

Monthly Report
SafeTrack Program
Washington Metropolitan Area Transit Authority (WMATA)

June 2017 Progress



Surge 15 – Building forms for new grout pads between Cheverly and Landover Stations

October 25, 2017

PMOC Contract Number: DTFT60-14-D-00011

Task Order Number: 006, Project Number: DC-27-5272, Work Order No. 02

OPs Referenced: 01, 25

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Length of Time PMOC Assigned to Project under current Contract: 3 years, 5 months

Length of Time PMOC Lead Assigned to Project: 5 years, 6 months

TABLE OF CONTENTS

| | |
|---------------------------------------------------------------------|-----------|
| EXECUTIVE SUMMARY | 1 |
| A. PROGRAM DESCRIPTION | 2 |
| B. PROGRAM STATUS | 2 |
| C. CORE ACCOUNTABILITY INFORMATION | 3 |
| D. MAJOR PROBLEMS/ISSUES | 4 |
| MAIN REPORT | 7 |
| 1. PROGRAM STATUS | 7 |
| 2. PROGRAM COST | 14 |
| 3. PROGRAM SCHEDULE..... | 14 |
| 4. ENVIRONMENTAL MITIGATION MEASURES..... | 14 |
| 5. PROGRAM MANAGEMENT CAPACITY AND CAPABILITY | 14 |
| 6. QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)..... | 14 |
| 7. SAFETY AND SECURITY | 15 |
| 8. CONTRACT ADMINISTRATION | 17 |
| 9. PROGRAM RISK..... | 17 |
| 10. ACTION ITEMS | 17 |
| APPENDICES | 18 |
| APPENDIX A – ACRONYMS AND ABBREVIATIONS | 19 |
| APPENDIX B – MAP OF WMATA’S RAIL TRANSIT SYSTEM | 23 |
| APPENDIX C – SAFETRACK WORK COMPLETED (<i>TOTAL PROGRAM</i>)..... | 24 |
| APPENDIX D – ORGANIZATION CHARTS & DESCRIPTION..... | 25 |
| APPENDIX E – SAFETY AND SECURITY CHECKLIST | 27 |
| APPENDIX F – ACTION ITEMS – SAFETRACK PROGRAM..... | 32 |
| APPENDIX G – SUMMARY SAFETRACK SCHEDULE..... | 33 |

EXECUTIVE SUMMARY

Note: Italics in this report denotes a change from the previous report.

This *eleventh* monthly PMOC report for SafeTrack is based on information provided by WMATA at the oversight meeting held on *July 20, 2017*, subsequent weekly updates, and *final financial data provided October 23, 2017*. This report addresses the completion of Surges 15 and the 16, which marks the conclusion of the year-long SafeTrack Program. This will be the final monthly PMOC report for SafeTrack. A final PMOC report will be issued before the end of CY2017.

During June 2017, WMATA progressed to completion of Surge 15 on the Orange Line from Minnesota Avenue Station to New Carrollton Station. This surge was completed on Thursday, June 15, 2017. Two days later, on Saturday, June 17, WMATA began Surge 16, on the Red Line between Twinbrook and Shady Grove Stations. This last surge was a complete shutdown. The focus of work was on Track #2, the outbound track. Surge 16 was completed on Sunday, June 25, 2017.

WMATA's Office of Quality and Internal Compliance (QICO) conducted pre- and post-surge inspections of Surges 15 and 16. QICO issued post-surge "Closeout Reports" for each surge. These reports show percent complete of planned work and discuss accomplishments under the categories of "What Went Well," "What We Can Do Better," and "Other Observations."

A summary of the accomplishments of the two surges is listed below:

| Work Accomplished | Surge 15 | Surge 16 |
|------------------------------------------|-----------------|-----------------|
| Track Miles Worked | 12.0 | 4.4 |
| Ties Replaced (each) | 15,713 | 3,464 |
| Grout Pad Replaced (feet) | 8,879 | 0 |
| 3 rd Rail Cover Boards (feet) | 1,250 | 6,610 |
| Fasteners Replaced (each) | 3,244 | 0 |
| Insulators Replaced (each) | 2,403 | 2,690 |
| Rail Replaced (feet) | 2,867 | 78 |
| Rail Joints Welded (each) | 0 | 29 |
| Power Cables Repaired (each) | 149 | 149 |

Here is a summary of PMOC oversight activities for June 2017:

- June 6 & 8 – Walk-through of Surge 15 observing management and quality of work
- June 16 – Final walk-through of Surge 15 observing management and quality of work
- June 20 – Conducted monthly project management oversight meeting
- June 23 – Walk-through of Surge 16 observing management and quality of work
- July 20 – Conducted monthly project management oversight meeting

A. Program Description

WMATA's PMP, Revision 6, describes the program description as "a year-long track work plan to accelerate three years' worth of work into approximately one year by significantly expanding maintenance time on weeknights, weekends, and midday hours, and includes 15 "Safety Surges" – long duration track outages in key parts of the system.

"SafeTrack is a massive, comprehensive, holistic effort to address safety recommendations and rehabilitate the Metrorail system on an accelerated basis by expanding ALL available maintenance windows. It is also an emergency response by new WMATA management to the deteriorating track conditions recognized in early 2016. Through this focused effort, WMATA will eliminate the backlog of track work and enable Metro to return to a sustainable steady-state of annual track and systems renewal projects that can maintain the system in a state of good repair. In addition to delivering this scope, the intent is to carry forward the lessons learned and improvements in work efficiency and productivity to future maintenance and capital rehabilitation programs, after SafeTrack ends."¹

The majority of SafeTrack work is being performed by WMATA forces and is funded primarily through WMATA's Capital Improvement Plan CIP0024, Track Rehabilitation. Additional CIPs fund other related work during the SafeTrack surges. Federal funding sources include PRIIA (Passenger Rail Investment Improvement Act), §5307 (Urbanized Area Formula), and §5337 (State of Good Repair Formula). The SafeTrack Program started on June 4, 2016, and was completed on June 25, 2017, a period of nearly 13 months.

B. Program Status

Completion of Surge 16 marked the completion of the year-long SafeTrack Program, which brought 88.2 track miles to a state of good repair. SafeTrack crews and their contractor partners working 387 days made significant improvements to the Metrorail system as evidenced by the following accomplishments reported by SafeTrack:

- Replaced 63,398 crossties
 - Replaced 15,245 insulators
 - Replaced 38,882 fasteners
 - Replaced 61,390 feet of rail (11.6 miles)
 - Welded 783 rail joints
 - Installed 42,170 feet of new grout pads
 - Repaired/replaced 1,828 tunnel lights
 - Repaired/replaced 1,463 power cables
 - Replaced 42,134 feet third rail cover board
 - Cleaned 108,996 linear feet of track bed
 - Refurbished/replaced 3,254 IDW boxes
 - Converted 124 wayside signals to LEDs
 - Repaired 97 emergency trip stations
- (See Appendix C for a detailed list.)*

June 2017 Activity

- **Surge 15** – *This surge, which started on May 17, 2017, shut down the Orange Line from Stadium Armory (D08) to New Carrollton (D13) and was completed on June 15, 2017. Work consisted of timber tie replacement, tamping and regulating ballast, realigning ballasted track, replacement and installation of 3rd rail cover board and insulators,*

¹ From WMATA's SafeTrack Project Management Plan, Revision 6, dated April 21, 2017, page 1.

removal and replacement of grout pads and replacement of direct fixation fasteners on aerial structures, replacement of traction power cables, repairs to the intrusion detection warning (IDW) system, and Data Transmission System cable repairs.

- **Surge 16** – In early June 2017, WMATA completed its planning for Surge 16, a total shut down of a 4.4 mile segment of the Red Line between Twinbrook and Shady Grove Stations. Work began on June 17, 2017, and was completed on June 25, 2017. Focusing on Track #2 (outbound), WMATA replaced ties, 3rd rail insulators and cover board, and rail, welded rail joints, replaced traction power cables, refurbished IDW boxes, and converted signal lights to light emitting diodes (LEDs).

C. Core Accountability Information

1. Cost

Summary of SafeTrack budget revisions and final expenditure amount

| | |
|------------------------------------------|----------------------|
| Approved FY16-FY17 budget for SafeTrack: | \$151,415,899 |
| Approved FY18 budget with contingency: | \$154,234,515 |
| <i>Revised and final project budget</i> | <i>\$162,918,627</i> |
| Amount expended: | \$162,918,627 |
| Percent expended: | 100% |

Summary of Funding for SafeTrack

After WMATA finalized its FY17 budget data, it once again revised its funding for SafeTrack. The following table shows the final funding sources for the SafeTrack program.

SafeTrack Actual Funding Sources

| Federal Fiscal Year | Federal Funding | | Local Funding | Total Funding |
|---------------------|----------------------------|--------------|---------------|---------------|
| | Source | Amount | Amount | |
| FFY15 | PRIIA | \$17,927,080 | \$17,927,080 | \$ 35,854,160 |
| FFY16 | PRIIA | \$20,140,011 | \$20,140,011 | \$ 40,280,022 |
| FFY17 | PRIIA | \$31,360,854 | \$31,360,854 | \$ 62,721,708 |
| FFY17 | §5307 | \$ 5,005,753 | \$ 1,251,438 | \$ 6,257,191 |
| FFY17 | §5337 | \$ 3,221,959 | \$805,490 | \$ 4,027,449 |
| Subtotal | | \$77,655,657 | \$71,484,873 | \$149,140,530 |
| FFY17 | <i>Long-term Financing</i> | — | \$ 13,233,621 | \$ 13,233,621 |
| FFY17 | <i>Local Jurisdictions</i> | — | \$ 544,476 | \$ 544,476 |
| Total Program | — | \$77,655,657 | \$85,262,970 | \$162,918,627 |

2. Schedule

- Original SafeTrack Program completion date: June 30, 2017
- Actual completion date: June 25, 2017. Appendix G shows a summary program schedule.
- Project Duration: June 4, 2016, through June 25, 2017, 387 days, approximately 13 months
- Percent of time expended: 100%

3. Contingency

- *All contingency has been dispersed to accommodate expenditures. No contingency remains.*

D. Major Problems/Issues

NOTE: Issues are shown in regular type and their latest status is in *italics*. When an issue is closed, it will be marked CLOSED for the month it was closed. The issue will not appear in the report for the following month.

