

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

April 2017 Progress



Surge 14 – Prince George’s Plaza to Greenbelt – WMATA Track and Structures gang connecting new ties to Track 2 rail in the vicinity of College Park-University of Maryland Station, April 18, 2017.

June 16, 2017

PMOC Contract Number: DTFT60-14-D-00011

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

OPs Referenced: 01, 25

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Length of Time PMOC Assigned to Project under current Contract: 2 years, 9 months

Length of Time PMOC Lead Assigned to Project: 5 Years, 1 month

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## EXECUTIVE SUMMARY

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

This *ninth* monthly PMOC report for SafeTrack is based on information provided by WMATA at the oversight meeting held on *May 16, 2017*, and subsequent weekly updates. The PMOC concurs with WMATA's assessment of progress in *April 2017* as stated in its monthly report:<sup>1</sup>

*"April was a productive month for the SafeTrack program, with new records set for grout work completed within a surge. In April, SafeTrack ended Surge 13, a continuous single tracking on the Blue/Yellow Line between Braddock Road and Huntington/Van Dorn Street stations. The bulk of the 40 day surge was executed in March and the last 12 days in April were spent wrapping up Surge 13. Surge 14 also started this month, with a shutdown of a portion of the Green Line between Prince George's Plaza and Greenbelt stations. The surge was conducted in two phases - 14.1 April 15 to April 29, shutdown of Prince George's Plaza Station to Greenbelt Station (E08-E10), and 14.2 April 30 to May 14, a shortened work zone extending from College Park Station to Greenbelt Station 2 (E09-E10). [See system map in Appendix B.]*

*"In addition to the physical work completed, significant planning was done to prepare for Surge 15, a five station shutdown from Minnesota Ave to New Carrollton Station on the Orange Line, commencing on May 16, 2017. Surge 15 will be the largest shutdown to date for SafeTrack and was particularly challenging due to the need to develop service patterns through the D&G junction and the sheer volume of buses required."*

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

- *April 5 – Reviewed and provided comments to FTA on Revision 5 of the PMP*
- *April 18 – Participated in site walk of Surge 14.*
- *April 19 – Conducted monthly SafeTrack oversight meeting*
- *April 21 – Reviewed revision 6 of the PMP and recommended approval by FTA*

### 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,

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<sup>1</sup> WMATA's April 2017 SafeTrack Report to the PMOC dated May 15, 2017, page 1.

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.”<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. 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; the present scope is scheduled to be completed by June 25, 2017.

## **B. Program Status**

With the *progress* of Surge 14, SafeTrack crews continued making improvements to the Metrorail System. Adding the accomplishments from the 15 days of Surge 14 in April 2017, to the previous accomplishments, SafeTrack crews and their contractor partners working 320 days have brought *nearly 70* miles of track to a state of good repair. (The table on page 8 of this report shows the days worked by surge.) SafeTrack Program work accomplished through April 30, 2017, includes:

- Replaced 40,652 crossties
- Replaced 8,488 insulators
- Replaced 31,434 fasteners
- Replaced 55,367 feet of rail (11 miles)
- Welded 533 rail joints
- Installed 33,291 feet of new grout pads
- Repaired/replaced 1,828 tunnel lights
- Repaired/replaced 1,005 power cables
- Replaced 27,834 feet third rail cover board
- Cleaned 108,996 linear feet of track bed
- Refurbished/replaced 2,643 IDW boxes
- Converted 106 wayside signals to LEDs
- Repaired 97 emergency trip stations

### April 2017 Activity

- **Surge 13** – *This surge, which was started on March 4, 2017, was completed on April 12, 2017. During this 40-day surge, WMATA track crews replaced 5,646 ties while structure crews replaced 12,800 linear feet of grout pads on the track bed near the Eisenhower Ave and King St-Old Town stations. The new and faster approach to constructing grout pads enabled WMATA to replace 4,619 fasteners. Automatic Train Control (ATC) crews focused on repairing intrusion detection warning (IDW) boxes, as well as replacing signal lights with brighter, longer-lasting LED bulbs. “They also assisted the track maintenance team [in moving] equipment in the area by manually operating switches that are powered down for safety.”<sup>3</sup>*

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<sup>2</sup> From WMATA’s SafeTrack Project Management Plan, Revision 4, dated February 28, 2017, page 1.

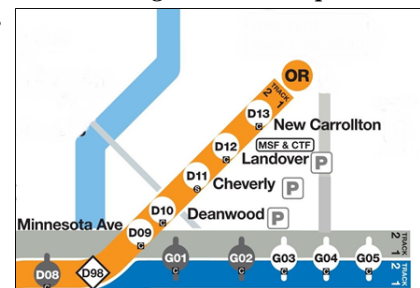
<sup>3</sup> WMATA’s April 15, 2017 SafeTrack report, pages 5 and 6.

- **Surge 14** – “which shut down the Green Line outbound at Prince Georges Plaza (E08), started on April 15. At the end of April, halfway through Surge 14, most of the work was slightly ahead of schedule. As of May 3, 2017, Metro staff and contractors managed to complete about 76 percent of all work planned for the entire Surge.

“The main focus of the surge was to replace deteriorating crossties, fasteners and insulators. As part of the crosstie replacement, crews have been able to service the crossover near the College Park Station. The Greenbelt interlocking will be addressed in the second phase of Surge 14 (in May). Structures crews focused on tunnel leaks, retaining wall panels and clogged drains. Track crews have also been able to replace direct fasteners between Prince George’s Plaza and College Park. Preliminary quantities for work completed are 6,000 ties, 1,500 fasteners and 1,200 insulators. Final quantities will be issued in the Final surge report on or about May 24.”<sup>4</sup>

- **Surge 15** – Also during April 2017, “SafeTrack and Mobile Command developed work area maps for Surge 15, including reviewing logistics, access, and options to mitigate the service impacts by turning trains in the D&G pocket track. TRST developed their scope and preliminary execution plan, which includes plans to replace approximately 14,377 ties.”<sup>5</sup>

**Surge 15 Mini-Map**



“Most of the Surge 15 effort in April, focused on the service plan for Surge 15, specifically focusing on developing a complicated five station bus shuttle plan, and a need to simplify routes/messages to customers. In addition, we recognized the need to develop contingency plans to mitigate the risk of turning trains at the D&G interlocking. In order to reduce the risk of delays/issues within the work area and to prevent the delay from rippling to other parts of the system, the following four plans were put in place:

1. Temporary order supporting a modification to the D&G pocket track (track 3) set-up, and train operation as a turn back location for turning trains.
2. Accelerated Stud replacement in the interlocking based on results of most recent Stray Current testing;
3. Developed an interlocking configuration to clamp switches.
4. In addition, during Surge 15, the following mitigation plans will be in place:
  - a. ATC personnel will be on standby to crank and block switches if a switch goes down;
  - b. ROCC will turn Silver Line trains at Ballston or another location as determined by ROCC in the event of delays that extend beyond ability of ATC crews to manage with personnel at the interlocking.”<sup>6</sup>

<sup>4</sup> WMATA’s April 15, 2017 SafeTrack report, page 6.

<sup>5</sup> The April 15, 2017 SafeTrack report showed 3,800 ties, which WMATA subsequently corrected to 14,377 ties.

<sup>6</sup> *Op. cit.*, page 7.

