

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

October 2016 Progress



CIP 0024 SafeTrack Project – Surge No. 9 “Installation of new negative return cables”  
within the gage of Track #1 near Vienna Station, at 9 a.m., October 19, 2016.

Submitted January 17, 2017  
Final

PMOC Contract Number: DTFT60-14-D-00011

Task Order Number: 006, Project Number: DC-27-5272, Work Order No. 01

OPs Referenced: 01, 25

Hill International, Inc.  
One Commerce Square  
2005 Market Street, 17<sup>th</sup> Floor  
Philadelphia, PA 19103

PMOC Lead: [REDACTED]  
Length of Time PMOC Assigned to Project under current Contract: 2 years, 2 months  
Length of Time PMOC Lead Assigned to Project: 4 Years, 6 months

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Cover Photo: Surge No. 9 “Installation of new negative return cables” October 19, 2016. Photo courtesy of QICO.

## EXECUTIVE SUMMARY

This third monthly PMOC report for SafeTrack is based on information provided by WMATA at the oversight meeting held on November 17, 2016, and subsequent weekly updates. The PMOC concurs with WMATA's assessment of October progress as stated in its monthly report: <sup>1</sup>

October was both a productive and challenging month for the SafeTrack program, with new records set for work completed within a surge and some set-backs experienced in safety and work planning. A total of 29 days of the month were spent surging: 20 days of single tracking and 9 days of line segment shutdowns. The bulk of Surge 9, between Vienna and West Falls Church, was completed in the month of October. With good weather and the change to the 'super-gang' approach to cross-tie replacement, we exceeded the tie replacement goal by 18% and completed it several days ahead of schedule, enabling significantly more rail and cable replacement work to proceed. Surge 10 also began this month, with the shutdown between NoMa and Fort Totten commencing on Saturday October 29. Fort Totten is a particularly challenging area to work in due to the interconnected nature of the tracks and the design of the track circuits. Significant additional effort was expended by ATC and Power Engineering to develop the work zone isolation requirements to enable work to proceed without impacting the Fort Totten platforms for the Red line and the Yellow/Green lines. This extra effort delayed some of our other planning activities, resulting in a later development of the March Chart and weekend work plans, as well as delaying the advanced planning of Surge 11.

In addition to the physical work in the surge areas, [the SafeTrack Coordination Team] completed the re-forecasting of the SafeTrack to-go costs, including an analysis of the cost spent to date. This effort supported the budget amendment submitted to the Board for approval, to allocate more funding to CIP 24. The summary of the budget basis will be included in the revised PMP, to be issued later this year.

Here is a summary of the PMOC oversight activities for October 2016:

- October 18 – Conducted the regular monthly oversight meeting at WMATA.
- October 18 – Attended the weekly SafeTrack Coordination meeting.
- October 25 – Attended the weekly SafeTrack Coordination meeting.
- October 25 – Met with Superintendent Track Inspection group to discuss process for recording track inspection findings in Maximo and managing track work through Maximo.
- October 28 – Submitted comments on SafeTrack Project Management Plan to FTA.
- October 28 – Met with PM for Rhode Island Avenue Station concrete repair project to discuss coordination with Surge 10 activities as well as confirm progress with repairs of the Station.

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<sup>1</sup> WMATA's SafeTrack Report to the PMOC dated November 14, 2016.

## A. Program Description

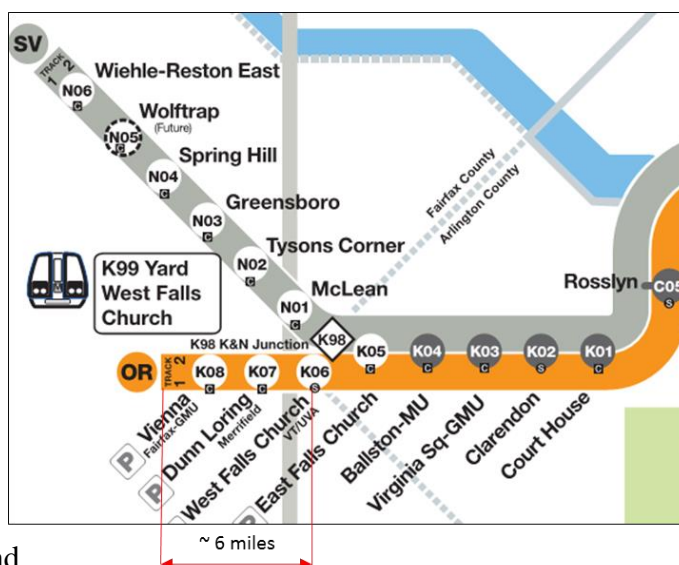
WMATA has described SafeTrack as: “SafeTrack addresses FTA and NTSB safety recommendations, will eliminate the backlog of track work, and will enable Metro to return to a steady-state of annual track and systems renewal projects. SafeTrack will do this by closing the system at midnight on weekends and expanding weekday maintenance opportunities. In addition, SafeTrack intends to carry forward lessons learned and improvements in work efficiency and productivity to future maintenance and capital rehabilitation programs, after SafeTrack ends in mid-2017. The plan includes 15 "Safety Surges" that will utilize long-duration track outages through around-the-clock single tracking or line-segment shutdowns that will impact rush hour commutes.”<sup>2</sup>

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. These federal funding sources include PRIIA (Passenger Rail Investment Improvement Act), \$5307 Urbanized Area Formula Funds, and \$5337 State of Good Repair Formula Funds. SafeTrack started on June 4, 2016; the present scope is scheduled to be completed in June 2017.

## B. Program Status

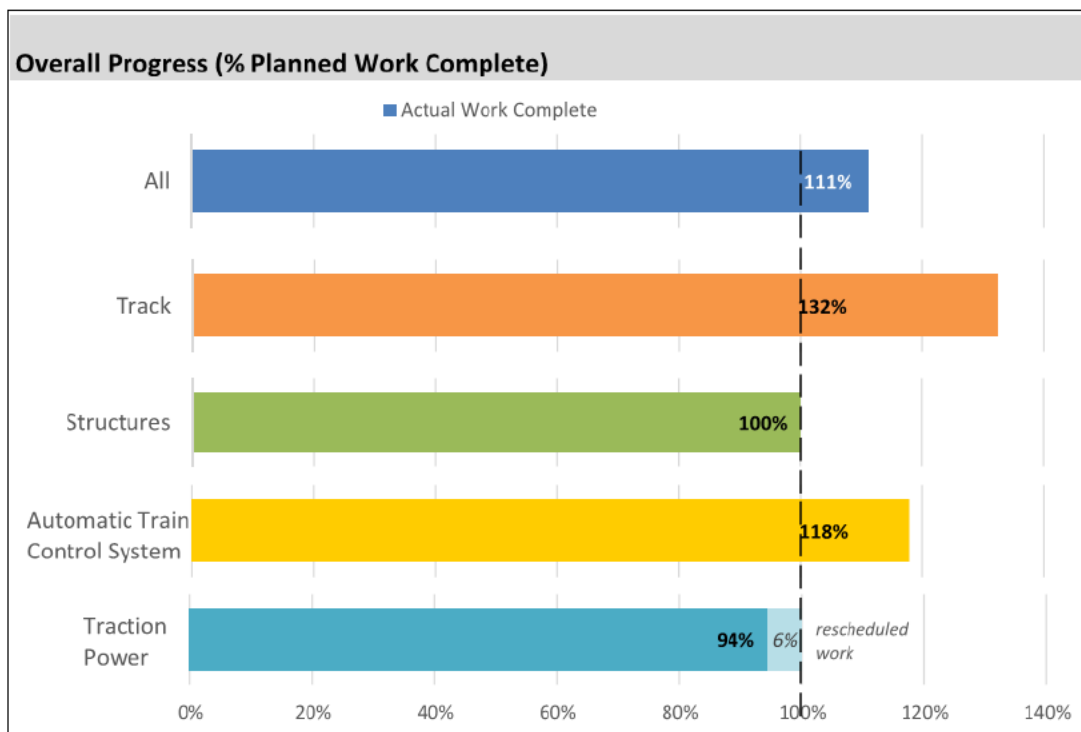
Planning for Surge 9 began on August 14, 2016, with an inspection of the Orange Line from West Falls Church (K06) to Vienna (K08), a distance of approximately six miles. Work on the Surge began Thursday, September 15, 2016, and concluded on Wednesday, October 26, 2016, after 42 continuous days.