1. Status of Problems/Issues Identified in the PMOC's Previous Monthly Reports

a. Tracking and Completion of Punch List Work

- Appendix M of the approved SafeTrack PMP describes how crews are to address incomplete (punch list) work items:

“All defects or incomplete work that renders the track unsafe for operation will be fixed immediately, extending the time of the event if necessary.

“All restrictable conditions will get raised immediately to the General Superintendent for TRST and the SafeTrack Director for a decision on whether to extend the surge or close it and schedule a separate event to complete the work. Any such work will be completed within 15 calendar days. These work items will continue to be tracked as SafeTrack scope to finish.”
- During its post-surge walkthroughs, QICO, as the second line of defense and separate from maintenance crews, identifies discrepancies with the work and codes them high, medium, or low priority in its Surge Asset Tracking Log. High priority items must be addressed before a rail line can be returned to revenue service. QICO also follows up to make sure medium and low priority discrepancies are recorded and closed out in Maximo.
- *According to the Open Items Tracking Log in QICO's Closeout Report for **Surge 15**, there were no high priority (safety critical) items open at the conclusion of the surge. There were eight medium and 18 low priority items open at the end of Surge 15.*
- *QICO's **Surge 16** Closeout Report noted no high priority items open at the conclusion of Surge 16, although it reported two medium and six low priority items open. By MOWE procedure, these open items will be annotated in WMATA's Optram. (See Appendix A) Subsequently, the Engineer and Maintenance Manager for the appropriate Division² will incorporate these items into a work plan. Then they will create a work order in Maximo for the work plan to track the closeout of the open items. (See Appendix A for an explanation of Maximo.)*
- *Despite the fact that the SafeTrack Program has concluded, this issue will be tracked through the PMOC's final report.*

b. Safety

² MOWE has divided the Metrorail system into four divisions for maintenance responsibilities.

*In June 2017, SafeTrack experienced four OSHA recordable injuries.³ Details of these injuries are provided in the Main Report below. No accidents were reported for the month of June 2017. Because the SafeTrack Program has been completed, **this item is closed.***

c. Grout for Grout Pads

This issue is the absence of field testing of grout for new grout pads. The PMOC first became aware of and reported on this issue in November 2016. At the June 20, 2017 PMOC oversight meeting, the Director, Maintenance of Way Engineering (MOWE) reported that MOWE was still reviewing a draft specification for testing the concrete used in grout pads. It should be noted that WMATA has had a specification for testing concrete used in grout pads constructed by a contractor. The specification being reviewed would apply to WMATA crews constructing grout pads as a part of their maintenance activities.

The photo below taken June 3, 2017, on Surge 15 shows newly placed grout pads on the left track and formwork in progress to construct grout pads on the right.



This grout pad issue was raised again at the July 20, 2017 monthly management oversight meeting. The Director, MOWE, reported that this item is secondary to issuance of WMATA 1000,⁴ and consequently has not been addressed yet. Additionally, during June 2017, the PMOC asked the SafeTrack team if there is a specification for testing newly installed anchor bolts for direct fixation track. In a corollary question, the PMOC asked whether crews were checking the torque on the anchor bolt nuts that secure track fasteners. In response, the SafeTrack team stated that there is no testing procedure for anchor bolts and no torque

³ An OSHA recordable injury is defined as an injury where the individual received medical care greater than first aid.

⁴ WMATA 1000 is the “Track Maintenance, and Inspection Manual,” colloquially known as TRST 1000. This is the maintenance and inspection manual for track.

measuring device is used while tightening nuts on anchor bolts. This issue was discussed at the July 20, 2017 PMOC management oversight meeting. The PMOC noted that it had asked a sister transit agency how they tested anchor bolts while refurbishing direct fixation track and they explained that they have a torque requirement for the nuts and randomly check that nuts can achieve the desired torque as a condition of acceptance. The Director, MOWE, noted that like testing of concrete for grout pads, anchor bolt testing is secondary to MOWE's efforts to finalize and issue TRST 1000. Subsequent to these discussions, the PMOC and FTA teleconferenced with WMATA's AGM Rail and Director MOWE about concrete and anchor bolt testing. In that teleconference, PMOC stressed the need to implement these testing procedures. During the discussion, the AGM Rail asked about a fix for places where honeycombing occurred in the grout pads. PMOC recommended using a pencil vibrator during grout pad concrete placement to avoid honeycombing. This **issue is closed** for this series of SafeTrack reports; **however**, it will continue to receive PMOC attention until a testing procedure for concrete used for grout pads and anchor bolts is in place and in use.

d. Project Funding

In its June 2017 report, the SafeTrack management team showed a budget with contingency totaling \$154,234,515. The report also showed a revised funding table (addressed elsewhere in this report) totaling \$154,234,515 comprised of federal and local funds and long-term borrowing by WMATA. The final total amount of funding for SafeTrack should be presented in the final SafeTrack Program report. This issue will **remain open** until the final SafeTrack Program report is issued.

e. Personal Protective Equipment (PPE)

SafeTrack's report (with data collected by WMATA's Department of Safety and Environmental Management [SAFE]) shows how crews are complying with the requirements to use PPE. The table in the report of June 2017 activity shows 100% compliance in all categories except hard hats, which showed 96% compliance. WMATA has not stated or reported how it plans to consistently achieve 100% compliance; thus, this **issue is closed for SafeTrack** but will be followed closely by the PMOC on future projects.

MAIN REPORT

1. Program Status

The following table shows the percent complete for each surge of the SafeTrack program, which was concluded on June 25, 2017. The data is based on reports submitted by WMATA.

| SURGE No. | FROM – TO | TYPE | DAYS SURGING | APPROXIMATE TOTAL MILES | | OVERALL % COMPLETE |
|------------------|--------------------------------------------------------|---------------------------------|------------------|-------------------------|-------|--------------------|
| | | | | TRK 1 | TRK 2 | |
| 1 | East Falls Church to Ballston | Single Tracking | 13 | 2.4 | 0 | 100% |
| 2 | Eastern Market & Minnesota Ave to Benning Road | Total Shutdown | 16 | 2.0 | 2.0 | 100% |
| 3 | Natl. Airport to Braddock Rd. | Total Shutdown | 7 | 0.7 | 0.7 | 97% |
| 4 | Pentagon City to Natl. Airport | Total Shutdown | 7 | 1.3 | 1.3 | 100% |
| 5 | East Falls Church to Ballston | Single Tracking | 12 | 0 | 2.4 | 108% |
| 6 | Single Spring to Takoma | Single Tracking | 7 | 1.1 | 0 | 105% |
| 7 | Shady Grove to Twin Brook | Single Tracking & Wknd Shutdown | 12 | 4.4 | 0 | 95% |
| 8 | Franconia-Springfield to Van Dorn Street | Single Tracking | 17 | 3.7 | 3.7 | 140% |
| 9 | West Falls Church to Vienna | Single Tracking Wknd Shutdowns | 42 | 5.2 | 5.2 | 111% |
| 10 | NoMa Gallaudet U to Fort Totten | Total Shutdown | 29 | 1.3 | 1.3 | 133% |
| 11 | East Falls Church to West falls Church | Single Tracking | 23 | 1.5 | 1.5 | 115% |
| Non-surge period | Red Line Van Ness-UDC to Grosvenor-Strathmore | Single Tracking | 31 | 2.1 | 2.1 | Note 2 |
| | Orange/Blue/Silver Line from Rosslyn to Eastern Market | Single Tracking & Shutdown | 31 | 0.9 | 0.9 | Note 2 |
| 12 | Blue Line - Rosslyn to Pentagon | Total Shutdown | 18 | 2.4 | 2.4 | 121% |
| 13 | Yellow/Blue Line Braddock Rd to Huntington & Van Dorn | Single Tracking | 40 | 5.3 | 5.3 | 117% |
| 14 | Green Line Greenbelt to College Park | Total Shutdown | 30 | 4.4 | 4.4 | 120% |
| 15 | Orange Line Minnesota Ave to New Carrollton | Total Shutdown | 31 | 6.0 | 6.0 | 104% |
| 16 | Red Line Shady Grove to Twinbrook | Total Shutdown | 9 | 0 | 4.4 | 100% |
| | Totals to Date | | 375 ³ | 44.7 | 43.6 | 110% (Note 1) |

Note 1: Average percentage of the 16 surges on which WMATA has reported.

Note 2: Non-surge period overall percent complete was not reported.

Note 3: SafeTrack took 387 calendar days to accomplish 375 days of actual work on the roadway (surging).

The table in Appendix C provides details of the work completed during the 16 surges and the non-surge period.

Work Completed in June 2017

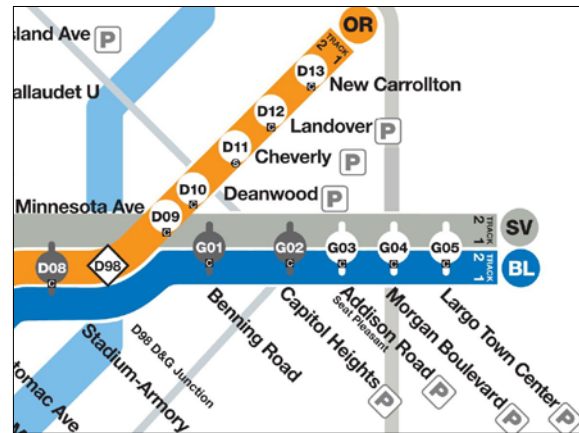
• Surge 15 Accomplishments

The second half of Surge 15 (identified as 15.2) began June 1 and concluded June 15, 2017. Overall, Surge 15 was a total shutdown of the Orange line from Stadium-Armory Station (D08) to New Carrollton Station (D13). (See mini-map.) Five stations were closed during the 31 days of the surge.

