



Metropolitan Transportation Authority

Capital Program Oversight Committee Meeting

April 2014

Committee Members

T. Prendergast, Chair

F. Ferrer

A. Albert

R. Bickford

N. Brown

A. Cappelli

M. Lebow

S. Metzger

J. Molloy

M. Page

M. Pally

A. Saul

J. Sedore

C. Wortendyke



MEETING AGENDA

MTA CPOC COMMITTEE

April 28, 2014 – 1:45 pm

347 Madison Avenue
Fifth Floor Board Room
New York, NY

<u>AGENDA ITEMS</u>	<u>Page</u>
PUBLIC COMMENTS PERIOD	TAB 1
1. APPROVAL OF MINUTES MARCH 24, 2014	1 – 1
2. COMMITTEE WORK PLAN	1 – 4
3. Update on MTA-wide Sandy-related Projects (LIRR, MNR, B&T, & NYCT)	TAB 2 2 – 1
<i>Independent Engineering Consultant Project Review on Montague Tube Rehabilitation</i>	2 – 73
<i>Independent Engineering Consultant Project Review on South Ferry Station Complex</i>	2 – 76
4. CAPITAL PROGRAM STATUS Commitments, Completions and Funding Report	TAB 3 3 – 1

Date of next meeting: Monday, May 19, 2014 at 1:45 PM

**MINUTES OF MEETING
MTA CAPITAL PROGRAM OVERSIGHT COMMITTEE
March 24, 2014
New York, New York
2:00 P.M.**

MTA CPOC members present:

Hon. Thomas Prendergast, Chairman
Hon. Fernando Ferrer
Hon. Andrew Albert
Hon. Robert Bickford
Hon. Norman Brown
Hon. Alan Cappelli
Hon. Mark Lebow
Hon. Susan Metzger
Hon. John Molloy
Hon. Mark Page
Hon. Mitchell Pally
Hon. James Sedore
Hon. Carl Wortendyke

MTA CPOC members not present:

Hon. Andrew Saul

MTA staff present:

Steve Berrang
Craig Stewart
Michael Wetherell

MTACC staff present:

Uday Durg
Bill Goodrich
Michael Horodniceanu
Shawn Kildare
Anil Parikh

Independent Engineering Consultant staff present

Joe DeVito
Kurt Egger
Kent Haggas
Darlene Rivera

* * *

Chairman Prendergast called the March 24, 2014 meeting of the Capital Program Oversight Committee to order at 2:15 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 24, 2014.

Committee Work Plan

Mr. Stewart reported that there were no changes to report in the CPOC Work Plan from last month.

MTACC Report on Fulton Center

Mr. Durg reported that the overall project is on schedule for a June 2014 opening and that the cost continues to trend below the current budget of \$1.4 billion. In its Project Review, the IEC reported that the project schedule has slipped 15 days since its December report, and that 41 days of contingency remains to complete public address and fire alarm systems testing, which are critical to opening the facility. Further details of the presentations by Mr. Durg and the IEC, 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 7-Line Extension

Mr. Kildare reported that the June 2014 revenue service date is projected to be delayed and that mitigation measures are being developed to achieve revenue service by fall of 2014. In addition, he stated that the project is currently forecast to be completed under budget. In its Project Review, the IEC confirmed that the overall project budget remains \$2.4 billion, but cited a forecast revenue service date of December 2014. The IEC then recommended that MTACC closely monitor remaining schedule risks to ensure timely mitigations are implemented. Further details of the presentations by Mr. Kildare and the IEC, 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 agreed that the project remains on budget, but stated its concern that the project has lost over 50 days of the reported 102 calendar days of schedule contingency. The IEC then recommended that MTACC expedite efforts to resolve key schedule variances with contractors and complete a full update of the Integrated Project Schedule. Further details of the presentations by Mr. Parikh and the IEC, 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 stated that at the January 2014 CPOC preliminary end date forecasts were presented, which ranged between September 2021 and September 2023 (assuming maximum level of risk mitigation); preliminary final cost forecasts ranging between \$9.69B and \$10.31B (assuming maximum level of risk mitigation) were also provided at that time. In its Project Review, the IEC stated that MTACC will manage the project to a schedule and budget at the low end of the preliminary ranges presented in January, and that the IEC plans to monitor the project's progress based on this schedule and budget. The IEC then recommended that MTACC: allocate schedule contingency in the Integrated Project Schedule to address concerns with internal milestones; increase unallocated contingency; re-sequence elements of work in Harold;

and take action on the South Manhattan Structures contract to ensure the timely completion of the critical path work.

Key Performance Indicators for MTA Capital Program Commitments and Completions

Mr. Berrang reported on updated Key Performance Indicators (KPIs) for MTA Capital Program Commitments and Completions, the key feature of which is that, rather than allowing a schedule slip of up to two months to constitute "on time" performance, all slips will now be calculated as late. In addition, under the new rules, budgets will now be project-based (as opposed to being an MTA-wide aggregate).

Quarterly Traffic Light Report

Mr. Stewart brought the Board's attention to the Quarterly Traffic Light Report 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 3:35 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 24, 2014 meeting of the MTA Capital Program Oversight Committee.

Respectfully submitted,
Michael Jew-Geralds
Office of Construction Oversight



2014 CPOC Committee Work Plan

I. Recurring Agenda Items

Approval of the Minutes
Committee Work Plan
Commitments/Completions and Funding Report
Follow-up Items as needed

II. Specific Agenda Items

May 2014

Semi-Annual Update on MNR/LIRR Infrastructure
Semi-Annual Update on NYCT Systems, Signals, Train Control and Tech Initiatives
Annual Update on NYCT Bus Time
Annual Update on MNR Customer Communications
Annual Update on LIRR Police Radio
Quarterly Capital Change Order Report

June 2014

Quarterly MTA Capital Construction Company Update
Semi-Annual Update by LIRR on ESA Readiness
Semi-Annual Update on NYCT Stations Division
Quarterly Traffic Light Report

July 2014

Annual Update on MNR/LIRR Rolling Stock
Annual Update on NYCT Rolling Stock
Annual Update on NYCT Bus Procurements
Semi-Annual Update on Minority, Women and Disadvantaged Business Participation

September 2014

Quarterly MTA Capital Construction Company Update
Semi-Annual Update on MTA-wide Sandy-related Projects
Semi-Annual Update on Capital Program Security Projects
Quarterly Traffic Light Report
Quarterly Capital Change Order Report

October 2014

Annual Update on NYCT Infrastructure
Semi-Annual Update on NYCT, LIRR & MNR New Fare Payment Initiatives
Semi-Annual Update on MTA-wide Track Programs

November 2014

Semi-Annual Update on B & T Capital Program

Semi-Annual Update on NYCT Systems, Signals, Train Control and New Tech Initiatives

Semi-Annual Update on MNR/LIRR Infrastructure

Annual Review of CPOC Charter

Quarterly Capital Change Order Report

December 2014

Quarterly MTA Capital Construction Company Update

Semi-Annual Update by LIRR on ESA Readiness

Semi-Annual Update on NYCT Stations Division

Quarterly Traffic Light Report

APRIL 2014 CPOC LIRR SANDY RESTORATION PROJECTS



Active LIRR Sandy Projects

PROJECT	EAC
Traction Power Substations	64.1M
Long Beach Branch Systems	56.4M
Long Beach - Wreck Lead Bridge Systems	7.0M
West Side Storage Yard	31.1M
Long Island City Yard	4.2M
Miscellaneous Infrastructure / Systems	6.0M
Total	\$168.8M



Built-in Resiliency of New Assets Design Process

LIRR's design goal is to establish a design flood elevation (DFE) that incorporates FEMA Advisory Base Flood Elevation (ABFE), freeboard (wave action), and sea level rise equivalent to FEMA ABFE plus 4 Foot. However, exceptions to this goal may exist based on limited resiliency options, low risk to LIRR operations, and prohibiting cost of installation:



Traction Power Substations

SCOPE

Scope consists of the replacement/restoration of five Substations in the following locations:

- Oceanside - Oil City - Long Beach – Long Island City - First Avenue

PROJECT STATUS

Full Substation Replacements on the Long Beach Branch:

Oceanside Substation:

- Site work/foundations in construction . Delivery of prefabricated unit by Powell Industries forecasted for June 2014.

Oil City Substation:

- Powell Industries commenced design of Oil City prefabricated unit.
- Demolition can not be initiated until Oceanside Substation is online.

Long Beach Substation:

- Based on Consultants Best Value recommendation, the LIRR will replace the existing Long Beach brick-and-mortar facility with a prefabricated unit similar to Oil City and Oceanside.
- Design Documents to be complete 3rd Qt. 2014.

• BENEFICIAL USE FORECAST

- Oceanside Substation: January 2015
- Oil City Substation: September 2016
- Long Beach Substation: January 2017

Long Island Rail Road



Traction Power Substations

SCOPE

Scope consists of the replacement/restoration of five Substations in the following locations:

- Oceanside - Oil City - Long Beach – Long Island City - First Avenue

PROJECT STATUS

Component Replacements:

Long Island City Substation

- Purchase Orders for component replacement are in place.
- Delivery of the High Voltage circuit breakers, and Transformers is scheduled for September 2014.

First Ave. Substation

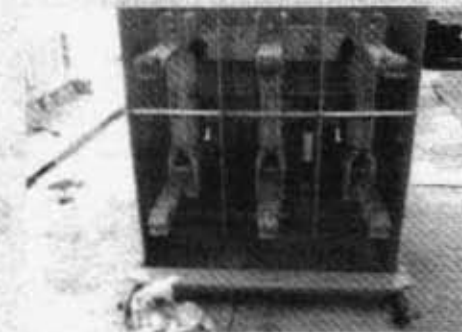
- Design-Build contract is scheduled for award in August 2014.

BENEFICIAL USE FORECAST

- Long Island City Substation
- First Ave. Substation

November 2014

April 2016



Long Island Rail Road

Long Beach Branch Systems Restoration

SCOPE

- Replace all third rail components and switch machines.
- Replace damaged Signal System in accordance with current standards:
 - New huts, cases and equipment
 - Installation of a new pole line, communication cables and power drops
 - New signal supervisory software and hardware at Lead and Valley Towers
 - Reverse signaling on both tracks
- New grade crossings along the branch, including gate mechanisms and all associated equipment.



PROJECT STATUS

The following work is on-going:

- Installation of protection board, brackets, insulators, and anchors.
- Trenching and installation of Third Rail conduit and cable.
- Construction of negative cables and Third Rail splice bars.
- Installation of new Communication System.
- Consultant's Design Documents for new Signal System are to be complete in June 2014.

BUILT-IN RESILIENCY

- Consultant's Best Value Analysis and proposed Resiliency Measures for the new Signal System are under review (including raising Huts, and other wayside equipment).

BENEFICIAL USE FORECAST

- April 2017

Long Island Rail Road

Wreck Lead Bridge Systems Restoration

Wreck Lead Bridge is a single track bascule bridge that crosses Reynolds Channel on the Long Beach branch.

SCOPE

- Replace and elevate emergency generator
- Replace damage bridge electrical, signal and communications systems.

PROJECT STATUS

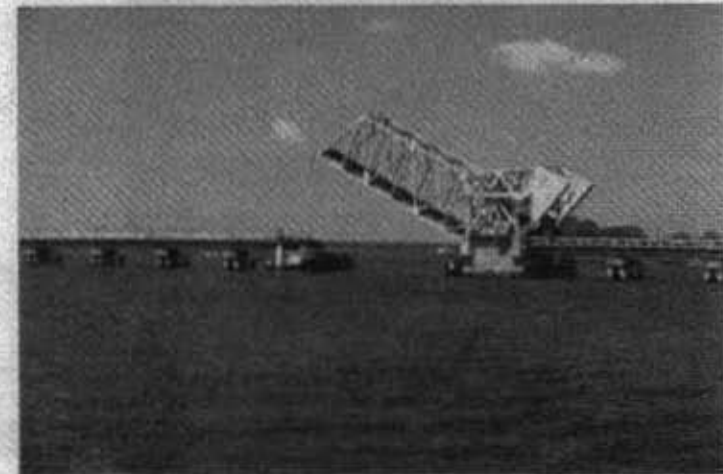
- Engineering Consultant Contract is in the process of being awarded.
- The design for the raised platform for emergency generator has been completed, and materials are being procured.
- Generator is forecast to be delivered May 2014.
- The LIRR will coordinate with the Army Corp of Engineers and the Coast Guard to obtain all permits as Reynolds Channel is an active navigable waterway .

BUILT-IN RESILIENCY

- Equipment and Termination will be above flood plain or protected

BENEFICIAL USE FORECAST

- April 2017



Long Island Rail Road

West Side Storage Yard Restoration

SCOPE: Replacement of the following:

- Third rail components including cables, disconnect switches and protection boards.
- Switch machines, signal cables and signal racks
- Tower Controls and Signal Equipment.
- Communication Equipment, Radio Base Station, Fiber Optic Distribution Panel and CCTV Recording System.
- Facilities Power, Lighting and Fire Alarm Systems.

PROJECT STATUS

- The field headquarters and on-site equipment/material storage facility have been set up including installation of high security fencing.
- Procurement of F/A material is underway and replacement of third rail and signal cables has begun.
- Replacement of third rail disconnects, and switch machines is progressing.

BUILT-IN RESILIENCY

- Expose cable terminations will be protected to the extent possible. A future Resiliency Project includes perimeter flood walls.

BENEFICIAL USE FORECAST

- July 2018



Long Island Rail Road

Long Island City Yard Restoration/Resiliency Project

SCOPE

Long Island City Yard Repairs & Replacements / Improvements:

- Underground Systems (power, lighting, and communications systems).
- Third rail system to Tracks 9-12.
- Switch heaters and other wayside equipment
- Damaged facilities.
- Add Electrification to Tracks 7 and 8.
- New Drainage System

PROJECT STATUS

- Initial staging work consisting of the electrification of Tracks 7 and Track 8 is in process.
- Design contract for balance of work including Resiliency is expected to be award late April or early May 2014.



BUILT-IN RESILIENCY

- Design includes study and design of perimeter flood walls.
- Resiliency Resiliency portion of Project valued at \$26.8 Mil is pending approval.

BENEFICIAL USE FORECAST

- April 2017



Long Island Rail Road

Miscellaneous Infrastructure / Systems

SCOPE: Replacement of the following:

- Third rail power cable and switch machines at Shea yard and on the Far Rockaway Branch.
- Platform Shelter Shed at Westbury Station
- The roll-up gate at 34th street Entrance to Penn Station
- HVAC units and Roof at Hillside Support facility
- Platform Lighting for Oceanside and Island Park Stations

PROJECT STATUS

- Small Business Mentor Program (MTA SBMP) Contractors will be used for a significant amount of this work. Bids are due on May 28.
- Hillside roof scope and document review meeting held on April 4 with Facilities, DPM and Estimating. Final review comments for documents currently are being generated for incorporation in Contract.
- LIRR Forces will be replacing the platform light poles damaged at Oceanside and Island Park Station. Delivery of new poles is expect in May 2014.

BUILT-IN RESILIENCY

- Where possible termination will be above flood plain or protected

BENEFICIAL USE FORECAST

- March 2016



Long Island Rail Road

Service Impacts

LIRR continues to maintain the delivery of service while coordinating the demands of the Sandy Projects and other Capital Program Projects; as well as East Side Access; West Side Storage Yard Overbuild; and other construction activities.