According to WMATA, during the surge, priority was given to addressing potential defects and repairing or replacing critical rail infrastructure that affects train speeds and ride quality. Additional regular and preventive maintenance activities were fit in as time permitted. A majority of the work was completed as shown on WMATA’s summary bar graph on the following page.<sup>3</sup> The reader will note that WMATA completed only 94% of the planned Traction Power work on Surge 9, and that the same percentage was completed on Surge 8. The PMOC verified it is purely coincidental that the two “percents complete” are the same. The incomplete Traction Power work is discussed on page 8 of this report.



<sup>2</sup> From WMATA’s SafeTrack Project Management Plan, Revision Zero, October 30, 2016.

<sup>3</sup> SafeTrack Surge 9 Final Report dated 11/11/16.



Also during October 2016, Surge 10 began On October 29. This 24-day surge required the complete shutdown of the Red Line between “NoMa-Gallaudet U” and “Fort Totten” Stations, which included the closing of two stations, Rhode Island Avenue and Brookland. Because October’s Surge 10 activity represents only three days of this planned 24-day surge, Surge 10 progress will be reported in the next PMOC report, which covers November 2016 activity.

### C. Core Accountability Information

*(Note: Italics shows a change from previous report.)*

#### Cost – Current Budget for CIP0024

Estimated Budget Required:	\$118,797,984
Board Approved (FY16-FY17) Budget for CIP0024:	\$ 73,226,892*
Expended through October 31, 2016:	\$ 66,652,652
Percent of approved budget expended:	91%
Percent of estimated budget expended:	56%
<i>*This budget amount is slightly less than the amount reported last month and is likely due to internal WMATA adjustments.</i>	

#### Cost – Forecast for SafeTrack

Estimated total cost for SafeTrack work (Surges 1 thru 15):	\$ 80,067,892
Estimated total cost for track rehabilitation work outside surge areas:	\$ 19,636,775
Subtotal Estimated Cost (Surge and non-surge work)	\$ 99,704,667
Contingency at 20%:	\$ 19,093,317
Projected CIP0024 total cost during SafeTrack:	\$118,797,984



Cost – Summary of Funding (includes \$ for CIPs 18, 21, 22, 23, & 26)

Federal Fiscal Year	Funding Source	Amount
FFY15*	PRIIA	\$ 18,521,477
FFY16*	PRIIA	\$ 45,947,000
FFY16	§5337	\$ 10,000,000
FFY16	§5307	\$ 10,000,000
Subtotal Federal Funding		\$ 84,468,477
WMATA Short Term Borrowing		\$ 34,329,507
Grand Total	All Sources	\$118,797,984

Schedule

- Original SafeTrack project completion date: June 2017
- Current forecast completion date: June 2017; Schedule of Surges 12 through 15 will be updated in January 2017
- Percent of time expended: 52%

Contingency & Budget

- Contingency – From the beginning of the SafeTrack program through October 31, 2016, there has been no contingency in the CIP0024 budget, [REDACTED]. However, WMATA has stated that it is committed to funding the entire SafeTrack Program as evidenced by its plan to seek Board approval for an additional \$60M in funding to complete the program. (WMATA received Board approval for an increase to the CIP24 Budget in November 2016 and this information will be reflected in subsequent reports).

**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. Lack of coordination among various WMATA departments that are working in a surge area.

*In October 2016, the PMOC observed improved coordination among departments. The work in September shows improvement in the coordination of work. This conclusion is based on conversations with project managers of the 700 MHz radio and Cellular Infrastructure Replacement project and the Orange/Blue Line Infrastructure Renewal Project. CLOSED*

- b. Lack of a decision protocol for times when other high-priority or high-dollar work conflicts with Surge work. Specifics of this issue were reported in this section of the PMOC's report of September 2016 SafeTrack activities. Since then, the PMOC asked the SafeTrack team whether a protocol was being developed.

WMATA responded to the PMOC saying, it continues to address conflicts among various projects and departments vying for track rights to accomplish their work. The weekly Wednesday track rights meetings, chaired by the AGM-Rail, is where conflicts are de-conflicted.

Furthermore, according to the SafeTrack Team, “within the surge, the decision protocol is the rigorous work planning process that goes into creating the March Chart. The PMOC has observed WMATA’s further attention to this communication issue in Revision 1 to the Project Management Plan, which the PMOC is reviewing. The PMOC will continue to monitor the coordination for track rights between other WMATA projects and SafeTrack.

- c. Ability to segregate SafeTrack surge expenses from other concurrent maintenance expenses.

*This issue was discussed at the November 17, 2016 oversight meeting. SafeTrack team advised that they are still collecting data developing analytical tools to address this issue.*

- d. Weather: hot weather in August and the possibility of it continuing into September (as well as heavy rains) can affect productivity.

*Weather was not a significant issue in October 2016 for SafeTrack. CLOSED*

- e. 12-hour work days, six days a week can negatively affect productivity

*In October, on Surges 9 and 10, the SafeTrack program continued working 12-hour shifts; however, the PMOC has not observed problems resulting from shift work. The maintenance departments continue to place a strong emphasis on workers getting rest during off-shift hours. CLOSED*

- f. Lack of communication and coordination among the departments involved in a surge during the Lock-Out/Tag-Out (LOTO) process for electrical sources needs to be improved.

*SafeTrack has addressed this issue by creating and issuing a document entitled “SAFETRACK MCC/TRPM LOTO Guideline,” which the PMOC has reviewed and believes, if followed, resolves the issue. This Guideline includes detailed instructions for the LOTO process. It contains photos of completed sample forms, key labels, and labeled envelopes that contain keys. The Guideline also states responsibilities. This issue will remain open to give time for the PMOC to observe if the guideline is working.*

- g. Tracking and Completion of Punch List Work

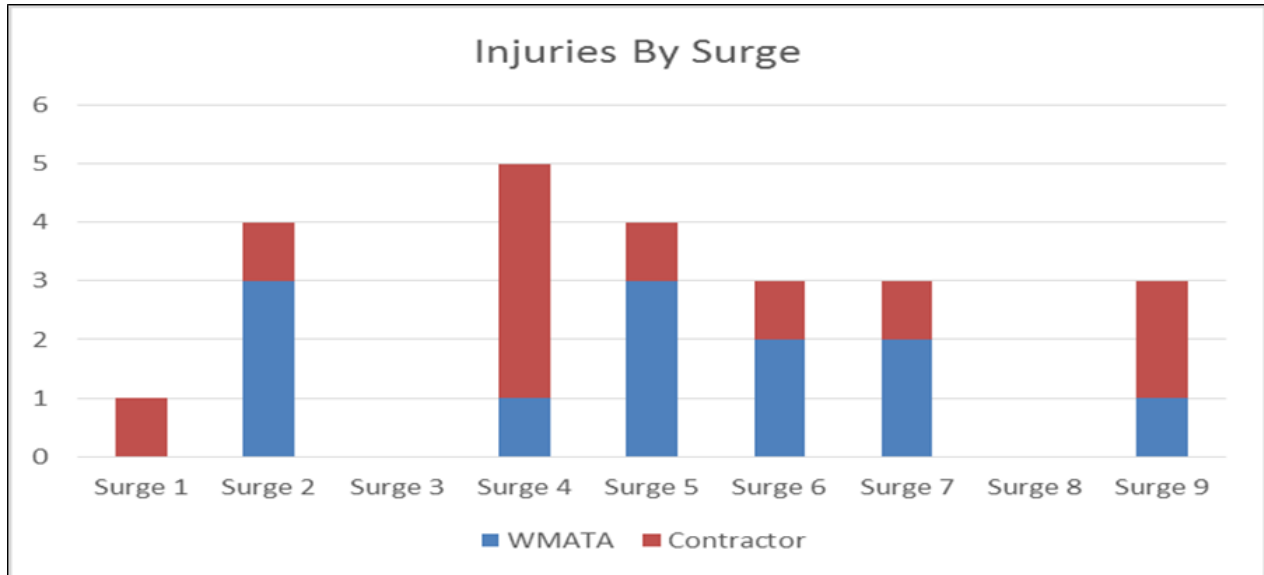
*WMATA is developing a procedure for the collection, reporting, and managing of post-surge punch list work. The procedure is titled, “SafeTrack Work Documentation Protocols” Revision 0, dated 10/07/16. WMATA advised that it is working on revisions to this document and expects to issue Revision 1 by the end of January 2017.*