- **PMP Development** – *Development of the PMP advanced through Revision 6 on April 21, 2017. The PMOC reviewed Revision 6 and recommended approval by FTA that same day.*

## C. Core Accountability Information

### 1. Cost<sup>7</sup>

#### Cost – Current SafeTrack Budget (as of April 30, 2017)

Approved FY16-FY17 budget for SafeTrack:	\$134,234,515
Current Budget:	\$134,234,515
Amount Expended:	\$133,268,816
Percent expended:	99%

*The SafeTrack team reported in their April 2017 report to the PMOC that the WMATA Board is expected to approve a new budget of \$151,415,899 in May 2017. (Please see discussion of project funding below at “D. Major Problems/Issues.”)*

#### Cost – Latest available forecast for SafeTrack (as of April 30, 2017)

Estimated total cost for SafeTrack work (Surges 1 thru 16):	\$ 151,415,899
Contingency (see contingency below):	\$ 0
Projected CIP0024 total cost during SafeTrack:	\$ 151,415,899

#### Cost – Summary of Funding for SafeTrack

*The table below reflects planned adjustments to funding source amounts to support the increased scope of SafeTrack work. From March to April 2017, WMATA increased SafeTrack funding by \$17,181,384 (\$151,415,899 – \$134,234,515).*

#### ***SafeTrack Planned Funding Sources***

Federal Fiscal Year	Funding Source	Amount
FFY15*	PRIIA	\$ 35,854,160
FFY16	PRIIA	\$ 37,241,282
FFY17	PRIIA	\$ 45,947,000
FFY17	§5337	\$ 10,000,000
FFY17	§5307	\$ 10,000,000
Subtotal	Federal Funding	\$139,042,442
	Short-term borrowing	\$ 12,373,457
Grand Total	All Sources	\$151,415,899

\*Funds provided from WMATA’s FY16 Budget to support the first month of SafeTrack

<sup>7</sup> FFY = Federal Fiscal Year, October 1 through September 30; FY = WMATA Fiscal Year, July 1 through June 30

## 2. Schedule

- Original SafeTrack Program completion date: June 2017
- Current forecast completion date: June 2017. See Appendix I for a summary schedule of the program.
- Project Duration: June 4, 2016, through June 30, 2017, 392 days
- Calendar days expended: June 4, 2016 through *April 30*, 2017, 302 days
- Percent of time expended: 77%

## 3. Contingency

- Current contingency amount is \$0.00.

## 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

*QICO published its Closeout Report for Surge 13 on May 25, 2016. As a result of its post-surge closeout walkthroughs on April 12, 17, and 18, QICO identified 99 items that needed attention. Of the 99, 47 were addressed and resolved before returning the Surge 13 work zone to revenue service. None of the 52 were high priority.<sup>8</sup> Appendix M of the approved SafeTrack PMP describes how crews are to address incomplete 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.*

*“All remaining maintenance items will be entered into Maximo as a work list with a new work order and the Surge Work Order is closed out. These work list items are not considered part of the SafeTrack scope, and responsibility for the work list is transferred to Track Maintenance and will be completed based on track access and crew availability.*

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<sup>8</sup> High priority items are either safety critical or have a high probability of negatively impacting operations/safety. See also Main Report for a “box score” of open items from Surge 13 and an explanation of medium and low priority items.



*QICO does not address in its Closeout Report maintenance departments' compliance with the requirements of Appendix M. The PMOC will follow up with QICO to address this issue. This issue will remain **OPEN** through the end of the SafeTrack Program.*

b. Project Management Plan

*Revision 6 of the PMP was submitted to FTA on April 21, 2017. The PMOC reviewed Revision 6 and recommended approval. FTA approved Revision 6 by letter dated April 24, 2017. This issue is **CLOSED**.*

c. Safety

*In April 2017, SafeTrack experienced zero Occupational Safety and Health Administration (OSHA) recordable injuries,<sup>9</sup> and no accidents were reported for the month of April 2017.*

*This issue will remain **OPEN** through the completion of the SafeTrack Program, and the PMOC will continue to review and report on WMATA's management of safety.*

d. 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. As of the May 16, 2017 PMOC oversight meeting, a grout testing procedure had not been issued by Maintenance of Way Engineering (MOWE); consequently, the SafeTrack Program is not performing tests in line with an approved procedure on the grout it uses for grout pads.*

*In a report dated May 25, 2017, titled QICO Closeout Report, SafeTrack Surge 13, Braddock Road to Huntington/Van Dorn Street, Appendix C contains, among the QICO Quality Inspection Reports, a report entitled "Inspection Report of New Grout Pads between Rhode Island Avenue Station and Brentwood Yard. This report is dated December 14, 2017. The report concluded that "three types of repair/construction defects were found during inspection. These defects do not cause immediate adverse impact on the strength and integrity of grout pads. Water will deteriorate the structure of the grout pad over time. A repair for these defects is required as soon as possible." The PMOC has inquired of QICO whether the repairs were made and awaits a response. This issue remains **OPEN**.*

e. Project Funding

*WMATA's Office of Capital Project Financial Support reported that the SafeTrack Budget (CIP0024) had expended 99% of its budget as of the end of April 2017. The SafeTrack team in its April 2017 monthly report, acknowledged the need to increase the budget in order to complete SafeTrack. In that report, the team reiterated the reasons the original estimate was insufficient: (1) during a surge, previously unknown conditions are uncovered that require attention, (2) there are times when productivity has been better than expected and the decision was made to take advantage of a track shutdown and accomplish more work rather than end a surge early, and (3) a full shutdown increases*

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<sup>9</sup> An OSHA recordable injury is defined as an injury where the individual received medical care greater than first aid.



*the amount of overtime, support services, materials, and 3rd party contractors required to support the change in scope. Additional scope of work accomplished translates into some additional labor and much higher material costs. In short, due to the state of WMATA's railroad, it has become imperative to take advantage of every opportunity to bring the roadway to a state of good repair, even if it requires reprogramming funds to pay for this work.*

*This report noted that WMATA will ask its Board for a budget revision in May 2017 to increase the budget to over \$150 million, which the SafeTrack team estimates will be sufficient to complete the planned scope of SafeTrack through Surge 16. This issue remains **OPEN**.*

f. Personal Protective Equipment (PPE)

*SafeTrack's report (with data collected by WMATA's Department of Safety and Environmental Management [SAFE]) shows how well crews are complying with the requirements to use PPE. The table in last month's report, which showed average compliance with the requirement to use PPE, is updated below. Use of safety glasses remains a problem. The PMOC has not yet learned what actions SafeTrack and SAFE plan to improve the use of safety glasses and hard hats. This issue remains **OPEN**.*

Personal Protective Equipment Compliance					
<i>Eight-Month Averages</i>	Hard Hats	Footwear	Reflective Shirt	Safety Glasses	Working Radio
	99%	100%	100%	95%	100%

## 2. New Problems/Issues

*No new problems or issues were identified in April 2017.*

# MAIN REPORT

## 1. Program Status

The following table shows the percent complete for each surge of the SafeTrack program through the completion of Surge 13 on April 12, 2017, 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	See Note 2
	Orange/Blue/Silver Line from Rosslyn to Eastern Market	Single Tracking & Shutdown	31	0.9	0.9	See 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	<b>30</b>	<b>4.4</b>	<b>4.4</b>	
15	Orange Line Minnesota Ave to New Carrollton	<b>Total Shutdown</b>	<b>30</b>	<b>6.0</b>	<b>6.0</b>	
16	Red Line Shady Grove to Twinbrook	<b>Total Shutdown</b>	<b>9</b>	<i>See Note 3</i>	<b>4.4</b>	
	Totals to Date		<b>374</b>	<b>44.7</b>	<b>43.6</b>	111% (Note 1)
Note 1: Average percentage of the 13 surges on which WMATA has reported. Note 2: Non-surge period overall percent complete was not reported. Note 3: Surge 16 focuses on Track 2; mileage is not counted on Track 1 because it would double count surge 7. Note 4: Bold text & numbers are estimated for planned upcoming work.						

The table in Appendix C provides details of the work completed during the 13 surges and the non-surge period.