- **The Long Beach System Restoration:** Work is currently being done under single off-peak track outage. This outage will continue through the November timetable and renewed as needed in 2015.
- **Traction Power Substation Replacements:** Replacement of Traction Power Substations/Components is being coordinated to ensure the Reliability of Service.
- **West Side Storage Yard:** All Sandy Yards Restoration Projects are being coordinated with on-going WSSY Overbuild Projects, the Gateway (Amtrak Tunnel) project, and other yard activities. LIRR is actively focusing their efforts on replacement of power systems in the western area of WSSY, away from the other contractor activities.

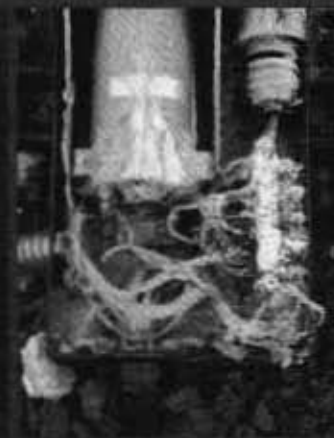


Resource Impacts

- Sandy Projects will require a combination of LIRR Engineering Force Account and Third-Party Contractors/Consultants.
- The use of LIRR Forces has permitted the early mobilization of a work force assigned to Sandy Projects.
- Third Party Contractors will work in areas that can be safely isolated from active Railroad Operations, and Systems. Third-Party Contracts will include the need to meet FTA Goals for Disadvantage Business Enterprises (DBE) .
- Small Business Mentor Program Contracts will be let out for installation of specific component replacements including elevated platforms, and pedestals needed to raise equipment above the flood plain.



Metro-North Railroad SANDY UPDATE - CPOC April 2014





Metro-North Railroad

SULLIVAN

Otisville

Middletown

Town of Wallkill

Campbell Hall

Port Jervis

Orange

Harriman

SUSSEX

Port Jervis

Orange

Harriman

SUSSEX

Port Jervis

Orange

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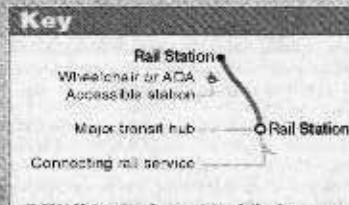
FLOODING KNOCKED OUT COMMUNICATIONS AND SIGNALS AND POWER SYSTEMS AND FLOODS TRACK AND YARDS

STORM SURGE IN MEADOWLANDS COMPLEX (NJ) AND HARMON YARD DAMAGES METRO-NORTH ROLLING STOCK

UNPRECEDENTED STORM SURGE ALONG HUDSON RIVER SHORELINE

SIGNIFICANT WIND/TREE DAMAGE KNOCKED OUT SERVICE ALONG HARLEM LINE AND NEW HAVEN LINE AND THE NEW CANAAN AND DANBURY BRANCHES

Superstorm Sandy
October 2012
Storm Damage



Note: Local power outages throughout Metro-North territory prevented service from operating during/after storm and hindered return to service.

Sandy Storm Surge and Wind Impacts



50% of Hudson Line Submerged



Harmon Yard Flood



Hudson Shoreline Erosion



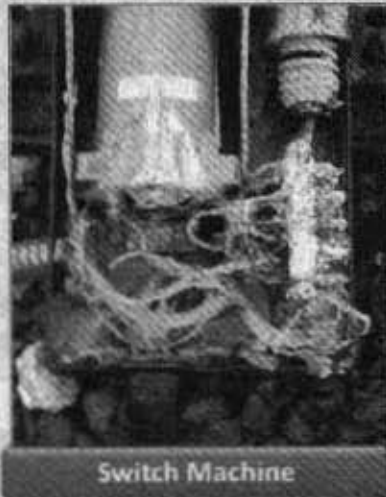
Tree and Wind Damage – System-wide



Power and Communications & Signal Infrastructure Damage



Electronics/Equipment damaged in facilities



Switch Machine



30+ miles damaged cables

MTA Metro-North Railroad



Sandy Program Goals

Restore
infrastructure
to **pre-Sandy**
conditions

- Safety
- Service reliability
- On Time Performance for Metro-North customers and the region

Improve **system**
resiliency
against future
natural
disasters

- Established Metro-North design guidelines
 - ABFE (Advisory Base Flood Elevation) + 4' as feasible
- Elevate/Harden Sandy restoration projects as feasible
- Determine flood/surge vulnerable infrastructure considering sea level rise due to climate change



Restore System to Pre-Sandy Conditions

Rolling Stock Repair

17 coaches and 7 locomotives

Right-of-Way Restoration

Tree removal, Hudson River bank stabilization

Operations Critical Hudson Line Infrastructure Inundated by Brackish Water

Substations, AC facility houses, communications and signals cables and equipment, power components

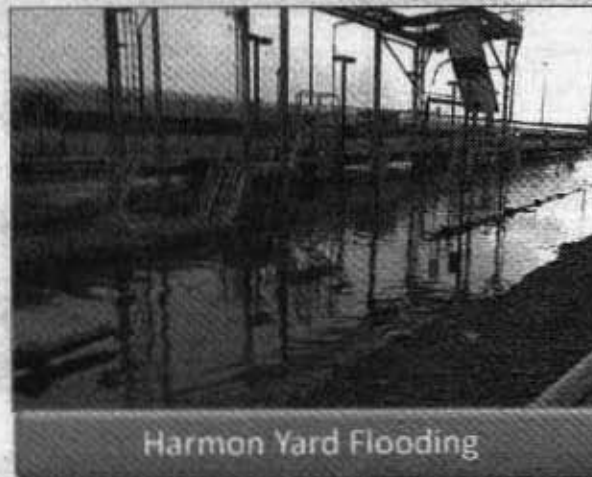


Sandy Restoration Program Overview - \$313 M

Project	Cost (\$M)	Status
Rolling Stock Repair	3.3	Complete
ROW Restoration - Trees	3.0	Underway
ROW Restoration - Shoreline	5.0	Underway
Power – Replace 3 Hudson Line Substations	40.0	Design completion: mid 2014
Power – Replace Harlem River Lift Bridge (HRLB) Facility Houses	5.0	Construction: June 2014
Power/C&S Infrastructure	238.0	30% Design Underway; Design-Build Start: January 2015
C&S Equipment Repair	19.0	Force Account Repair Underway
TOTAL	313.3	



Rolling Stock Repair - \$3.3 M



Harmon Yard Flooding

Damage

- East of Hudson: 11 coaches flooded (south Harmon Yard)
- West of Hudson: 6 Comet V coaches and 7 locomotives (Meadowlands Maintenance Complex)

Scope

- Coaches: Repair trucks, braking and HEP systems
- Locomotives: Repair trucks, motors, brake rigging, generators, and other systems

Status

- Complete
- New Jersey Transit insurance funding West of Hudson rolling stock repairs; \$1.675 M in funding will be returned to FTA

Right-of-Way Restoration: Hudson Line Erosion - \$5.0 M



Storm Erosion



Damage

- Storm surge and wave action damaged Hudson River shoreline between the Bronx and Poughkeepsie
- Critical immediate repairs enabled service restoration

Scope

- Install large size rip-rap to reduce potential for washouts from flooding/storm surge in vulnerable locations



Track/Embankment Restoration



Status

- 50% completion – October 2014
- 100% completion – July 2015

Right-of Way Restoration: Tree Program - \$3.0 M



Damage

- Trees fell on tracks crushing infrastructure/utility pole lines; removed in aftermath by on-call tree contractor
- Miles of fallen, damaged or weakened trees remain in close proximity to critical infrastructure; vulnerable to a future wind event

Scope

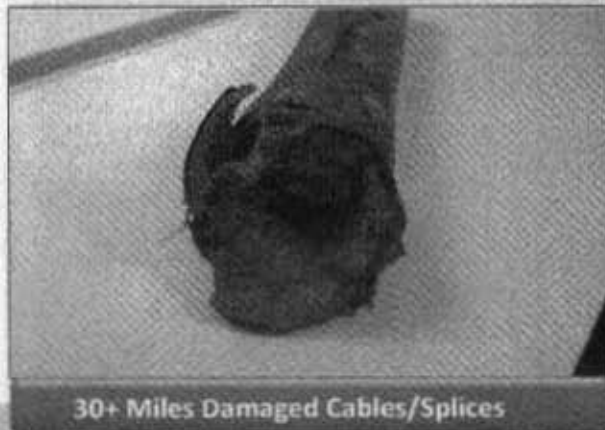
- Remove damaged/weakened trees along right-of-way (up to 25' from track) to protect customers and infrastructure from a future wind damaging event

Status

- 3rd party Contract Underway
- Completion: Fall 2015



30+ Miles Hudson Line Power and C&S Infrastructure: \$238 M



30+ Miles Damaged Cables/Splices

Damage

- Power components damaged and failed or with useful life reduced due to salt water intrusion
- C&S cable plant compromised

Scope

- Replace 30+ miles flooded and damaged railroad infrastructure from the Bronx to Croton-Harmon (Phases 1 and 2)
- 30 miles of communications and signal cable plant
- Traction power cables and components

Status

- Design:
 - 30% design - mid 2014 completion
- Construction:
 - Award Design-Build contract (Ph 1) January 2015; Completion January 2017
 - Award Phase 2 January 2017, Completion 2019

Power: Replace 3 Hudson Line Substations - \$40 M



Damaged Substations



Substation Replacement - Elevated (Tarrytown rendering)

Damage

- Traction power substations flooded
- Temporary repairs complete; latent impacts from brackish water continue

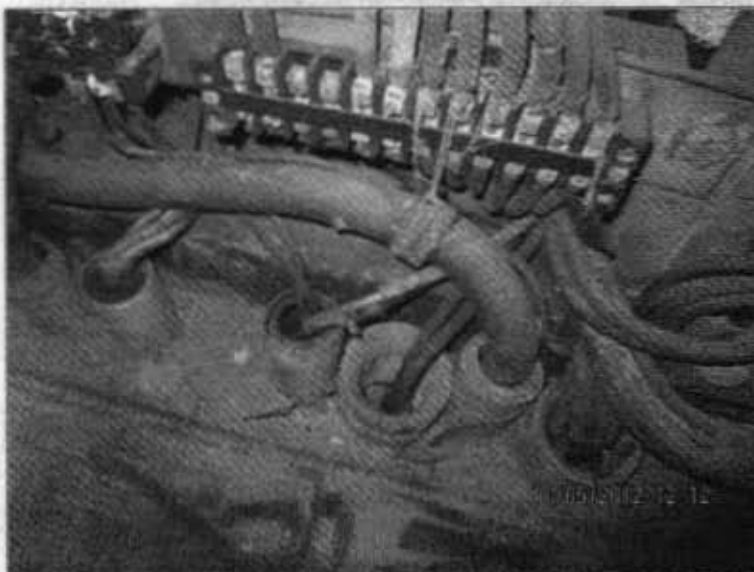
Scope

- Replace 3 traction power substations: Riverdale (A-13), Tarrytown (A-25) and Croton-Harmon (A-33)
- Elevate substations to ABFE + 4 as feasible

Status

- Design:
 - Ongoing: Completion anticipated June 2014
- Construction:
 - Advertise Mid 2014
 - Award: 4th Q 2014
 - Completion anticipated: 4th Q 2016

Power: Harlem River Lift Bridge Facility Houses - \$5 M



Damaged Breaker House - HRLB

Damage

- Facility Houses providing power to raise and lower HRLB were flooded and compromised
- Circuit Breaker Houses providing traction power over bridge flooded and damaged; replacement underway under capital project. Already in design stage when Sandy hit; modified design to elevate

Scope

- Replace HRLB facility houses
- Elevate and protect critical equipment
- Temporary repairs complete but latent damage etc.

Status

- Design:
 - Complete
- Construction:
 - Start: June 2014
 - Complete: April 2015

Communication & Signal Components: \$ 19 M



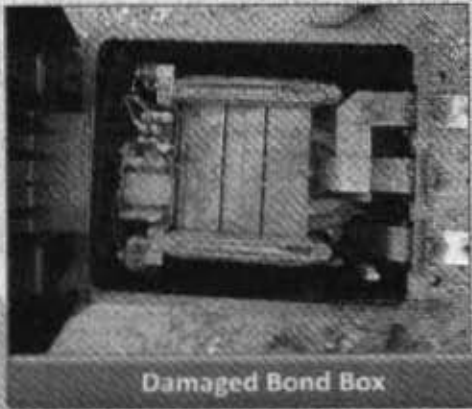
Communications Node House

Damage

- C&S equipment was flooded and damaged or failed

Scope

- Replace miscellaneous C&S damaged/failed components throughout the right-of-way (e.g., bond boxes)



Damaged Bond Box

Status

- Construction ongoing:
 - Procure materials
 - Force Account installation through 2019

Sandy Resiliency Program Overview – up to \$ 606 M

Project	Cost (\$M)	Funding Status
Metro-North Penn Station Access Resiliency Improvements	516.0	Competitive Resiliency Grant application submitted – March 28, 2014
Power and Signals Resiliency	50.0	Competitive Resiliency Grant application submitted – March 28, 2014
Special Equipment	12.0	Discussions with MTA and FTA Ongoing
Water Level Monitoring/Alarms/CCTV	25.0	FTA Local Resiliency Funding for Scalable Project
TOTAL	606.0	



Metro-North Penn Station Access Network Resiliency Improvements - \$516 million



Metro-North Penn Station Access via Hell Gate Line

Scope

- Improve network resiliency by upgrading existing Amtrak Hell Gate Line with power, signal, track and structures improvements
- Provides a second terminal at Penn Station for New Haven Line service in an emergency

Status

- Grant application for Sandy Competitive Resiliency funding submitted March 28, 2014
 - Fall 2014 timeframe on funding
- Continue Technical Analysis and Environmental Review work

Power and Signals Resiliency - \$50 M



Scope

- Substations: Protect *existing* Hudson Line substations against 50, 100, and 500 year storm events.
- Interlockings: Construct elevated platforms to house critical infrastructure
- Yards: Explore resiliency concepts to protect vulnerable Harmon and Highbridge Yard areas (small perimeter flood walls, temporary deployable flood walls) locations.