- h. Project Management Plan – The PMOC identified areas for improvement in the first revision (Rev 0) of the PMP and sent its comments to SafeTrack on 11/3/16.

*The SafeTrack team is addressing FTA comments and a workshop to discuss the PMP is scheduled for November 18, 2016.*

## 2. New Problems/Issues

- j. Safety – In October during Surge 9, there were three recordable injuries (1 WMATA, 2 Contractors) in the surge area. PMOC will discuss corrective action(s) with SafeTrack at the next monthly meeting. The updated “Injuries by Surge” graph, provided by SafeTrack, is shown below. There were no injuries during Surges 3 and 8.





# MAIN REPORT

## 1. Program Status

### Work Completed in October 2016

Surge 9 was completed and Surge 10 was started in October 2016. SafeTrack's accomplishments in October as reported to the PMOC are described below.

Surge 9, West Falls Church to Vienna – started on September 15, 2016, and concluded on October 26, 2016. This surge consisted of 20 days of continuous single tracking and 9 days of line segment shutdowns. According to the SafeTrack coordinating team:

The main focus of the work was to replace deteriorating crossties on both sets of tracks in this area, many of which were original to this part of the system. Approximately 5900 crossties needed to be replaced to achieve a state of good repair. Due to better planning and milder weather, crews replaced over 7,000 crossties, the most of any surge to date, which allows WMATA to get ahead of the goal of eliminating crosstie backlog. With the increased track access provided by SafeTrack, WMATA has been able to replace 24,174 ties in five months. Under normal maintenance access, this would have taken over 19 months to accomplish. Faster-moving crossties work also enabled crews to weld 97 open joints in this area, which were not part of the original scope, and replace 4,758 linear feet of rail.



Critical tasks completed during Surge 9:

- Replacement of crossties
- Replacement of rail
- Welding rail joints
- Replacement of insulators
- Repairing power cables and pigtails
- Upgrading signal lights to LEDs
- Refurbishing intrusion detection boxes
- Repairing power and IT connections to emergency trip stations
- Removal of vegetation and trash from right-of-way
- Replacing missing or damaged signs

The following table shows the actual work WMATA accomplished during Surge 9. In addition, WMATA employees removed vegetation and trash from over 30,000 feet of the track bed, improving drainage and eliminating fire hazards.

	Task	unit	Completed During Surge
<b>Track</b>	Crosstie renewal	# crossties	7,159
	Insulator replacement	# insulators	402
	Ballast renewal	# tons	675
	Tamping	# linear feet	53,026
	Third Rail maintenance	# linear feet cover board	8,490
	Joint elimination	# joints welded	97
	Rail replacement	# linear feet	4,758
<b>Structures</b>	Track Bed cleaning	# linear feet	30,021
<b>Automatic Train Control System</b>	Intrusion Detection Warning System (IDW)		
	refurbishment and replacement	# boxes	1,090
	Track Junction Box refurbishment	# boxes	3
	Signal conversion to LED lighting	# signals	16
<b>Traction Power System</b>	Power Cable repair/replacement	# cables	225

Surge 9 Punch List – At the end of Surge 9, each group/department working on the surge created a punch list for the surge scope of work it was unable to complete. Four departments had zero punch list items, TRST had 33 various items, and TRPM had cable work at 16 locations. They will return to the area to complete work on several remaining power connection cables as part of the punch list work.

After the departments list uncompleted work, QICO conducts sampling when work groups advise them that the work is complete. Typically, QICO samples about 25% of the scheduled surge work. If QICO finds items within scope that the departments missed, these items are either corrected prior to the end of the surge, if possible, or added to the punch lists. Punch list items are entered into the Maximo System for tracking. The departments schedule the punch list work as needed, either during scheduled non-passenger service or through an additional weekend single tracking or shut down event. QICO noted that they analyze the punch lists looking for trends and recurring deficiencies, and provide that information back to the departments for corrective action.

Power crews also addressed recent FTA Safety Directive 16-4 by changing out bolts on expansion cables throughout the area. They will return to the area to complete work on several remaining power connection cables after the system closes. None of the Surge 9 punch list items resulted in an unsafe condition. The punch list work is turned over to the maintenance departments, which prioritize the work items by:

- i. Speed Restrictions / Emergency Services
- ii. Punch list items prioritized by risk, safety, & track

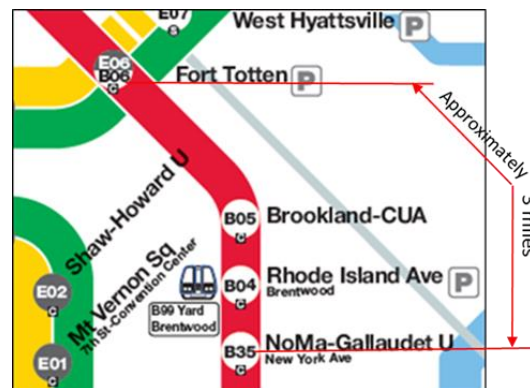
The PMOC reported in the September 2016 SafeTrack report that WMATA is developing a procedure titled: “SafeTrack Work Documentation Protocols.” Revision 0, dated 10/07/2016, was provided to the FTA on 10/07/2016. The document is being refined with further input from SafeTrack, the working departments, and QICO. The SafeTrack team advised that they plan to issue this procedure by January 30, 2017.

## **Work Planned for November & December 2016**

Surge 10, Red Line, No-Ma Gallaudet U to Fort Totten – Planning for Surge 10 began in September 2016. Following initial planning by the various departments, the SafeTrack team issued the Surge 10 March Chart Revision 0. According to SafeTrack, “[s]ignificant additional effort was expended by ATC and Power Engineering to develop the work zone isolation requirements to enable work to proceed without impacting the Fort Totten platforms for the Red line and the Yellow/Green lines. This extra effort delayed some of our other planning activities, resulting in a later development of the March Chart and weekend work plans, as well as delaying the advanced planning of Surge 11.

On three dates, October 20, 21, and 27 2016, QICO conducted pre-surge inspections of the Surge 10 limits. Also on October 20, QICO performed an inspection of NoMa-Gallaudet U Station. From these inspections, QICO compiled a list of deficiencies and forwarded that list to the departments for inclusion in planning their Surge 10 scopes of work and further development of the March Chart. Additional pre-surge planning took place during the regular Tuesday SafeTrack coordination meeting on October 25, 2016, chaired by the SafeTrack Coordinator. The agenda for that meeting included safety contacts, Surge 10 coordination, and a discussion of lessons learned from previous surges. Still more coordination took place the next day, Wednesday October 26, at the weekly Track Rights meetings chaired by the AGM Rail and attended by all parties planning to work on or near track roadway.