## **Surge 13 Close-Out, Surge 14 Pre-Inspection, and Work Completed in April 2017**

- **Surge 13 Close-Out Report**

*QICO issued its Surge 13 Close-Out Report 43 days after the completion of Surge 13. In that report, QICO recorded the results of its final walkthrough of the Surge 13 work zone.<sup>10</sup>*

QICO Final Track Walkthrough					
Description					
QICO's Field Team performed the Surge 13 closeout walkthroughs on 4/12/2017, 4/17/2017, and 4/18/2017. Throughout the surge, each discrepancy found by QICO officers relating to quality of work or safety was assigned a priority (low, medium, high) and tracked in the QICO Surge Asset Tracking Log. The closeout walkthroughs were conducted to verify the status of these items (open or closed). The closeout trackwalk was performed on track C1/C2 and J1/J2.  A total of 99 Surge 13 items are tracked on the Surge Asset Tracking Log. Of the 99 total items, 52 remain open; 44 items are low priority, 8 items are medium priority, and 0 items are high priority.	Priority & Status of Observations				
	Priority	Total	Open	Closed	% Closed
	Low	70	44	26	37%
	Medium	16	8	8	50%
	High	13	0	13	100%
	Total	99	52	47	47%
<b>High Priority</b> – items that are either safety critical or have high probability of negatively impacting operations/safety <b>Medium</b> – items that could soon negatively impact safety or operations. <b>Low</b> – items unlikely to impact operations but should be addressed as part of Surge activities.					

- **Surge 14 Pre-Inspection**

*QICO conducted two independent walking inspections of the Surge 14 zone and then issued its QICO Pre-Surge Report for SafeTrack Surge 14. The report's executive summary provides an overview, purpose, and summary of findings along with a helpful map of the Surge 14 work zone.<sup>11</sup> That map is reproduced in this report in Appendix F.*

### ***“Overview***

*SafeTrack Surge 14 will be conducted April 15 through May 14, 2017 (30 days). The surge will consist of two separate complete shutdowns. From April 15 through April 29 (15 days), the surge area will cover from Prince George's Plaza (E08) to Greenbelt (E10) tracks 1 and 2. The surge will switch*

<sup>10</sup> QICO Close-Out Report, SafeTrack Surge 13, May 25, 2017, pages 6 & 7.

<sup>11</sup> QICO Quality Pre-Surge Report, SafeTrack Surge 14 Prince George's Plaza – Greenbelt, page 1.

configurations from April 29 through May 14 (15 days) covering the area of College Park (E09) to Greenbelt.

### **Purpose**

*The Office of Quality Assurance, Internal Compliance and Oversight (QICO) provides independent reviews of WMATA Operational processes and assets; for WMATA's SafeTrack program, QICO's infrastructure team provides reviews of SafeTrack activities, produces recommendations for maintenance departments and follows up on areas of concern in order to improve the quality of future SafeTrack surges. QICO conducted an independent walking track inspection for upcoming SafeTrack Surge 14 on December 12, 2016 (College Park to Greenbelt Track 1) and April 3-4, 2017 (Prince George's Plaza to Greenbelt Track 2 and Prince George's Plaza to College Park Track 1&2). Field observations were compared to WMATA's defect and speed restriction history in Optram/Maximo, as well as scopes of work provided by maintenance groups. The completed inspection and the following analysis provide a robust second line of defense to ensure critical SafeTrack maintenance items are addressed and tracked to completion during the surge.*

### **Summary of Findings**

*The significant deterioration in the track structure observed during the QICO pre-surge walkthrough justifies the substantial service disruption proposed for upcoming Surge 14 (30 days). For ballasted track sections at least a 25% to 50% cross tie replacement is needed. Priority for cross tie replacement is between College Park and Greenbelt stations. Deterioration of the cross ties has shown several signs of concern including 3rd rail insulators leaning/unsupported, twisting/warp of cross ties, hollow ties, and other issues. For direct fixation track in the surge area, grout pads appear to be in good condition. However, there are areas where fasteners are starting to break down and require replacement. (Source: field inspection)."*

- **Work Completed in April 2017**

#### **Surge 13**

*Surge 13, lasting 40 days, used single-tracking operations while working on the C-Line from C12 Braddock Road to C15 Huntington stations and the J-Line from the C&J (C97) Junction to J02 Van Dorn Street station. Surge 13 concluded on April 12, 2017, with most planned tasks completed. During the surge, priority was given to repairing or replacing critical rail infrastructure that affects safety, train speeds and ride quality. A major winter storm that included snow, wind, and freezing temperatures in mid-March required a schedule adjustment that extended Surge 13 to April 12, 2017. The following table reflects the accomplishments of Surge 13.*

	Task	Unit	Completed During Surge
<b>Track</b>	Crosstie renewal	# crossties	5,646
	Insulator replacement	# insulators	1,799
	Ballast renewal	# tons	1,800
	Tamping	# linear feet	35,400
	Fastener renewal	# fasteners	4,619
	Third Rail maintenance	# linear feet cover board	5,090
	Rail replacement	# linear feet	1,393
<b>Structures</b>	Grout Pad renewal	# linear feet grout pad	12,800
<b>Automatic Train Control System</b>	Signal conversion to LED lighting	# signals	26
	Track Junction box repair/replacement	# boxes	42
<b>Traction Power System</b>	Emergency Trip Station Repair	# units	24
	Tunnel Light repair/relamp	# units	30
	Power Cable repair/replacement	# cables	67

### **Surge 14**

*Surge 14, which shut down the Green Line outbound of Prince Georges Plaza (E08), started on April 15, 2017. According to its monthly report, the SafeTrack team reported that as of April 30, 2017, “halfway through Surge 14, most of the work was slightly ahead of schedule. The main focus of the surge was to replace deteriorating crossties, fasteners and insulators. As part of the crosstie replacement, crews were been able to service the crossover near the College Park Station. The Greenbelt interlocking will be addressed in the second phase of Surge 14 (in May). Structures crews focused on tunnel leaks, retaining wall panels, and clogged drains. Track crews have also been able to replace direct fasteners between Prince George’s Plaza and College Park. Preliminary quantities for work completed are 6,000 ties, 1500 fasteners and 1200 insulators. Final quantities will be issued in the Final surge report on or about May 24.”<sup>12</sup> Three photos of Surge 14 work, were taken by the SafeTrack team. They show WMATA crews replacing ties (first two photos) and tamping ballast on the Green Line in the vicinity of College Park-U of MD Station (E09). Photos are dated April 18, 2017, by the SafeTrack team.*

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<sup>12</sup> WMATA’s April 15, 2017 SafeTrack report, page 6.







*“A tamping machine or ballast tamper is a machine used to pack (or tamp) the track ballast under railway tracks to make the tracks more durable. Prior to the introduction of mechanical tampers, this task was done by manual labor with the help of beaters. This machine is part of WMATA’s fleet of track maintenance equipment.”*

*(Courtesy of Wikipedia: [https://en.wikipedia.org/wiki/Tamping\\_machine#Tamping\\_process](https://en.wikipedia.org/wiki/Tamping_machine#Tamping_process))*

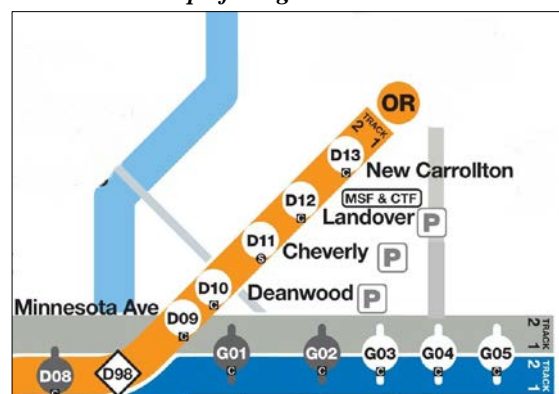
### **Surge 15 Planning Work Completed in April 2017**

*According to the April 2017 SafeTrack report:<sup>13</sup>*

*“SafeTrack and Mobile Command developed work area maps for Surge 15, including reviewing logistics, access and options to mitigate the service impacts by turning trains in the D&G pocket track. TRST developed their scope and preliminary execution plan, which includes plans to replace approximately 14,377 ties.*

*Most of the effort this period was focused on the service plan for Surge 15, specifically focusing on developing a complicated five station bus shuttle plan, and a need to simplify routes/messages to customers. In addition, we recognized the need to develop contingency plans to mitigate the risk of turning trains at the D&G*

**Mini-Map of Surge 15 - D09 to D13**



<sup>13</sup> WMATA’s April 2017 SafeTrack report, pages 6 & 7.