Status

- Grant application submitted for Sandy Competitive Resiliency funding March 28, 2014
- Fall 2014 timeframe on funding

Specialized Equipment - \$12 M



Rail Vacuum Machine

Scope

- Procure Rail Vacuum Machine
- Procure Continuous Welded Platform



Continuous Welded Platform

Status

- Specifications completed
- FTA local resiliency funds

Water Level Monitoring/Alarms/CCTV - \$25 M



Power Substation – Remote Terminal House

Scope

- Water level monitoring and cameras at key infrastructure system-wide
- Elements of project included in Signals and Power Resiliency Improvements project

Status

- FTA local resiliency funds for scalable project

Sandy Impacts/Challenges

Pre Restoration Operations

- Sustain service reliability despite latent brackish water damage
- Increased maintenance for power, communications and signals infrastructure

Metro-North Resources

- Increased workload for existing employees
- New hires for Capital Engineering and Maintenance of Way

Track Access During Restoration/Repair Projects

- 4 year phased project on Hudson Line from Bronx to Croton-Harmon (30+ miles)
- Continuous 1 track outage – multiple months per each block
- Maintain railroad operations for 83+ million customers system-wide; 20% Hudson Line customers (45,000 daily riders)

2010-2014 Capital Program

- Minimal impact on program
- Utilize existing contractor to fast track some construction work
- Incorporated new design standards into existing projects to protect from future storm events (e.g., HRLB Circuit Breaker Houses)

2015-2019 Capital Program Planning

- Evaluate resiliency needs and incorporate design standards
- Coordinate implementation strategy with 4 year Hudson track outages to maximize synergistic opportunities/efficiencies

MTA Bridges & Tunnels

Super Storm Sandy Restoration & Resiliency Presentation

April 28, 2014



Purpose

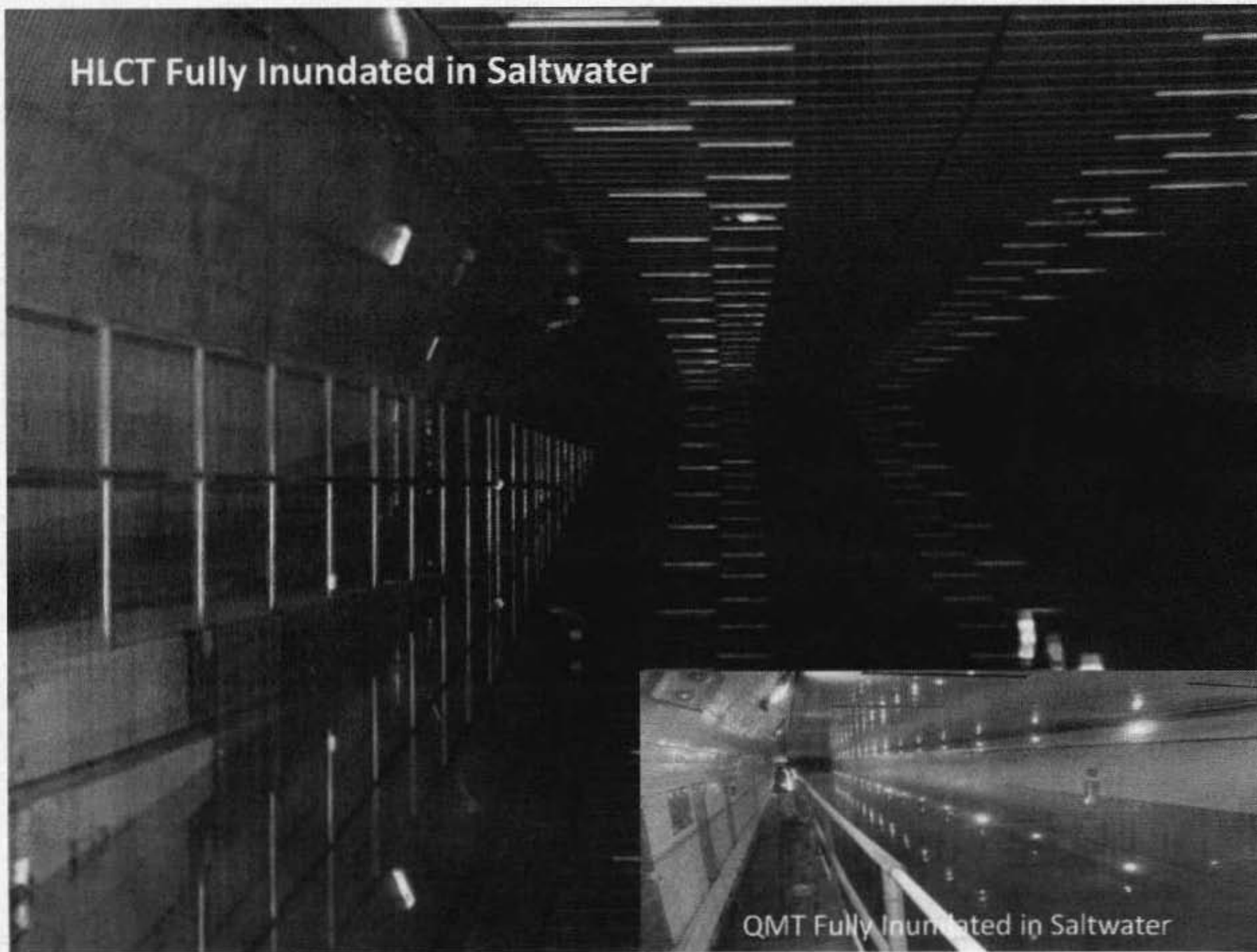
Update CPOC on progress to date on B&T facilities with major damage from Sandy:

- Hugh L Carey (formerly Brooklyn Battery) Tunnel (HLCT)
- Queens Midtown Tunnel (QMT)

Review rapid mitigation measures completed to date

Discuss preliminary long-term resiliency initiatives

HLCT Fully Inundated in Saltwater

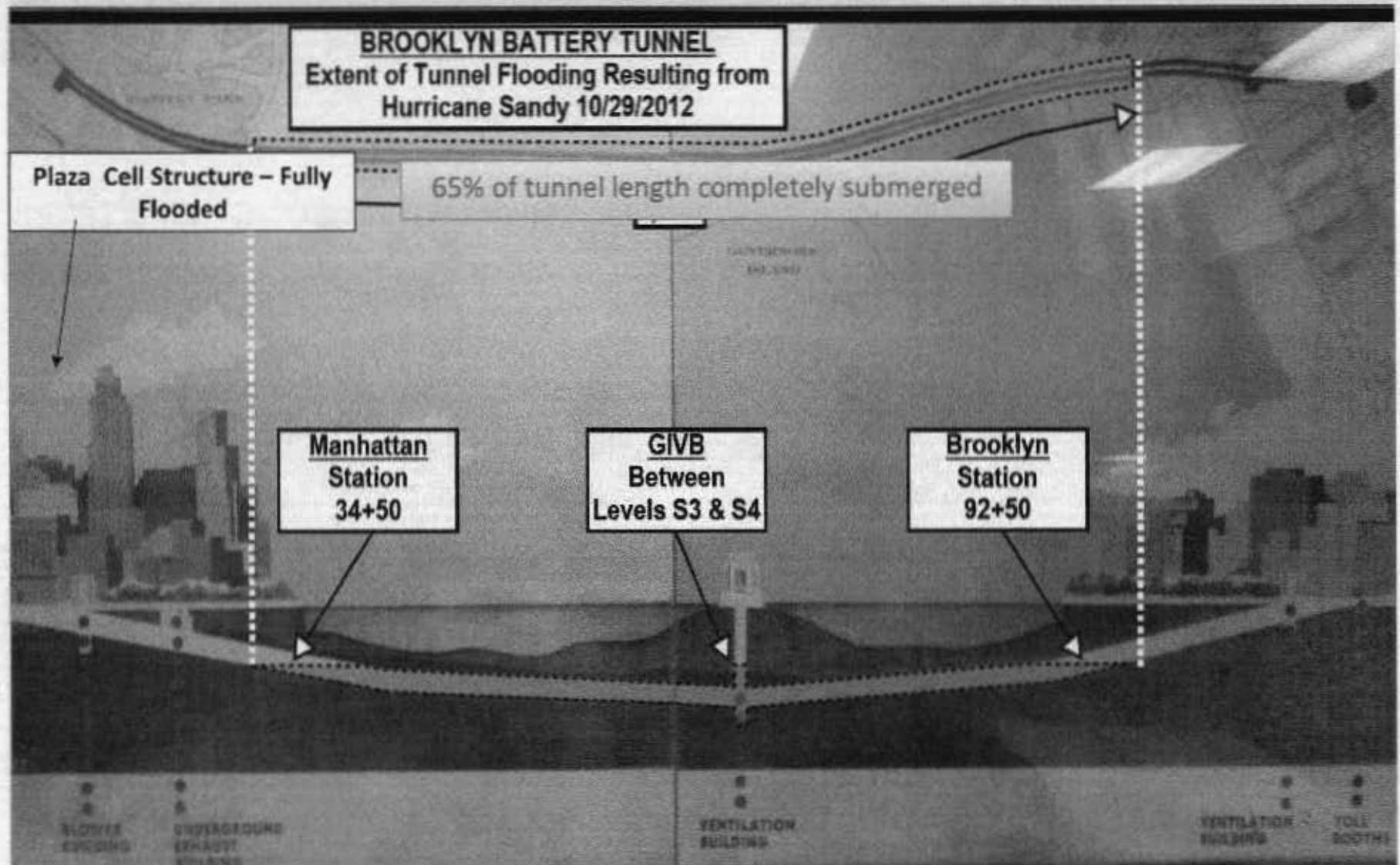


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QMT Fully Inundated in Saltwater

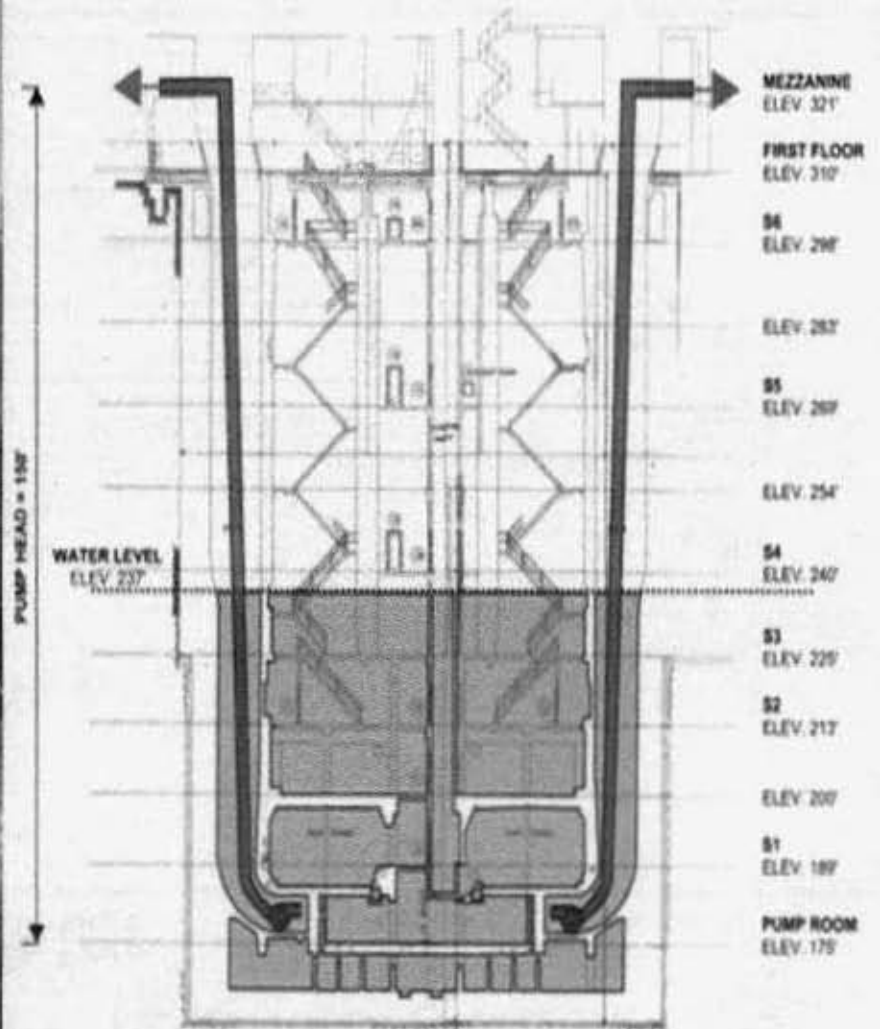
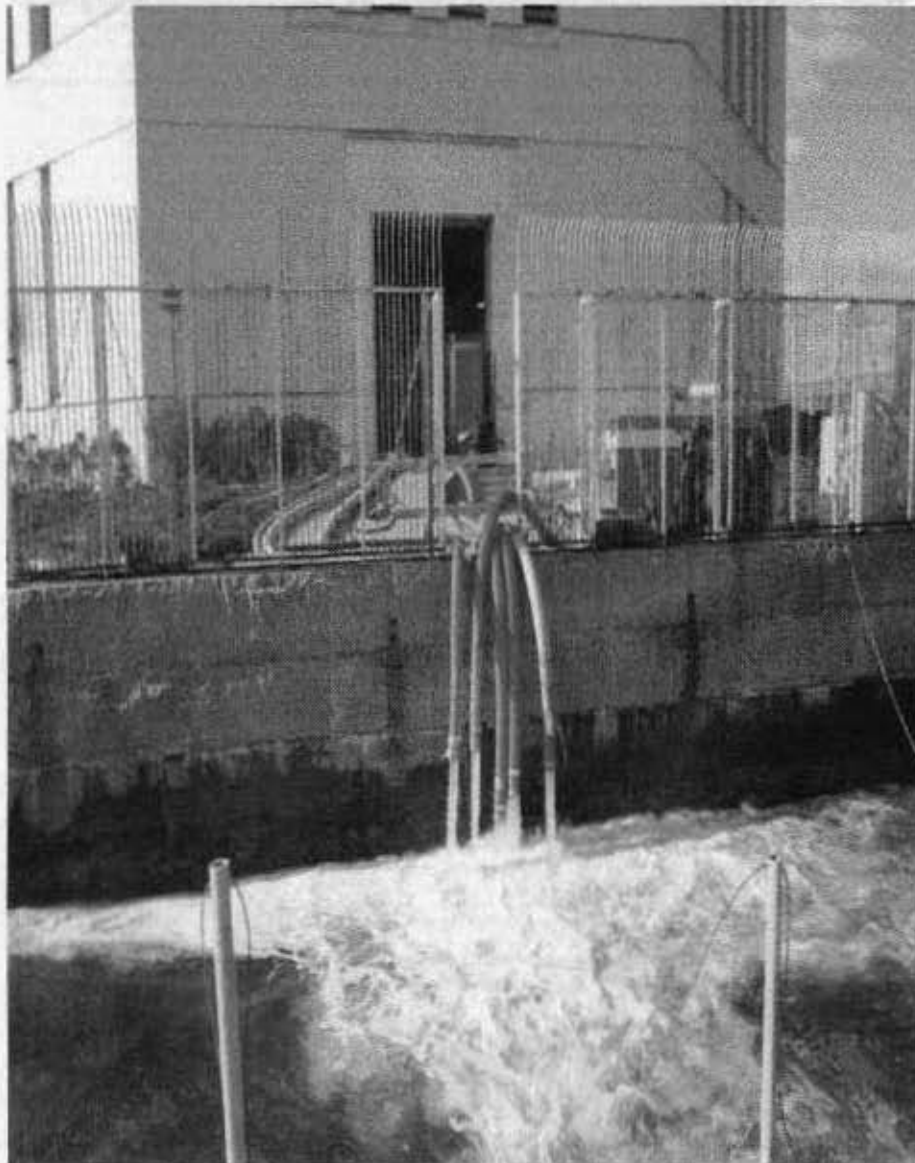


