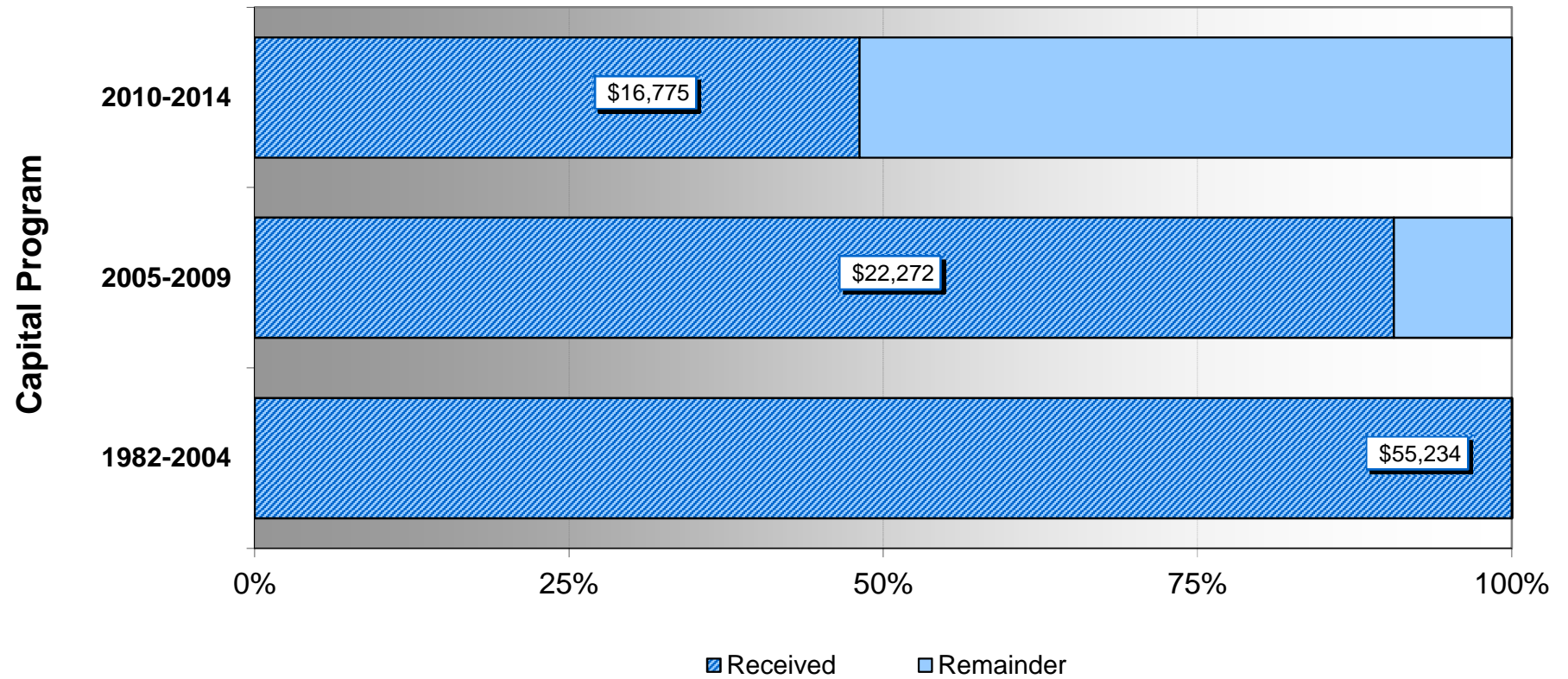
Project	Completion	Goal	Forecast
15 All-Agency Red Completions (cont'd)			
MTACC			
<i>East Side Access</i>			
Harold Structures - Part 1(CH053)	Construction	Aug-14 \$326.1M	Jun-15 \$316.5M
Delays resulting from the cutover of the new duct bank and resource issues have impacted contract and pushed substantial completion beyond 2014. Cost decreased due to change order.			
<i>Fulton Center</i>			
Transit Center Building (4F)	Construction	Jun-14 \$241.7M	Dec-15 \$248.5M
Substantial completion of this contract has been delayed due to extended testing and commissioning and subsequent punchlist items. Security camera work added to contract has delayed substantial completion an additional 6 months.			
<i>#7 Extension</i>			
Systems, Finishes, and Core & Shell of Site A (Vent Building)	Construction	Oct-14 \$580.1M	Jun-15 \$594.1M
Contract completion has been delayed due to testing and commissioning of vent fans, inclined elevators and escalators. Cost increase reflects negotiated settlement agreement with contractor.			
MTA Police Department			
<i>Facilities</i>			
K-9 Training Facility	Construction	Jul-14 \$15.3M	Apr-15 \$15.5M
Delay due to unforeseen field conditions at the construction site, which also increased the forecast value.			