*interlocking. In order to reduce the risk of delays/issues within the work area and to prevent the delay from rippling to other parts of the system, the following plans were put in place:*

- *Temporary order supporting a modification to the D&G pocket track (track 3) set-up and train operation as a turn back location for turning trains;*
- *Accelerated Stud replacement in the interlocking based on results of most recent Stray Current testing;*
- *Interlocking configuration to clamp switches;*
- *Mitigation plans for implementation during Surge 15:*
  - *ATC personnel on standby to crank and block switches if a switch goes down;*
  - *ROCC will turn Silver Line trains at Ballston or another location as determined by ROCC in the event of delays that extend beyond ability of ATC crews to manage with personnel at the interlocking."*

### **Work Planned for May 2017**

*During May 2017, WMATA will be finishing Surge 14 (May 14) and beginning Surge 15 (May 17). Surge 15 is scheduled to end June 15, 2017. In addition to executing Surge 15, the SafeTrack team will continue planning for Surge 16, Twinbrook Station (A13) to Shady Grove Station (A15) on the Red Line. (Please find these stations on the system map in Appendix B.)*

*The following table shows the forecast dates for Surge 13, 14, 15, and 16 activities in May.<sup>14</sup>*

<b>Surge</b>	<b>Surges 13-16 Activities</b>	<b>NLT Dates</b>
15	Develop plan for work zone and employee parking	02-May-17
13	QICO Closeout Report	04-May-17
15	Final Work Plan and Surge Scope (March Chart) developed by	08-May-17
15	QICO Pre-Surge Report	08-May-17
15	Issue Coordinated Work Plan (MCC)	10-May-17
15	Final Work Plan and Surge Scope (March Chart)	11-May-17
16	Develop plan for work zone and employee parking	12-May-17
15	Issue Coordinated Work Plan (MCC)	12-May-17
14	Complete Surge	14-May-17
15	Begin Surge	17-May-17
14	QICO Closeout Report	27-May-17

## **2. Program Cost**

- The SafeTrack budget status as of *April 30, 2017*, is reflected in the following table.

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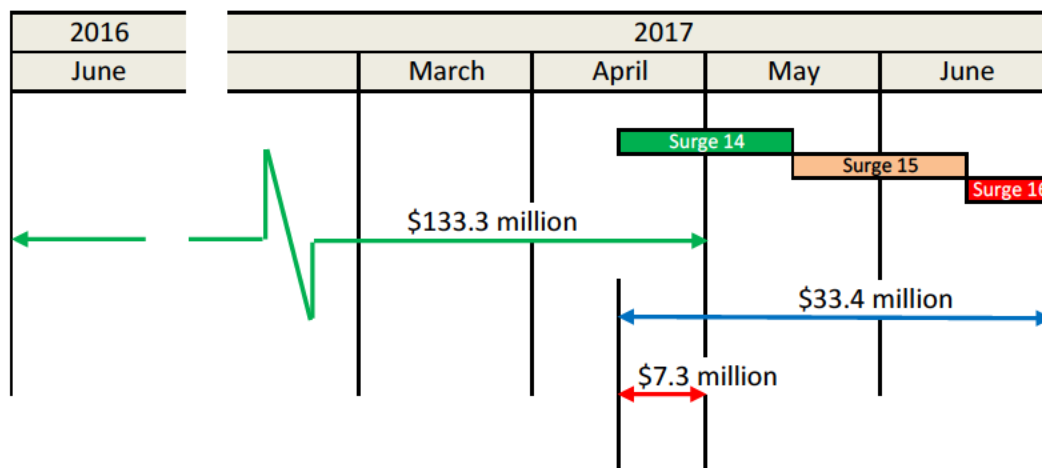
<sup>14</sup> WMATA's April 2017 SafeTrack report, pages 7 & 8.

### SafeTrack Program as of April 30, 2017

Preliminary Estimated Budget	Approved SafeTrack FY16-FY17 Budget	Expenditures Thru April 30, 2017	Percent of Budget Expended
\$118,797,984	\$134,234,515	\$ 133,268,816	99%
Discussion of Variances	WMATA <i>again</i> reported two variances: the Force Account and Indirect Cost activity lines have exceeded their budgets. <sup>1</sup>		
	Force Account	\$70,624,327	128%
	WMATA Indirect Cost	\$11,434,178	117%
Discussion of Funding sources	Funding for SafeTrack is from Passenger Rail Investment and Improvement Act (PRIIA), §5307 & §5337 formula funds, and short-term borrowing.		
Contingency as of April 30, 2017	\$0.00		
Notes:	1. These variances will be reconciled with the next budget revision.		

### Budget Analysis by PMOC

Considering that the remaining surges (14, 15, and 16) are all total shutdowns, the PMOC reviewed the costs associated with prior total shutdowns to estimate the cost to finish. Of the five previous surges that were total shutdowns (Surges 2, 3, 4, 10, and 12), cost data was available for Surges 10 and 12. Using the available cost data, the average cost per day was calculated for Surges 10 and 12. That amount, \$484,297, was multiplied times the number of days planned for Surges 14, 15, and 16, 69 days. The result is \$33.4 million. WMATA's budget report as of April 30, 2017, showed cumulative expenditures of \$133.3 million. These two amounts, \$133.3 million and \$33.4 million cannot be added because (1) the surges are not synchronized with calendar months, and (2) some of the \$33.4 million, \$7.3 million, has already been accounted for in the \$133.3 million. A simple graphic can clarify.



Therefore, adding the amount spent to date to the estimated cost for the last three surges, and subtracting the \$7.3 million overlap results in an estimated total budget of \$159.4 million. The PMOC estimates the final cost for SafeTrack will be between \$150 and \$160 million.

- Budget Analysis by SafeTrack Team

*In its April 2017 report, the SafeTrack team projected a program budget of \$151M. The report stated, “[t]he main driver for the budget increase from \$134,234,515 to \$151,415,899 is increased scope of work. The change in scope to use the full production crew and piggyback in the non-surge work areas along with the change from single tracking to full shut downs on Surges 14, 15, 16 created an increase in budget. The shutdown increases the amount of overtime, support services, materials, and 3rd party contractors required to support the change in scope. The identification of reserves and actual amount of the increased budget will be provided in the May PMOC report once the budget has been approved by the WMATA Board.”<sup>15</sup>*

- Contingency

It is important to understand that the SafeTrack team views contingency differently than how WMATA staff view contingency for capital construction projects. According to the SafeTrack PMP:<sup>16</sup>

“There are zero contingency dollars budgeted in the SafeTrack Program. OMBS has the ability to manage any potential forecasted budget and/or funding shortfalls through adjustment of funding sources and capital budgets. If the forecast increases, funding will be rebalanced to ensure SafeTrack can continue. Between when the funding is requested and when it is allocated to a particular surge, the detail budget will hold this amount of money in contingency [reserve] as unallocated budget.”

WMATA’s accounting software reports “unallocated budget” or “project reserve” as contingency; therefore, this report will use contingency to represent unallocated budget.

The following table summarizes the use of contingency since the new SafeTrack budget was established in November 2016. According to the SafeTrack April 2017 report, “[t]he identification of reserves and actual amount of the increased budget will be provided in the May PMOC report [from SafeTrack] once the budget has been approved by the board.”<sup>17</sup>

The following table summarizes the use of contingency since the new SafeTrack budget was established in November 2016.

As-of Date	Amount Expended	Remaining Contingency
November 30, 2016	---	\$17,661,436
December 31, 2016	\$ 7,201,324	\$10,460,112
January 31, 2017	\$ 5,683,374	\$ 4,776,738
February 28, 2017	\$ 1,434,044	\$ 3,342,694
March 31, 2017	\$ 3,342,694	\$ 0
April 30, 2017	\$ 0	\$ 0

<sup>15</sup> WMATA’s April 2017 SafeTrack Report, page 3.

<sup>16</sup> SafeTrack PMP, Revision 4, dated February 28, 2017, pages 10 & 11.

