

**FINAL REPORT OF INVESTIGATION A&I E17386**

July 17, 2017

Incidents/occurrences involving individuals working in  
the transit agency-controlled right of way

*Adopted by the Metrorail Safety Commission at its meeting on April 8, 2019.*

Washington Metrorail Safety Commission  
777 North Capitol Street, NE, Suite 402  
Washington, DC 20002



**FINAL REPORT OF INVESTIGATION A&I E17386****SMS 20170719#64226**

<b>Date of Event:</b>	7/17/2017
<b>Type of Event:</b>	Incidents/occurrences involving individuals working in the transit agency-controlled right of way
<b>Incident Time:</b>	10:58 hrs.
<b>Location:</b>	Chain Marker (CM) F1-467+00, Between Branch Avenue (F11) and Suitland (F10) Stations, Track 1
<b>Time and How received by SAFE:</b>	11:18 hrs., Rail Operations Control Center (ROCC) Phone notification
<b>Safety Officer Response:</b>	No
<b>Time of Safety Officer Arrival:</b>	N/A
<b>Time of Safety Officer Departure:</b>	N/A
<b>Rail Vehicle:</b>	L6102-6103x6147-6146x6098-6099x6095-6094T
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None

**Executive Summary**

On Tuesday, July 17, 2017 at approximately 10:58 hrs., the ROCC received a report that Green Line Train ID 505 operated in excess of 10 mph as it passed Track Inspectors located at Chain Marker (CM) F1-467+00, Track 1 between the Branch Avenue (F11) and Suitland (F10) rail stations and traveling inbound at the time of the incident. Additionally, during the time of the event, Track Inspectors reported they were in a place of safety waiting for ROCC to issue Foul Time Protection for Track Personnel to walk from F1-467+00 to F1-479+00, Track 1. There were no injuries or damage to equipment reported as a result of this event.

**Notification**

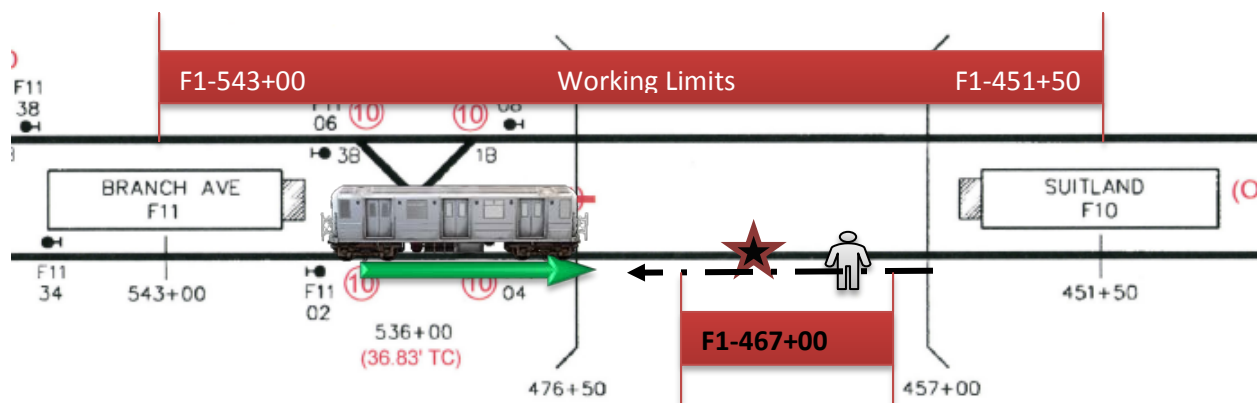
<b>Title</b>	<b>Time</b>	<b>Comment:</b>
<b>FTA</b>	13:08 hrs.	FWSO Email Notification
<b>TOC</b>	13:08 hrs.	FWSO Email Notification

## Incident Site

The incident area was located at CM F1-467+00. The area is described as a:

- 2.314% upward grade
- Spiral to Curve Area
- 900 feet inbound of portal area
- Blind Spot as defined in Roadway Access Guide (2014)
- Direct fixation Track
- Underground section - Cut and Cover Double Boxed Tunnel covering

## Field Sketch/Schematics



## Investigation

### **Interviews:**

#### **Office of Rail Transportation (RTRA)**

Interview Time and Date: July 19, 2017 – 13:33 hrs.

#### **Train Operator**

Per the T/O's statement, after taking a scheduled break, the T/O stated Train ID 505, a 6-car consist, was positioned at the 8-car marker on Track 2. The T/O did acknowledge there was an unilluminated lantern at the 8-car marker, a flag laying on the platform by the end gate near the 8-car marker, and no visible Advanced Mobile Flagger (AMF).

The T/O keyed up and the Terminal Supervisor (T/S) set a diverging route displaying a flashing lunar signal for the train to depart. The T/S then stated: "505 you have

permission to leave the station." The T/S further stated, "Train ID 505 please be on the lookout for Track Walkers between Naylor road and Suitland." The T/O replied "I copy that" to the T/S.