The main focus of Surge 15 was to replace deteriorated wood cross ties on ballasted track and deteriorated grout pads and fasteners on aerial structures throughout the six-mile length of each track, #1 and #2. WMATA and contractor crews also replaced direct fasteners between Minnesota Avenue Station (D09) and D & G Junction where the Orange, Blue, and Silver Lines converge outside Stadium-Armory Station (D08). (See mini-map.) In addition to trackwork, crews focused on clearing brush and repairing right-of-way fencing.


Conducting the Surge as a shutdown allowed power to be removed on both tracks, which enabled traction power crews to accomplish more work than if trains had continuously single tracked. In addition to the planned work, the traction power crews discovered negative return cables at the substations that required replacement. Automatic Train Control (ATC) crews focused on repairing IDW boxes, as well as signal lights and data transmission system (DTS) cables. The following table reflects the accomplishments during the 31 days of Surge 15. (Data from July 14, 2017 SafeTrack report.)

Mini-Map of Surge 15 - D08 to D13



| | Maintenance Group | Task | Unit | Completed |
|----------|--------------------------------|---------------------------------------------------------|---------------------------|-----------|
| Surge 15 | Track & Structures | Crosstie renewal | # crossties | 15,713 |
| | | Insulator Replacement | # insulators | 2,403 |
| | | Ballast Renewal | # tons | 3,397 |
| | | Tamping | # linear feet | 51,500 |
| | | Fastener Renewal | # fasteners | 3,244 |
| | | Joint Elimination | # joints welded | 0 |
| | | Rail Replacement | # linear feet | 2,867 |
| | | Third Rail Maintenance | # linear feet cover board | 1,250 |
| | Structures | Grout Pad Renewal | # linear feet grout pad | 8,879 |
| | Automatic Train Control System | Intrusion Detection Warning System (IDW) Refurb/Replace | # boxes | 600 |
| | | Signal Conversion to LED Lighting | # signals | 10 |
| | | Push Buttons Box Repair/Replace | # boxes | 4 |
| | Traction Power System | Power Cable Repair/Replacement | # signals | 149 |


Surge 15 was unusually challenging due to the complex shuttle bus operation required to transport customers from the five closed Orange Line stations to alternate stations on the Blue Line. WMATA freely distributed and displayed the green and white passenger information signs shown here at right in advance of the beginning of Surge 15. It should be noted that these information signs had been distributed for the other surges as well.




Surge #15

No rail service
between
New Carrollton
and Stadium-Armory


Tuesday, May 16 - Thursday, June 15



Stations Closed: New Carrollton, Landover, Cheverly, Deanwood and Minnesota Ave




Orange Line trains will operate between Vienna and Largo Town Center, and




Silver Line trains will operate between Wiehle-Reston East and Stadium-Armory.


Customers are highly encouraged to consider alternative travel options:

 **Rail Options**

If you're driving on I-95 or the BW Parkway from points northeast of DC, consider taking the MARC Penn Line (via New Carrollton) or MARC Camden Line (via Greenbelt) downtown.


 **Parking Options**

If you park and ride from New Carrollton, Landover, Cheverly, Deanwood or Minnesota Ave station, consider using Green Line or Blue Line Park & Ride facilities.

 **Bus Options**

Limited, free shuttle bus service will be available to/from the closed stations. Additional weekday rush hour service will operate on Metrobus route U7.

Other travel alternative information, such as Metrobus and regional bus providers, carpool, vanpool and biking, is available at wmata.com/safetrack.

 **SafeTrack**

- **Surge 15 Closeout Results by QICO**

QICO issued its Surge 15 Close-Out Report on June 30, 2017. In that report, QICO provided a table that showed the percent complete of the planned scopes of work. Those percentages are summarized here. The QICO report provides explanatory notes for each of these items.

Surge 15 Closeout Report Findings

| Department | Items | Planned Scope | Work Complete | % Complete |
|--------------------------------------------|---------------------------------------------|---------------|---------------|------------|
| ATCM | Push Buttons (Boxes) | 4 | 4 | 100% |
| | LED Signals (Lights) | 8 | 8 | 100% |
| | IDW System (linear feet) | 42,100 | 4,100 | 97% |
| IT/NCS | Emergency Trip Station Connectivity (Units) | 2 | 2 | 100% |
| Power – Low Voltage | Platform Edge (Lights) | 2 | 2 | 100% |
| Power – High Voltage | Expansion Cables (Locations) | 5 | 5 | 100% |
| | Pig Tails (Stub-up Locations) | 11 | 10 | 91% |
| | Emergency Trip Station Blue Lights (Boxes) | 8 | 2 | 25% |
| Track | Third Rail Cover Boards (10 ft Units) | 5,580 | 5,576 | 99% |
| | Tie Replacement (Ties) | >10,000 | >10,000 | 100% |
| Structures: Grout Pads (Linear feet) | Cheverly Aerial Structure | 4,200 | 3,200 | 81% |
| | Landover Aerial Structure | 0 | 1,000 | >100% |
| | New Carrollton Station Area | 4,000 | 6,000 | 150% |

Other topics addressed in the Surge 15 QICO Closeout Report include:

- Surge Overview
- What worked well
- What we can do better
- Other Observations
- Maximo (work order) Documentation
- Open Items Tracking Log (listing open medium and low priority items)
- Terminology (Definitions and pictures of terms used in the report)
- Interim Quality Assurance Reports (Nos. 160, 161, 162, 163)
- Quality Pre-Surge Report (dated May 12, 2017)

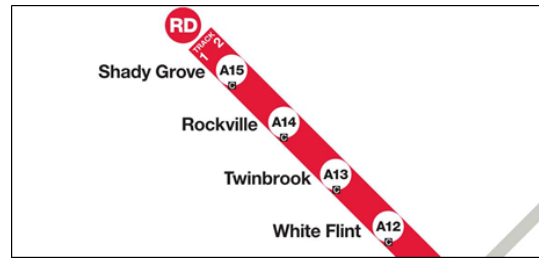
- **Surge 16 Accomplishments**

“QICO conducted independent walking track assessments for Surge 16 on May 30, 2017 through June 2, 2017 and June 6, 2017, covering the entire surge area on the Red Line between Twinbrook and Shady Grove. (See Surge 16 Mini-map next page.) The results of the pre-surge field assessments were compared to WMATA’s defect and speed restriction history in Optram/Maximo, as well as scopes of work provided by asset maintenance groups. QICO identified ballasted track areas subject to high priority issues of pumping,

deteriorated cross ties, plate cutting, loose third rail anchors and bolted rail joint issues primarily between Twinbrook (A13) and Rockville (A14). The affected locations were coordinated with maintenance department scopes of work.”⁵

Surge 16 started on Saturday, June 17, 2017, and concluded on Sunday, June 25, 2017. This nine-day surge on the Red Line between Twinbrook and Shady Grove Stations focused on crosstie replacement, rail replacement, rail joint welding, clearing brush, and repairing fence. Applying a lesson learned from other surges, the SafeTrack team shut down this entire section of the Red Line to promote work efficiency and assure completion of all planned tasks. According to SafeTrack report, “with the availability of both tracks due to the full shutdown, the focus of the work was on the outbound [No. 2] track, and the inbound track was used to assist with equipment transportation and cleanup.”⁶

Surge 16 Mini-Map (A13-A15)



The following table reflects the accomplishments during the 9 days of Surge 16.

| Maintenance Group | Task | Unit | Completed |
|---------------------------------------|---------------------------------------------------------|---------------------------|-----------|
| Track & Structures | Crosstie renewal | # crossties | 3,464 |
| | Insulator Replacement | # insulators | 2,690 |
| | Ballast Renewal | # tons | 1,172 |
| | Tamping | # linear feet | — |
| | Joint Elimination | # joints welded | 29 |
| | Rail Replacement | # linear feet | 78 |
| | Third Rail Maintenance | # linear feet cover board | 6,610 |
| Automatic Train Control System | Intrusion Detection Warning System (IDW) Refurb/Replace | # boxes | 11 |
| Traction Power System | Power Cable Repair/Replacement | # signals | 149 |

The photograph below was taken on June 20, 2017, looking toward Washington, DC with Track 2 on the left. The tie replacement machine is in the vicinity of Twinbrook Station.

- **Surge 16 Closeout Results**

QICO issued its Surge 16 Close-Out Report on July 7, 2017. In that report, QICO provided a table that showed the percent complete of the planned scopes of work. Those percentages are summarized here. The QICO report provides explanatory notes for each of these items.

⁵ WMATA’s July 14, 2017, SafeTrack report, page 8.

⁶ WMATA’s July 14, 2017, SafeTrack report, page 7.



Surge 16 Closeout Report Findings

| <i>Department</i> | <i>Items</i> | <i>Planned Scope</i> | <i>Work Complete</i> | <i>% Complete</i> |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------|----------------------|----------------------|-------------------|
| <i>ATCM</i> | <i>LJ Box Replacement</i> | <i>1</i> | <i>1</i> | <i>100%</i> |
| | <i>IDW System (linear feet)</i> | <i>≈23,700</i> | <i>≈23,700</i> | <i>97%</i> |
| <i>IT/NCS</i> | <i>Emergency Trip Station Connectivity (Units)</i> | <i>8</i> | <i>8</i> | <i>100%</i> |
| <i>Power – High Voltage</i> | <i>Expansion Cables (Locations)</i> | <i>14</i> | <i>14</i> | <i>100%</i> |
| | <i>Emergency Trip Station Blue Lights (Boxes)</i> | <i>4</i> | <i>4</i> | <i>25%</i> |
| <i>Track</i> | <i>Third Rail Anchor Arms</i> | <i>6*</i> | <i>1**</i> | <i>17%</i> |
| | <i>Tie Replacement (Ties)</i> | <i>>3,800</i> | <i>>3,800</i> | <i>100%</i> |
| <i>Structures</i> | <i>Fence Repair (Areas)</i> | <i>2</i> | <i>2</i> | <i>100%</i> |
| | <i>Chain Marker Graphics (each)</i> | <i>246</i> | <i>246</i> | <i>100%</i> |
| <p><i>*Some scopes of work did not quantify defective items; therefore, the total number of assets in the surge area were used.</i></p> <p><i>**Only one 3rd Rail Anchor Arm was observed to be connected during the closeout assessment. TRST was still in the progress of work during the closeout walk. QICO plans to verify these items during future planned maintenance events in the area before the end of 2017.⁷</i></p> | | | | |

⁷ QICO Surge 16 Closeout Report, July 14, 2017, page 3.