<sup>17</sup> WMATA’s April 2017 SafeTrack Report, page 3.

## 2. Program Schedule

For Surges 1 through 13, the bar chart in Appendix “I” reflects actual dates the work was accomplished. *The schedule also shows WMATA’s actual start and finish for Surge 14 and the planned start of Surge 15.* The completion date for Surge 15 and the full schedule for Surge 16 have not been published as of April 30, 2017.

## 3. Environmental Mitigation Measures

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

## 4. Program Management Capacity and Capability

There were no staffing changes during April 2017.

## 5. Quality Assurance/Quality Control (QA/QC)

- Post-Work Inspection of Surge 13 – QICO performed its final track walkthroughs of the C and J Lines following Surge 13 on April 12, 17, and 18, 2017. It issued its Closeout Report on May 25, 2017.
- Pre-Surge Inspection for Surge 14 – QICO conducted its walking track inspection of Surge 14 on December 12, 2016, and on April 3 & 4, 2017. The report contained a summary of QICO’s findings:<sup>18</sup>

### SUMMARY OF FINDINGS

*The significant deterioration in the track structure observed during the QICO pre-surge walkthrough justifies the substantial service disruption proposed for upcoming Surge 14 (30 days). For ballasted track sections at least a 25% to 50% cross tie replacement is needed. Priority for cross tie replacement is between College Park and Greenbelt stations. Deterioration of the cross ties have shown several signs of concern including 3rd rail insulators leaning/unsupported, twisting/warp of cross ties, hollow ties, and other issues. For direct fixation track in the surge area, grout pads appear to be in good condition. However, there are areas where fasteners are starting to break down and require replacement. (Source: field inspection).*

- Project Audit – The SafeTrack Program is scheduled to be audited in April 2017. QICO’s audit for Safe Track will identify and assess the risks to non-compliance with FTA mandated Quality Management System Guidelines 2012 (FTA-PA-27-5194-12.1) and with the industry best practices on project management methodology per Project Management Book of Knowledge (PMBOK). The detailed Audit Report is scheduled to be presented to the agency’s executive leadership team in the last week of May 2017.

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<sup>18</sup> Quality Pre-Surge Report SafeTrack Surge 14 Prince George’s Plaza – Greenbelt” dated April 7, 2017.

## 6. Safety and Security

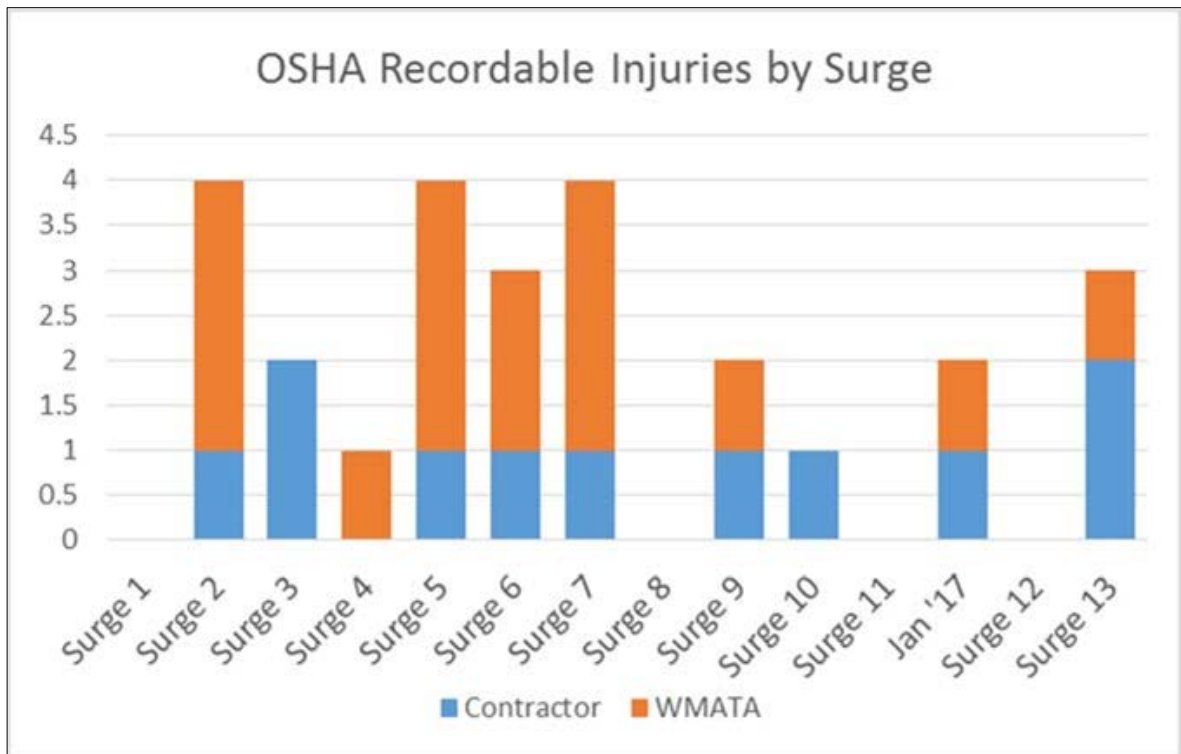
- *Safety and Security for SafeTrack are addressed by WMATA in several ways.*
  - *Level 1, full-day training course for WMATA staff, consultants, and contractors entitled Roadway Worker Protection Training.*
  - *WMATA’s “System Safety Program Plan” (SSPP)*
  - *WMATA’s “Construction Safety and Environmental 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*
  - *SafeTrack PMP*
- *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.*
- *The PMOC has also completed the FTA’s Safety and Security Checklist shown in Appendix G of this report.*
- *PPE Compliance – In addition to tracking recordable injuries, SafeTrack has been reporting worker compliance with requirements for wearing PPE. In its report for the month of April 2017, page 1, SafeTrack reported PPE compliance in the following table:*