Train ID 505 T/O stated when at first sight of a flashlight, Train ID 505 initiated a full-service brake command (B5 rate), stopped completely, then observed all 4 personnel on the roadway with limited clearance, and proceeded at a slow speed (10 MPH). The T/O stated hearing radio dialogue of personnel reporting the incident and wondered why. The T/O stated, "their train could not of exited a curve with a restricted view and been able to stop; if traveling at the reported speed." Train ID 505 T/O stated finally stated that (Track Inspector) personnel gave a proceed signal with their flashlight, therefore, the T/O proceeded past the personnel on the roadway.

### **The Office of Track and Structure (TRST)**

Scope of Work: Track and Structures (TRST) personnel provided escort support for Federal Transportation Administration (FTA) and Rail Pro contractors performing a track inspection from CM F1-451+50 (F10) to CM F1-543+00 (F11) stations.

Roadway Worker in Charge (RWIC)

Interview Time and Date: July 19, 2017 – 10:32 hrs.

The RWIC contacted the AMF, confirmed the AMF was in place, and notified the AMF that the inspection crew was about to request roadway access from the ROCC. The RWIC stated that he informed the AMF located at Branch Avenue Station that the inspection crew was entering the roadway to begin their walk. The RWIC further stated, at CM F1-467+00, Foul Time (FT) was required for this specific area. While in a place of safety, the RWIC requested FT. During the request, a train passed their location more than half the regulated speed and did not sound their horn.

FTA personnel within the work crew stated the incident needed to be reported. The RWIC then notified ROCC of the incident. The RWIC stated he heard a radio transmission from the T/O informing ROCC that the AMF failed to perform a briefing and was not told personnel were on the roadway.

Per ROCC instruction, the RWIC contacted ROCC via land line phone to further discuss incident.

Interview Time and Date: July 19, 2017 – 9:39 hrs.

## Advance Mobile Flagger

Per AMF statement, a train was berthed on Track 2, therefore, the T/O arrived on Track 1. The T/O then boarded Train ID 505 on Track 2. The AMF was under the impression, the T/O was about to leave. The AMF walked up to the cab window, then opted to walk inside the train, pulled the briefing card out, and reportedly read it to the T/O. The AMF inquired if the T/O was about to depart the station and the T/O responded “no”. At that moment, the T/O left the train for a personal relief break. When the T/O left the train for the personal relief, the AMF stated that he then exited the train. The AMF returned to the Track 1 side of the platform to continue AMF duties. Note: Additionally, the AMF stated being unsure if the T/O was paying attention during the briefing because it appeared that the T/O was focused on positioning a bag (personnel item) within the operating cab.

**Note:** The AMF further stated, the lantern (flashing light) was on Track 1 and no lantern was set up on Track 2. However, Branch Avenue is a terminal and trains leave out from both Track 1 and 2.

## Data Collection:

### Closed Circuit Television (CCTV)

CCTV footage revealed the AMF was on the platform and appeared to have spoken with the T/O prior to Train ID 505 departing F11 Station. CCTV shows the AMF positioned on the inbound end of F11 platform Track 1 with required equipment; no equipment was located on Track 2 where Train ID 505 departed. It was determined, there was an extended amount of time before the train departed F11, Track 2 after the AMF read the T/O the briefing script.

### Audio Recording System (ARS)

After review of ARS system, further investigation revealed the T/S stated, “Hey, we got personnel walking track 1 from Suitland to Branch Avenue.” The T/S did not verify the T/O repeat back.

The T/O stated, “I copy we have personnel between Naylor road and Suitland walking. Use proper hand signals using caution 505”.

Note: The T/O repeated back the wrong stations and T/S did not correct the T/O.

### Office of Automatic Train Control Maintenance (ATCM)

Report from Automatic Train Control (ATC) concerning block F1-467+00 at the time of the incident reports that Train ID 505’s speed was at/or near 15 mph, however speed in approach to F1-467+00 exceeded the requirements to operate at half the regulated speed until mobile work crews are reached.

## **Vehicle Program Services (CENV)**

No Vehicle Monitoring System (VMS) data was obtained for this event to support investigation findings due to the original request listing an incorrect car numbers. When the error was identified, and VMS download was re-requested but the data was overwritten; however, SAFE used the track circuit calculations (ROCC Supervisory Control and Data Acquisition (SCADA) System track circuit entrance/exit data) provided by the Rail Operations Control Information Technology (ROC IT) personnel to support estimated speeds through the incident area. See Attachment 4

## **Communications Section (COMM)**

Upon further inspection, COMM did not report any anomalies with the radio system in the affected area.

## **Office of Car Maintenance (CMNT)**

CMNT personnel did not perform any inspection on the affected consist.