The 25-day Surge 10 began in October with the shutdown between NoMa and Fort Totten on Saturday October 29. This complete shutdown of the Red Line between these two stations is scheduled to continue through Tuesday, November 22, 2016. During Surge 10, a separate contractor will be demolishing and rebuilding sections of the concrete structure at Rhode Island Avenue Station. Planning and coordination for this surge started approximately one month before the surge was scheduled to begin. The scope of Surge 10 work can be summarized as follows:



- Replace 2,235 crossties
- Replace 541 insulators
- Refurbish 94 IDW boxes
- Convert 8 Signals to use of LEDs
- Replace 15 grout pads and 40 insulator pads
- Replace pigtail, expansion, and transition cables; megger feeder cable for ground shorts
- Inspect, repair, and secure telephone and fiber optic cabling
- Relamp tunnel lights for tracks 1 and 2
- At Brookland and Rhode Island Avenue Stations
  - Clean vent shafts, mechanical equipment rooms
  - Service and repair sump pumps, sewage ejectors, air compressors, exhaust fans
  - Service and repair ventilation units for AC switchgear rooms
  - Clean and repair/relamp edge lights and trackbed lights

- Clean granite benches, pylons, fare machines, gates, and kiosks
- Perform detailed cleaning of restrooms, elevators and escalators
- Perform landscape tasks

During Surge 10, WMATA, through a separate contract, will be repairing overhead concrete at Rhode Island Avenue Station.

**Surge 11, Orange/Silver Line, West Falls Church to East Falls Church** – SafeTrack began planning for Surge 11 in October 2016. That planning was delayed due to the focus on working out circuit issues for Surge 10 at Fort Totten. QICO performed a pre-surge walking inspection of the approximately 1.5 mile long Surge 11 area and provided its findings on crosstie, spike, cover board, and six other types of defects to the SafeTrack team to complete the scope planning for Surge 11.



Surge 11, another 25-day surge, is scheduled to start November 28, 2016, and end on December 22, 2016.

Surge 11 will be a continuous single tracking. The scope of work for Surge 11 can be summarized as follows:

- Replace approximately 1,400 crossties
- Replace 110 insulators
- Replace approximately 8,200 feet of rail
- Convert 4 Signals to use of LEDs
- Replace 98 pigtails and 8 transition cables
- Refurbish 320 IDW boxes
- Refurbish 31 ETS boxes
- Reset drain covers
- Inspect, repair, and secure telephone and fiber optic cabling
- Relamp tunnel lights for tracks 1 and 2

## 2. Program Cost

**SafeTrack Program CIP0024**

Initial Estimate	Board Approved Budget	Expenditures To Date	Percent Expended
\$118,797,984	\$73,226,892	\$66,652,652	91%
Discussion of Variances	Crane Masters Contract and its Mod 1 are over accrued. This should be resolved next month with the revised Board approved budget.		
Discussion of Funding sources	Funding for SafeTrack is from Passenger Rail Investment and Improvement Act (PRIIA), and §5307 & §5337 formula funds.		
Contingency	Currently, there is no contingency for CIP0024.		

## 3. Program Schedule

For surges 1 through 9, the bar chart on page 10 reflects actual dates the work was accomplished. The schedule also shows WMATA's plan for Surges 10, and 11. The dates for Surges 12, 13, 14, and 15 are tentative, and will be announced in January 2017.

#### 4. Environmental Mitigation Measures

During each surge, WMATA continues to perform maintenance on drainage facilities and clean up trash along the track right of way.

#### 5. Program Management Capacity and Capability

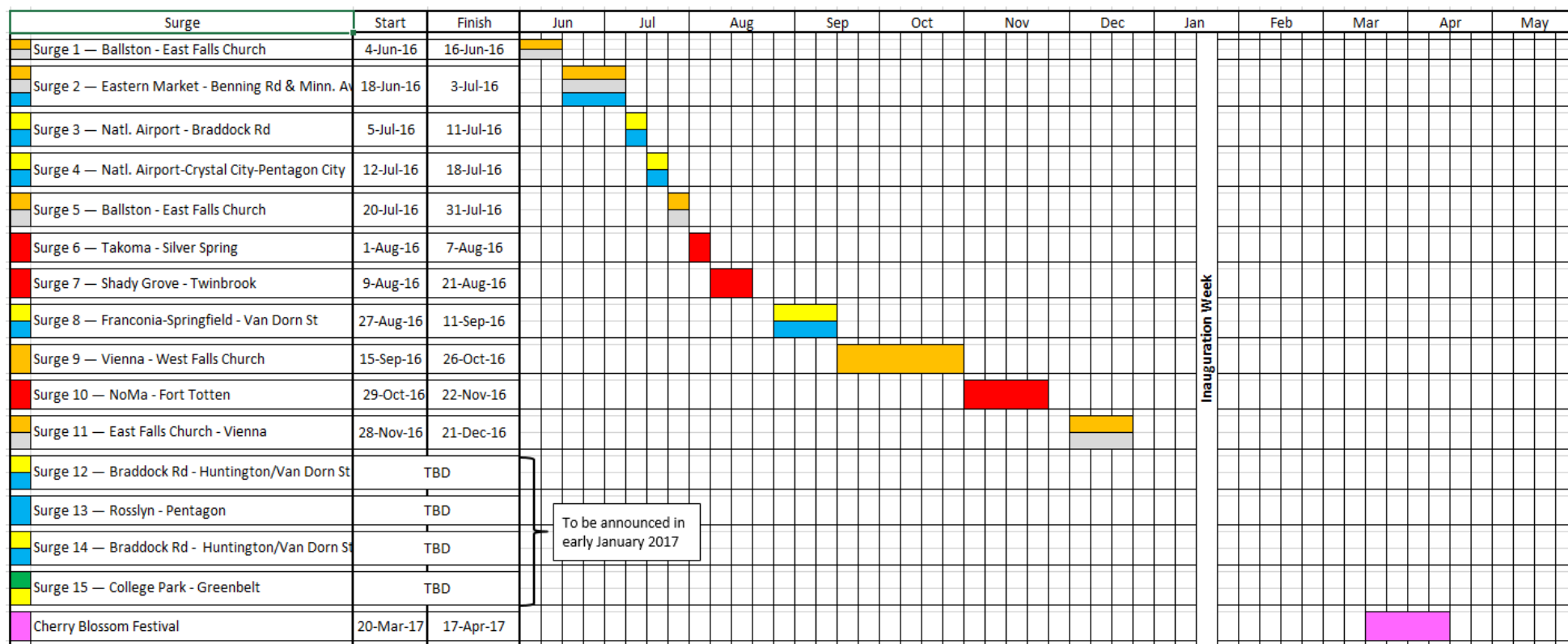
At the November 17, 2016 monthly PMOC oversight meeting, the Program Director for SafeTrack advised that the Reports Engineer is on track to begin work in early November 2016. Duties and responsibilities of the SafeTrack Coordination Team were reported in last month's report. WMATA expects to provide a description of the duties and responsibilities of the new Reports Engineer at the November 17, 2016 meeting. WMATA and SafeTrack organization charts are shown in Appendix C of this report.

#### 6. Quality Assurance/Quality Control

**Quality Plan** – There will not be a separate quality plan as part of the PMP for SafeTrack; rather, Section 8 of the PMP will reference existing WMATA quality documents and describe the process by which the various responsible WMATA departments and QICO assure the quality of the work. The PMP included a chart of QA/QC activities performed by both the maintenance groups and the Office of Quality and Internal Compliance (QICO). That chart is included again in this month's report in Appendix E of this report. It provides a picture of the comprehensiveness of QICO's pre-surge inspection.

**Pre-Surge Inspection for Surge 10** – In accordance with procedures being developed from experience on previous surges, QICO performed a pre-surge inspection during which it identified defects in the surge areas. The Surge 10 Quality Pre-Surge Inspection took place on October 20, 2016. QICO provided its findings to the departments to aid them in the development of their scopes of work for Surge 10. QICO's report of its pre-surge inspection is dated November 11, 2016. Section 3 of the report contains a table that summarizes the deficiencies noted during QICO's pre-surge inspection. This table is included in Appendix F of this report.