	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%

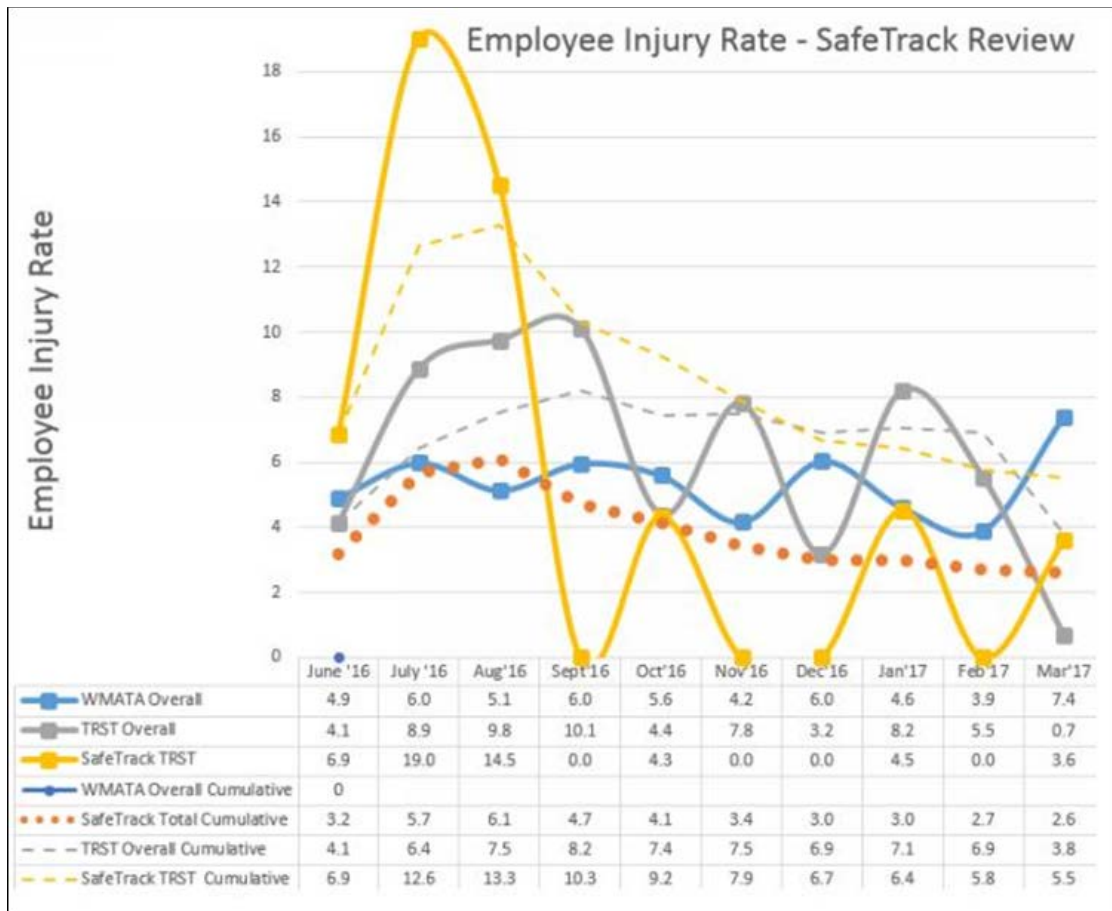


*The use of hard hats and protective eyewear continues to be a problem. The PMOC is not aware of any incentive or disincentive program in place at WMATA that would improve compliance with PPE requirements.*

- Occupational Safety and Health Administration (OSHA) Recordable Injuries – The SafeTrack Team tracks OSHA recordable injuries by surge. SafeTrack’s history of OSHA recordable injuries is depicted in the chart below. The chart shows that there were no recordable injuries during Surges 1, 8, 11, and 12.



- Employee Injury Rate – In the month of April 2017, SafeTrack experienced zero OSHA recordable injuries. The next graph, provided by WMATA, compares various employee injury rates *through March 2017*. Different work groups have experienced different injury rates based on the nature of their work. It is most useful to compare the WMATA overall rate (blue squares) to the SafeTrack overall rate (dotted orange line), which shows that SafeTrack is performing better than WMATA overall.



## 7. 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 April 2017*.



**DBE Goals and Accomplishments through April 2017**

<b>Contract Number</b>	<b>Name of Prime Contractor</b>	<b>DBE Participation Goal</b>	<b>Goal Attainment as of 4/30/17</b>
FQ13027A	Lewis Bolt	5.0%	100%
FQ13027C	Pandrol USA,LP	8.0%	100%
FQ14103	G.W. Peoples Contracting Co., Inc.	DBE Prime	95%
FQ15083	Unitrac Railroad Materials	5.0%	100%
FQ16128	Stella -Jones Corporation	5.0%	84%
FQ17011	G.W. Peoples Contracting Co., Inc.	DBE Prime	6%
FQ16119	Progress Rail Services	2.0%	100%
FQ12201	Davis Freight	5.5%	100%
FQ13027C	Langley Traffic Services	5.0%	100%
FQ15083	Curdco, LLC	5.0%	100%

**8. 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.

**9. Action Items**

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

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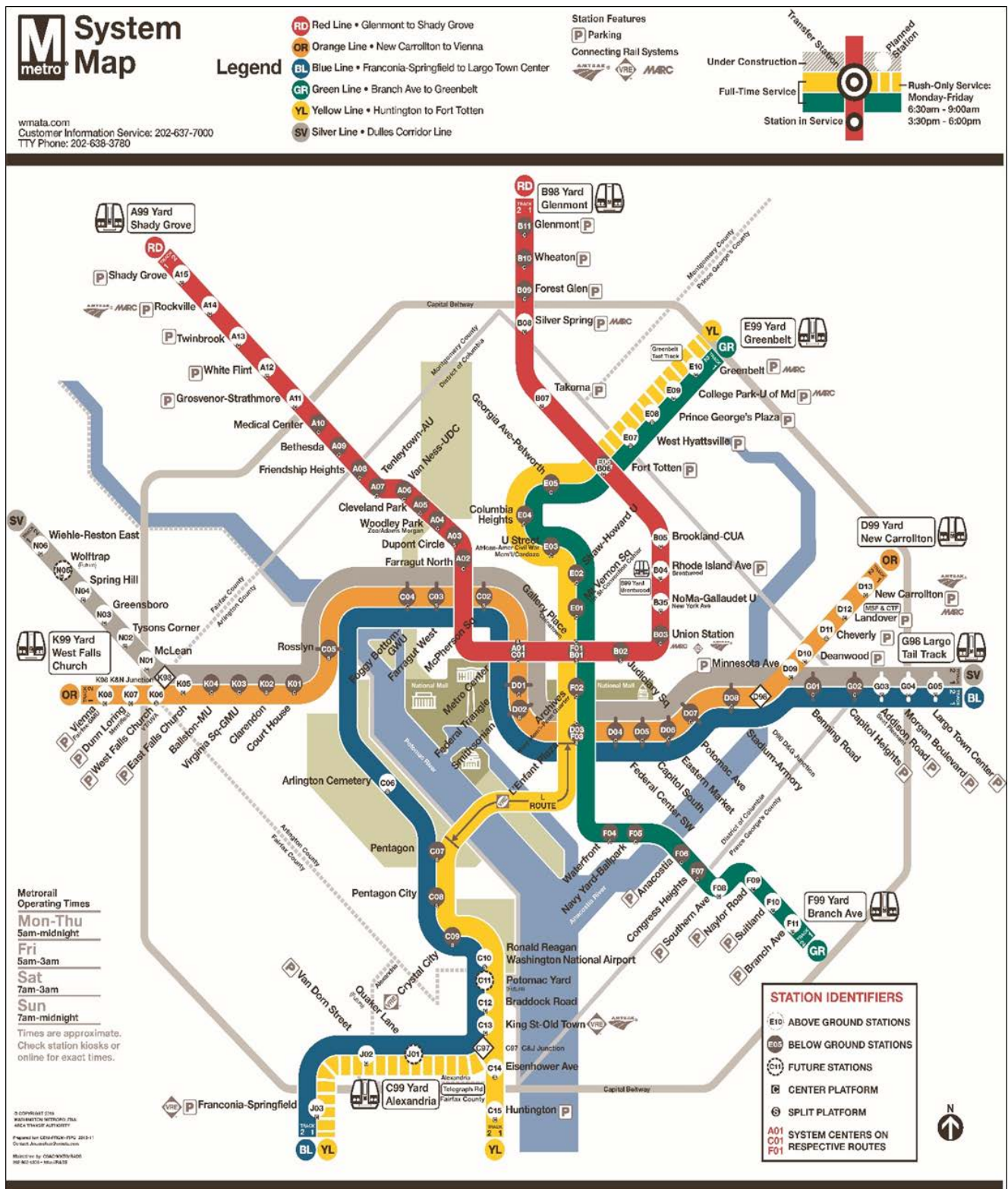
## APPENDIX A – ACRONYMS AND ABBREVIATIONS

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
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	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
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
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
RMM	<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 TO DATE

As of April 30, 2017 (Surge 14 data is preliminary)

Surge No.	Miles in Length <sup>1</sup>	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 (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	6,000	1,200	1,500										
15														
Totals	71.8	40,652	8,488	31,434	55,367	533	33,291	1,828	1,005	27,834	2,643	106	108,996	97

Note 1: Miles are computed by adding length of track 1 and track 2 rehabilitated during the surge. See other table for breakdown of each surge.