## **Human Factors**

### **Post-Incident Testing**

After reviewing the Post-Incident Testing results, it was determined that the personnel involved in this event were not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/5, therefore, excluding being under the influence of a controlled substance as a contributing factor.

### **Fatigue**

Based on SAFE's review of the 30-day work histories, it was determined that the employee's hours of service were in accordance with WMATA's *Fatigue Risk Management Policy 10.6* and *Hours of Service Limitations for Prevention of Fatigue Policy 10.7*.

### **Years of Service**

### **RWIC**

- 16-year veteran with WMATA
- 10 years of TRST experience
- Certified with a current RWP Level 4

### **AMF**

- 7-years with WMATA
- 2 years of experience as a track walker

- Certified with a current RWP Level 4

T/O

- 9-Years with WMATA
- 3-Year T/O
- Certified with a current RWP Level 2

## **Rules and Procedures**

Refer to attachments 1 pages 1-7 for Permanent Order R-17-03, attachment 7 for General Rules (GR 1.79), and attachment 5 for RWIC Roadway Job Safety Briefing (RJSB) Roadway Worker Protection Manual (RWPM).

## **Weather**

At the time of the incident, the temperature was 82°F, with Clear Skies. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) - Location: Washington, DC.)

## **Findings**

- AMF was at F11 platform, Track 1 per CCTV footage
- Train ID 505 departed F11 platform from Track 2 per CCTV footage
- The T/S and T/O failed to ensure that all radio transmissions were properly repeated back to ensure that the transmissions were heard, fully understood, and acknowledged in accordance to G/R 1.79
- The T/O was aware of track personnel on the roadway prior to departing F11 platform per ARS playback
- Train ID 505 approached CM F1-467+00 at a speed of 50 mph prior to decelerating to 15 mph at CM F1-467+00
- The AMF failed to ensure Train ID 505 T/O acknowledged the briefing and conditions during face-to-face instructions in accordance Permanent Order R-17-03
- ATC report data determined, the T/O did not operate Train ID 505 at half the regulated speed per Permanent Rule R-17-03 AMF, Class I/Class II Vehicle Operator Procedures validated
- AMF warning lanterns were not displayed on both tracks (Track 1 and Track 2)
- The Roadway Worker Protection Manual (RWPM) WMATA Roadway Access Guide (RAG) reflects location F1-467+00 as both a "Clear View" and "Blind Spot" requiring Foul Time.

## Conclusion

Based on the salient facts identified as part of this investigation, SAFE has reached the following conclusion:

1. The AMF failed to ensure Train ID 505 T/O acknowledged the briefing and conditions during face-to-face instructions in accordance Permanent Order R-17-03 *Which requires the T/O to Proceed at half your regulated speed until you reach the next station. Continuously blow your horn. Reduce speed to 10 Mph when observing and passing all work crews.*
2. The T/S and T/O failed to ensure that all radio transmissions were properly repeated back to ensure that the transmissions were heard, fully understood, and acknowledged in accordance to G/R 1.79
3. The T/O did not operate Train ID 505 at half the regulated speed per Permanent Order R-17-03 AMF, Class I/Class II Vehicle Operator Procedures.
4. The RWIC did not ensure personnel were properly briefed and/or have the proper equipment at F11 Station to accommodate Track 1 and/or Track 2.

Further investigation determined, the work crew was standing at CM F1-467+00. In the Roadway Worker Protection Manual (RWPM) WMATA Roadway Access Guide (RAG), F1-467+00 is designated as both a "Clear View" and "Blind Spot" location requiring Foul Time. See Attachment 2. However, this information has been revised in the new Roadway Worker Protection Quick Access Guide 2018 which corrects the conflict mentioned above see attachment 3. **Note:** Train ID 505 had to travel from CM F1-479+00 to F1-467+00 which is a Blind Spot (RED hotspot).

## Immediate Mitigation

- The RWIC, AMF, and T/O were removed from service and transported for Post Incident Analysis.



### **Corrective Action Plan**

1. WMATA shall take the appropriate action to include but not limited to the revision of the Roadway Worker Protection Quick Access Guide, perform a Safety Stand Down, and any other action deemed necessary to support prevention of repeated RWP event:
  - a. **WMATA revised the Roadway Worker Protection Quick Access Guide on 09/01/2018. Refer to attachment 3.**
  - b. **WMATA Safety Stand Down for all employees commenced on 09/19/2018 and was completed on 10/01/2018 newly revised RWP manual provided during stand down.**

## Attachments



### Washington Metropolitan Area Transit Authority

ROADWAY WORKER PROTECTION MANUAL

## PERMANENT ORDER

**NO. R- 17-03 Advanced Mobile Flagger**

**Date:** Friday April 28, 2017

**TO:** All Personnel

Permanent Order R-17-03 identifies the introduction and procedures of the Advanced Mobile Flagger (AMF).