HLCT – Sandy Flood Limits – 60 Million Gallons of Saltwater



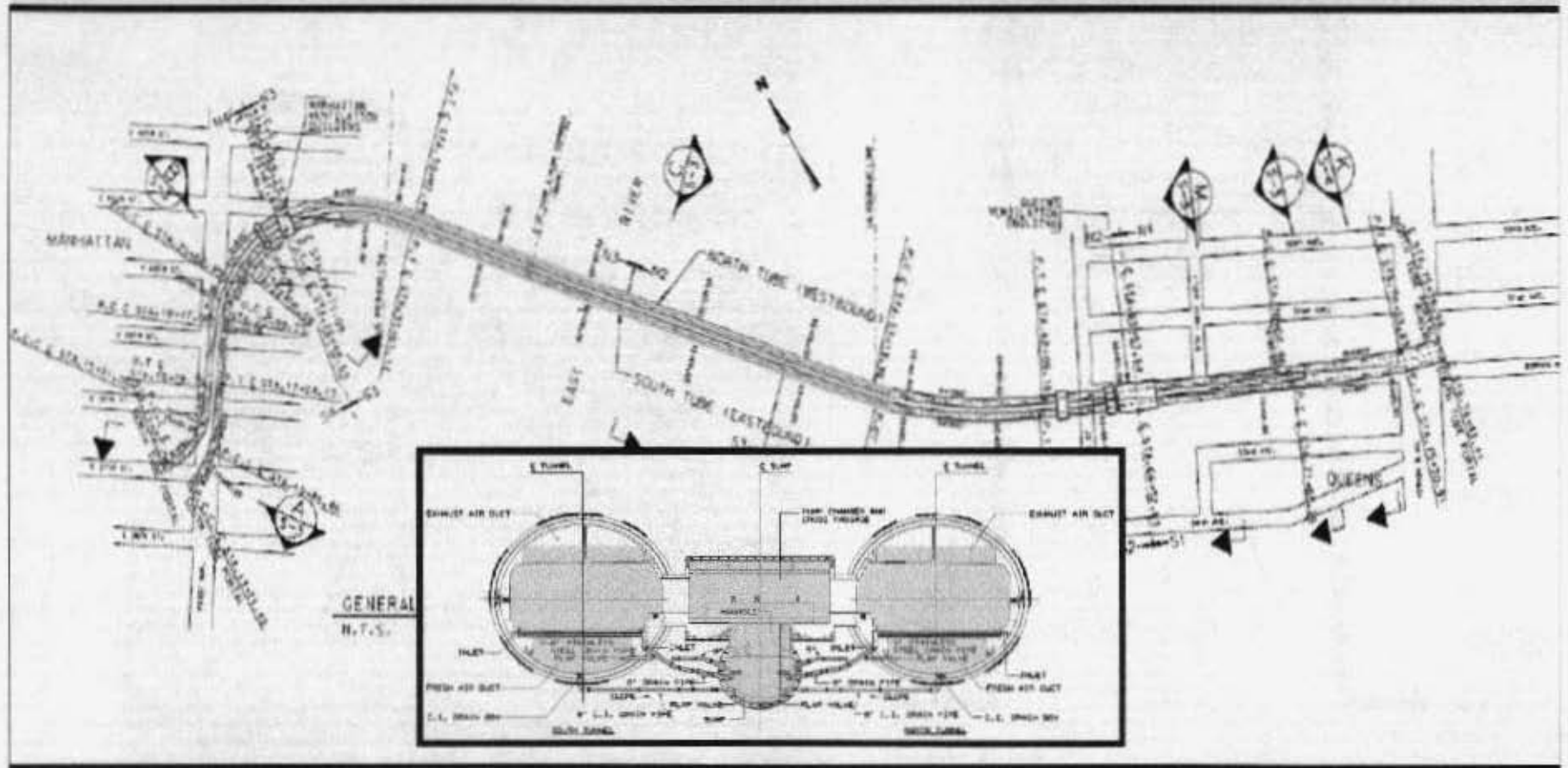
HLCT Governor's Island Vent Building Inundation

2 - 37



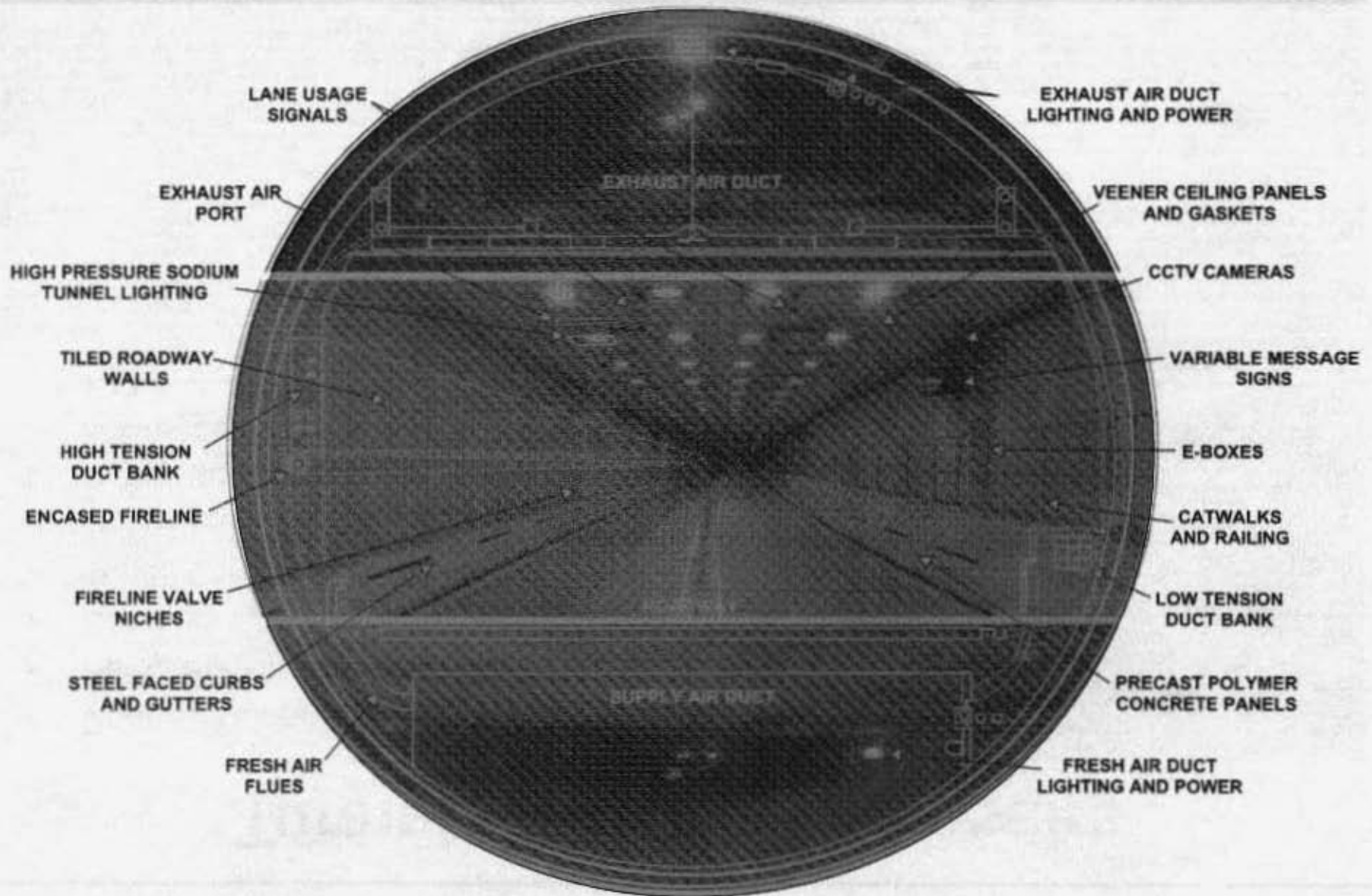
Bridges and Tunnels

Queens-Midtown Tunnel - 12 Million Gallons of Saltwater



Approximately 40% of the tunnel length completely submerged in saltwater

Tunnel Elements and Systems Damaged by Sandy



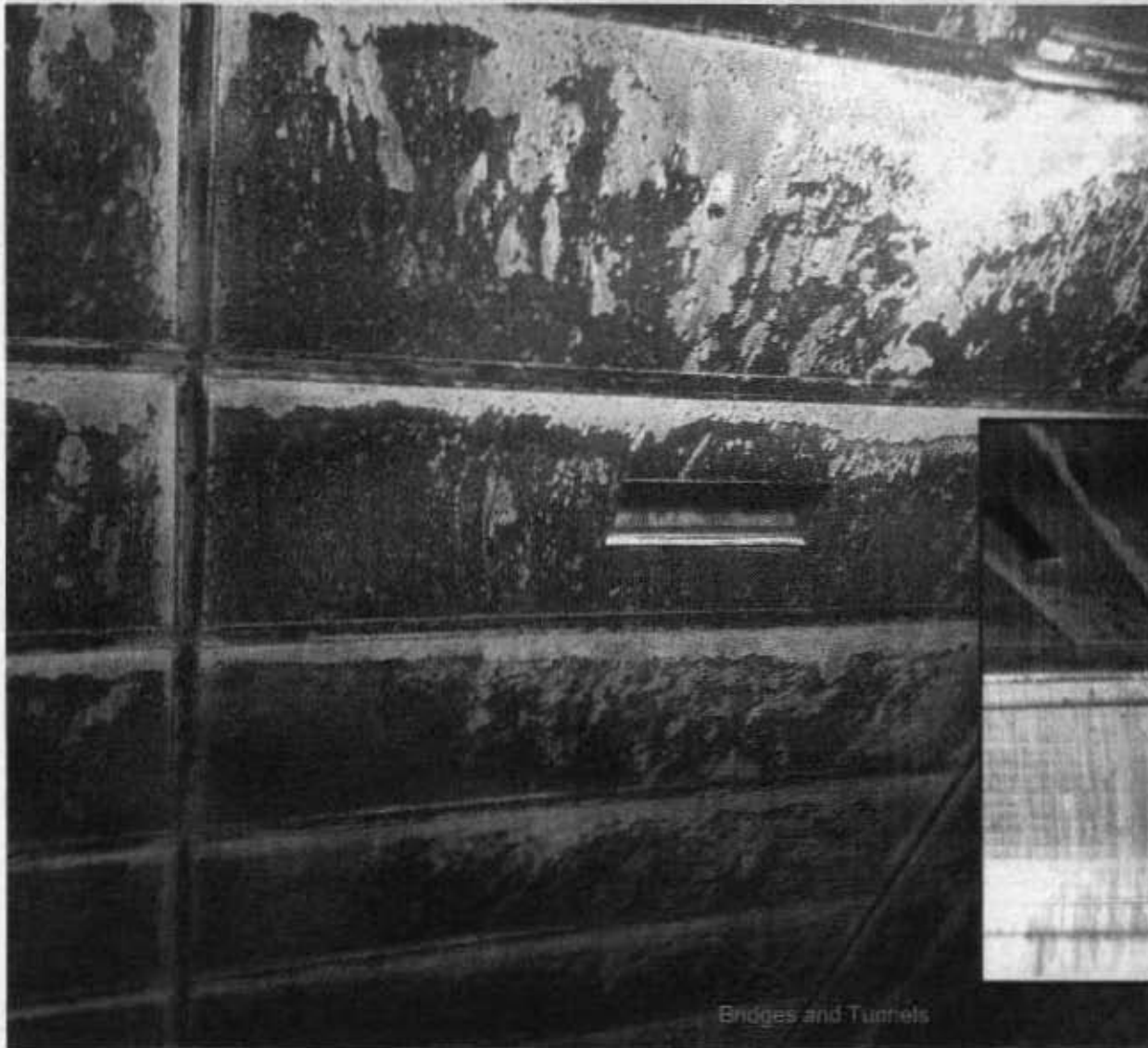
Tunnels Temporary Repairs

- Roadway Lighting
- Pump Stations
- Cameras
- Traffic Control System
- Communication System
- Removed over 12,000 veneer suspended ceiling panels at the HLCT and over 2600 at the QMT



