Safety and Security of the Patrons

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MDOT MARYLAND DEPARTMENT OF TRANSPORTATION
MARYLAND TRANSIT ADMINISTRATION

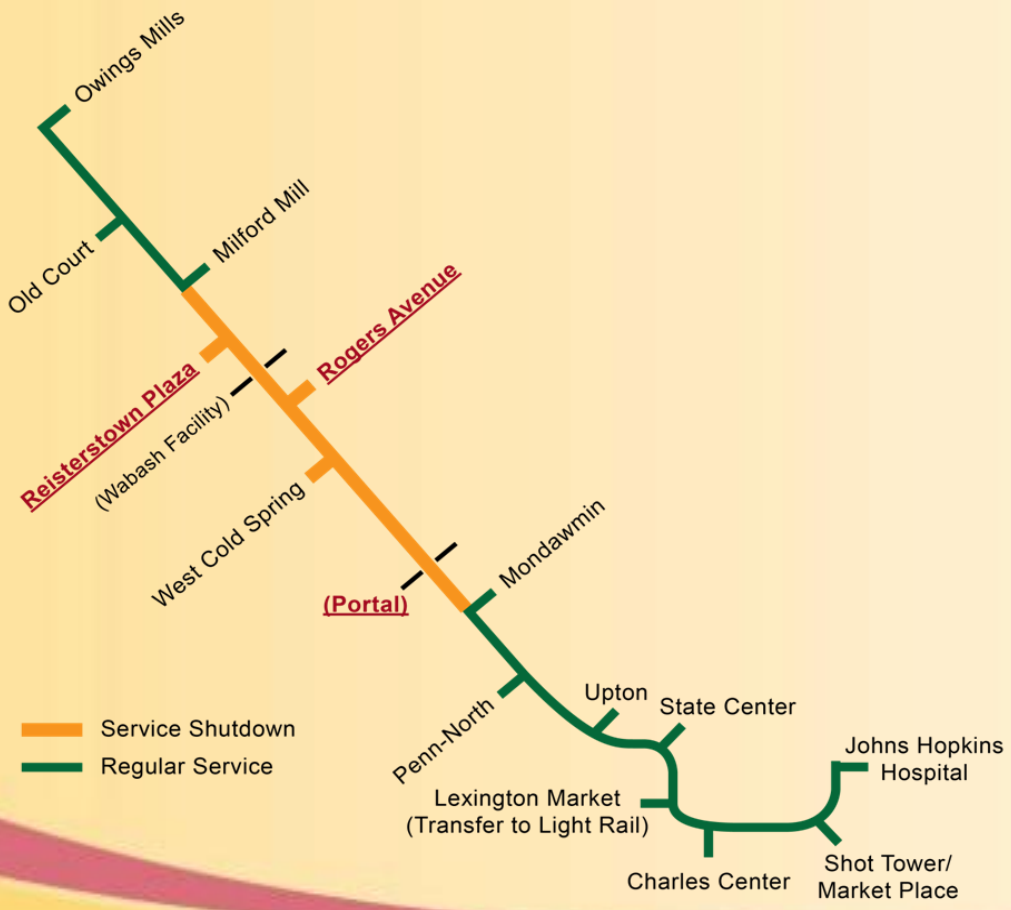
Safety and Security of Patrons

- Adhere to MTA System Safety Program Plan
- Hazard identification, analysis, and resolution
- MTA analyzes and mitigates hazards associated with design, construction, testing, startup, and operation to ensure the safety of patrons, employees, and the general public
- Hazards are categorized by severity and probability of occurrence, analyzed for potential impact and resolved by design procedures, warning devices or other methods that fall within the prescribed level of risk acceptable to the MTA.

Metro Interlocking Projects & Service Shutdown

- Replacement of three interlockings at Portal, Rogers Avenue (RA), and Reisterstown Plaza (RP-West) in order to bring the track, the track bed, and associated signaling and traction power to a State of Good Repair.
- A 21-day service shutdown of metro operations from Milford Mill to Mondawmin Station was utilized.
- A bus bridge was required during the service shutdown.