#### Definitions:

**ADVANCED MOBILE FLAGGER (AMF)** – A person stationed at the end of a platform (8 car marker or end gate) in the direction in which a Class I/Class II Vehicle is normally traveling, equipped with a Flashing Amber Lantern/E-Flare and Orange Flag. The duties of the AMF are to notify all Class I/Class II vehicle operators that a Mobile Work Crew is on the tracks ahead of them.

#### **AMF Requirements:**

1. The AMF must be Roadway Worker Protection (RWP) Level 2 or Level 4 qualified.
2. The AMF receives direction from the Roadway Worker In Charge (RWIC) of the Mobile Work Crew to which they are assigned.
3. The AMF is required to follow Personal Protective Equipment (PPE) guidelines per the Minimum PPE Standard for On-Track Safety in the Roadway Worker Protection Manual (RWPM).
4. In addition to the PPE required, the following equipment is also required when performing the duties of an AMF:
  - WMATA Approved Flashing Amber Lantern/E-Flare and Orange Flag
  - WMATA Approved and Calibrated Working Radio
  - WMATA Approved Air Horn and Whistle

**FLASHING AMBER LANTERN/E-FLARE** – A signaling device which displays a flashing amber light.

**ORANGE FLAG** – A WMATA approved Orange Flag that acts as a signaling device. It measures 18in. x 18in.

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## **Procedures:**

### **RWIC (Roadway Worker in Charge) Procedures:**

1. The RWIC duties remain the same as published under Key Personnel in Section 1, Roadway Worker-In-Charge, as published in the RWPM.
2. In addition, the RWIC will assign and identify the employee in the Mobile Work Crew who will fulfill the duties of the AMF. While checking the AMF for the required WMATA approved PPE, the RWIC will also ensure that the AMF has the following equipment:
  - WMATA Approved Flashing Amber Lantern/E-Flare and Orange Flag
  - WMATA Approved and Calibrated Working Radio
  - WMATA Approved Air Horn and Whistle
3. The RWIC will direct the AMF to position themselves at the next station ahead (in the direction the Mobile Crew will be walking). The AMF will take their position at the end of the platform (8 car marker or end gate) in the direction the train is traveling, and on the track the Mobile Work Crew is inspecting.
4. Once the AMF has taken their position on the platform ahead of the Mobile Work Crew, they will place their Flashing Amber Lantern/E-Flare into its base and position it at the end of the platform (8 car marker or end gate) in the direction the train is traveling, and on the track their crew is inspecting. The AMF will hold the Orange Flag in their hand. The AMF will then notify the RWIC that they are in place and the Flashing Amber Lantern/E-Flare and Orange Flag has been positioned.
5. The RWIC will contact ROCC and request permission to enter the Roadway to complete Mobile Work Crew tasks (e.g. Track Inspections). The RWIC will also request from ROCC, the location of any trains on the track, which may currently be operating or stopped between the station where the AMF is positioned and the station where the RWIC is preparing to enter the Roadway. Once the ROCC gives the RWIC permission to enter the Roadway, normal RWP procedures will resume. The RWIC will note their "On Track Time" given by ROCC.  
NOTE: If the RWIC should request to increase their RWP protection level to "Foul Time", the RWIC must inform the AMF when the Foul Time is in place.
6. Once the RWIC, with their Mobile Work Crew, reaches the platform where the AMF is setup, the RWIC then follows this same process when sending the AMF to the next station.

NOTE: This process will be repeated until the Mobile Work Crew completes their assignment for the day and clears the roadway with ROCC.

### **Advanced Mobile Flagger (AMF) Procedures:**

1. The AMF will be identified and assigned by the RWIC of the Mobile Work Crew.
2. The AMF is required to follow PPE guidelines per the Minimum PPE Standard for On-Track Safety in the RWPM.
3. In addition to the PPE required, the following equipment is also required when performing the duties of an AMF:
  - WMATA Approved Flashing Amber Lantern/E-Flare and Orange Flag