SafeTrack Program Closeout: July – September 2017

The SafeTrack management team has been reassigned within WMATA's MOWE. With the surges completed, MOWE is focusing, among its other engineering responsibilities, on the final SafeTrack report. According to MOWE, the final report will include lessons learned and the summary of costs. MOWE has indicated that it intends to incorporate many, if not all, of the lessons learned from the year-long SafeTrack Program into new procedures for keeping the Metro rail system in a constant state of good repair.

Beyond SafeTrack

MOWE has scheduled three capital rail projects for WMATA's fiscal year 2018:

- 1. August 5 thru 20, 2017 – Rebuild the interlocking at Branch Avenue Station*
- 2. November 25 thru December 10, 2017 – Rebuild the interlocking at Takoma Station*
- 3. May 12 thru 27, 2018 – Rebuild grout pads at Huntington Station Area*

It is most likely that these projects will incorporate shutdowns of both track, and that during the shutdowns, much ancillary maintenance work will be accomplished. The first project, on the Green Line at Branch Avenue has already been announced by WMATA.⁸

“Starting Saturday, August 5 through Sunday, August 20, 2017, Metro will undertake a capital improvement project on the Green Line to rebuild an interlocking, a crossover section of track where trains move from one side to the other. During that time two stations - Branch Ave and Suitland - will be closed. On two consecutive weekends, August 12-13 and 19-20, the work zone will be extended and a third station, Naylor Road, also will be closed.

“Rebuilding the interlocking is a complex process, involving the replacement of four switches that are near the end of their useful life and requires simultaneous work on both tracks. The project also includes signal upgrades, power cable renewal, grout pad replacement, station rehabilitation, preventive maintenance and replacement of approximately 1,500 crossties on a 4.5 mile section of track.

“Working around the clock on both tracks will allow crews to work safely and efficiently while maintaining reliable service to the rest of the system. The same work would take nearly three months of weekend single tracking to complete.”

⁸ WMATA News Release dated July 27, 2017: <https://www.wmata.com/about/news/Metro-reminds-customers-of-Green-Line-Capital-Improvement-Project.cfm>

2. Program Cost

- Budget Analysis by PMOC

The May 2017 PMOC report stated the final cost for SafeTrack will be between \$150 and \$160 million. With information available as of the July 20, 2017 management oversight meeting, the PMOC has revised its earlier estimate and is of the opinion that the final cost will range between \$160 and \$165 million. WMATA has captured and finalized all the costs for SafeTrack; they are reflected in the following table.

SafeTrack Program as of May 31, 2017

| Preliminary Estimated Budget | Approved FY18 Budget with Contingency | Final Program Expenditures | Percent of Budget Expended |
|-------------------------------|---------------------------------------------------------------------------------------------|----------------------------|----------------------------|
| \$118, 797,984 | \$154,234,515 | \$ 162,918,627 | 100% |
| Discussion of Variances | There are no variances. | | |
| Discussion of Funding sources | Funding for SafeTrack is from PRIIA, §5307 & §5337 formula funds, and short-term borrowing. | | |

3. Program Schedule

SafeTrack work began June 4, 2016 and was completed five days early on June 25, 2017. The bar chart in Appendix “G” reflects actual dates the work of each of the 16 surges was accomplished.

4. Environmental Mitigation Measures

During each surge, WMATA performed maintenance on drainage facilities and cleaned up trash along the track right of way.

5. Program Management Capacity and Capability

During June 2017, the SafeTrack Reports Engineer left WMATA. All other SafeTrack staff were reassigned within the Office of MOWE.

6. Quality Assurance/Quality Control (QA/QC)

- WMATA’s QICO conducted several quality assurance inspection activities of *Surges 15 and 16 during June 2017*. These activities are discussed earlier in this report and are enumerated here for information.

- *Quality Assurance Inspection – Surge 15, No. ST-20170531-160, May 31, 2017*
- *Quality Assurance Inspection – Surge 15, No. ST-20170614-161, June 12, 2017*
- *Quality Assurance Inspection – Surge 15, No. ST-20170614-162, June 13, 2017*
- *Quality Assurance Inspection – Surge 15, No. ST-20170613-163, June 15, 2017*
- *Quality Assurance Pre-Surge Inspection – Surge 16, June 2, 2017*
- *Quality Assurance Pre-Surge Inspection – Surge 16, June 6, 2017*

- **Project Audit**

The SafeTrack Program was audited in April 2017. QICO’s conducted the audit and compared SafeTrack activities with requirements spelled out in the SafeTrack PMP as well as WMATA standards. The SafeTrack audit report was given to the SafeTrack team for review. According to the Managing Director of QICO, the results of the audit will be made

public in July 2017. At the July 20, 2017 management oversight meeting, MOWE advised that the QICO Audit should be released in August 2017.

7. Safety and Security

- Safety and Security for SafeTrack are addressed by WMATA in several ways.
 - Level 1, full-day training course for WMATA staff, consultants, and contractors entitled Roadway Worker Protection Training.
 - WMATA’s “System Safety Program Plan” (SSPP)
 - WMATA’s “Construction Safety and Environmental Manual” (CSEM)
 - WMATA contracts, which among other safety requirements, states, “Contractor personnel required to work on WMATA property must obtain a WMATA vendors badge and successfully complete the mandatory safety training which must be renewed yearly. To obtain a vendors badge a signed waiver to perform a background check will be required. Contractors who perform safety-sensitive functions shall be subject to compliance with a drug and alcohol testing program according to Federal guidelines published in FTA regulations (49 CFR Part 655).”
 - Metrorail Safety Rules and Procedures Handbook
- The SafeTrack PMP addresses safety in two areas: Section 2.4.2 addresses the responsibilities of the Department of Safety and Environmental Management (SAFE), and Section 9 entitled Safety, addresses responsibilities and activities of the SafeTrack team during the duration of the SafeTrack Program.
- As a part of its safety and security program, WMATA has developed an outreach program to keep the public apprised of the plans for each surge. As a part of that program, the WMATA public outreach team continues to inform riders about the upcoming surges and the impact to their commute. Informational material is provided to explain safety risks, train delays, bus schedules, and contact information available to the riders.
- PPE Compliance – In addition to tracking recordable injuries, SafeTrack has been *reporting* worker compliance with requirements for wearing personal protective equipment (PPE). In its report for the month of *June* 2017, page 1, SafeTrack reported 100% compliance in all areas *except the use of hard hats* as the following table shows.

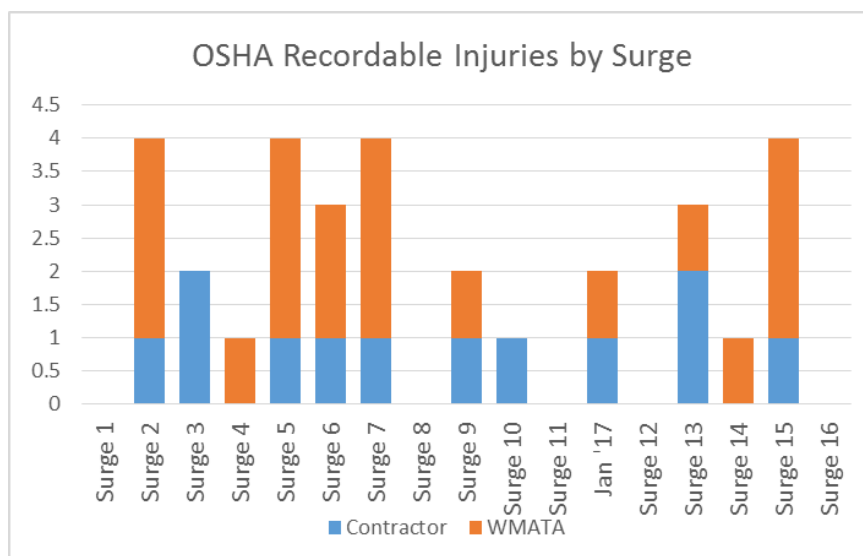
| | Personal Protective Equipment Compliance | | | | | |
|------|------------------------------------------|-----------|----------|------------------|----------------|---------------|
| | | Hard Hats | Footwear | Reflective Shirt | Safety Glasses | Working Radio |
| 2016 | Sept | 99% | 100% | 100% | 89% | 100% |
| | Oct | 98% | 100% | 100% | 96% | 100% |
| | Nov | 99% | 100% | 100% | 98% | 100% |
| | Dec | 100% | 100% | 100% | 100% | 100% |
| 2017 | Jan | 100% | 100% | 100% | 100% | 100% |
| | Feb | 98% | 96% | 100% | 96% | 98% |
| | Mar | 100% | 100% | 100% | 94% | 100% |
| | Apr | 97% | 100% | 100% | 90% | 100% |
| | May | 100% | 100% | 100% | 100% | 100% |
| | Jun | 96% | 100% | 100% | 100% | 100% |

- **Occupational Safety and Health Administration (OSHA) Recordable Injuries**

There were four OSHA recordable injuries in the month of June 2017. In its report for the month of June 2017, the SafeTrack team reported: “SafeTrack experienced four OSHA recordable injury (defined as an injury where the individual received medical care greater than first aid), in the surge areas. The incidents were reported in the SafeTrack June 2017 monthly report:⁹

1. *“On June 5, a crew member was working at Cheverly Station reinstalling equipment on the roadway. The crew member was using a box cutter to cut zip ties off some cable when he cut his left shin. He was transported to Patient First in Beltsville Maryland where he sustained five stitches to his left shin. The employee was instructed to use the proper tool when cutting zip ties which would be snips and use the proper tools when performing his job. The employee didn’t miss any time from work.*
2. *“On June 8, a WMATA track maintenance worker tripped/fell while carrying brackets at Deanwood Station. (No details of the incident and the outcome were provided by the SafeTrack team.)*
3. *“On June 12, WMATA low voltage worker tripped/fell on ballast at Deanwood Station. (No details of the incident and the outcome were provided by the SafeTrack team.)*
4. *“On June 10, a contractor track worker twisted ankle at Cheverly. (No details of the incident and the outcome were provided by the SafeTrack team.)*

SafeTrack’s history of OSHA recordable injuries is depicted in the chart on the next page. The chart shows that there were no recordable injuries during Surges 1, 8, 11, and 12. *The four recordable injuries that occurred in June 2017 all occurred during Surge 15.*



⁹ SafeTrack June 2017 report, July 14, 2017, page 2.