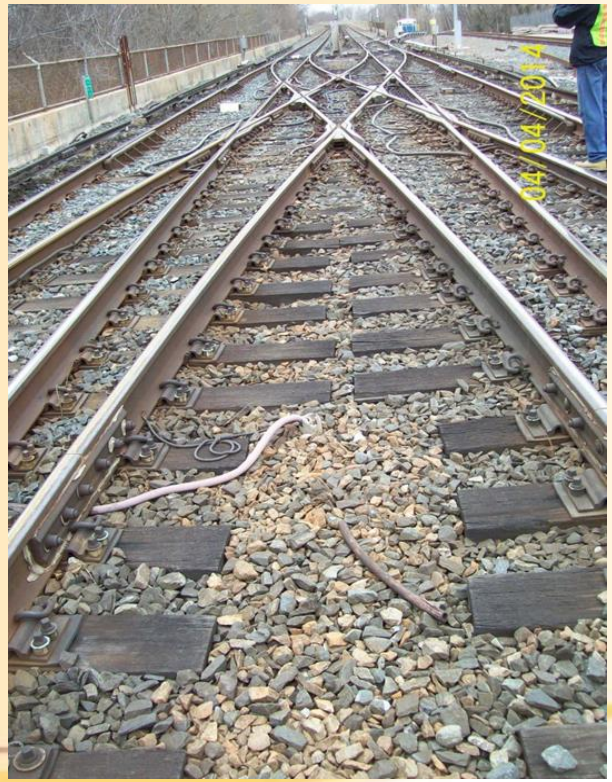
Project Shutdown Layout



Project Background

"The purpose of interlocking is to connect the switches and signals ***so that dangerous conditions cannot arise****, and in doing this, to* ***make operations clearer and more logical****."*

- Interlockings allow trains to cross over from one track to another.
- The RP-West, Portal, and RA interlockings consist of a double crossover with diamond on timber ties. The Portal interlocking also includes two single crossovers to connect the storage track.



Project Background

- The Federal Transit Administration (FTA) had expressed safety concerns for the track and tie conditions in December 2014.
- All three interlockings were under a slow order with serious pumping problems at some locations, as well as drainage issues (Portal & RP West).

Safety & Security Considerations

- To minimize service impacts, all three interlockings were to be repaired during a single service shutdown
- MTA developed and executed precise plans for the outage
- Made use of a period between high volume events and shutdown the Metro from 7/23/2016 to 8/12/2016, after Baltimore Artscape and prior to the Baltimore schools opening
- Several feasibility studies of service impacts and constructability studies conducted prior to design decision
- Adhered to MTA's Safety Policy
- Adhered to Metro security requirements

Project Design

- Two Contract Packages:
  - Material Procurement
  - Installation
- Material Procurement divided into 7-contract packages for direct solicitation from manufacturers to minimize cost and shorten long lead duration for materials.
- All materials were procured and shipped to Baltimore sites, where they were inspected, and defective materials were identified and repaired/replaced as necessary.

Project Design

- Project construction schedule separated into three parts:
  - Pre-outage work (started July 5th)
  - 21-day Outage (July 23 – August 12)
  - Post-outage work (completed by end of September 2016)
- Utilized hourly construction schedule and daily construction report to ensure proper planning and progress tracking
- Resolved all critical issues in accordance with FTA prior to construction execution

Project Design

Bus Bridge:

- MTA provided local and express shuttle buses linking Metro Subway service from Milford Mill Station south to Mondawmin Station
- Free shuttle bus service provided to metro customers at 10-, 20-, and 30-minute intervals to handle anticipated capacities
- Transit ambassadors stationed at the street level to assist customers in locating bus boarding areas
- MTA asked customers to plan for additional travel time in both directions

Project Design

- Metro Operations and Communication Plan was prepared for execution during the outage
  - Identified key project players and locations
  - Allowed for better and ongoing communication
  - Clarified team members' responsibilities
- Each location required to have 24-hour single point of contact
- Two days allocated for MTA testing after completion of major construction and prior to restarting metro operations

Project Design

- Project Video

MTA Metro Interlockings Video.mp4

MTA'S SAFETY POLICY

"The mission of the Maryland Transit Administration (MTA) is to provide quality public transit that is safe, affordable and accessible for the citizens of Maryland and visitors."