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- WMATA Approved and Calibrated Working Radio
  - WMATA Approved Air Horn and Whistle
4. Under the direction of the RWIC, the AMF will position themselves at the next station ahead (in the direction the Mobile Crew will be walking). The AMF will take their position at the end of the platform (8 car marker or end gate) in the direction the train is traveling, and on the track the Mobile Work Crew is inspecting.
  5. Once the AMF has taken their position on the platform ahead of the Mobile Work Crew, they will place their Flashing Amber Lantern/E-Flare into its base and position it at the end of the platform (8 car marker or end gate) in the direction the train is traveling, and on the track their crew is inspecting. The AMF will hold the Orange Flag in their hand.
  6. The AMF must establish positive communication, i.e., via phone, radio, etc. to notify the RWIC that they are in place and the Flashing Amber Lantern/E-Flare and Orange Flag has been positioned.
  7. As the Class I/Class II vehicle approaches the AMF and their Flashing Amber Lantern/E-Flare and Orange Flag, the AMF is to ensure that the Class I/Class II Vehicle stops at their location. If the Class I/Class II Vehicle Operator does not blow two (2) short blasts of their mainline horn to acknowledge the presence of the AMF, the AMF must immediately give the WMATA Approved Hand Signal to stop utilizing the Orange Flag. The AMF must continuously give this Hand Signal utilizing the Orange Flag until the vehicle acknowledges them with two (2) short horn blasts, or comes to a complete stop.
  8. If the Class I/Class II Vehicle fails to stop at the AMF's location and is proceeding towards the Mobile Work Crew, the AMF must make an immediate transmission on the radio to the RWIC. AMF will advise the RWIC and all personnel to clear the Roadway immediately. The AMF will notify the RWIC that a Class I/Class II Vehicle is approaching them. The incident must also be reported to ROCC, at the first available opportunity, so that an investigation can commence.
  9. When the Class I/Class II Vehicle stops at the end of the platform (8 car marker or end gate), the AMF is to inform the Class I/Class II Vehicle Operator, verbally face-to-face, that there is a Mobile Work Crew ahead, by using the approved AMF Script, as follows:

**SCRIPT THE AMF WILL READ, FACE-TO-FACE, TO CLASS I/CLASS II VEHICLE OPERATOR**

"THERE IS A MOBILE WORK CREW AHEAD.

YOU MUST OPERATE YOUR CLASS I/CLASS II VEHICLE AT ONE-HALF OF YOUR REGULATED SPEED.

ONCE YOU DEPART FROM THE PLATFORM, YOU ARE REQUIRED TO BLOW YOUR MAINLINE HORN CONTINUOUSLY, USING SHORT HORN BLASTS. UPON OBSERVING THE MOBILE WORK CREW, FURTHER REDUCE YOUR SPEED TO 10 MPH. AND BE PREPARED TO STOP.

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YOU MUST NOT PROCEED PAST THE WORK CREW UNTIL YOU RECEIVE THE PROPER WMATA APPROVED HAND SIGNAL TO PROCEED.

IF YOU DO NOT RECEIVE THE PROPER HAND SIGNAL, YOU MUST STOP.

AFTER YOU RECEIVE THE PROPER HAND SIGNAL TO PROCEED, YOU MUST OPERATE AT 10 MPH. UNTIL THE ENTIRE TRAIN HAS CLEARED THE PERSONNEL ON THE TRACK.

ONCE THE REAR OF YOUR CLASS I/CLASS II VEHICLE HAS PASSED THE ENTIRE MOBILE WORK CREW, YOU THEN MAY RESUME NORMAL REGULATED SPEED FOR YOUR CLASS I/CLASS II VEHICLE."

**WARNING:** The AMF will not give a Class I or Class II operator the permission to advance if "Foul Time" is in effect. The AMF will inform the Class I or Class II operator to follow the instructions from ROCC when "Foul Time" is in effect. Once "Foul Time" is relinquished by the RWIC, the AMF can instruct the Class I or Class II operator to proceed by using the above script.

#### **AMF Procedures for Locations with Connecting Rail Lines**

For an inspection commencing at A02 (Farragut North); while walking INBOUND on TRACK #2, **you must request Foul Time** from the platform at A02 CM A2 38+35, until you call clear on the outbound side of the C&A Connection on track #2 at CM A2 37+10.

For an inspection commencing at B06 (Fort Totten); while walking INBOUND on TRACK #1, **you must request ROCC OPS #1 Controller to HOLD ALL MOVEMENTS** from the E-line to the B-line operating through the B&E Connection at CM B1 262+25. This will be until you call clear on the inbound side of the B&E Connection on track #1 at CM B1 262+25.

For an inspection commencing at C13 (King Street); while walking OUTBOUND on TRACK #1 **you must request Foul Time** from the platform at C13 CM C1 557+75 until you call clear on the outbound side of C97 Interlocking at CM 571+60 on the J-line or C-line track #1.

For an inspection commencing at C07 (Pentagon); while walking INBOUND on TRACK #2, **you must request Foul Time** from the platform at C07 CM C2 256+30 until you call clear on the inbound side of C07 Interlocking CM C2 256+10 on the C-line or the L-line track #2.

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For an inspection commencing at C05 (Rosslyn); while walking OUTBOUND on TRACK #1, **you must request Foul Time** from the platform C05 CM C1 144+75 until you call clear on the outbound side of C05 interlocking CM C1 147+00 on the K-line or C-line track #1.

For an inspection commencing at C14 (Eisenhower); you are walking INBOUND on TRACK #2, **you must request Foul Time** at C14. CM 592+00.

For an inspection commencing at D09 (Stadium), while walking OUTBOUND on TRACK #2.