- The updated “Employee Injury Rate – SafeTrack Review” graph, included in previous reports, was not provided by WMATA in July 2017 for this report.

8. Contract Administration

- Administration of third-party contracts related to SafeTrack is the responsibility of WMATA’s maintenance departments. This responsibility is explained in Section 7 of the PMP.
- Disadvantaged Business Enterprise (DBE) Participation – SafeTrack provided a summary of the DBE goals and attainment of those goals *through June 2017. In the following table, the percentages in italics show changes from the previous month’s report. Note that some of the goals were adjusted from the last report; however, all goals were either met or exceeded.*

DBE Goals and Accomplishments through June 2017

| Contract Number | Name of Prime Contractor | DBE Participation Goal | Actual DBE Participation |
|------------------------|------------------------------------|-------------------------------|---------------------------------|
| FQ13027A | Lewis Bolt | 5.0% | 6.4% |
| FQ13027C | Pandrol USA,LP | 9.0% | 6.5% |
| FQ14103 | G.W. Peoples Contracting Co., Inc. | 100.0% | 100.0% |
| FQ15083 | Unitrac Railroad Materials | 1.5% | 4.6% |
| FQ16128 | Stella -Jones Corporation | 5.0% | 9.2% |
| FQ17011 | G.W. Peoples Contracting Co., Inc. | 100.0% | 100.0% |
| FQ16119 | Progress Rail Services | 2.0% | 2.2% |
| FQ12201 | Davis Freight | 5.5% | 6.9% |
| FQ13027C | Langley Traffic Services | 5.0% | 6.5% |
| FQ15083 | Curdco, LLC | 1.5% | 4.6% |

9. Program Risk

- The SafeTrack management team published a two-page risk register in Revision 1 to its draft PMP, which has been updated in Revision 6 of the PMP. The SafeTrack risk register includes a mitigation/response plan for each risk identified. This risk register was reviewed by the PMOC as a part of the review of the PMP. The PMOC had no comments on the risk register.

10. Action Items

- Action Items are shown in Appendix F of this report.

APPENDICES

| | |
|----------------------------------------------------------------------|----|
| APPENDIX A – ACRONYMS AND ABBREVIATIONS | 19 |
| APPENDIX B – MAP OF WMATA’S RAIL TRANSIT SYSTEM | 23 |
| APPENDIX C – SAFETRACK WORK COMPLETED (<i>TOTAL PROGRAM</i>) | 24 |
| APPENDIX D – ORGANIZATION CHARTS & DESCRIPTION | 25 |
| APPENDIX E – SAFETY AND SECURITY CHECKLIST | 27 |
| APPENDIX F – ACTION ITEMS – SAFETRACK PROGRAM | 32 |
| APPENDIX G – SUMMARY SAFETRACK SCHEDULE | 33 |

APPENDIX A – ACRONYMS AND ABBREVIATIONS

| | |
|-------------|-----------------------------------------------------------------------------|
| ACC | Air Conditioner Condenser (a rooftop or a ground-mounted unit) |
| ADA | Americans with Disabilities Act |
| AGT | Aboveground Storage Tank |
| AHU | Air Handling Unit |
| APM | Assistant Project Manager |
| ARF | Authority Representative's Facility |
| ARRA | American Recovery and Reinvestment Act |
| AST | Aboveground Storage Tank |
| ATC | Automatic Train Control |
| <i>ATCM</i> | <i>Automatic Train Control Maintenance</i> |
| ATO | Automatic Train Operation |
| BAFO | Best and Final Offer |
| BFMP | Bus Fleet Management Plan |
| BMNT | Office of Bus Maintenance |
| BMP | Best Management Practice for storm water (by Maryland Dept. of Environment) |
| BOM | Bill of Materials |
| BOMF | Bus Operations and Maintenance Facility |
| C-35A | WMATA Form for Work Authorization |
| CA | Conditional Acceptance |
| CCB | Car Control Building at New Carrollton Rail yard |
| CCTV | Closed Circuit Television |
| CENI | Chief Engineer Infrastructure |
| CIP | Capital Improvement Program |
| CMF | Car Maintenance Facility (a building in a rail yard) |
| CMB | Car Maintenance Building |
| CNG | Compressed Natural Gas |
| COUN | WMATA's Office of General Counsel |
| CPM | Critical Path Method (Schedule) |
| CPDO | Capital Project Delivery Office (office responsible for the SIRP) |
| CPMO | Capital Project Management Office |
| CPN | Contractor Proposal Number |
| CSP | Construction Safety Program |
| CSX | The name of a Class 1 Freight Railroad |
| <i>CTEM</i> | <i>Car Track Equipment Maintenance Group</i> |
| CWP | Coordinated Work Plan |
| D-B | Design-Builder |
| DAS | Distributed Antenna System |
| DBE | Disadvantaged Business Enterprise |
| DDOE | District of Columbia Department of the Environment |
| DEF | Diesel Exhaust Fluid |
| ENSS | WMATA Engineering Support Services |
| ETS | Emergency Trip Station |
| FA | Force Account |

| | |
|----------------------|------------------------------------------------------|
| FACP | Force Account Capital Projects |
| FTA | Federal Transit Administration |
| FWSO | FTA's WMATA Safety Oversight Office |
| FY | Fiscal Year |
| GOTRS | General Orders/Track Rights System |
| HAZMAT | Hazardous Materials |
| HVAC | Heating, Ventilating, and Air Conditioning |
| IDW | Intrusion Detection Warning |
| ICE | Independent Cost Estimate |
| IEEE | Institute of Electrical and Electronic Engineers |
| IFC | Issued for Construction |
| IRPG | Infrastructure Rehabilitation Program |
| JOC | Job Order Contract |
| LEED | Leadership in Energy and Environmental Design |
| Maximo ¹⁰ | WMATA's Enterprise Maintenance Management System |
| MCAP | Major Capital Project (as defined by WMATA) |
| MCX | Medical Center Crossover |
| MOW | Maintenance of Way, a personnel qualification by CSX |
| MWOE | Maintenance of Way Engineering |
| NCN | Non-conformance Notice |
| NTP | Notice to Proceed |
| OSHA | Occupational Safety and Health Administration |
| OMBS | WMATA's Office of Management and Budget Services |
| O&M | Operation and Maintenance |
| OFS | Order for Services |
| Optram ¹¹ | Software used by WMATA's Track & Structures Group |
| NOV | Notice of Violation |
| O/B 1 | Orange/Blue Lines 1 Contract |
| PA | Public Address |
| PCCI | Potomac Construction Company, Inc. |
| PCN | Proposed Change Notice (from the contractor) |
| PCO | Pending Change Order |
| Pepco | Potomac Electric Power Company |
| PG | Prince George's (County) |
| PLNT | Office of Plant Maintenance |
| PM | Project Manager |

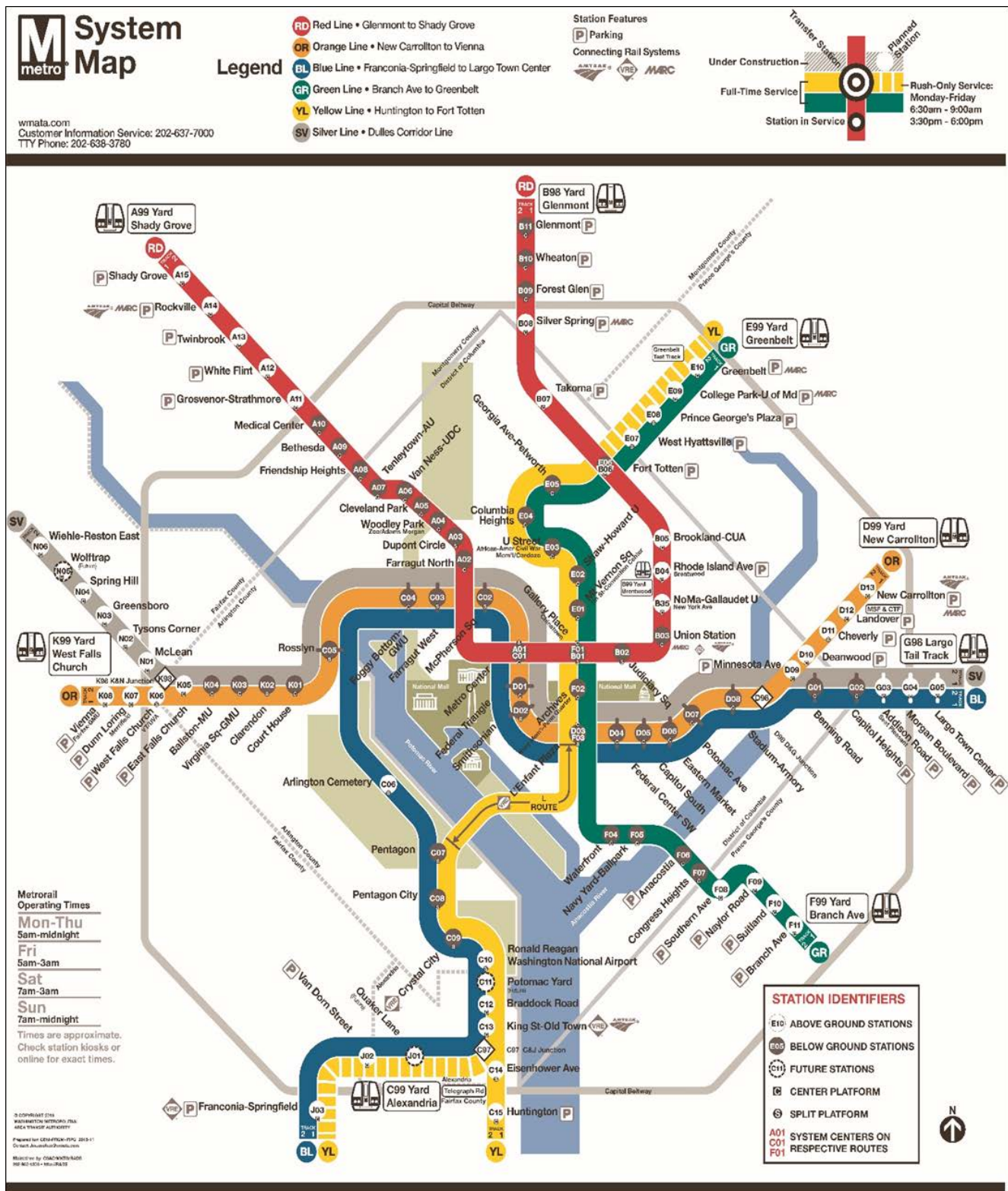
¹⁰ **Maximo** is WMATA's maintenance management system used for work order, incident, and track defect tracking. Maximo Work Orders (WO) specify a particular task and the labor, materials, services, and tools required to complete the task. *(From definitions in QICO's Closeout Reports)*