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

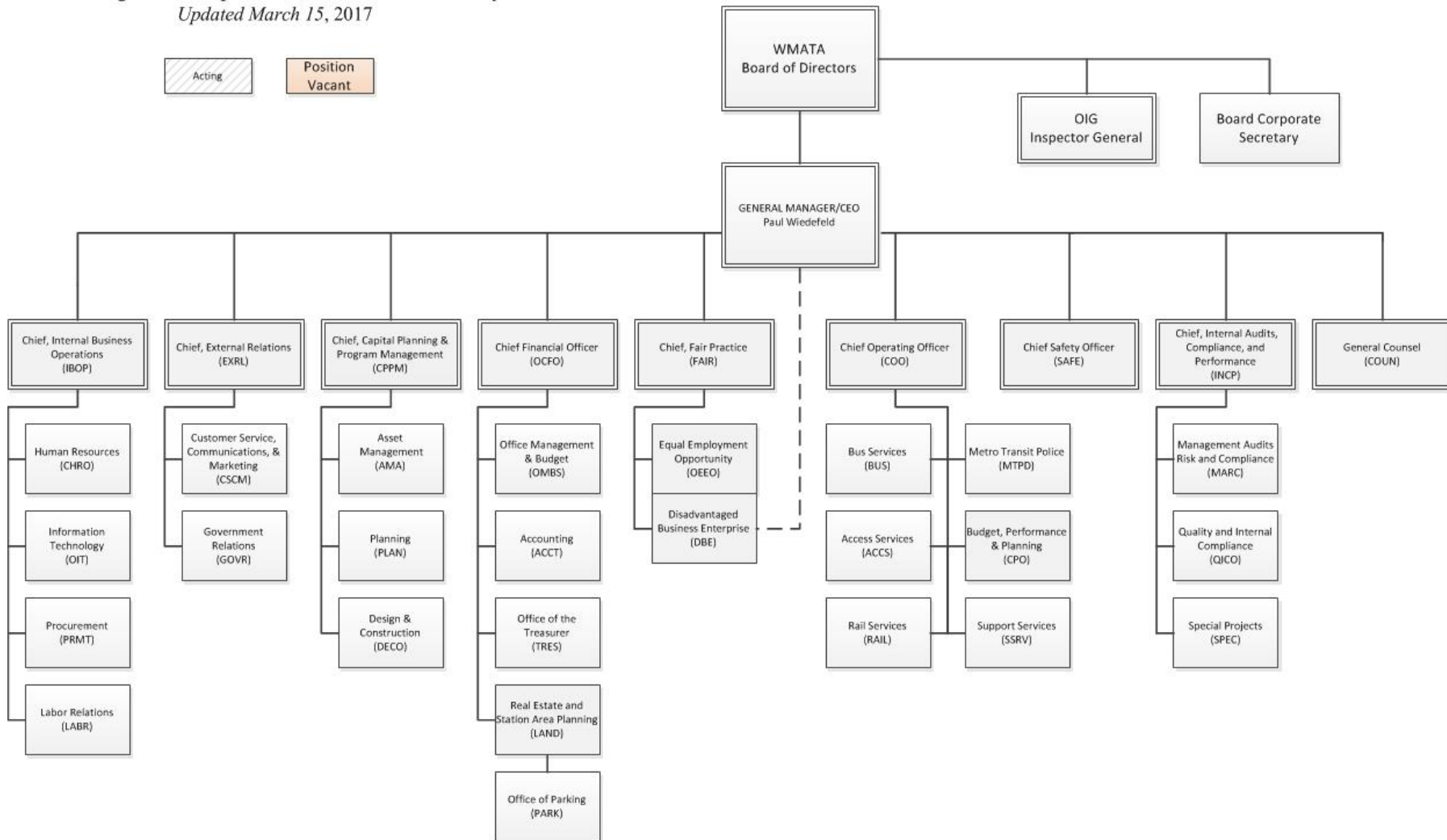
Note 3: Non-surge work on the C & D Lines reported in WMATA's January SafeTrack report, page 9.

Note 4: WMATA reported 1,060 feet of cable replaced in lieu of report number of cables replaced as it had for the first 11 surges.