**You MUST HAVE TWO AMFs** - ONE at G01 (Benning Road) and ONE at D10 (Minnesota).

For an inspection commencing at E07 (West Hyattsville); while walking INBOUND on TRACK #1, **you must request ROCC OPS #3 Controller to HOLD ALL MOVEMENTS** from the B-line to the E-line operating through the B&E Connection at CM E1 275+50. This will be until you call clear on the inbound side of the B&E connection track #1 CM E1 275+00.

For an inspection commencing at F03 (L'Enfant); while walking OUTBOUND on TRACK #1, **you must request Foul Time** from the platform F03 CM F1 51+25 until you call clear on the outbound side of F03 interlocking on the L-line or F-line track #1.

For an inspection commencing at K05 (East Falls Church); you are walking OUTBOUND on TRACK #1, **you MUST HAVE TWO AMFs** - ONE at K06 (West Falls) and ONE at N01 (McLean).

**NOTE:** All Chain Markers are approximate. Ensure the Mobile Work Crew is clear of the dynamic envelope of the connecting line before relinquishing Foul Time.

**Class I/Class II Vehicle Operator Procedures:**

1. As the Class I/Class II Vehicle Operator approaches a Flashing Amber Lantern/E-Flare and the AMF holding the Orange Flag, they **MUST** sound two (2) short blasts on their Mainline horn to acknowledge the presence of the AMF, and **MUST** come to a complete stop at the end of the platform (8 car marker or end gate).
2. The Class I/Class II Vehicle Operator will receive verbal face-to-face instructions from the AMF, using the script, included in this Permanent Order.
3. The Class I/Class II Vehicle Operator will depart the station at one-half the regulated speed and blow their Mainline horn continuously, using short horn blasts, until the operator observes the Mobile Work Crew.
  - a. The Class I/Class II Vehicle Operator **MUST REMAIN VIGILANT** and on the lookout for the Mobile Work Crew as communicated by the AMF.

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- b. Upon observing the mobile work crew, the Class I/Class II Vehicle Operator **MUST** reduce speed to 10 mph. and be prepared to stop.
4. If the Class I/Class II Vehicle Operator **DOES NOT** receive the proper WMATA Approved Hand Signal to proceed from the Mobile Work Crew, the Class I/Class II Vehicle Operator **MUST STOP IMMEDIATELY**.
5. Once the Class I/Class II Vehicle Operator reaches the location of the Mobile Work Crew Watchman/Lookout, and receives the WMATA Approved Hand Signal to proceed, the Class I/Class II Vehicle Operator will sound the Mainline horn, using two (2) short blasts, to acknowledge the Hand Signal being given by the Mobile Work Crew, then operate at a speed no greater than 10 mph past the entire Mobile Work Crew.
- NOTE: All operators are reminded they must adhere to permanent order T-16-07 "Introduction of 10MPH Speed Restriction on Tracks Where Workers Are Present".
6. Once the rear of the Class I/Class II Vehicle has passed the entire Mobile Work Crew, the Operator then may resume normal regulated speed for their Class I/Class II Vehicle.

**WARNING:** When "Foul Time" is in effect all operators must follow the instructions from ROCC.

**Rail Operations Control Center (ROCC) Procedures:**

Should any personnel report a close call during any Mobile Work Crew activity, ROCC must immediately take action to ensure all personnel are safe and in the clear. ROCC will direct all personnel that work will be suspended. ROCC will identify the train involved, wayside personnel and any other factors involved in the incident. ROCC will immediately notify SAFE and other departments, as required, so an investigation can commence.