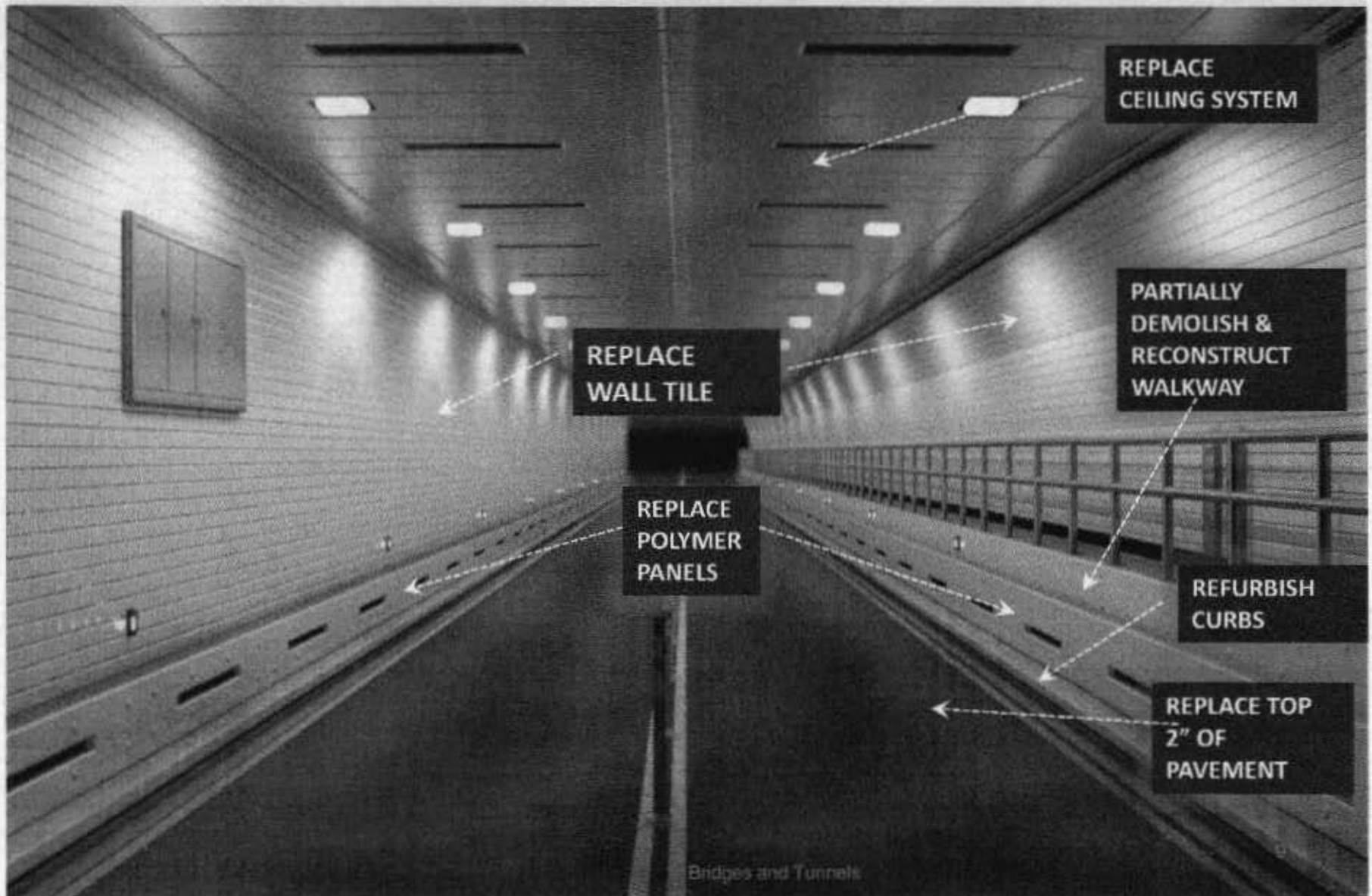
Bridges and Tunnels

Tunnel Finishes – Submerged in Saltwater

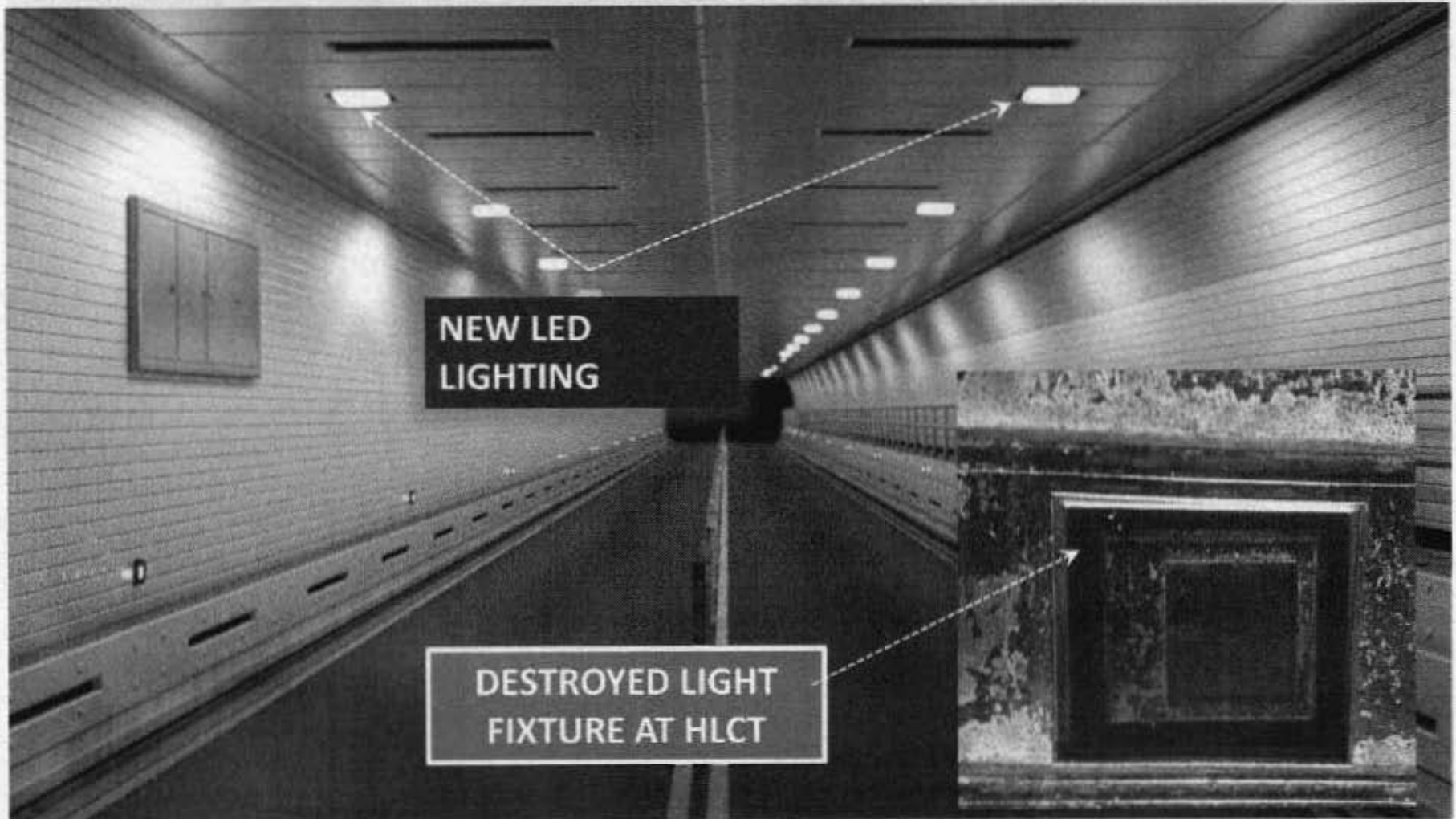


Bridges and Tunnels

Replacement of Tunnel Finishes & Interior



Tunnel Lighting Replacement - LED



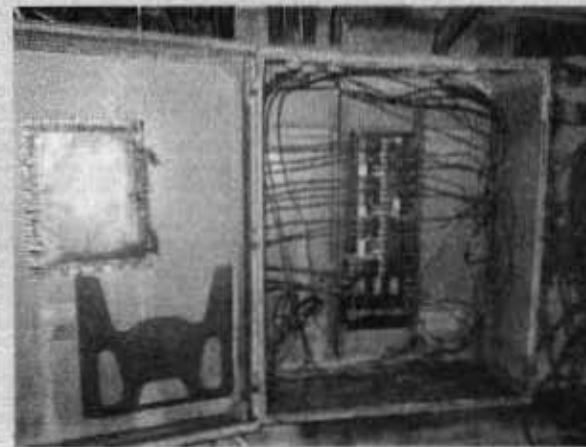
At HLCT over 65% of tunnel lighting system completely destroyed by saltwater. Bridges and Tunnels

Replacement of Drainage Pumps



MITIGATION MEASURES:

- REPLACE DRAINAGE PUMPS AND MOTORS WITH MORE RESILIENT SUBMERSIBLE PUMPS AT HLCT PUMP ROOMS
- REPLACE PUMPS AT MID-RIVER PUMP ROOM AT QMT
- RAISE PUMP CONTROLS TO HIGHER ELEVATION

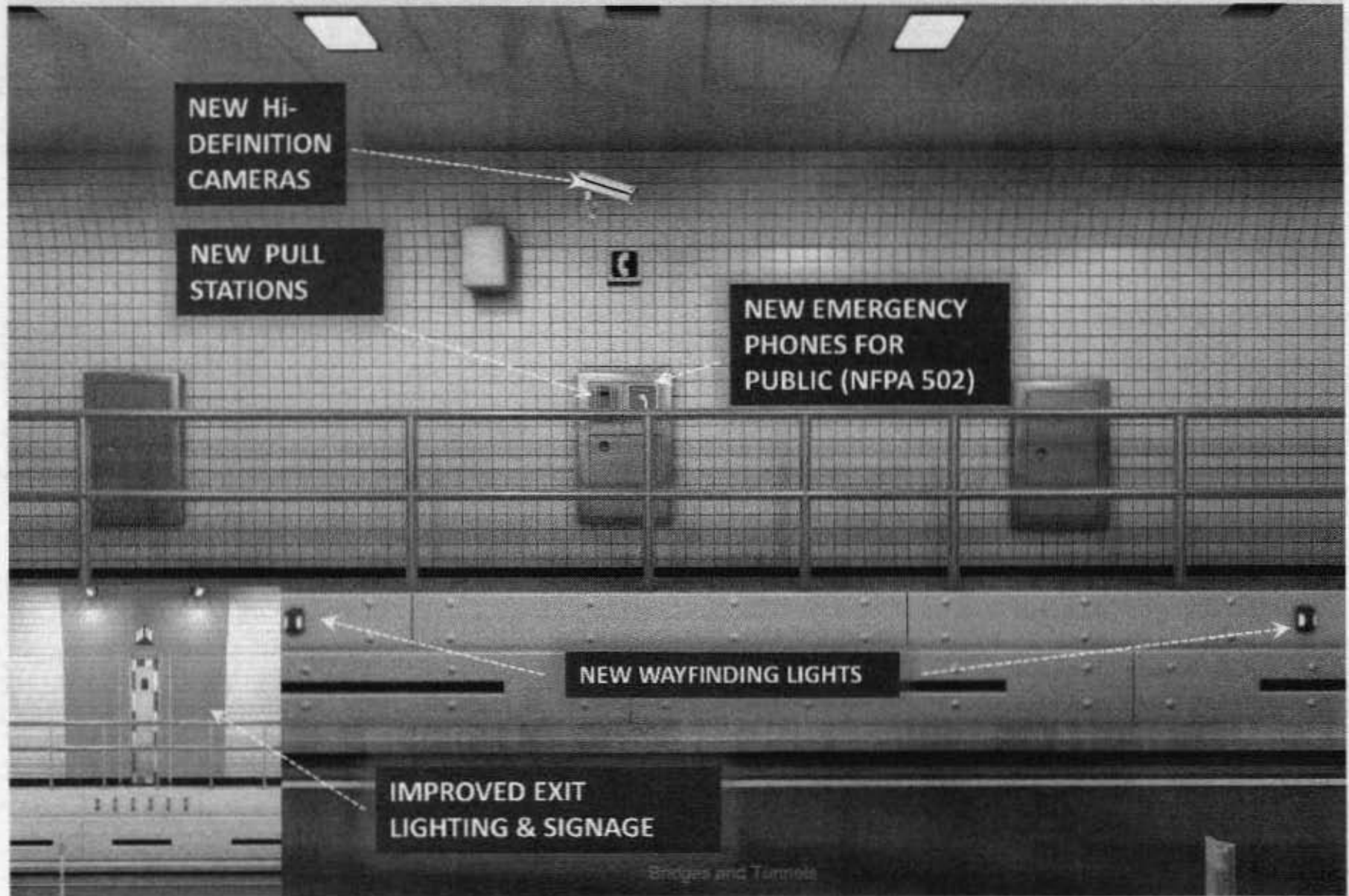


Cameras, Communication & Traffic Control Systems



Over 65% of the tunnel's E-Boxes, Lane Use Signals, Variable Message Signs, and Cameras damaged. Bridges and Tunnels

Tunnel Modernization Measures



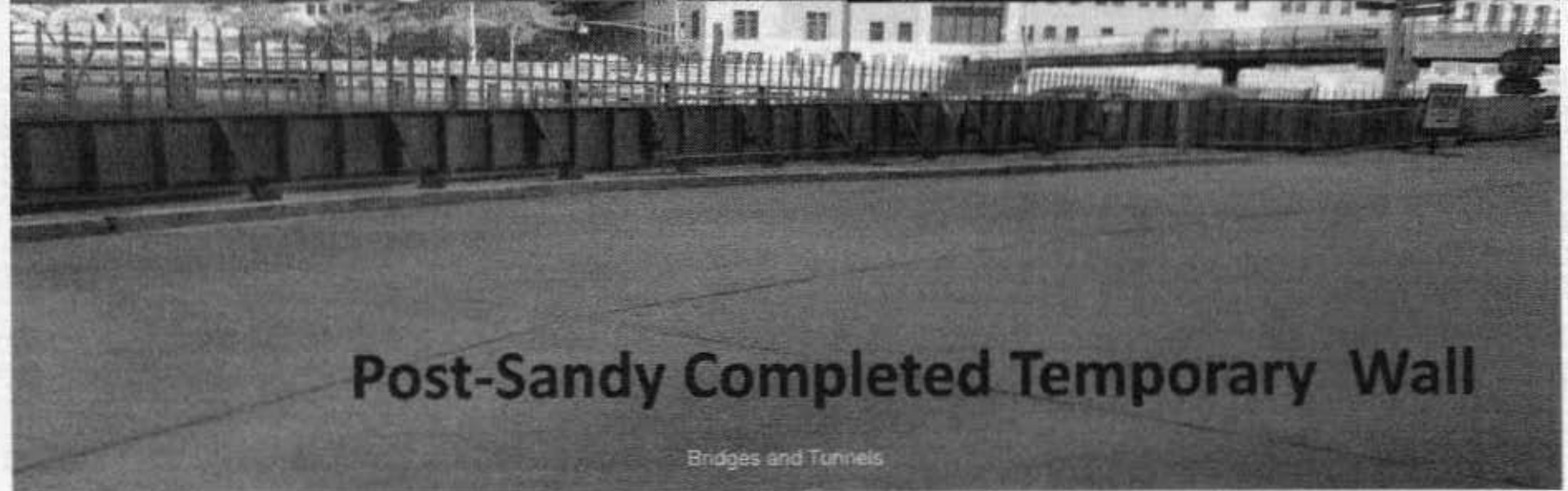
B&T Flood Resiliency/Mitigation Plan

- "Short Term" (Rapid Mitigation) Measures - These measures will be designed and implemented for protection against an event equivalent to a repeat of Sandy
- "Long Term Measures" - These measures will be designed to provide protection against FEMA 500-year flood event: Design Flood Elevation of 15 feet

The goal is to provide full- time permanent flood defense with minimal operational costs



Morris St. Rapid Mitigation Temporary Wall System (HLCT)



Proposed Long-Term Resiliency Measure: Permanent Retaining Wall at Morris Street (HLCT)



Bridges and Tunnels

Rapid Mitigation Measure for Tunnel Plazas: Water-filled Cofferdams

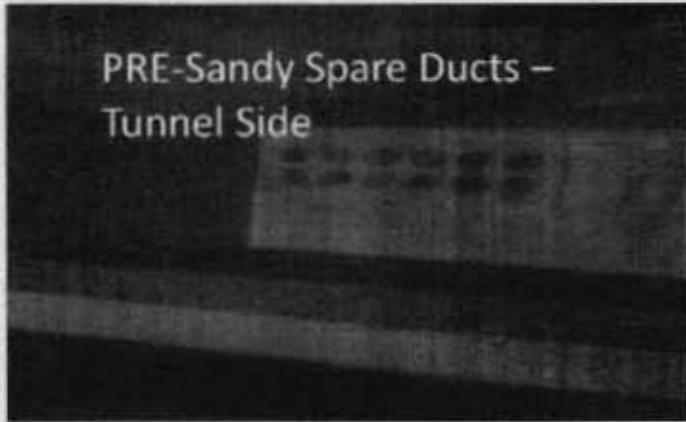
HLCT Manhattan Plaza

QMT Queens Plaza

Bridges and Tunnels

Sealing of Spare Ducts (Con Edison Vault - HLCT)

PRE-Sandy Spare Ducts –
Tunnel Side



PRE-Sandy Spare Ducts – Con
Edison Side



POST-Sandy Sealed Spare Ducts –
Tunnel Side

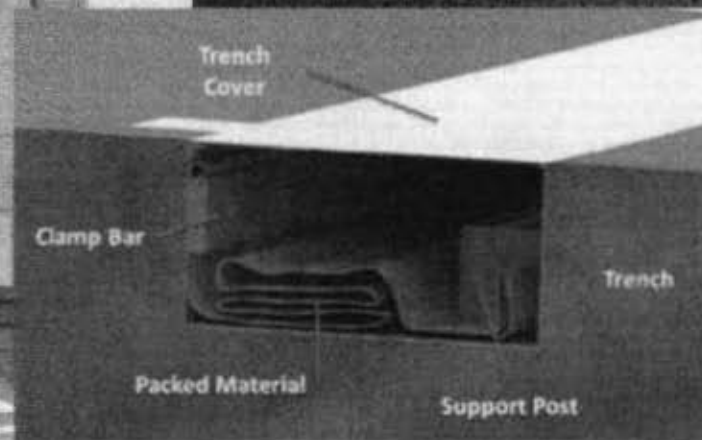
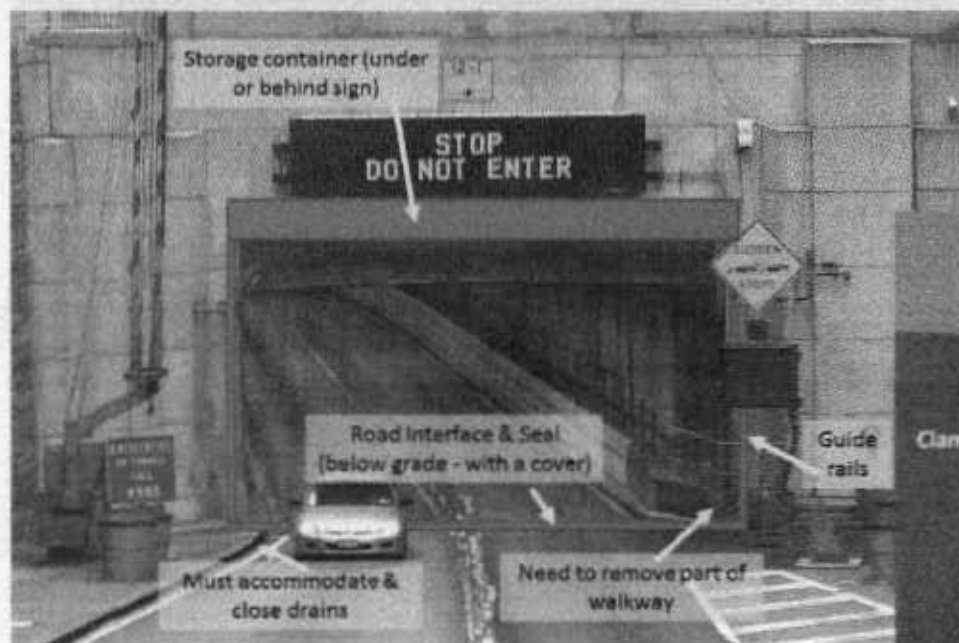
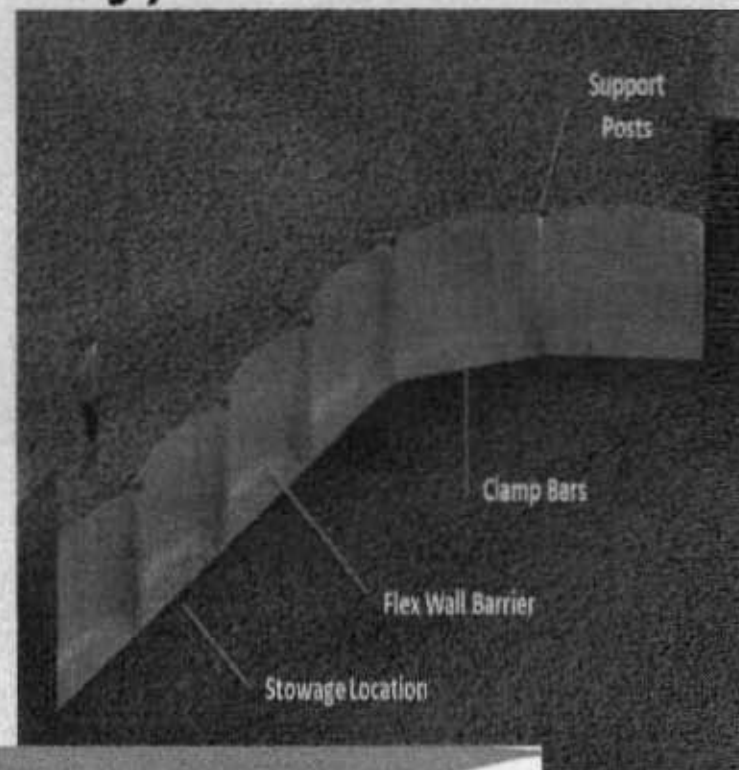