¹¹ **Optram** is a track and structures asset viewer working in conjunction with Maximo. It shows track alignment, stationing, type of structure, vertical and horizontal profiles, traction power zones, train control circuits, and historical as-built drawings for the entire Metrorail system. Work order history from Maximo is imported as well as track geometry vehicle data to aid track maintenance and engineering planning. *(From definitions in QICO's Closeout Reports)*

| | |
|------------|------------------------------------------------------------------|
| PMOC | Project Management Oversight Consultant |
| PMP | Project Management Plan |
| PPE | Personal Protective Equipment |
| PPLE | Program, Planning and Energy |
| PRMT | WMATA's Office of Procurement |
| QA | Quality Assurance |
| QAP | Quality Assurance Plan |
| QICO | WMATA's Department of Quality and Internal Compliance Operations |
| QPRM | Quarterly Progress Review Meeting |
| RAMP | Real Estate Acquisition Management Plan |
| RF | Radio Frequency |
| RFMP | Rail Fleet Management Plan |
| RFP | Request for Proposal |
| RFQ | Request for Qualifications |
| <i>RMM</i> | <i>Railway Maintenance Machine</i> |
| RSA | Rail Service Adjustment |
| RTU | Remote Terminal Unit |
| SAFE | WMATA's Department of Safety and Environmental Management |
| SCADA | Supervisory Control and Data Acquisition |
| S&I | Service and Inspection |
| SCI | Substantial Completion Inspection |
| SCWG | Safety Certification Working Group |
| SOW | Scope of Work |
| SHPO | State Historical Preservation Office |
| SIRP | Systemwide Infrastructure Rehabilitation Program |
| S/O | Switch Order (needed for removal of AC power) |
| SOA | State Oversight Agency (for Safety and Security) [formerly SSOA] |
| SPM | Senior Program Manager (Most senior WMATA manager on a project) |
| SSCP | Safety and Security Certification Plan |
| SSCMP | Safety and Security Certification Management Plan |
| SSMP | Safety and Security Management Plan |
| SSP | System Security Plan |
| SSPP | System Safety Program Plan |
| SSPS | System Safety Program Standards |
| SSWP | Site Specific Work Plan |
| T&E | Trainman and Engineman, a personnel qualification by CSX |
| TAES | Track Allocation & Escort Support Office at WMATA |
| TAMS | Transit Asset Management System |
| TASS | Track Access Support Services |
| TBS | Tiebreaker Station |
| TCR | Train Control Room |
| TPSS | Traction Power Substation |
| TRST | WMATA's Department of Track and Structures |
| TSSM | Track and Structures – System Maintenance |
| TTCF | Test Track and Commissioning Facility |
| TUN | Temporary Use Notice |

| | |
|-------|------------------------------------------------|
| TVA | Threat Vulnerability Analysis |
| UPS | Uninterrupted Power Supply |
| UST | Underground Storage Tank |
| VEF | Ventilation & Exhaust Fans |
| WMATA | Washington Metropolitan Area Transit Authority |
| WSSC | Washington Suburban Sanitary Commission |
| YOB | Yard Operations Building |

APPENDIX B – MAP OF WMATA's RAIL TRANSIT SYSTEM



APPENDIX C – SAFETRACK WORK COMPLETED (*total program*)

| Surge No. | Miles in Length ¹ | Crosstie Renewal (each) | Insulator Renewal (each) | Fasteners Replaced (each) | Stringer Rail Renewal (feet) | Joints Welded (each) | Grout Pad Renewal (feet) | Tunnel Light Repair (each) | Power Cables Replaced (each) | Third Rail Cover Board (feet) | IDW Boxes (each) | Signal Conversion to LED (each) | Track Bed Cleaning (feet) | Emergency Trip Station Repair (each) |
|-----------|------------------------------|-------------------------|--------------------------|---------------------------|------------------------------|----------------------|--------------------------|----------------------------|------------------------------|-------------------------------|------------------|---------------------------------|---------------------------|--------------------------------------|
| 1 | 2.4 | 1,856 | 541 | 2,214 | 3,184 | 16 | | 17 | 54 | 410 | 208 | 0 | 3,150 | 0 |
| 2 | 4.0 | 533 | 235 | 2,116 | 1,745 | 22 | 2,005 | 140 | 183 | 642 | 0 | 12 | 3,160 | 13 |
| 3 | 1.4 | 1,327 | 233 | 1,062 | 78 | 6 | 800 | 355 | 20 | 170 | 0 | 0 | 0 | 19 |
| 4 | 2.6 | 81 | 31 | 2,463 | 2,730 | 26 | 959 | 178 | 54 | 310 | 0 | 0 | 3,200 | 0 |
| 5 | 2.4 | 1,405 | 121 | 2,369 | 4,680 | 24 | 0 | 242 | 79 | 820 | 0 | 0 | 5,110 | 0 |
| 6 | 1.1 | 1,311 | 496 | 0 | 312 | 14 | 0 | 0 | 20 | 1,280 | 0 | 0 | 8,129 | 0 |
| 7 | 4.4 | 3,572 | 1,120 | 0 | 0 | 6 | 0 | 0 | 72 | 2,000 | 62 | 12 | 1,692 | 0 |
| 8 | 7.4 | 7,102 | 353 | 0 | 0 | 27 | 0 | 0 | 52 | 230 | 500 | 16 | 16,180 | 0 |
| 9 | 10.4 | 7,159 | 402 | 0 | 4,758 | 97 | 0 | 0 | 225 | 8,490 | 1,090 | 16 | 30,021 | 0 |
| 10 | 2.6 | 2,028 | 795 | 1,245 | 1,738 | 105 | 5,737 | 0 | 38 | 4,910 | 405 | 15 | 38,354 | 0 |
| 11 | 3.0 | 1,937 | 213 | 0 | 15,795 | 50 | 0 | 0 | 106 | 3,450 | 366 | 0 | 0 | 0 |
| Note 2 | 4.2 | 0 | 0 | 3,261 | 12,129 | 42 | 0 | 212 | 0 | 0 | 0 | 0 | 0 | 0 |
| Note 3 | 1.8 | 0 | 49 | 4,954 | 1,560 | 47 | 3,113 | 218 | Note 4 | 32 | 0 | 5 | 0 | 12 |
| 12 | 4.8 | 695 | 900 | 5,631 | 5,265 | 51 | 7,877 | 436 | 35 | 0 | 0 | 4 | 0 | 29 |
| 13 | 10.5 | 5,646 | 1,799 | 4,619 | 1,393 | 0 | 12,800 | 30 | 67 | 5,090 | 12 | 26 | 0 | 24 |
| 14 | 8.8 | 9,569 | 2,864 | 5,704 | 3,078 | 221 | 0 | 0 | 160 | 6,440 | 0 | 8 | 0 | 0 |
| 15 | 12.0 | 15,713 | 2,403 | 3,244 | 2,867 | 0 | 8,879 | 0 | 149 | 1,250 | 600 | 10 | 0 | 0 |
| 16 | 4.4 | 3,464 | 2,690 | 0 | 78 | 29 | 0 | 0 | 149 | 6,610 | 11 | 0 | 0 | 0 |
| Totals | 88.2 | 63,398 | 15,245 | 38,882 | 61,390 | 783 | 42,170 | 1,828 | 1,463 | 42,134 | 3,254 | 124 | 108,996 | 97 |

Note 1: Miles are computed by adding length of track 1 and track 2 rehabilitated during the surge.