**Approval of Permanent Order 17-03**

Chief Operating Officer  
Operations

Chief Safety Officer  
Department of Safety &  
Environmental Management

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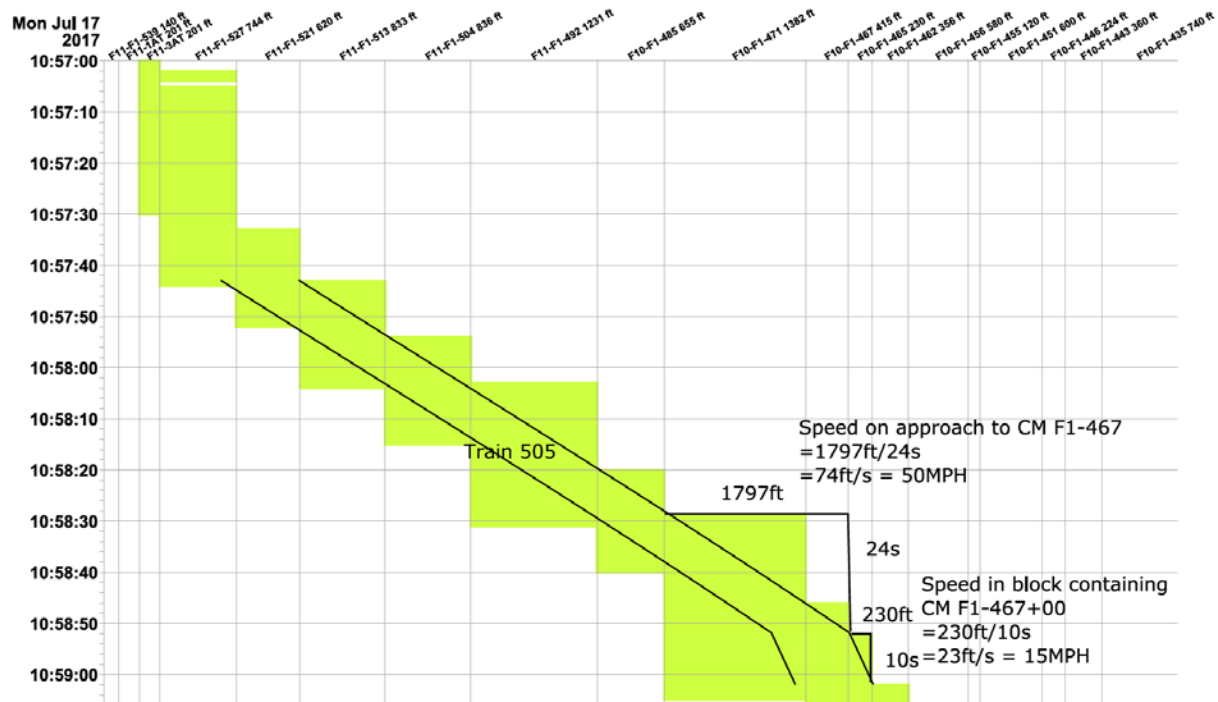


F							
TRACK 1			LINE		TRACK 2		
NOTES	STATION END	STATION START	Ch. Mkr # Start	Ch. Mkr# End	STATION START	STATION END	NOTES
BLIND SPOT/ PORTAL	F09	F08	338+00	345+00	F09	F08	BLIND SPOT/ PORTAL
CLEAR VIEW	F09	F08	345+00	355+00	F09	F08	CLEAR VIEW
CURVE: RESTRICTED VIEW	F09	F08	355+00	365+00	F09	F08	CURVE: RESTRICTED VIEW
CLEAR VIEW	F09	F08	365+00	375+00	F09	F08	CLEAR VIEW
CLEAR VIEW	F10	F09	375+00	378+00	F10	F09	CLEAR VIEW
CROSSOVER: CAUTION	F10	F09	378+00	384+00	F10	F09	CROSSOVER: CAUTION
CLEAR VIEW	F10	F09	384+00	395+00	F10	F09	CLEAR VIEW
BLIND SPOT	F10	F09	395+00	403+00	F10	F09	BLIND SPOT
CLEAR VIEW	F10	F09	403+00	414+00	F10	F09	CLEAR VIEW
BLIND SPOT	F10	F09	414+00	431+00	F10	F09	BLIND SPOT
CLEAR VIEW	F10	F09	431+00	453+00	F10	F09	CLEAR VIEW
CLEAR VIEW	F11	F10	453+00	467+00	F11	F10	CLEAR VIEW
BLIND SPOT	F11	F10	467+00	479+00	F11	F10	BLIND SPOT
CLEAR VIEW	F11	F10	479+00	496+00	F11	F10	CLEAR VIEW
BLIND SPOT	F11	F10	496+00	507+00	F11	F10	BLIND SPOT
CLEAR VIEW	F11	F10	507+00	535+00	F11	F10	CLEAR VIEW
CROSSOVER: CAUTION	F11	F10	535+00	538+00	F11	F10	CROSSOVER: CAUTION
CLEAR VIEW	F11	F10	538+00	547+00	F11	F10	CLEAR VIEW

Attachment 2 - Roadway Worker Protection WMATA Roadway Access Guide (RAG)  
(2017)

F Line Track 2					
F Line Track 2	Station	Station	Chain Marker	Chain Marker	Notes
Branch Avenue Station	F-11	F-11	546+00	540+00	
Clear View	F-11	F-10	540+00	538+00	
Clear View: Interlocking	F-11	F-10	538+00	535+00	
Clear View: Curve	F-11	F-10	535+00	510+00	
Restricted View: Curve	F-11	F-10	510+00	497+00	
Clear View	F-11	F-10	497+00	477+00	
Portal	F-11	F-10	477+00	477+00	
Restricted View: Curve	F-11	F-10	477+00	457+00	
Portal	F-11	F-10	457+00	457+00	

Attachment 3 – Roadway Workers Protection Quick Access Guide (2018) Note: Revision  
of above RAG



#### Attachment 4 - Rail Operations Control Information Technology (ROC IT) Track Circuit Calculations



## Roadway Job Safety Briefing

### General

A Roadway Job Safety Briefing must be conducted by the Roadway Worker in Charge (RWIC) before anyone enters the Roadway. The briefing must include information on how On-Track safety is to be provided, level(s) of protection(s) to be followed and areas of safety and evacuation in the event of an emergency. The RWIC must conduct a new safety briefing any time the safety environment changes.