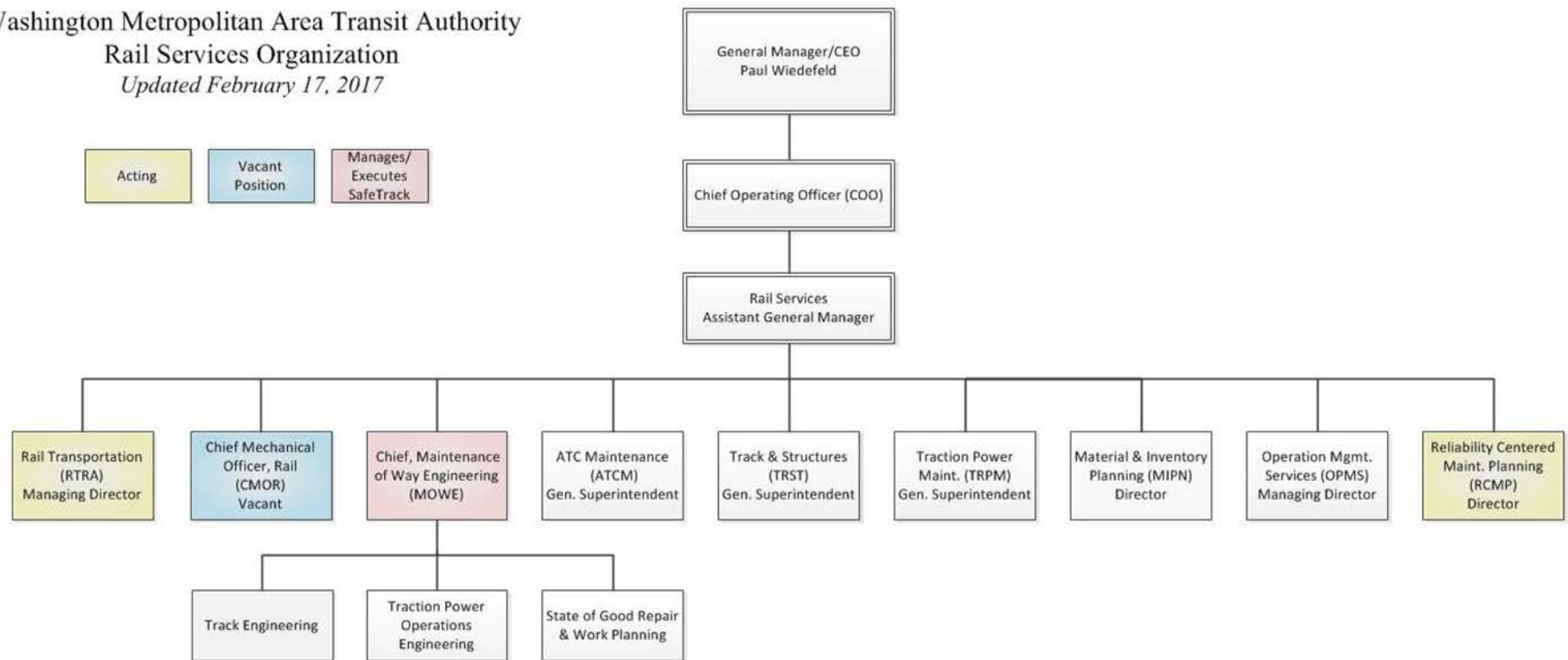


## APPENDIX D – ORGANIZATION CHARTS & DESCRIPTION

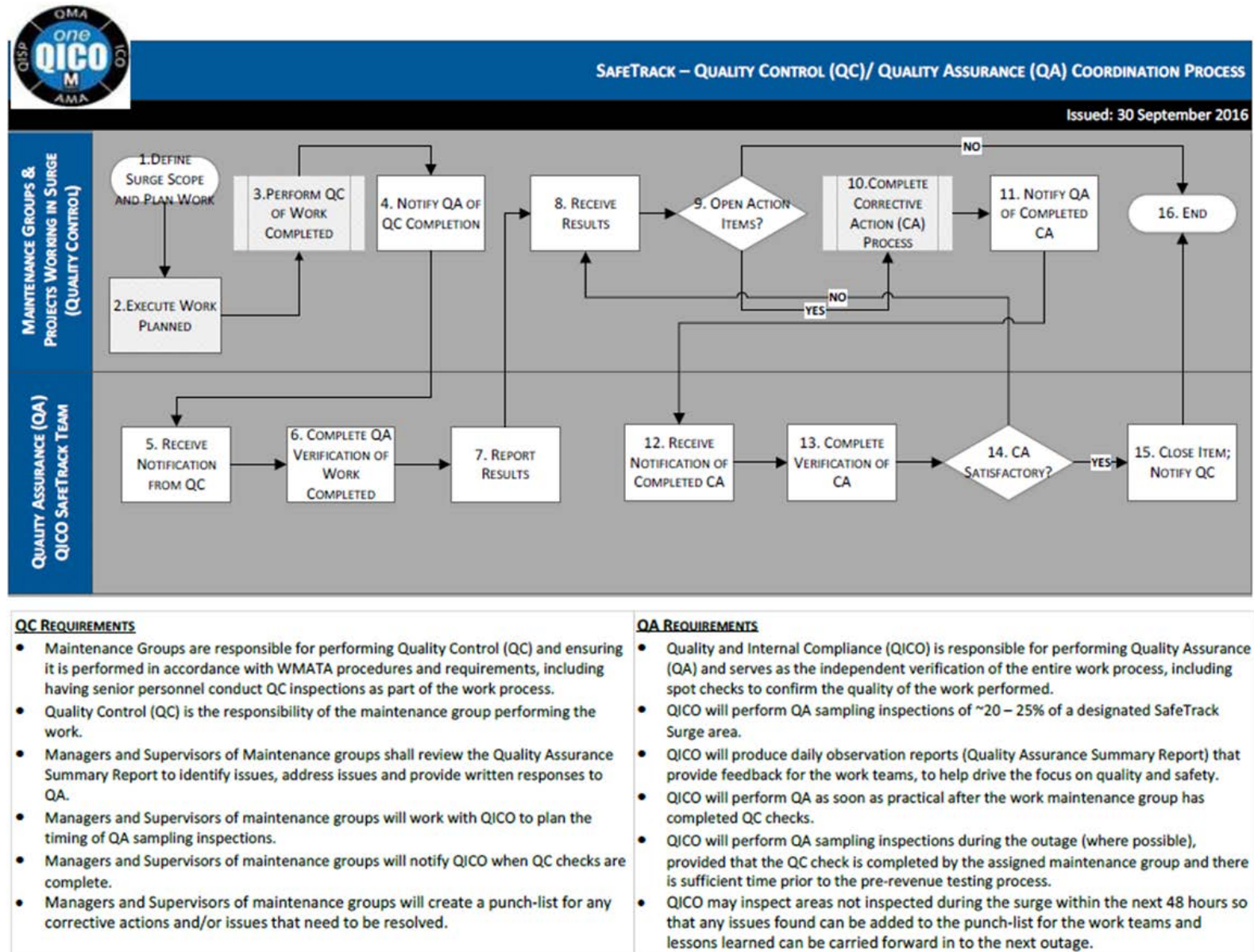
Washington Metropolitan Area Transit Authority  
Updated March 15, 2017



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



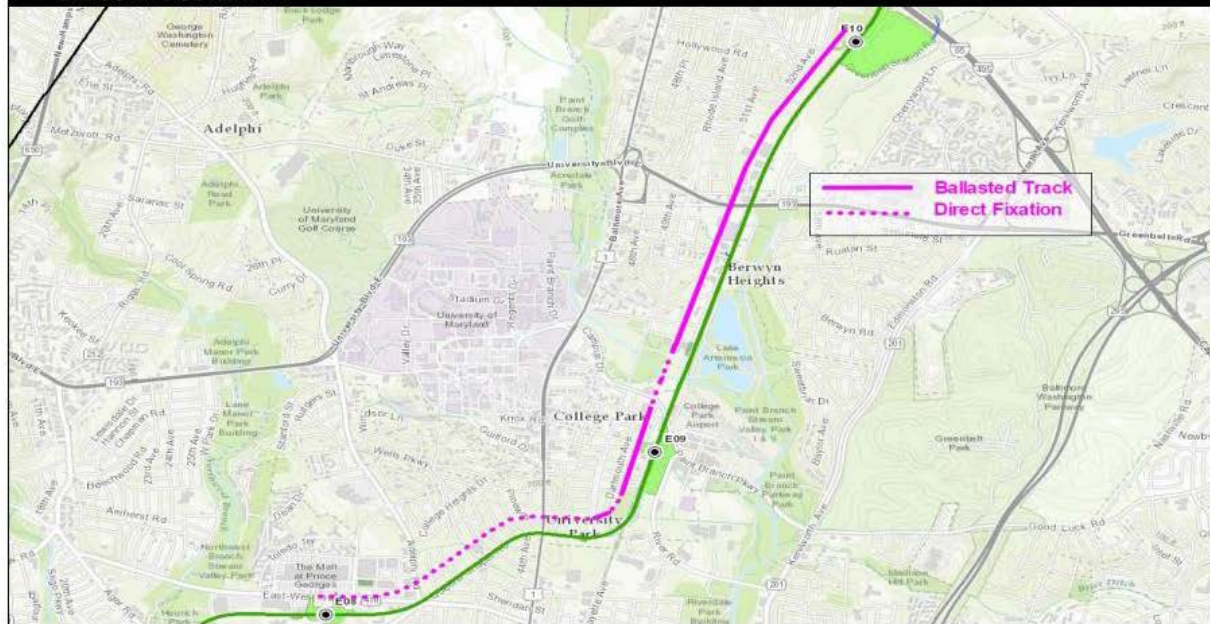
## APPENDIX E – SAFETRACK QC / QA COORDINATION PROCESS





## APPENDIX F – QICO’s QUALITY PRE-SURGE 14 REPORT (excerpt)

### 1 EXECUTIVE SUMMARY



SafeTrack Surge 14 (Prince George's Plaza – Greenbelt)

#### OVERVIEW

SafeTrack Surge 14 will be conducted April 15 through May 14, 2017 (30 days). The surge will consist of two separate complete shutdowns. From April 15 through April 29 (15 days), the surge area will cover from Prince George's Plaza (E08) to Greenbelt (E10) tracks 1 and 2. The surge will switch configurations from April 29 through May 14 (15 days) covering the area of College Park (E09) to Greenbelt.

#### PURPOSE

The **Office of Quality Assurance, Internal Compliance and Oversight (QICO)** provides independent reviews of WMATA Operational processes and assets; for WMATA's SafeTrack program, QICO's infrastructure team provides reviews of SafeTrack activities, produces recommendations for maintenance departments and follows up on areas of concern in order to improve the quality of future SafeTrack surges. QICO conducted an independent walking track inspection for upcoming SafeTrack Surge 14 on **December 12, 2016** (College Park to Greenbelt Track 1) and **April 3-4, 2017** (Prince George's Plaza to Greenbelt Track 2 and Prince George's Plaza to College Park Track 1&2). Field observations were compared to WMATA's defect and [speed restriction](#) history in [Optram/Maximo](#), as well as scopes of work provided by maintenance groups. The completed inspection and the following analysis provide a robust *second line of defense* to ensure critical SafeTrack maintenance items are addressed and tracked to completion during the surge.

#### SUMMARY OF FINDINGS

The significant deterioration in the track structure observed during the QICO pre-surge walkthrough justifies the substantial service disruption proposed for upcoming Surge 14 (30 days). For [ballasted track](#) sections at least a 25% to 50% cross tie replacement is needed. Priority for cross tie replacement is between College Park and Greenbelt stations. Deterioration of the cross ties have shown several signs of concern including 3<sup>rd</sup> rail insulators leaning/unsupported, twisting/warp of cross ties, hollow ties, and other issues. For direct fixation track in the surge area, grout pads appear to be in good condition. However, there are areas where fasteners are starting to break down and require replacement. (source: field inspection).

## APPENDIX G – 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
<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 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.
<b>SSMP Monitoring</b>		
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"><li>• Activation Plan and Procedures</li><li>• Integrated Test Plan and Procedures</li><li>• Operations and Maintenance Plan</li><li>• Emergency Operations Plan?</li></ul>	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.
<b>Federal Railroad Administration</b>		
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 H – 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	<i>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.</i>	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 I – 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														

*Dates shown in italics are planned. All other dates are actual.*