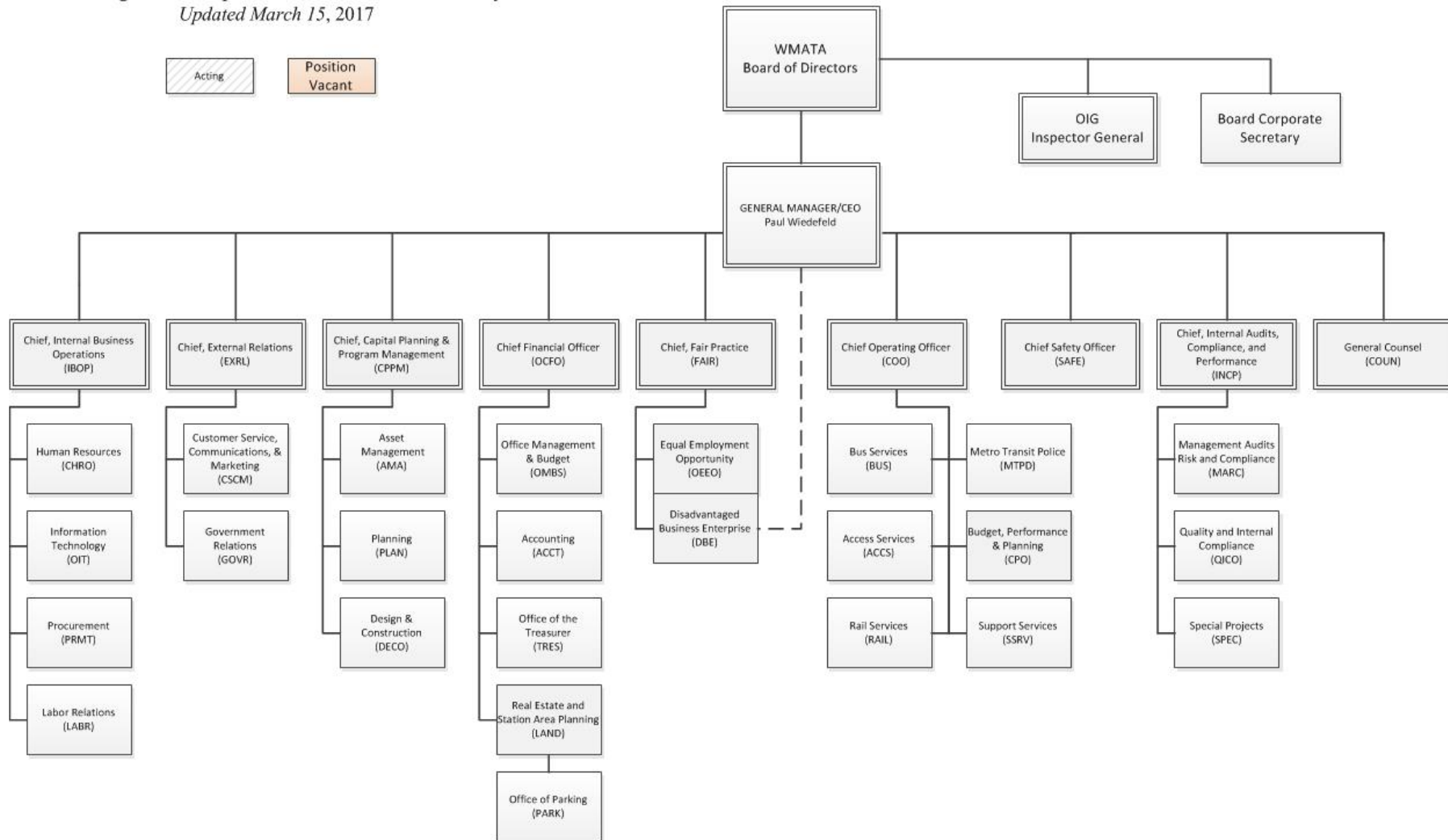
Note 2: Non-surge work on the A Line reported in WMATA's January SafeTrack report, page 9.

Note 3: Non-surge work on the C & D Lines reported in WMATA's January SafeTrack report, page 9.

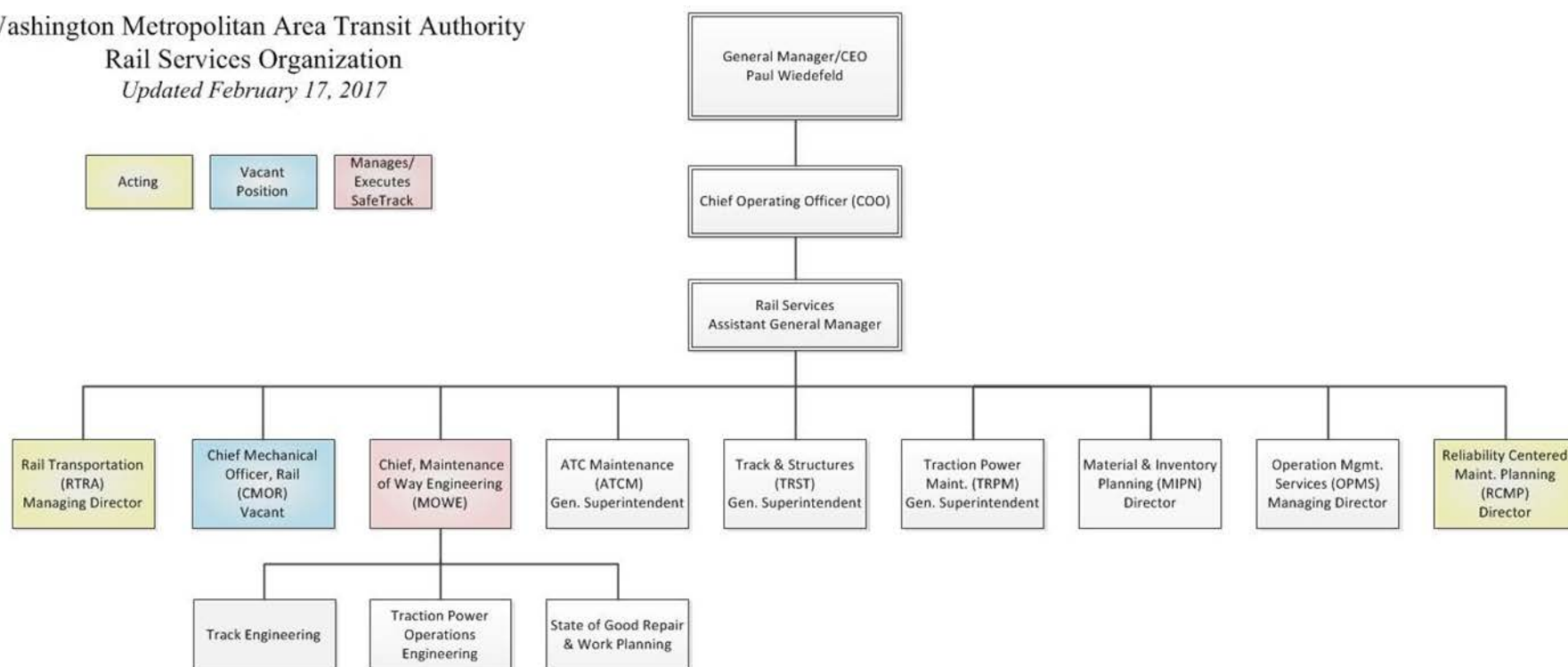
Note 4: WMATA reported 1,060 feet of cable replaced in lieu of the number of cables replaced.

APPENDIX D – ORGANIZATION CHARTS & DESCRIPTION

Washington Metropolitan Area Transit Authority
Updated March 15, 2017



Washington Metropolitan Area Transit Authority
 Rail Services Organization
Updated February 17, 2017



APPENDIX E – SAFETY AND SECURITY CHECKLIST
(Updated 2/6/17)

| Project Overview | SafeTrack Program | | |
|-------------------------------------------------|----------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Project Mode | Rail | | |
| Project Phase | Construction | | |
| Project Delivery Method | Force Account & Third Party Contractor | | |
| Project Plans | Version | Review By FTA | Status |
| Safety and Security Management Plan (SSMP) | | N/A | SSMP not required for SafeTrack, FTA C 5800.1 4. Applicability. |
| Safety and Security Certification Plan (SSCPP) | March 2015 | Pending | The March 2015 SSCP or a project specific SSCP was not issued to FTA. |
| System Safety Program Plan (SSPP) | January 2017 | Yes FWSO | Draft SSPP submitted to FWSO and currently under review. |
| Security and Emergency Preparedness Plan (SEPP) | 2014 | Pending | This SSI document must be reviewed on site. The last TOC Letter dated September 3, 2014 approved WMATA’s 2014 SEPP. |
| Construction Safety and Security Plan (CSSP) | March 2013 | Y | WMATA “Construction Safety and Environmental Manual” provides guidelines for WMATA construction, maintenance, and rehabilitation projects. Contractors are required to submit individual plans. WMATA employees follow safety rules outlined in their MSRPH. |

| AREA OF FOCUS | Y/N | NOTES/STATUS |
|----------------------------------------------------------------------------------------|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety and Security Authority | | |
| Is the Project Sponsor subject to 49 CFR Part 659 State Safety Oversight Requirements? | Y | FTA WMATA Safety Oversight (FWSO) has temporary direct responsibility and oversees any TOC activities. FTA "Oversight and Surveillance Plan" Version 1.7, September 2, 2016, defines responsibilities, requirements, processes, and activities to implement FTA's direct safety oversight of the WMATA Metrorail system and to ensure that these goals are achieved. |
| Has the State designated an oversight agency as per Part 659.9? | Y | TOC was designated per 659.9, and performs oversight responsibilities as directed by FWSO. See notes/status above. |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Has the oversight agency reviewed and approved the Project Sponsor's Security Plan or SSPP as per 49 CFR Part 659.17? | Y | WMATA SSPP January 2015 was reviewed and approved by TOC. WMATA SSPP DRAFT 2017 has been received by FWSO and is currently under review. |
| Did the oversight agency participate in the last Quarterly Program Review Meeting? | Y | The FWSO did attend the QPRM held on November 14, 2016. |
| Has the Project Sponsor submitted its safety certification plan to the oversight agency? | No | The SSCP of March 20, 2012, was accepted by TOC on April 2012, however a March 2015 version is noted in the DRAFT 2017 SSPP that has not been provided to FTA. |
| Has the Project Sponsor implemented security directives issued by the Department Homeland Security, Transportation Security Administration? | N/A | DHS Coordination is to be addressed in Section 11 of the SSMP. A SSMP is not required for SafeTrack, FTA C 5800.1 4. Applicability. |
| SSMP Monitoring | | |
| Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project? | N/A | WMATA's SSPP applies to this work instead of a separate SSMP. |
| Does the Project Sponsor review the SSMP and related project plans to determine if updates are necessary? | Open | PMOC coordination with and input from FWSO will determine this. |
| Does the Project Sponsor implement a process through which the Designated Function (DF) for Safety and DF for Security are integrated into the overall project management team? Please specify. | Open | PMOC working with FWSO is reviewing this. |
| Does the Project Sponsor maintain a regularly scheduled report on the status of safety and security activities? | Y | SafeTrack Monthly Reports issued to FWSO include a safety section with trends of increased RWP, personnel PPE compliance, OSHA recordable injuries by surge, etc. |
| Has the Project Sponsor established staffing requirements, procedures and authority for safety and security activities throughout all project phases? | Y | SSPP Section 3.0 and Appendix E. |
| Does the Project Sponsor update the safety and security responsibility matrix/organizational chart as necessary? | Y | SSPP is updated annually. |
| Has the Project Sponsor allocated sufficient resources to oversee or carry out safety and security activities? | Y | Two safety officers are assigned to construction safety by SAFE. The conduct field observations, inspections of work area, and compliance checks. |

| | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Has the Project Sponsor developed hazard and vulnerability analysis techniques, including specific types of analyses to be performed during different project phases? | Y | Section 6 of SSPP defines Hazard Management Program. |
| Does the Project Sponsor implement regularly scheduled meetings to track resolution of any identified hazards and/or vulnerabilities? | Y | FWSO holds weekly meetings with WMATA staff to address safety events, corrective action implementation, and other hazards. |
| Does the Project Sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly. | Y | Two safety officers are assigned to construction safety by SAFE. The conduct field observations, inspections of work area, and compliance checks. |
| Does the Project Sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted. | N/A | SafeTrack is a maintenance activity with an existing system. |
| Has the Project Sponsor ensured the development of <u>safety design criteria</u> ? | Y | WMATA Manual of Design Criteria for Maintaining and Continued Operation of Facilities and Systems. |
| Has the Project Sponsor ensured the development of <u>security design criteria</u> ? | Y | Incorporated into WMATA Manual of Design Criteria for Maintaining and Continued Operation of Facilities and Systems. |
| Has the Project Sponsor ensured conformance with safety and security requirements in design? | Y | Materials are physically received by each Department's Materials Controls Group. The Materials Controls Group, briefed by the COTR regarding contract requirements, performs a physical inspection for accuracy and quality of the delivered order. |
| Has the Project Sponsor verified conformance with safety and security requirements in equipment and materials procurement? | Y | QICO performs quality inspections. |
| Has the Project Sponsor verified construction specification conformance? | Y | QICO tracks and reports on the results of maintenance and repair activities by the SafeTrack crews. |
| Has the Project Sponsor identified safety and security critical tests to be performed prior to passenger operations? | Y | WMATA runs a test train through the area. ATC uses ATC 1000, Track and Structures uses WMATA 1000 and WMATA 2000, and POWR uses SMNT POWR. |
| Has the Project Sponsor verified conformance with safety and security requirements during testing, inspection and start-up phases? | Y | The various departments working on SafeTrack under the Rail Services Group are responsible for verification. QICO verifies this. |

| | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------|
| Has the Project Sponsor evaluated change orders, design waivers, or test variances for potential hazards and /or vulnerabilities? | N/A | Work is being conducted by WMATA or under direct WMATA supervision. There are no change orders or waivers. | | |
| Has the Project Sponsor ensured the performance of safety and security analyses for proposed work-arounds? | Y | SAFE has the responsibility for hazard mitigation with SafeTrack work and ensures mitigation with WMATA’s MSRPH and RWPM. | | |
| Has the Project Sponsor demonstrated through meetings or other methods, the integration of safety and security in the following: <ul style="list-style-type: none">• Activation Plan and Procedures• Integrated Test Plan and Procedures• Operations and Maintenance Plan• Emergency Operations Plan? | N/A | SafeTrack is a maintenance activity. All work is being conducted with existing standards/procedures. Plans listed with this element are associated with new starts and system extensions. | | |
| Has the Project Sponsor issued final safety and security certification? | N/A | Safety and Security Certification is not done with this work. SafeTrack is a maintenance activity. All work is being conducted with existing standards/ procedures. No new designs have been introduced and there are no system modifications. | | |
| Has the Project Sponsor issued the final safety and security verification report? | N/A | Safety and Security Certification is not done with this work. SafeTrack is a maintenance activity. All work is being conducted with existing standards/procedures. No new designs have been introduced and there are no system modifications. | | |
| Construction Safety | | | | |
| Does the Project Sponsor have a documented/implemented Contractor Safety Program with which it expects contractors to comply? | Y | WMATA “Construction Safety and Environmental Manual” provides guidelines for WMATA construction, maintenance, and rehabilitation projects. Contractors are required to submit individual plans. | | |
| Do the Project Sponsor’s contractor(s) have a documented company-wide safety and security program plan? | Open | Check G.W. Peoples, Crane Masters, and Crane Services Company, Inc. The PMOC is in the process of evaluating this. | | |
| Do the Project Sponsor’s contractor(s) have a site-specific safety and security program plan? | Open | PMOC in coordination with and input from FWSO will determine this. | | |
| Provide the Project Sponsor’s OSHA statistics compared to the national average for the same type of work. | Open | All SafeTrack Contracts | WMATA Recordable Rate | National Average |
| | | WMATA | PMOC Verifying | PMOC Verifying |
| If the comparison is not favorable, what actions are being taken by the Project Sponsor to improve its safety record? | Open | PMOC coordination with and input from FWSO will determine this. | | |

| | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------------------------------------------------------|
| Does the Project Sponsor conduct site audits of the contractor's performance versus required safety/security procedures? | Y | WMATA's QICO group monitors work quality and site safety and performs QC inspection consistent with Section 9 of the SafeTrack PMP. |
| Federal Railroad Administration | | |
| If shared track: has Project Sponsor submitted its waiver request application to FRA? (Please identify specific regulations for which waivers are being requested) | N/A | No shared track. This is a heavy rail transit project. There is no FRA involvement. |
| If shared corridor: has Project Sponsor specified specific measures to address shared corridor safety concerns? | | |
| Is the Collision Hazard Analysis underway? | | |
| Other FRA required Hazard Analysis – Fencing, etc.? | | |
| Does the project have Quiet Zones? | | |
| Does FRA attend the Quarterly Review Meetings? | | |

APPENDIX F – ACTION ITEMS – SAFETRACK PROGRAM

| PR | ITEM | IDENTIFICATION | NATURE OF PROBLEM | D | A | I | COMMENTS | PMOC STATUS |
|----|------|--------------------------------------------------------------|--------------------------------------------------|---|---|---|--------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 2 | 2A | Incorporate PMOC comments on PMP Rev 0 and issue Revision 1. | No plan was developed before this program began. | Y | N | N | The SafeTrack Team submitted PMP Revision 6 to FTA and the PMOC on April 21, 2017. FTA approved Revision 6 by letter dated April 24, 2017. | C |

ITEM KEY

Subtask 2A CLIN 0002A – PMP Review Subtask 2B CLIN 0002B – On-Site Monitoring

LEGEND

PRIORITY (PR)

- 1- Most Critical
- 2- Critical
- 3- Least Critical

PROJECT SPONSOR ACTION

- D – Remedial Action Developed
- A – Remedial Action Approved
- I – Action Implemented

PMO CONTRACTOR STATUS

- R – Review On-going
- C – Completed – No further review required

Note – Items marked with a ‘C’ in the ‘PMO Contractor Status’ column will be dropped from future reports.

APPENDIX G – SUMMARY SAFETRACK SCHEDULE

| Surge | Start | Finish | 2016 | | | | | | | | | | 2017 | | | | | |
|----------------------------------------------------|-----------|-----------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|--|--|--|
| | | | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Jan | Feb | Mar | Apr | May | Jun | | | |
| Surge 1 — Ballston - East Falls Church | 4-Jun-16 | 16-Jun-16 | | | | | | | | | | | | | | | | |
| Surge 2 — Eastern Market - Benning Rd & Minn. Ave | 18-Jun-16 | 3-Jul-16 | | | | | | | | | | | | | | | | |
| Surge 3 — Natl. Airport - Braddock Rd | 5-Jul-16 | 11-Jul-16 | | | | | | | | | | | | | | | | |
| Surge 4 — Natl. Airport-Crystal City-Pentagon City | 12-Jul-16 | 18-Jul-16 | | | | | | | | | | | | | | | | |
| Surge 5 — Ballston - East Falls Church | 20-Jul-16 | 31-Jul-16 | | | | | | | | | | | | | | | | |
| Surge 6 — Takoma - Silver Spring | 1-Aug-16 | 7-Aug-16 | | | | | | | | | | | | | | | | |
| Surge 7 — Shady Grove - Twinbrook | 9-Aug-16 | 21-Aug-16 | | | | | | | | | | | | | | | | |
| Surge 8 — Franconia-Springfield - Van Dorn St | 27-Aug-16 | 11-Sep-16 | | | | | | | | | | | | | | | | |
| Surge 9 — Vienna - West Falls Church | 15-Sep-16 | 26-Oct-16 | | | | | | | | | | | | | | | | |
| Surge 10 — NoMa - Fort Totten | 29-Oct-16 | 22-Nov-16 | | | | | | | | | | | | | | | | |
| Surge 11 — East Falls Church - Vienna | 28-Nov-16 | 20-Dec-16 | | | | | | | | | | | | | | | | |
| Surge 12 — Rosslyn - Pentagon | 11-Feb-17 | 28-Feb-17 | | | | | | | | | | | | | | | | |
| Surge 13 — Braddock Rd - Huntington/Van Dorn St | 4-Mar-17 | 12-Apr-17 | | | | | | | | | | | | | | | | |
| Surge 14 — Greenbelt - College Park | 15-Apr-17 | 14-May-17 | | | | | | | | | | | | | | | | |
| Surge 15 — Minnesota Avenue - New Carrollton | 17-May-17 | 15-Jun-17 | | | | | | | | | | | | | | | | |
| Surge 16 — Shady Grove - Twinbrook | 17-Jun-17 | 25-Jun-17 | | | | | | | | | | | | | | | | |
| Cherry Blossom Festival | Mar-17 | 16-Apr-17 | | | | | | | | | | | | | | | | |

Inauguration Week