Project	Completion	Goal	Forecast
3 All-Agency Yellow Completions (1 New)			
NYCT			
<i>Track & Switches</i>			
Track & Switch Program (19 Projects) - 2nd QTR - (New Item)	Construction	Jun-14 \$193.3M	Mar-15 (A) \$189.1M
2nd Quarter completions had been impacted by scheduling conflicts, particularly on the 7th Ave and Concourse Lines. In addition, coordination for piggybacking opportunities for remaining work on the Myrtle Ave Line resulted in delays. The value of the projects delayed beyond 2014 was \$24M of the \$193M goal. \$4M in savings comes mostly from savings in the 2013 Jamaica switches project.			
MNR			
<i>Revenue Cars</i>			
Acceptance of M8 Cars	Procurement	Dec-14 \$77.4M	Jan-15 (A) \$77.4M
Eighty- six of the eighty- eight were accepted in 2014 (\$75.7M). The remaining two cars were accepted in January 2015 (\$1.8M).			
MTA Bus Company			
<i>Depots</i>			
Upgrade Parking Lot: JFK and Baisley Park	Construction	Jul-14 \$9.2M	Jan-15 (A) \$9.2M
Delay was due to requirement from Department of Environmental Protection to reconfigure the connection to the sewer main.			

Status of MTA Capital Program Funding

Capital Funding (March 31, 2015)

\$ in millions



Capital Funding Detail (March 31, 2015)

\$ in millions

	Funding Plan	Receipts		
	<u>Current</u>	<u>Thru Feb</u>	<u>This month</u>	<u>Received to date</u>
2005-2009 Program				
Federal Formula and Flexible Funds	\$5,186	\$5,186	\$ -	\$5,186
Federal New Start	2,810	1,832	-	1,832
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	2,123	15	2,138
MTA Bus Federal and City Match	149	142	-	142
Asset Sales and Program Income	1,186	588	(24)	565
State Transportation Bond Act	1,450	1,064	-	1,064
MTA Bonds (Including LGA)	3,039	3,039	-	3,039
B&T Bonds	1,221	1,221	-	1,221
Bonds from New Sources	5,624	5,624	-	5,624
Other (Including Operating to Capital)	138	125	1	126
Total	24,577	22,280	(8)	22,272

	Funding Plan	Receipts		
	<u>Current</u>	<u>Thru Feb</u>	<u>This month</u>	<u>Received to date</u>
2010-2014 Program				
Federal Formula, Flexible, Misc	\$5,835	\$4,610	\$437	\$5,048
Federal High Speed Rail	295	295	-	295
Federal Security	206	100	-	100
Federal RIFF Loan	-	-	-	-
City Capital Funds	778	350	28	378
State Assistance	770	150	-	150
MTA Bus Federal and City Match	132	51	-	51
MTA Bonds (Payroll Mobility Tax)	12,703	6,645	-	6,645
Other (Including Operating to Capital)	1,529	564	21	585
B&T Bonds	2,079	634	-	634
Hurricane Sandy Recovery				
Insurance Proceeds/Federal Reimbursement	9,431	2,729	-	2,729
PAYGO	160	160	-	160
Sandy Recovery MTA Bonds	758	-	-	-
Sandy Recovery B&T Bonds	175	-	-	-
Total	34,851	16,288	487	16,775

MTA Agency: Metro-North Railroad

Risk Assessment Report Date: December 31, 2014

Project Name: SANDY Hudson Line Power and Communications/Signals Infrastructure Restoration Project
Status of Project when Risk Assessment Was Performed: 30% Design

Project Description

The project involves the complete design, construction and testing of replacement infrastructure for various MNR Power, Communications and Signaling equipment and cabling that was damaged as a result of Super Storm Sandy. The project's working limits extends from CP5 through CP35, a roughly 30 mile continual stretch along MNR's Hudson Line. The overall project is being separated into two Phases. Phase (I) of the project encompasses all of CP19 Interlocking to the CP35. Phase (II) of the project will be an optional bid item for infrastructure replacement from CP5 up to CP19. The project's requirements for the design/replacement of various MNR Power and C&S Department infrastructure items are being classified into specific categories herein: Elevated Equipment Platforms, 3rd Rail Sectionalizing Switch Replacements, Design Interlocking Snow Melter Systems, 3rd Rail Feeder and Continuity Jumper Replacements, 3rd Rail Component Replacement, RTU House Replacement, 100Hz Transformer Replacement and Communication Signal Raceway & Signal Power Cable Replacement for 30 miles along the Hudson Line (CP 5 through CP-35).