## 6. Quality Assurance / Quality Control (continued)

**During the surge:** Through daily surge inspections, QICO compiles a log with condition(s) noted as site condition, safety, and quality of work; these item(s) are then tracked daily for status change. An example tracking log (for Surge 9) is located in Appendix G of this report.

**Post-surge:** According to the SafeTrack Coordination Team, after each surge,

[T]hree reports are generated: SafeTrack generates the “Punch List Report.” This is a compilation of the punch lists generated by each work group. QICO generates the final “QICO Sampling and Verification Report.” Any defects captured during sampling is added to the compiled Punch List Report. QICO then generates [a] “Closeout Report” which includes a summary of what happened during the surge, wins/losses and a set of recommendations, discrepancies tracked during the surge, and all daily reports from QICO field team inspectors. The Punch List Report is a report of in-scope work not accomplished in each surge and any defects in the work performed found by QICO after the completion of the surge (also noted in the Sampling and Verification Report).

This punch list is turned over to the maintenance departments, which prioritize the work items by:

- Speed Restrictions / Emergency Services
- Punch list items prioritized by risk, safety, & track

The SafeTrack management team added that “[t]he procedures and reports regarding the completion of work post-surge are still under development (referenced above on page 7); *however, the team confirmed a goal of January 30, 2017 to issue this procedure.*

**QICO Closeout Report for Surge 9** – QICO performed a post-surge quality assurance inspection of the Surge 9 work zone. The Surge 9 final walk-through took place on October 27, 2016. As a result of that walk-thru and other quality inspections, QICO stated in Section 6.4 of its Closeout Report dated November 9, 2016, “[b]ased on daily on-site visual inspections, monitoring of QC measures, QA sampling inspection results and participation in the October 27th final walk through (a joint inspection), QICO concurs that the Surge 9 work area was safe to return to revenue service. However, we leave open the option to conduct follow-up verification on the status of “Open” Surge 9 QA Tracking Log items and maintenance group Punch List items.”

**Project Audit** – QICO has not scheduled a date to audit the SafeTrack program. This audit will measure how well the SafeTrack Coordination Team and WMATA departments follow the project management plan and the various WMATA procedures regarding contract administration, procurement, safety, security and quality.

## 7. Safety and Security

- Safety and security are addressed in WMATA’s procedures for performance of track work. The PMOC has a tentative meeting set up for early January 2017 with TRST to secure a copy for review. However, the PMOC and FWSO reviewed documents and completed the FTA’s Safety and Security Checklist shown in Appendix H of this report.
- 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 the outreach 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.

8. Contract Administration

- Administration of third-party contracts related to SafeTrack is the responsibility of WMATA's Track and Structures Department (TRST). In November 2016, the PMOC will review the roles and responsibilities for contract administration activities. Currently, according to the budget report, there are three contractors working on SafeTrack: G.W. Peoples Construction Company, Inc., Crane Services Company, Inc., and Crane Masters, Inc.
- DBE Participation – *The PMOC has scheduled a meeting for early January 2017 to review DBE participation of SafeTrack's third-party contractors. Results of that meeting will be reported in the January report.*

9. Program Risk

- The SafeTrack management team has indicated that it has developed a risk register for the project. The PMOC expected to see this register as a part of the Revision zero version of the PMP. The PMOC has scheduled a PMP workshop with the SafeTrack management team for November 18, 2016 at which time the risk register will be discussed.

10. Action Items are shown in Appendix D of this report.

11. Brief resumes of the PMOC team that performed this review are included in Appendix I of this report.

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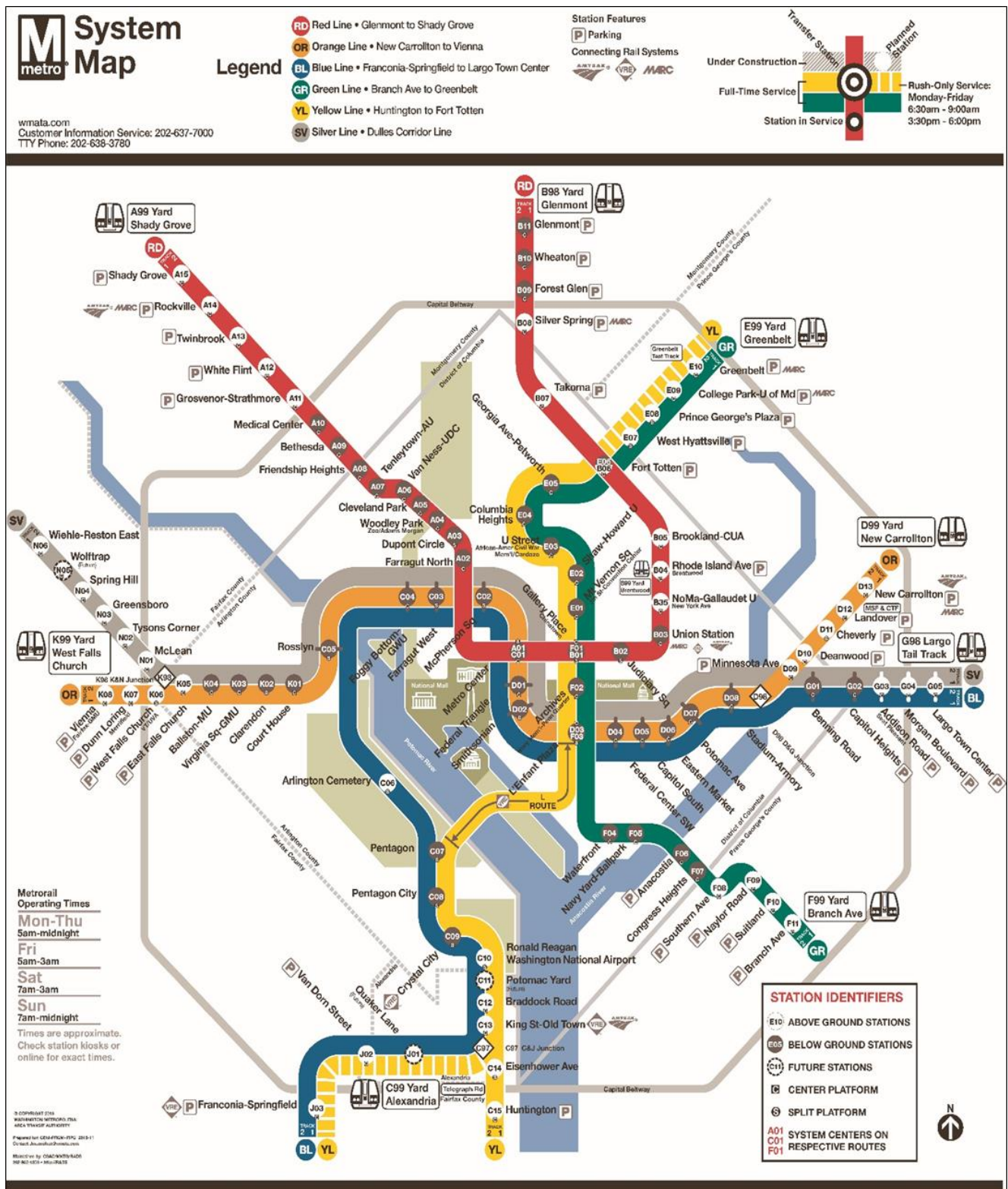
## APPENDIX A – ACRONYMS AND ABBREVIATIONS

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
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
D-B	Design-Builder
DAS	Distributed Antenna System
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