POST-Sandy Sealed Spare Ducts –
Con Edison Side



Tunnels Long-term Resiliency/Mitigation Concepts (Design Underway)

- Portal Flood Protection - Flood Walls/Flood Gates
- Raised Seawall at Governors Island
- Relocation of Revenue Control Equipment
- Emergency Generator at Governors Island Vent Bldg (HLCT)



Schedule & Budget Overview for Tunnels Contracts

Construction:

- Projects presented to General Contractors Association (GCA) to maximize interest and competition
- Follow-up GCA M/WBE Outreach to be held in May 2014
- Maximizing opportunities for As-Needed contractors and SBMP
- Regional coordination with NYSDOT & NYCDOT is on-going
- Community Board Briefing
- Major Contract Award:
 - HLCT – 4th Quarter 2014; Estimated Duration 54 months; Budget \$350M
 - QMT – 1st Quarter 2015; Estimated Duration 48 months; Budget \$250M

Design:

- HLCT Final Design – 2nd Quarter 2014
- QMT Final Design - 3rd Quarter 2014
- Risk Assessment/Constructability Review – On-going

Construction Management:

- Award May 2014 (HLCT & QMT)

Sandy Impacts to Capital Program

- Realigned scheduled capital work with Sandy restoration work:
 - HLCT: BB-28 Phase 2 and BB-54
 - QMT: QM-40 and QM-18
- Accelerated design process to include Sandy restoration as well as planned capital work
- Adjusted timing and budgets of 20-Year Capital Needs for in-tunnel state-of-good repair capital work
- Increased focus on asset resiliency





· **Superstorm Sandy**
· **Recovery & Resiliency**
· **New York City Transit**



Capital Program Oversight Committee | April 2014

NYCT Critical Facilities Storm Surge Flooding



Under-River Tunnels



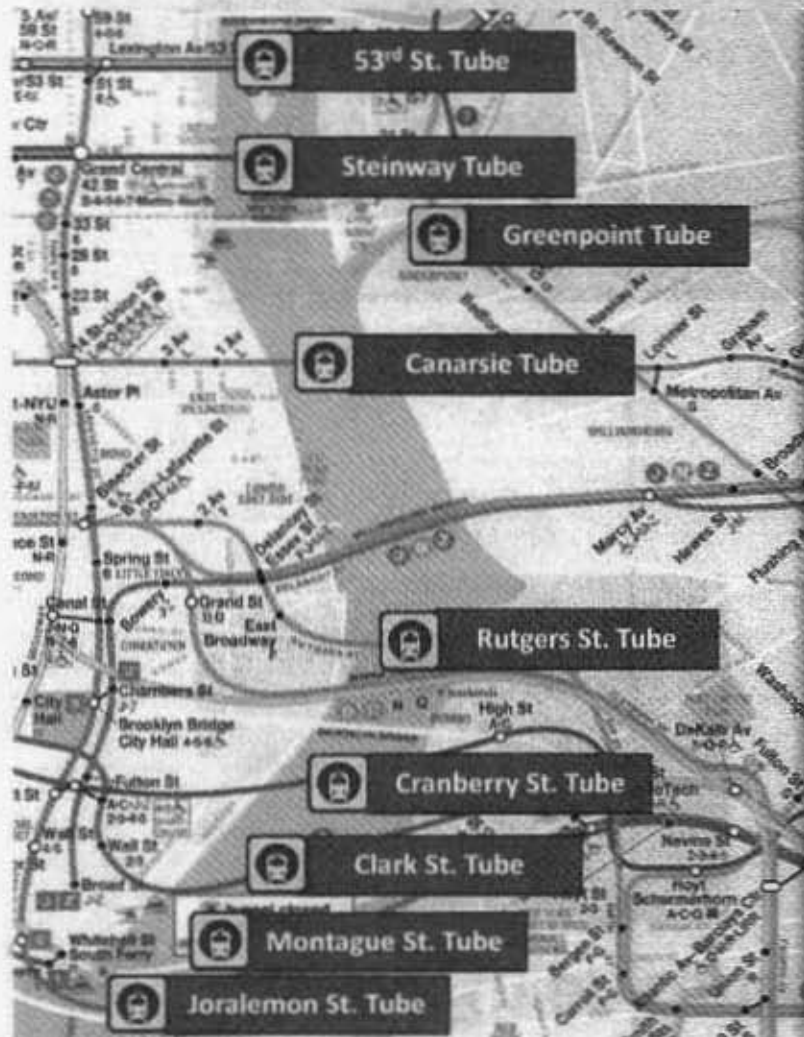
Yards, Terminals & Shops



Stations

NYCT Critical Facilities Storm Surge Flooding

2 - 57



Under-River Tunnels

3 Under Construction

- Montague
- Greenpoint
- Steinway

2 In Procurement

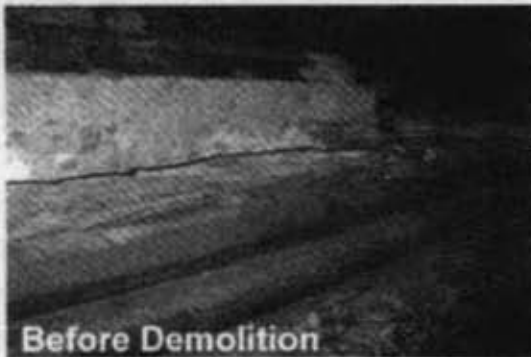
- Rutgers
- Cranberry

4 In Design

- 53rd Street
- Clark Street
- Joralemon
- Canarsie



Under-River Tunnels – Montague Street Tube



Before Demolition

- **Contract Awarded:** July 2013
- **Aggressive Construction Duration:**
20 mon – 14 mon 2 tracks 24/7 schedule
- **Incentive for Early Completion:**
Restoration of R Train



During Demolition



After

Under-River Tunnel: Status

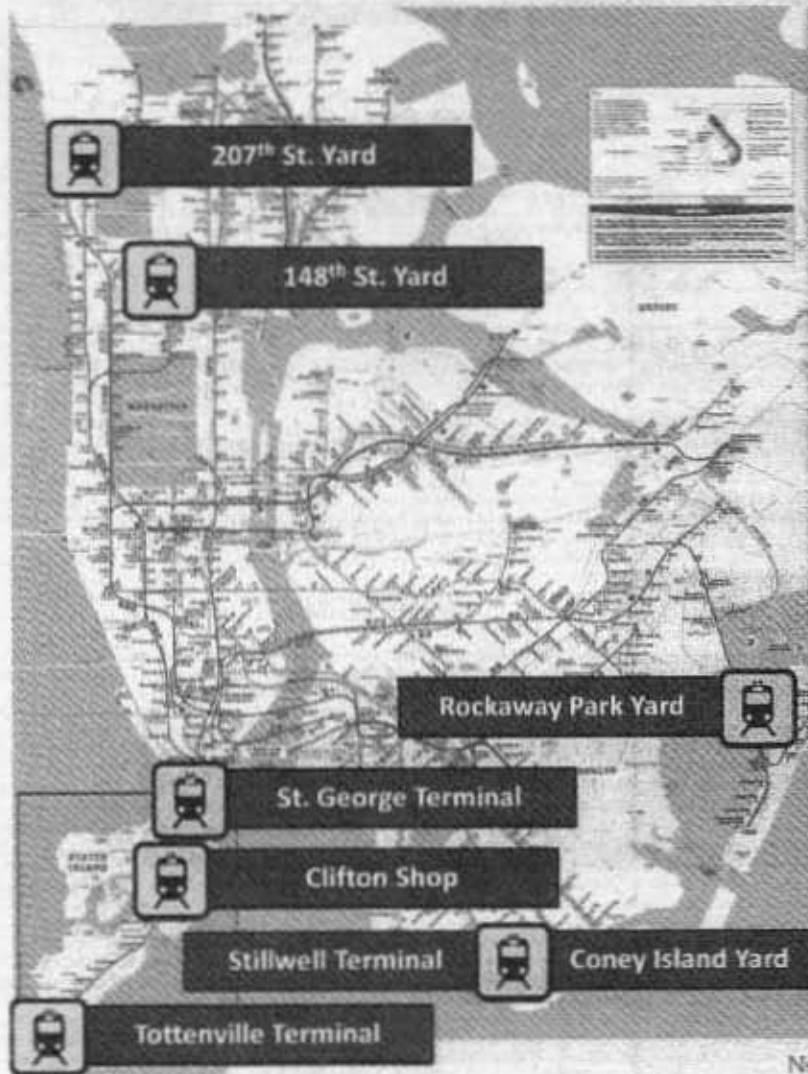
Project	Design	Construction Awards	Total Cost
Greenpoint	100%	July 6, 2013 A	\$75M- \$100M
Montague	100%	July 31, 2013 A	\$200M - \$250M
Steinway	100%	October 24, 2013 A	\$15M – \$20M
Cranberry & Rutgers	98%	July 2014 F	\$125M - \$150M*
53 rd Street	40%	November 2014 F	\$50M - \$80M*
Joralemon	15%	April 2015 F	\$50M - \$80M*
Canarsie	20%	May 2015 F	\$200M - \$300M*
Clark Street	80%	March 2016 F	\$75M- \$100M*

* Conceptual Construction Estimates



New York City Transit

NYCT Critical Facilities Storm Surge Flooding



Yards, Terminals &
Shops

2 Under Construction

- Clifton Shop – Near Term
- Stillwell Avenue Terminal

1 In Procurement

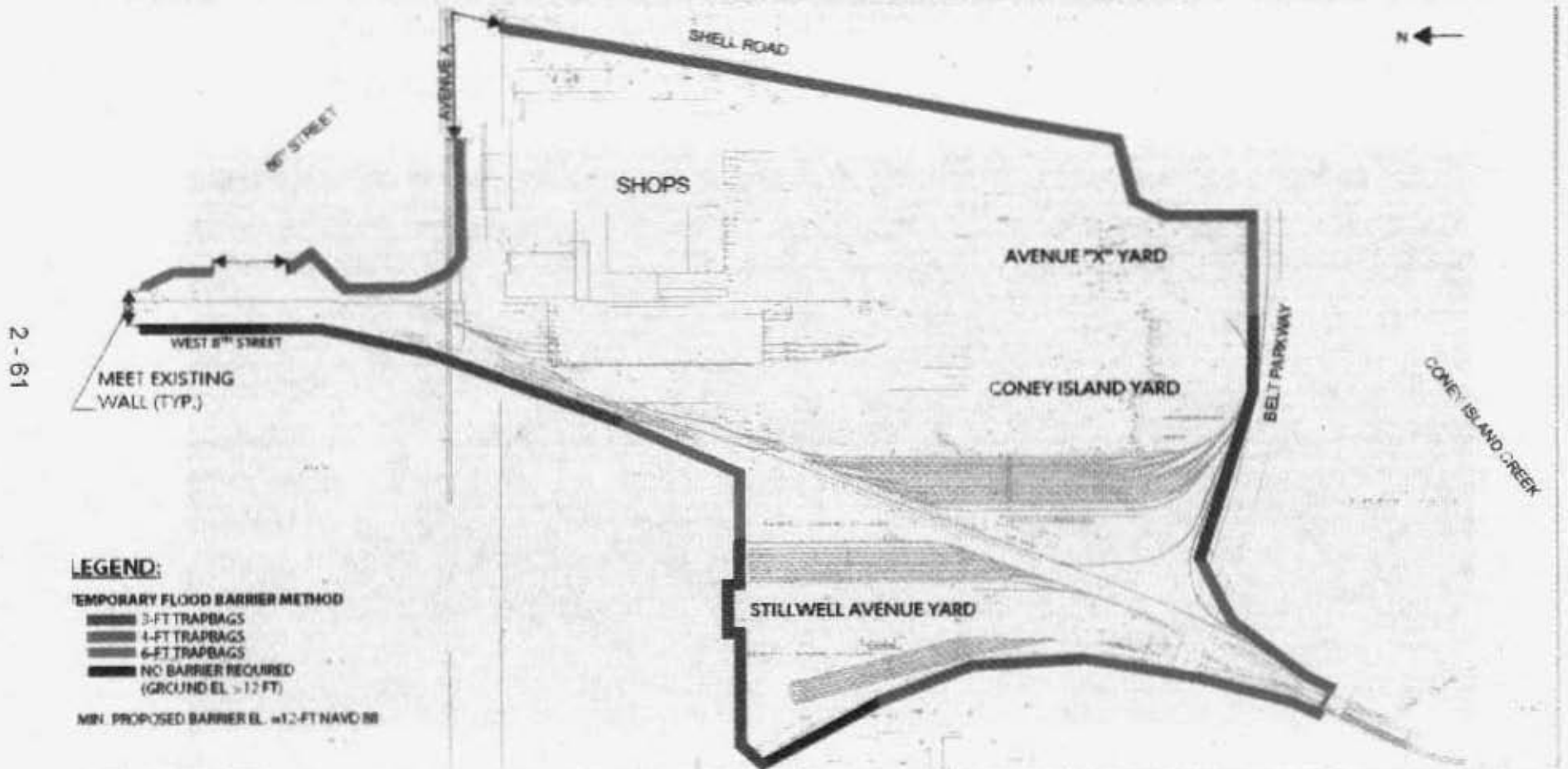
- St. George Terminal

5 In Design

- 207th Street Yard
- 148th Street Yard
- Rockaway Park Yard (Study)
- Coney Island Yard



Interim Mitigation – Coney Island Yard





Interim Mitigation – Coney Island Yard



Sample Construction

- **Contract Award:** *July 2014*
- **Construction Contract Duration:** *5 Months*
- **Service Contract Duration:** *5 Years*