When multiple work gangs are included within the working limits (piggyback workers) each person shall participate in the Roadway Job Safety Briefing.

The RWIC shall ensure that workers arriving AFTER the initial Roadway Job Safety Briefing complete the same process stated above before entering the working limits. The RWIC may designate another RWIC qualified individual to provide the subsequent briefing and shall ensure the briefing is equivalent to the initial Job Safety Briefing.

A Roadway Job Safety Briefing for On-Track safety shall be deemed complete ONLY after each Roadway worker acknowledges their understanding by signing the Roadway Job Safety Briefing form.

All Roadway Safety Briefing forms shall be kept and maintained by supervisors for not less than 90 days. Supervisors or Managers shall create an electronic folder to store all Job Safety Briefing Forms.

### Lone Worker

Lone Workers must be RWIC qualified. Lone Workers shall conduct a Roadway Job Safety Briefing with Rail Operations Central Control (ROCC) and/or a RWIC qualified individual on duty. When communication channels are disabled, the Lone Worker shall not enter the Roadway until after communications are fully restored and an additional Roadway Job Safety Briefing occurs after communication restoration.

While conducting a Roadway Job Safety Briefing, the RWIC shall focus on the following:

1. Everyone's Attention and Participation
2. Type of On-Track Protection
3. Working Limits
4. Track Speeds
5. Where to Clear the track and an evacuation plan
6. Discuss the intended use and hazards of the RMM within the work limits
7. Safety rule of the day

## Attachment 5 – Roadway Worker Protection Manual (2014)

### 5.13.6 Advanced Mobile Flagging (AMF) – Mobile Work Crew

AMF is the use of a Watchman/Lookout assigned to a work crew in conjunction with an additional flagger positioned at the station in advance of the Mobile Work Crews. A Watchman/Lookout must be a minimum of 50 feet in advance of the Mobile Work Crew. RWICs are to use the Need vs. Speed Chart to determine sight distance vs Rail Vehicle speeds to provide Ample Time/Warning. If proper sighting distance cannot be achieved in order for the work crew to reach a place of safety in Ample Time/Warning, then a higher form of protection (e.g. FT, ETO, or IT) must be used.

#### Advanced Mobile Flagging Procedures:

1. The RWIC will conduct a RJSB prior to entering the Roadway and assign the AMF(s) and Watchman/Lookout(s).
2. The RWIC will contact ROCC and perform a radio check establishing positive communication.
3. The RWIC will direct the AMF(s) to take their position at the next station ahead (in the direction the Mobile Work Crew will be traveling).
4. Upon arriving at the station, the AMF will take their position at the end of the platform (eight (8) car marker or end gate area), facing the direction the Rail Vehicle(s) are traveling, and on the same track the Mobile Work Crew will be working.
5. The AMF will then establish positive communication via radio with the RWIC and inform the RWIC they are standing by and awaiting further instructions. A cell phone may be used for verbal communication in the event of an emergency.
6. After receiving confirmation that the AMF is in position, the RWIC will request permission from ROCC to enter the Roadway.

## Attachment 6 - MSRP Section 5.13.6 AMF Procedures



### WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY METRORAIL SAFETY RULES AND PROCEDURES HANDBOOK

#### T-10-15

##### **SOP 28:**

Modifies SOP 28 - Protection for Roadway Workers and Establishment of Third Rail Power Outages and Work Areas on the Roadway

#### T-11-01

##### **Section 1:**

Rules in **RED TEXT** are Cardinal Rules:

- 1.79 Employees shall not take any action until they are positive that all radio transmissions or receptions are heard, fully understood and acknowledged. Individual radio transmissions shall be repeated by the receiver so the transmitter can confirm the message was received completely and by the intended receiver.

When communicating with Class I and Class II vehicles, employees are to identify the train ID or unit ID by the complete number series. This method of positive train/unit identification shall be consistently used when transmitting and acknowledging information. Examples: Train ID 404 shall be identified as "four zero four". Train ID 414 shall be identified as "four fourteen", instead of "four one four". Train 932 shall be identified as "nine thirty two". PM-32 shall be identified as "PM thirty two" instead of "PM three two".

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## Attachment 7 – 1.79 General Rules (G/R) 1.79

## Photos



Photo 1 – AMF briefing Track 1 T/O when Track 2 Train ID 505 departed the station

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Date: 7/17/2017 Time: 10:58 hrs.

Final Report – Improper AMF/Train Operation  
E17386

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Drafted By: SAFE 704 – 02/27/2019

Reviewed By: SAFE 701 – 03/03/2019

Final Report Approved By: SAFE 70 – 03/18/2019