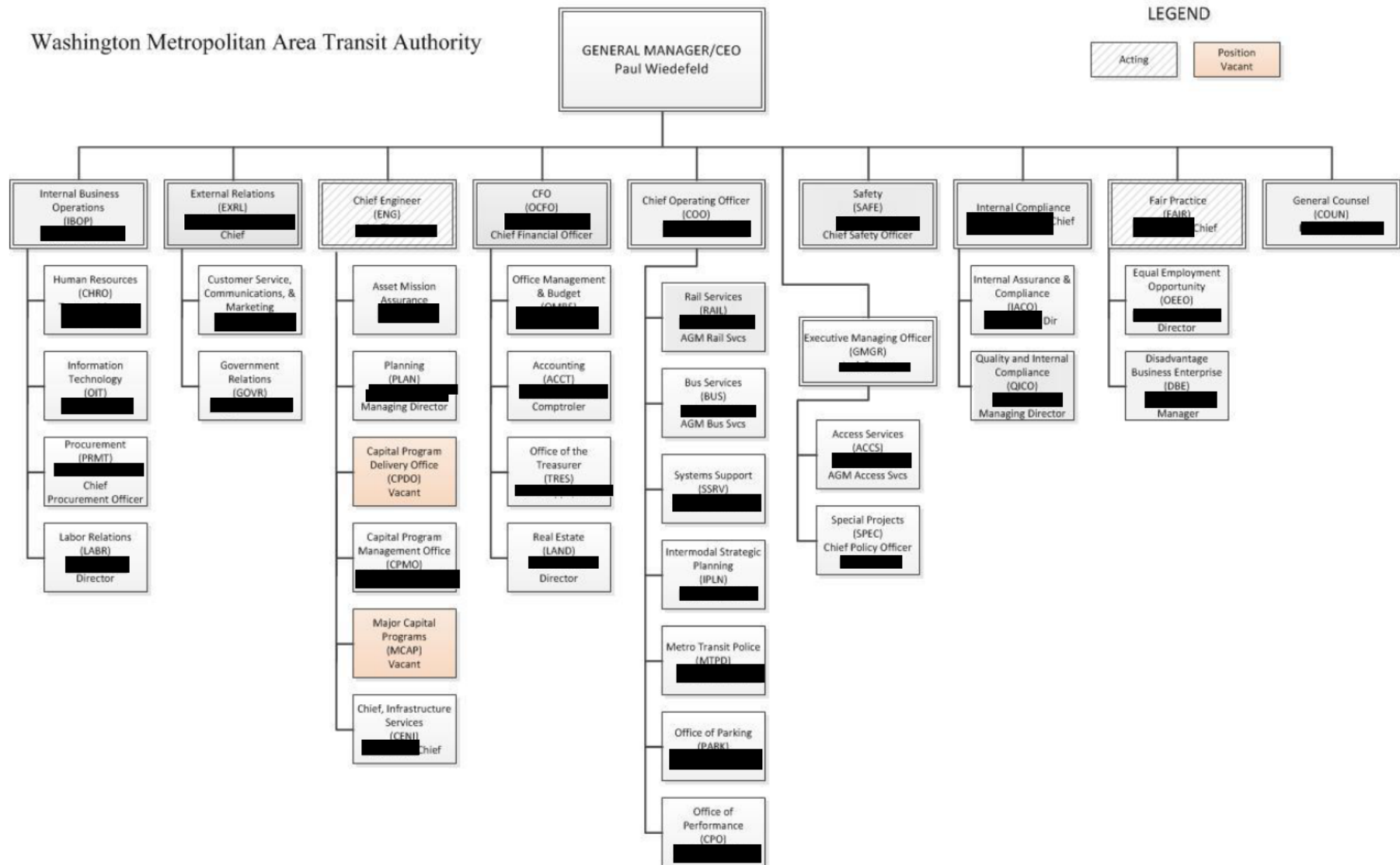
FY	Fiscal Year
GOTRS	General Orders/Track Rights System
HAZMAT	Hazardous Materials
HVAC	Heating, Ventilating, and Air Conditioning
IDW	Intrusion Detection Warning
ICE	Independent Cost Estimate
IEEE	Institute of Electrical and Electronic Engineers
IFC	Issued for Construction
IRPG	Infrastructure Rehabilitation Program
JOC	Job Order Contract
LEED	Leadership in Energy and Environmental Design
MAXIMO	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
NCN	Non-conformance Notice
NTP	Notice to Proceed
OMBS	WMATA's Office of Management and Budget Services
O&M	Operation and Maintenance
OFS	Order for Services
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
PMOC	Project Management Oversight Consultant
PMP	Project Management Plan
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
RSA	Rail Service Adjustment

RTU	Remote Terminal Unit
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 – WMATA's RAIL TRANSIT SYSTEM