St. George Terminal



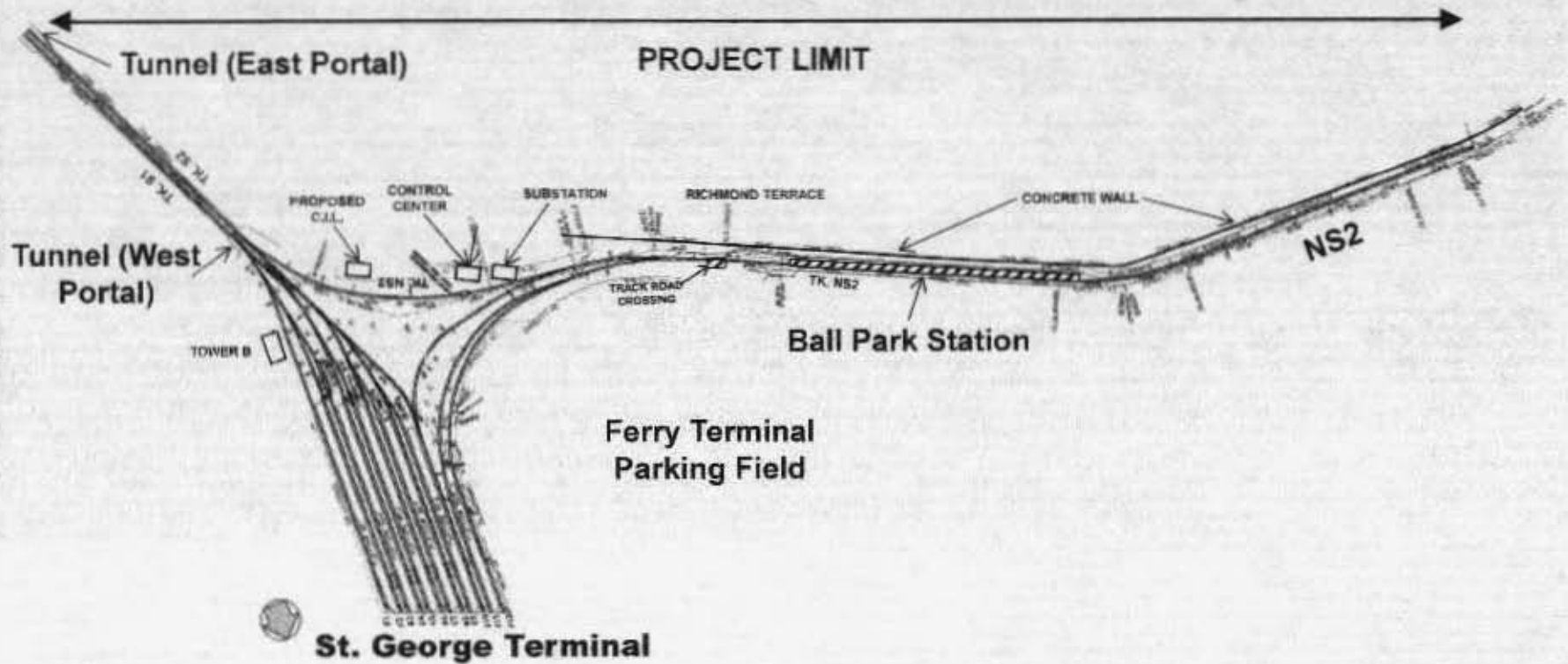
New York City Transit



St. George Terminal

- East portal of the tunnel to the west end of track NS2.
- Tracks 1 through 12 at Terminal.

2-64



New York City Transit



St. George Terminal

Major Scope Items

- Install 12 new Tracks (11,000')
- Install 13 new Switches and a Diamond Crossovers
- Install new Signal interlocking and Relays
- Construct elevated Signal Relay and Battery Rooms
- Install Power, Communication, and Control systems
- New Ejector Pump and Drainage system

Collaboration/Coordination

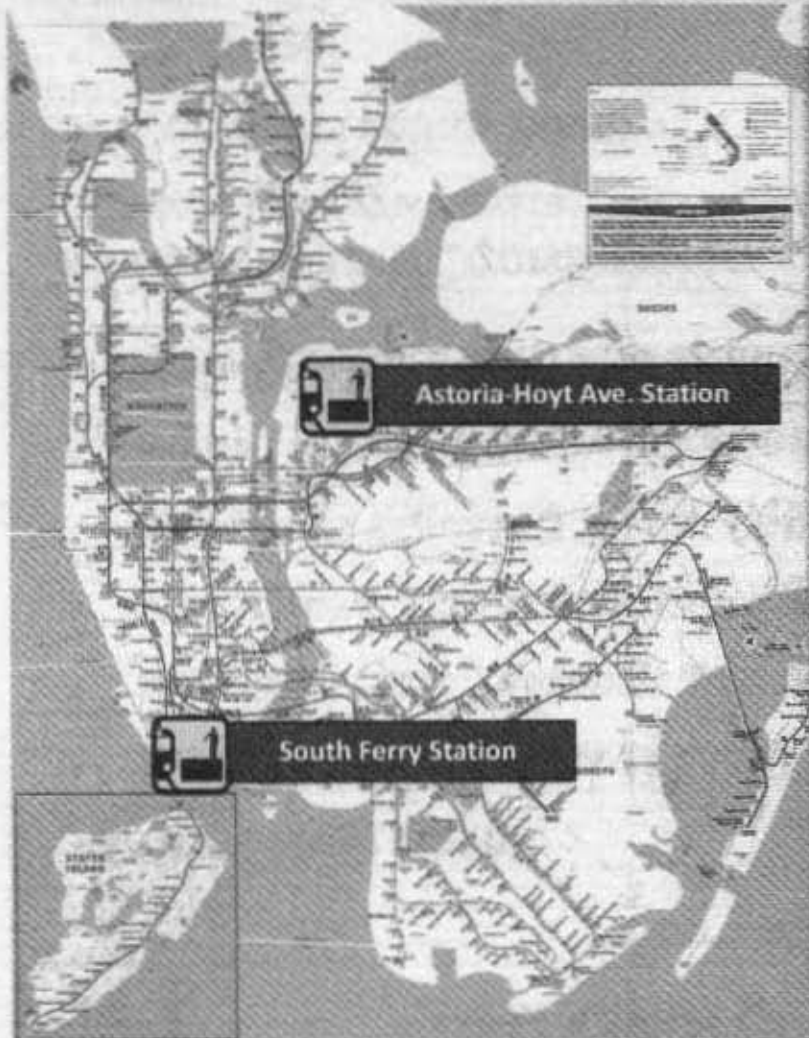
(NY Wheel, Empire Outlets, Other Agencies)

- Constructability Reviews
- Technical
- Construction Phasing and Site Access



NYCT Critical Facilities Storm Surge Flooding

2 - 66



Stations

1 In Procurement

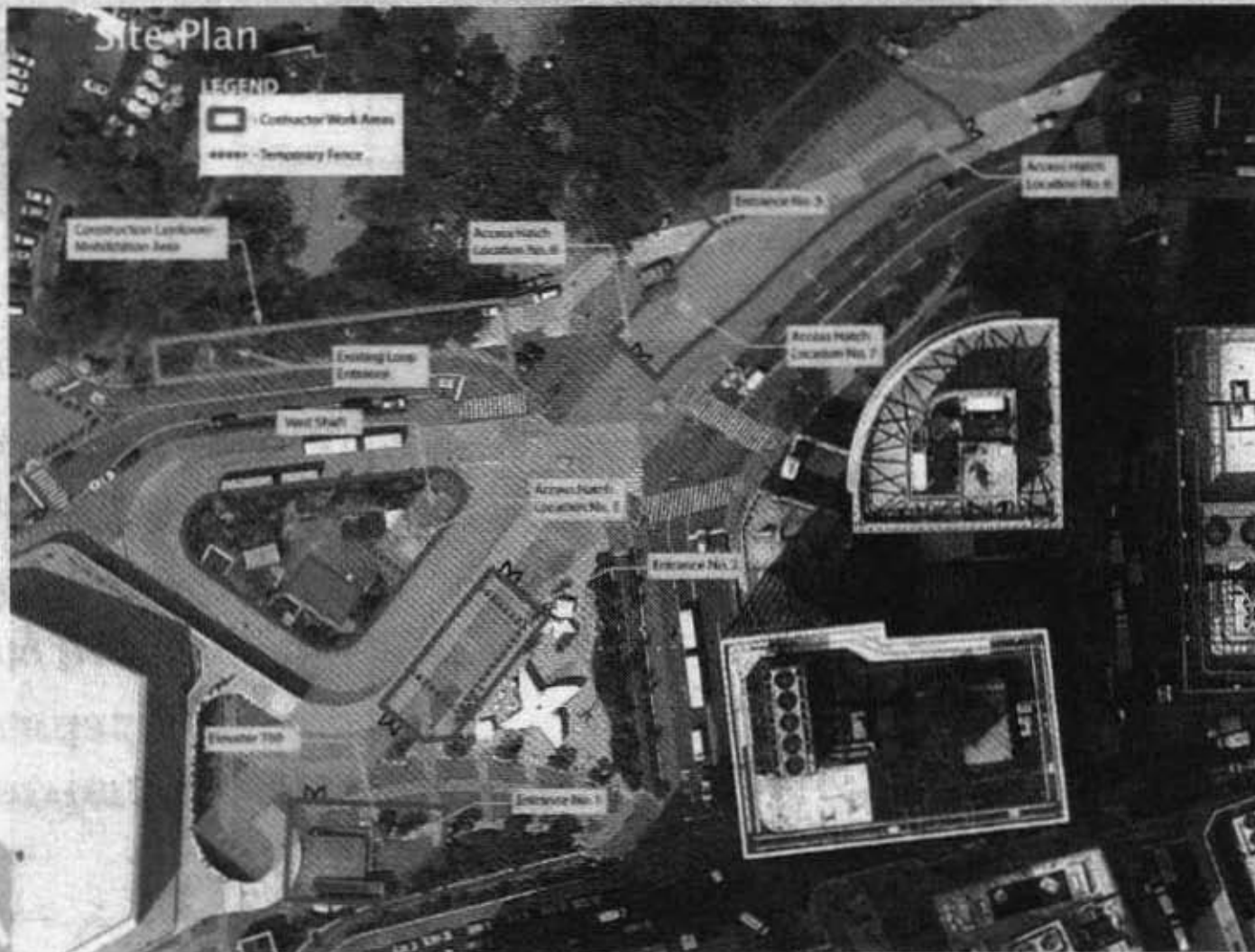
- South Ferry Station Complex

1 In Design

- Astoria Hoyt Ave



Construction – South Ferry Complex



New York City Transit



Construction – South Ferry Complex

- **Near-Term Flood Mitigation**
Awarded: September 18, 2013
- **Early Removal Package**
Award: April, 2014
- **Station Complex/Signal/Track**
Advertise: May, 2014
Award: August, 2014
- **Consultant Construction Management (CCM)**
Selected: December 20, 2013
- **Aggressive Construction**
Duration: 24 months – 24/7
Schedule





Construction – South Ferry Complex Near-Term Flood Mitigation



**Structural Framing for
the Near-Term entrance
closure**

- **Contract Awarded:**
September 18, 2013
- **Contract Completion:**
May 30, 2014



Reinforced Closure Panels

New York City Transit





Construction – South Ferry Complex

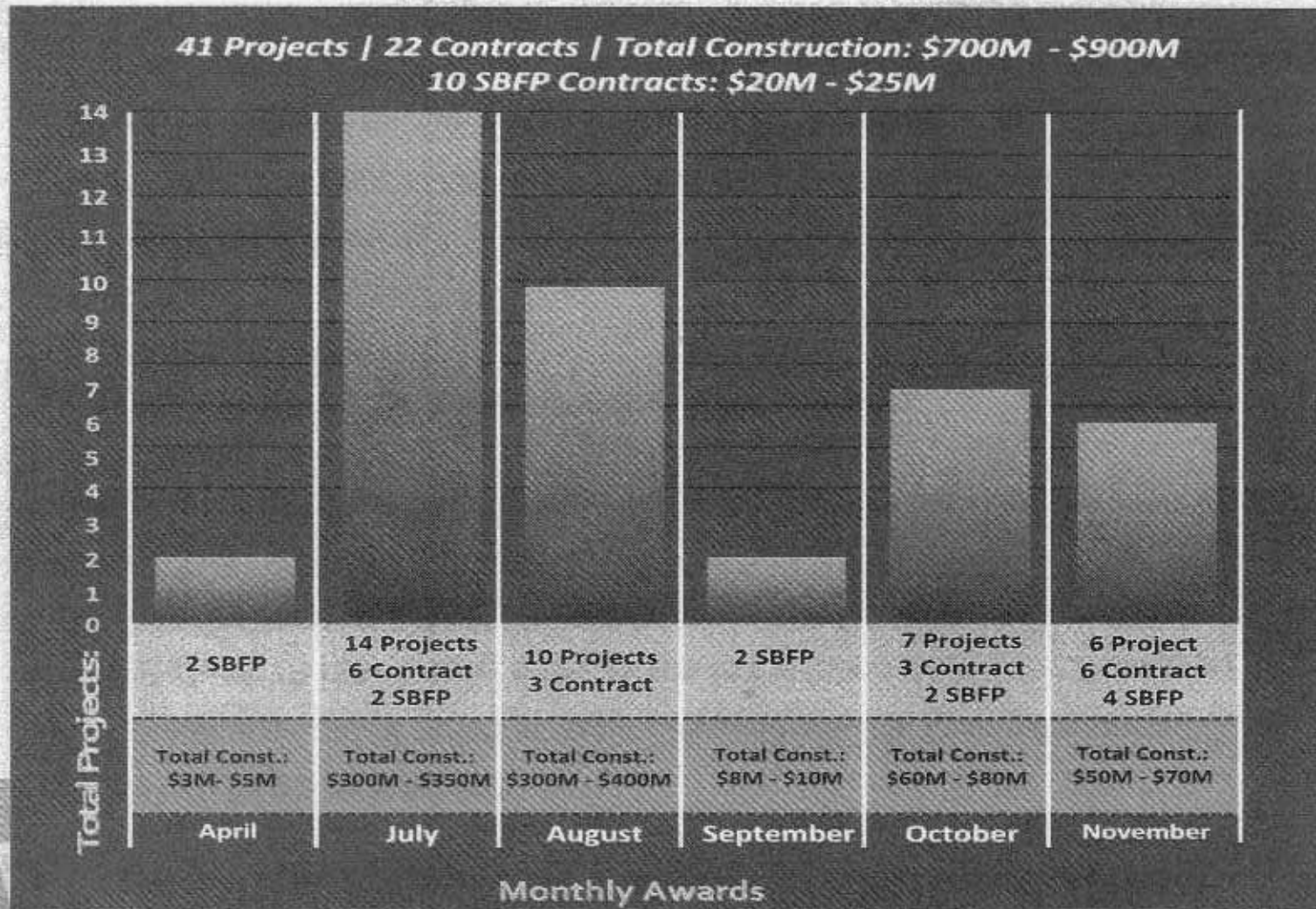
Major Scope Items:

- Grouting & Leak Mitigation
- Critical Structural Modifications
- Electrical and Mechanical Systems Replacement
- Vertical Transportation Rehab. & Hardening
- Communication, Fiber Optics, Security System Replacement
- Track Signals, Relays & Third Rail Replacement
- Selective Demolition/Advance Removals
- Flood Mitigation
- Resilient Stainless Steel & Glass Entrances





2014 Construction Award Milestones





Sandy Recovery & Resiliency Impact

Capital Program Impact:

- 11 Capital and various MOW projects delayed from 0.5-12 months each.
- New Railcars (R188) Testing delayed due to the inundation of the Rockaway Test Track.
- 2015-2019 Capital Program projects re-sequenced to reflect known Sandy projects.
- Aggressive "one-step" designs.
- Supplement CPM staff with Design, Indefinite Quantity, and Construction Management Consultants.
- Funding uncertainty for advancement of Sandy projects.
- Acquire office space.