Safety Management Systems:

1. Safety Management Policy
2. Safety Risk Management
3. Safety Assurance
4. Safety Promotion

Train Control Safety Criteria

- Safety criteria designed into the existing train control system block design
- Limitations placed on train movements and train storage during the 21-day outage period that were location specific.

MDE Coordination

- Ongoing coordination with Maryland Department of the Environment (MDE) regarding Sediment Control and Stormwater Management
- In accordance with MDE, prepared report and attained proper permits for construction work

Material Procurement Inspection

Findings:

- Inspections revealed standard concrete ties had protrusions where contact rail support plates were to be anchored
- The concrete surface was required to be flat and smooth to provide an even and stable surface to securely anchor the support plate

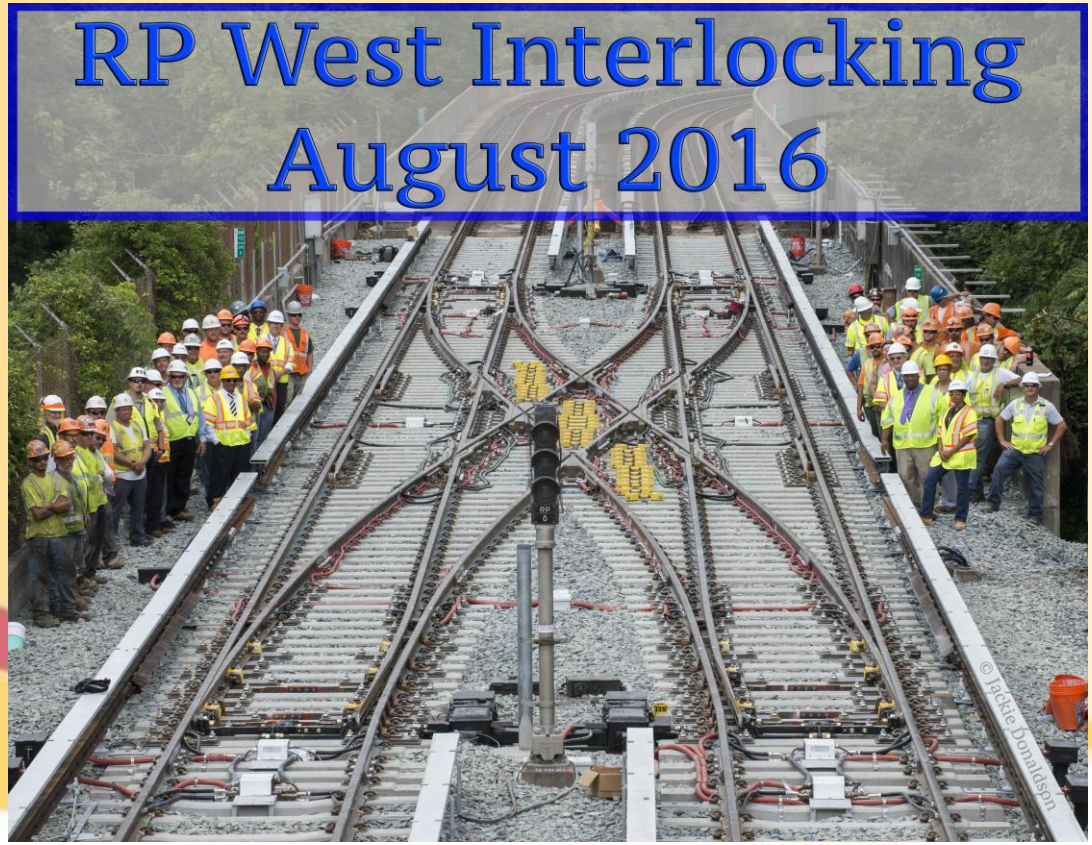
Material Procurement Inspection

Resolution:

- Supplier agreed to repair these defects by grinding down the raised bumps
- Repair provided the required smooth concrete surface to safely and securely anchor the support plates

Project Outcome

- Construction project was completed on time
- Full Metro service resumed on August 15, 2016



Questions?


Baltimore Metro
RP West Interlocking
August 8th 2016
RP 6
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