Risk Assessment Findings

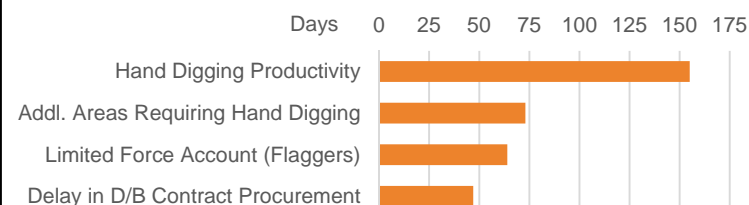
Based upon simulation results at the 80% Confidence Level, the Risk Informed duration is 55 months, adding 7 months to the project baseline schedule duration of 48 months. Metro-North has identified mitigation measures and will manage to the 48 month schedule. The Risk Informed estimate results at the 80% Confidence Level of the total project cost is \$345 million. The base project cost estimate totals \$304 million which falls between the Risk Informed Cost and the Optimistic Risk Informed total.

Risk Informed Cost and Schedule Results

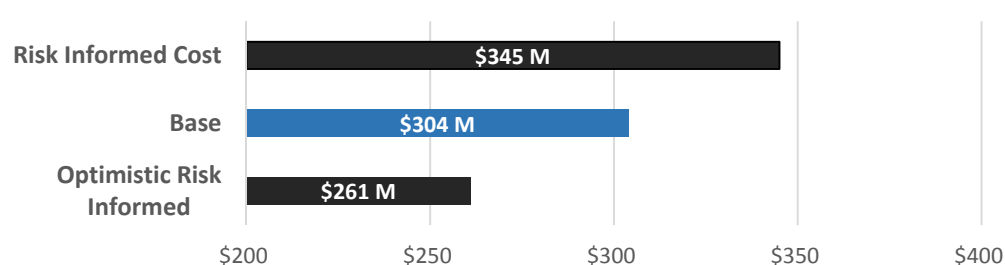
Risk Informed Project Duration @ 80 % vs. Baseline Schedule



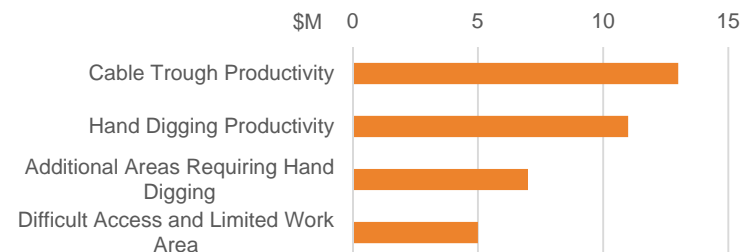
Top Schedule Risks (Duration Sensitivity)



Overall Project Cost @ 80 % Risk Informed Project Costs



Top Cost Risks (Cost Sensitivity)



**Summary of Major Schedule Risks & Mitigations**

Risks	Mitigation Measure	Resources Required	Time Frame for Mitigation
Top Schedule Risks			
Additional Areas Requiring Hand Digging	Use mechanized methods where possible Location and mark-out of utilities Design to maximize machinery installation and minimize hand digging	Trenching Machines	Project Duration
Limited Force Account (Flaggers)	MNR has requested additional Flaggers for this project.	MNR has allocated 12 flaggers per day (6/shift) continuously. Average of 1.5 flags per crew has been shown to be reasonable and work will be done at multiple locations.	Project Duration
Accidents (Injury/Damage to Equipment)	Attention to Safety by all parties Scheduled Safety Stand-Downs Follow all applicable Safety codes, specifications and procedures	MNR Safety Representative Contractor dedicated Safety Consultant/Safety Representative All project personnel to receive Safety training	Project Duration

**Summary of Major Cost Risks & Mitigations**

Risks	Mitigation Measure	Resources Required	Time Frame for Mitigation
Top Cost Risks			
Hand Digging Productivity	Use mechanized methods where possible Location and mark-out of utilities Design to maximize machinery installation and minimize hand digging	Trenching Machines	Project Duration
Cable Trough Productivity	Encourage flexibility in location and design of system to maximize productivity	Precast concrete Monolithic Duct Bank/C&S trough system alternative under consideration by MNR.	Project Duration
Difficult Access to Work Site	Access is provided via high-rail and/or dedicated access roads. Contractor has flexibility of adding temp at-grade track crossings or improving access (e.g., ramp, for example at CP19).	MNR will determine the parameters within which the contractor will be allowed to modify access. High-Rail Vehicles Coordinated Long Term track outages	Project Duration