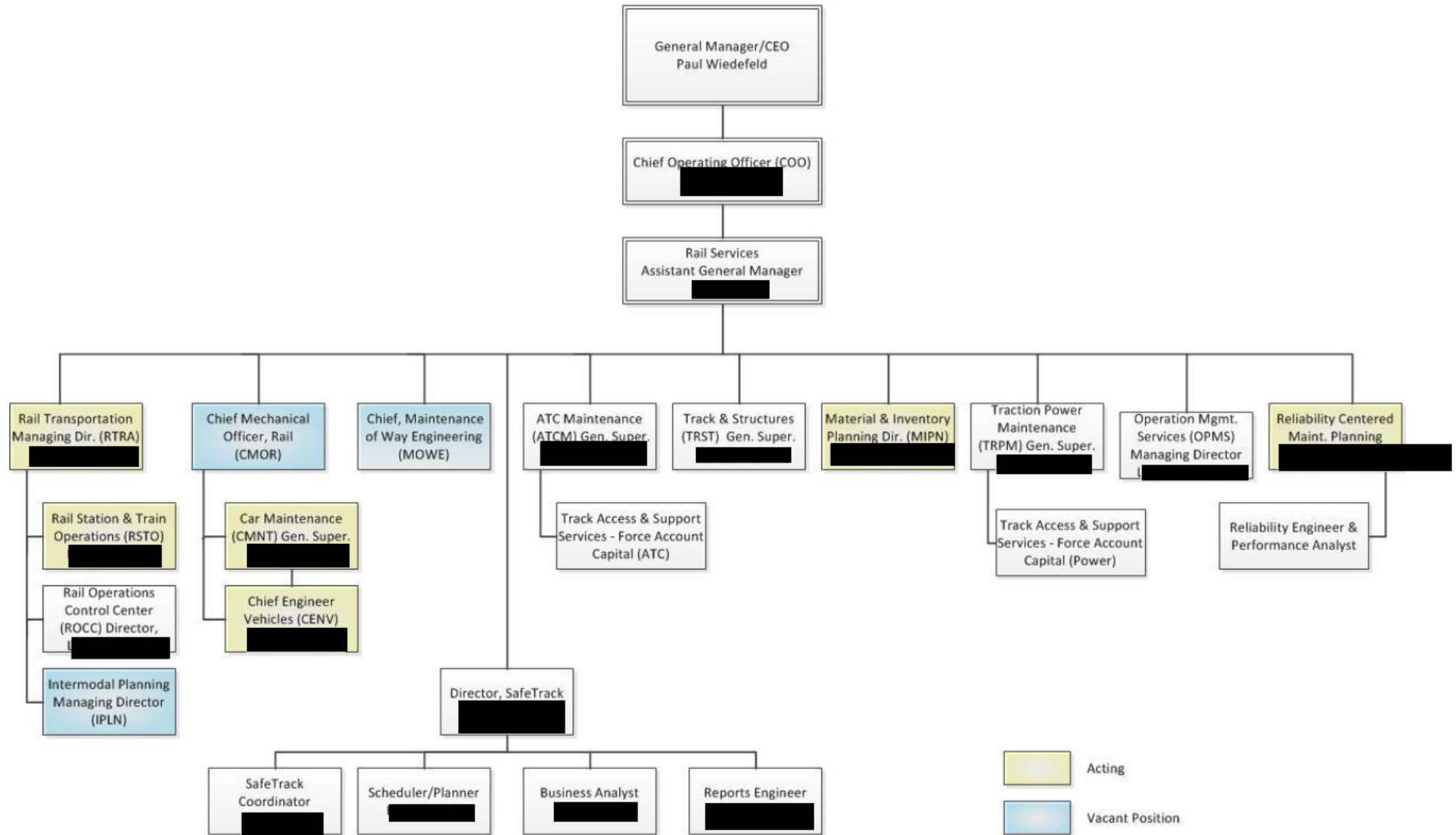


## APPENDIX C – ORGANIZATION CHARTS & DESCRIPTION





## WMATA's RAIL SERVICES GROUP



## APPENDIX D – ACTION ITEMS – SAFETRACK PROGRAM

PR	ITEM	IDENTIFICATION	NATURE OF PROBLEM	D	A	I	COMMENTS	PMOC STATUS
2	2A	Prepare a Program Management Plan and submit to FTA by 9/30/2016	No plan was developed before this project began.	Y	N	N	FTA & PMOC have discussed development of the PMP with the SafeTrack management team on several occasions. The SafeTrack team submitted Revision 0 of its PMP to the PMOC and FTA on 9/30/16. PMOC furnished review comments to FTA on 10/26/16. <i>A PMP workshop with SafeTrack and PMOC is scheduled for November 18, 2016.</i>	R

### 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

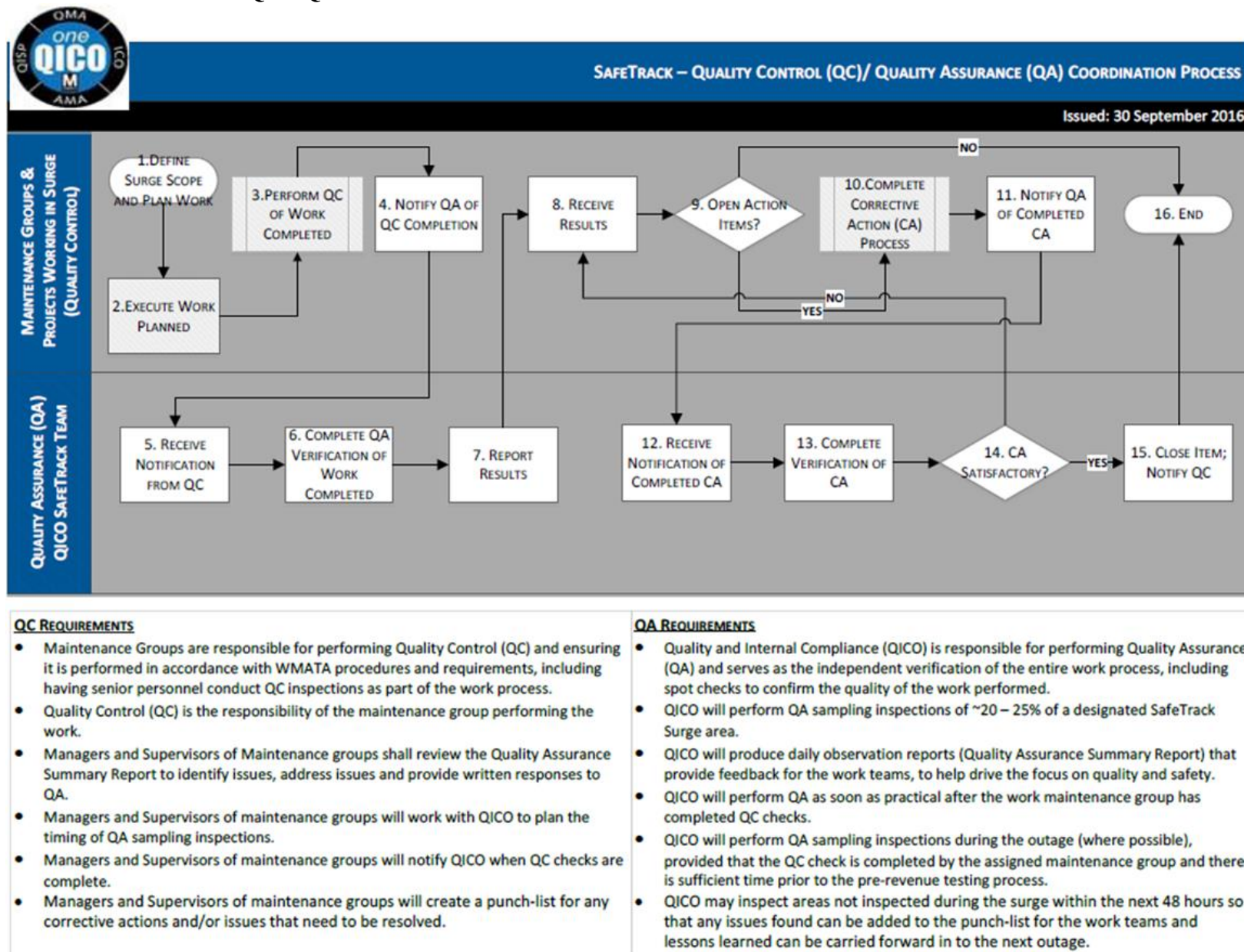
D – Remedial Action Developed  
A – Remedial Action Approved  
I – Action Implemented

#### 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 E – SAFETRACK QC / QA COORDINATION PROCESS



## APPENDIX F – SUMMARY OF PRE-SURGE DEFICIENCIES – SURGE 10

<div>  <h3>Summary of Deficiencies Noted During Pre-Surge Inspection</h3> </div>						
Item	Deficiencies, Track B1	Deficiencies, Track B2	Deficiencies at B&E Connector	Maximo Number	Within Scope of Work (Y/N)	Asset Owner
Defective Cross Ties	547	1364	176	Track 1 WO# 12712916, Track 2 WO# 12750191	Y	TRST
In-Operative Broken or Cracked Insulators	11	10	0	Track 1 WO # 13002282, Track 2 WO # 13002290	Y	TRST
Missing or Broken Cover Boards	41	39	1	Track 1 WO# 12166908, Track 2 WO# 12177503	Information not Available	TRST
In-Operative Tunnel Lights	2	0	21	Not Available	Information not Available	TRPM
Broken or Missing Tunnel Light Covers	4	1	0	Not Available	Information not Available	TRPM
Missing Chain Marker Sign	13	10	0	Track 1 WO# 12576288	Information not Available	TRST

Missing, Broken Spike	4	10	0	Track 2 WO# 13042285	Information not Available	TRST
Missing Clips	0	34	0	Not Available	Information not Available	TRST
ETS Box Label (Int. or Ext.)	2	2	3	Not Available	Information not Available	TRPM
Defective/Missing ETS Box Door	1	1	0	Not Available	Information not Available	TRPM
Non-operational ETS Light	1	2	1	Not Available	Information not Available	TRPM
ETS Phone (No Dial Tone)	2	2	0	N/A	Y	IT/NCS
ETS Fire Extinguisher (Tunnel Only)	0	0	0	N/A	N/A	
Missing or Broken Anchor Arm	9	7	0	Track 1 WO# 11111546, Track 2 WO# 12177501	Information not Available	TRST
Missing Insulator Bolts	0	0	0	Track 2 WO# 11907369	Information not Available	TRST
Broken/Cracked Grout Pad	7	6	0	Track 1 WO # 13002282, Track 2 WO # 13002290	Y	TRST
Rail Head Chip	2	0	0	Track 1 WO# 12985843, Track 2 WO# 12444038	Information not Available	TRST