Operational Impact:

- Unconventional track outages – 24/7 and double-track outages.
- Re-sequence construction phasing to avoid GO conflicts.
- Increase Construction Flagging and Train Operators headcount.
- Increase Work Train availability by deferring Diesel locomotive retirements.

April 2014 CPOC IEC Project Review



Sandy Recovery: Montague Tube Rehabilitation



April 28, 2014

Schedule & Budget Review

■ Schedule:

- The current CPM schedule for the intermediate milestone of completing all work requiring track access for the general construction contract depicts a slippage of 26 days. Based on the current efforts this delay is expected to be mitigated.
- The CPM schedule for the beneficial use milestone of completing all signal work that requires 24/7 track access is at risk of slipping due to the aggressive 2 month signal installation completion requirement.

■ Budget:

- The expenditures to date reflect the actual percentage of project completion
- A significant change order is pending due to additional quantities of chemical grout required for leak remediation. However, there is sufficient contingency in the project budget for this work.



IEC Recommendation & Lesson Learned

- **Recommendation:**

- The IEC recommends NYCT develop a risk mitigation strategy that will permit the signal contractor to obtain 24/7 track access at an earlier date.

- **Lesson Learned:**

- For upcoming projects in the NYCT Sandy Program the timely development of an integrated CPM schedule will mitigate the difficulties of contract coordination and the adjustment of schedule activities due to field conditions.



April 2014 CPOC IEC Project Review



Sandy Recovery: South Ferry Station Complex

April 28, 2014



Schedule & Budget Review

Sandy Recovery: South Ferry Station Complex

- **Schedule:**

- NYCT is on track to award the 5 month demolition contract in April 2014, and the 24 month General Construction contract in August 2014.

- **Budget:**

- The project is currently on budget.



Findings

Sandy Recovery: South Ferry Station Complex

- **Risk Workshop:**

- A Preliminary Risk Assessment Workshop was held on March 17, 2014. The NYCT and IEC were active participants in developing the risk logs including estimated cost, schedule impacts, and mitigation strategies.

- **Results:**

- The IEC is satisfied with the Preliminary Risk Assessment Workshop process to date.
- NYCT and the IEC are currently reviewing the results of the Preliminary Risk Assessment and planned mitigation strategies.
- A follow-up post award assessment is planned.

**MTA Capital Program
Commitments & Completions**

**through
March 31, 2014**



Capital Projects – Major Commitments – March 2014

55 major commitments are planned for 2014 and 11 are being reported on through March. There are five slips through March. These include NYCT's 34th Street Interlocking, NYCT's Passenger Station LAN project for 30 stations, the NYCT 1st Quarter Track program, an East Side Access systems package award and the LIRR's Johnson Yard project. In addition, one separate East Side Access systems commitment has now been achieved one month late. All slips are discussed on the following page.

Agencies have committed a total of \$1.6 billion through March versus a \$1.7 billion goal. The year to date shortfall is primarily due to the abovementioned slips. By year-end the MTA forecasts meeting its overall \$6.5 billion goal.

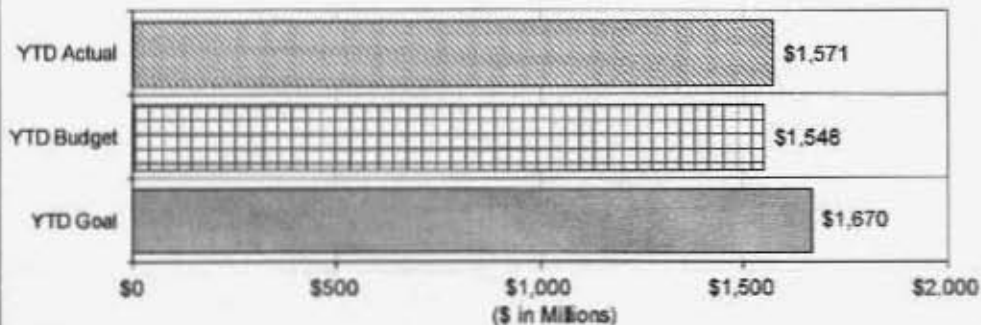
Year-to-Date Major Commitments



	Count	Percent	Change from Prior Month
GREEN = Commitments made/forecast within Goal	5	45%	+1
YELLOW = Commitments delayed beyond Goal (already achieved)	1	9%	+1
RED = Commitments delayed beyond Goal (not yet achieved)	5	45%	+1
Total	11	100%	+3

Budget Analysis

2014 Annual Goal	\$6,545	(\$ in millions)
2014 Annual Forecast	103%	of Annual Goal
Left to Complete	77%	(\$5,185)



Year-to-Date Agency Breakdown

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

**Capital Projects – Major Commitments – March 2014 – Schedule Variances**

Project	Commitment	Goal	Forecast
---------	------------	------	----------

5 All-Agency Red Commitments (2 new this month; net increase of 1)			
--	--	--	--

NYCT*Signals & Communication*

34th Street Interlocking/ 6th Ave	Construction Award	Feb-14 \$226.9M	Apr-14 \$171.0M
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Delay due to time needed to resolve a statement of adverse information (SAI) finding with a signals supplier. The budget variance is favorable due to a lowbid.

Passenger Station LAN: 30 Stations (New Item)	Construction Award	Mar-14 \$28.1M	May-14 \$26.4M
---	--------------------	-------------------	-------------------

Project award has been delayed 2 months as a result of bid period extension to address proposers' questions. The forecast cost has decreased reflecting a low bid.

Track & Switch

Track & Switch Program (18 Projects) - 1st QTR (New Item)	Construction Award	Mar-14 \$174.1M	May-14 \$174.1M
---	--------------------	--------------------	--------------------

All but one of the 18 projects will be awarded in the first quarter. Track work on White Plains Road (\$20M) has been rescheduled to May 2014. Construction has been delayed due to General Orders availability and issues related to track access.

LIRR*Other Track*

Jamaica Capacity Improvements - Johnson Yard	Design-Build Award	Feb-14 \$56.6M	May-14 \$56.6M
--	--------------------	-------------------	-------------------

The procurement process has been extended due to contract addenda, requests for extensions from vendors, evaluation of Means and Methods and Value Engineering opportunities.

MTACC*East Side Access*

System Package 3 (VS086)	Construction Award	Feb-14 \$21.8M	Apr-14 \$21.8M
--------------------------	--------------------	-------------------	-------------------

Delay due to additional time needed to finalize contract award documentation.

Project	Commitment	Goal	Actual
---------	------------	------	--------

1 All-Agency Yellow Commitments (1 new this month)			
--	--	--	--

MTACC*East Side Access*

System Package 1 (CS179) (New Item)	Construction Award	Feb-14 \$366.9M	Mar-14 (A) \$366.9M
-------------------------------------	--------------------	--------------------	------------------------

One month delay was due to additional time needed to finalize contract award documentation.

Capital Projects – Major Completions – March 2014

46 major completions are planned for 2014 and 10 are being reported on through March. Two projects are being forecast as late: an East Side Access vent plant project and NYCT's 1st Quarter Track Program. These variances are explained on the next page.

Agencies have completed a total of nearly \$1.2 billion through March versus a \$1.4 billion year-to-date goal. The shortfall is due primarily to the above-mentioned slips and is also caused by monthly rolling stock acceptance delays at NYCT for new R188 cars. By year-end the MTA forecasts meeting its overall \$5.7 billion goal.

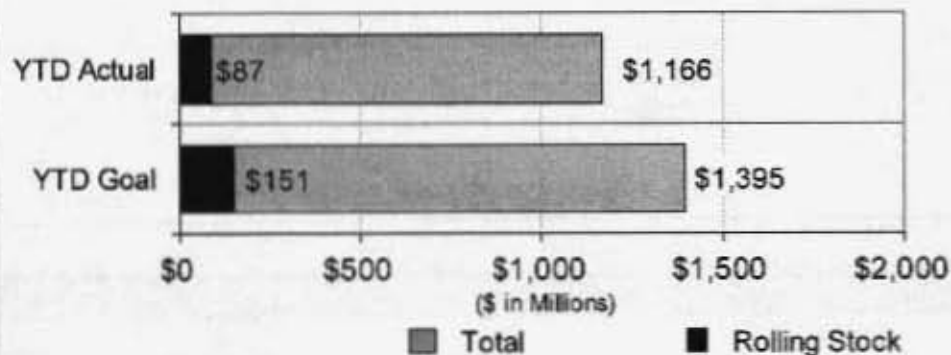
Year-to-Date Major Completions



	Count	Percent	Change from Prior Month
GREEN = Completions made/forecast within Goal	8	80%	+1
YELLOW = Completions delayed beyond Goal (already achieved)	0	-	-
RED = Completions delayed beyond Goal (not yet achieved)	2	20%	+1
Total	10	100%	+2

Budget Analysis

2014 Annual Goal	\$5,721	(\$ in millions)
2014 Annual Forecast	100%	of Annual Goal
Left to Complete	80%	(\$4,551)



Year-to-Date Agency Breakdown

	Prior month variance		
	GREEN	YELLOW	RED
New York City Transit			
1 1	----	----	+1 RED
Long Island Rail Road			
1	----	----	----
Metro-North Railroad			
2	----	----	----
Bridges and Tunnels			
	----	----	----
Capital Construction Company			
4 1	+1 GREEN	----	----
MTA Bus Company			
	----	----	----
MTA Police Department			
	----	----	----

Capital Projects – Major Completions – March 2014 – Schedule Variances

Project	Completion	Goal	Forecast
---------	------------	------	----------

2 All-Agency Red Completions (1 new this month)

NYCT

Track & Switch

Track & Switch Program (9 Projects) - 1st QTR (New Item)	Construction	Mar-14 \$58.5M	Jun-14 \$61.8M
--	--------------	-------------------	-------------------

All installations on the 6th Ave line have been completed except one which requires a pre-final inspection and punch list work to be finished.

MTA CC

East Side Access

44th Street Fan Plant and 245 Park Ave Entrance (CM004)	Construction	Feb-14 \$56.6M	Apr-14 \$55.5M
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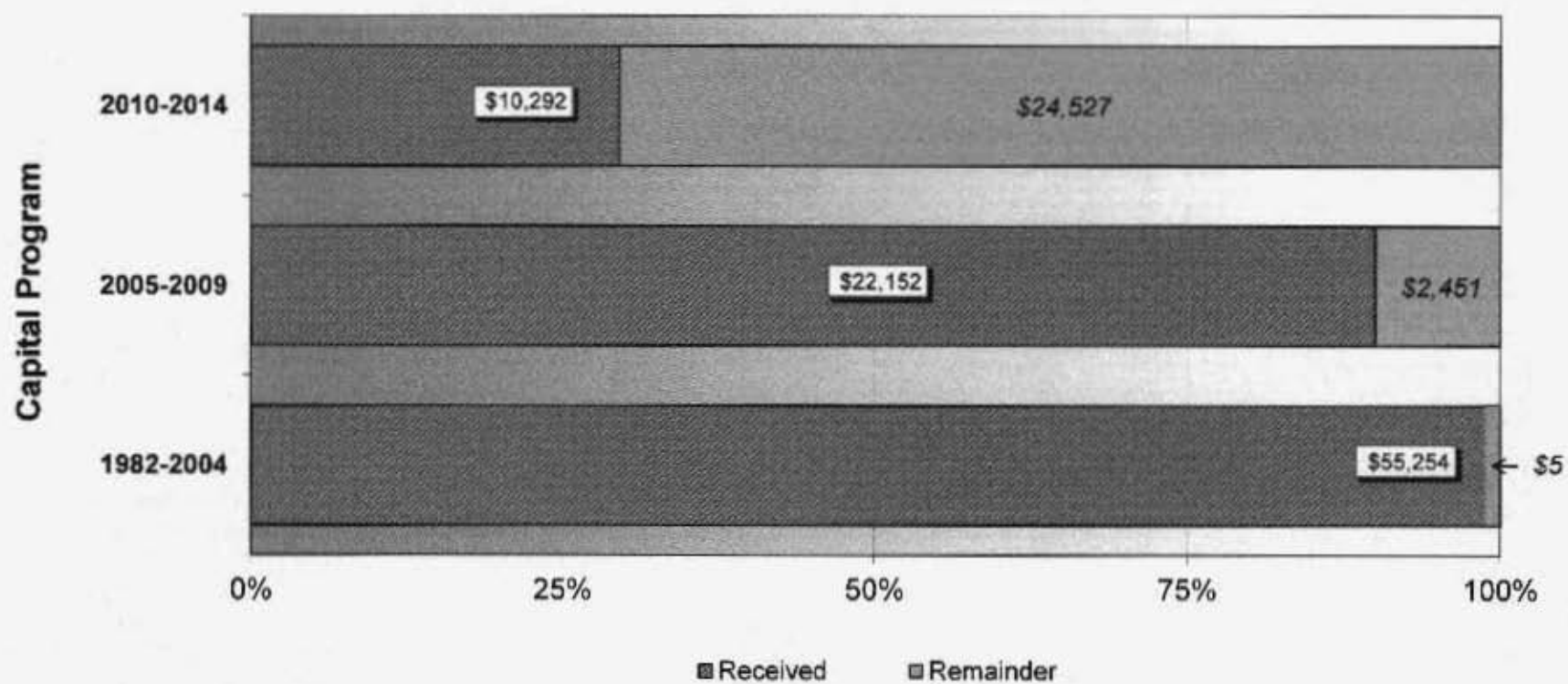
The completion of this contract has been delayed due to slower construction progress resulting from Winter weather impacts.

Status of MTA Capital Program Funding



Capital Funding (March 31, 2014)

\$ in millions



Capital Funding Detail (March 31, 2014)

\$ in millions

2005-2009 Program

	Funding Plan	Receipts		
	Current	Thru February	This month	Received to date
Federal Formula and Flexible Funds	\$5,186	\$5,186	\$ -	\$5,186
Federal New Start	2,810	1,832	-	1,832
Federal Security	322	242	-	242
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	1,996	17	2,013
MTA Bus Federal and City Match	149	142	-	142
Asset Sales and Program Income	1,213	594	-	594
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	112	10	122
Total	24,603	22,124	28	22,152

2010-2014 Program

	Funding Plan	Receipts		
	Current	Thru February	This month	Received to date
Federal Formula, Flexible, Misc	\$5,834	\$3,570	\$ -	\$3,570
Federal High Speed Rail	295	295	-	295
Federal Security	206	100	-	100
Federal RIFF Loan	2,200	-	-	-
City Capital Funds	778	344	1	345
State Assistance	770	150	-	150
MTA Bus Federal and City Match	132	20	-	20
MTA Bonds (Payroll Mobility Tax)	10,503	3,836	285	4,120
Other (Including Operating to Capital)	1,497	408	1,549	409
B&T Bonds	2,079	371	-	371
Hurricane Sandy Recovery				
Insurance Proceeds/Federal Reimbursement	9,431	912	-	912
PAYGO	160	-	-	-
Sandy Recovery MTA Bonds	758	-	-	-
Sandy Recovery B&T Bonds	175	-	-	-
Total	34,819	10,005	287	10,292