Low Ballast (shoulder/crib)	2	1	0	Track 1 WO# 10570213, Track 2 WO# 10501859	Information not Available	TRST
Broken/Loose Studs	7	18	0	Track 1 WO# 12978972, Track 2 WO# 12684200	Information not Available	TRST
Rail Head Checking	1	4	0	Track 1 WO# 12985855, Track 2 WO# 9198265	Information not Available	TRST
End Approach Worn Third Rail	1	1	0	Track 1 WO# 10961025,	Information not Available	TRST
Cable Insulation Stripped	0	1	0	Track 2 WO# 12615274	Information not Available	
Miscellaneous	1	1	0	Not Available	Information not Available	TRST

## APPENDIX G – SAMPLE QUALITY ASSURANCE SURGE 9 TRACKING LOG



**METRO SAFETRACK ASSURANCE**  
QUALITY ASSURANCE SURGE 8 TRACKING LOG

QA OBSERVATIONS & CONCERNS									FIRST LINE OF DEFENSE		STATUS		
Item	Q/CO Report No.	Q/CO Report Date	Surge Day #	Location	Item Type	Description of Item	Before Picture (Objective Evidence)	After Picture (Resolution)	Asset Owner	Action	Comments	Priority*	Status
1	ST-20160828-51	August 28, 2016	2	J1 873+50	Site Condition	Stub up missing, unsealed J1 873+50.			TRPM			Medium	Closed
2	ST-20160902-55	September 2, 2016	7	J2 868+00	Safety	Fuel Spill in the vicinity of 868+00. Previously noted in ST-20160830-52).			TRST			Medium	Closed
3	ST-20160830-52	August 29, 2016	3	J2 841+00	Site Condition	Chain Marker Down at J2 841+00			TRST			Low	Open
4	ST-20160908-59	September 8, 2016	13	J1/J2 826+50	Site Condition	Insulator installed at the end approach J1/J2 826+50 (1603). While not an immediate problem, if the wind approach becomes pitted, a vehicle's collector paddle may start striking parts of the insulator.		(Trackwalk 9-11-2016: Same Condition (B Frison))	TRST			Low	Closed
5	ST-20160907-57	September 7, 2016	11	J1870+00, J1 870+10	Site Condition	Ceramic insulator not centered on Cross Tie J1870+00, J1 870+10			TRST			Low	Closed
6	ST-20160830-52	August 30, 2016	4	J2 874+10	Site Condition	Fire extinguisher missing from emergency box J2 874+10.			TRST			Low	Closed
7	ST-20160830-52	August 30, 2016	4	J2 873+70, J2 873+10, J2 871+70, J2 859+90	Site Condition	Missing modified E-Clips on rail joints at J2 873+70, J2 873+10, J2 871+70, J2 859+90.			TRST		J2 726+90, J2 871+70 not closed	High	Open



## APPENDIX H – SAFETY AND SECURITY CHECKLIST

Updated 9/19/16

Project Overview	SafeTrack		
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)		Pending	WMATA preparing first draft.
Safety and Security Certification Plan (SSCPP)			WMATA Procedures. PMOC has requested for review.
System Safety Program Plan (SSPP)	Jan 2013	N/A	Draft SSPP submitted to FTA, under review pending new accident investigation procedure.
Security and Emergency Preparedness Plan (SEPP)	2014	N/A	Approved by TOC on September 3, 2014
Construction Safety and Security Plan (CSSP)		Pending	WMATA Procedures. PMOC has requested for review.

AREA OF FOCUS	Y/N	NOTES/STATUS
<b>Safety and Security Authority</b>		
Is the Project Sponsor subject to 49 CFR Part 659 State Safety Oversight Requirements?	Y	FTA WMATA Safety Oversight (FWSO)
Has the State designated an oversight agency as per Part 659.9?	Y	FTA is providing temporary direct safety oversight through FWSO
Has the oversight agency reviewed and approved the Project Sponsor's SSPP as per 659.17?	Y	Draft SSPP submitted to FTA, under review pending new accident investigation procedure.
Has the oversight agency reviewed and approved the Project Sponsor's Security Plan or SEPP as per Part 659.21?	TBD	TOC Letter dated September 3, 2014 approves WMATA's 2014 SEPP
Did the oversight agency participate in the last Quarterly Program Review Meeting?	Y	The FWSO did attend the QPRM held on September 1, 2016.
Has the Project Sponsor submitted its safety certification plan to the oversight agency?	TBD	The SSCP of March 20, 2012, was accepted by TOC on April 2012.

AREA OF FOCUS	Y/N	NOTES/STATUS
Has the Project Sponsor implemented security directives issued by the Department Homeland Security, Transportation Security Administration?	Y	Section 11 of SSMP
<b>SSMP Monitoring</b>		
Is the SSMP project-specific, clearly demonstrating the scope of safety and security activities for this project?	TBD	PMOC coordination with and input from FWSO will determine this.
Project Sponsor reviews the SSMP and related project plans to determine if updates are necessary?	TBD	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.	TBD	PMOC coordination with and input from FWSO will determine this.
Does the Project Sponsor maintain a regularly scheduled report on the status of safety and security activities?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor established staffing requirements, procedures and authority for safety and security activities throughout all project phases?	TBD	Procedures are being developed.
Does the Project Sponsor update the safety and security responsibility matrix/organizational chart as necessary?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor allocated sufficient resources to oversee or carry out safety and security activities?	Y	Awaiting comment/input from FWSO.
Has the Project Sponsor developed hazard and vulnerability analysis techniques, including specific types of analysis to be performed during different project phases?	TBD	PMOC coordination with and input from FWSO will determine this.
Does the Project Sponsor implement regularly scheduled meetings to track resolution of any identified hazards and/or vulnerabilities?	TBD	PMOC coordination with and input from FWSO will determine this.
Does the Project Sponsor monitor the progress of safety and security activities throughout all project phases? Please describe briefly.	Y	PMOC coordination with and input from FWSO will determine this.

AREA OF FOCUS	Y/N	NOTES/STATUS
Does the Project Sponsor ensure the conduct of preliminary hazard and vulnerability analyses? Please specify analyses conducted.	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor ensured the development of safety design criteria?	Y	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor ensured the development of security design criteria?	Y	Incorporated into WMATA Design Criteria and Maintenance Procedures.
Has the Project Sponsor ensured conformance with safety and security requirements in design?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor verified conformance with safety and security requirements in equipment and materials procurement?	TBD	PMOC coordination with and input from FWSO will determine this.
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?	TBD	PMOC coordination with and input from FWSO will determine this.
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.
Does the Project Sponsor evaluate change orders, design waivers, or test variances for potential hazards and /or vulnerabilities?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor ensured the performance of safety and security analyses for proposed work-arounds?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor demonstrated through meetings or other methods, the integration of safety and security in the following: • Activation Plan and Procedures • Integrated Test Plan and Procedures • Operations and Maintenance Plan • Emergency Operations Plan?	TBD	PMOC coordination with and input from FWSO will determine this.
Has the Project Sponsor issued final safety and security certification?	TBD	This is done on a surge by surge basis?
Has the Project Sponsor issued the final safety and security verification report?	N	PMOC coordination with and input from FWSO will determine this.

AREA OF FOCUS	Y/N	NOTES/STATUS		
Construction Safety				
Does the Project Sponsor have a documented/implemented Contractor Safety Program with which it expects contractors to comply?	Y	The specific section in the 3 <sup>rd</sup> party contractors' contracts must be identified and referenced here.		
Do the Project Sponsor's contractor(s) have a documented company-wide safety and security program plan?	TBD	Check G.W. Peoples, Crane Masters, and Crane Services Company, Inc.		
Do the Project Sponsor's contractor(s) have a site-specific safety and security program plan?	TBD	PMOC 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.	TBD	Contract	WMATA Recordable Rate	National Average
		G.W. Peoples	TBD	TBD
		Crane Masters	TBD	
		Crane Service Co.	TBD	
If the comparison is not favorable, what actions are being taken by the Project Sponsor to improve its safety record?	TBD	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?	TBD	PMOC coordination with and input from FWSO will determine this.		
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 I – PMOC TEAM PERFORMING THIS REVIEW

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]