FINAL REPORT OF INVESTIGATION A&I E18292

July 16, 2018

Incidents-occurrences involving individuals working in the transit

W-0018

Adopted by the Washington Metrorail Safety Commission at its meeting on February 13, 2020.

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

FINAL REPORT OF INVESTIGATION A&I E18292

SMS 20180716#72760

Date of Event:	July 16, 2018
Type of Event:	Occurrences involving individuals working in the transit agency-controlled right-of-way
Incident Time:	11:33 hrs.
Location:	F1 515+66, Track 1
Time and How received by SAFE:	13:12 hrs., SAFE-On-Call Phone
Safety Officer Response:	No
Time of Safety Officer Arrival:	N/A
Time of Safety Officer Departure:	N/A
Rail Vehicle:	T7492-7493x7447-7446.7524-25.7463-**7462L**
Injuries:	None
Damage:	None
Emergency Responders:	None

Executive Summary

On Monday, July 16, 2018 at approximately 11:33 hrs., there was a initial report of an Road Way Protections (RWP) event on the Green line, between Suitland (F10) and Branch Avenue (F11) Stations Track 1, Chain Marker (CM) F1 512+00. Further investigation revealed, the acutal incident location was a CM F1-515+66. The report stated, Train ID 508 leaving F11 on Track 1, passed a work crew in an excess of 10 mph while the work crew waited for pick up. No injuries were reported and the incident is under investigation.

Notification

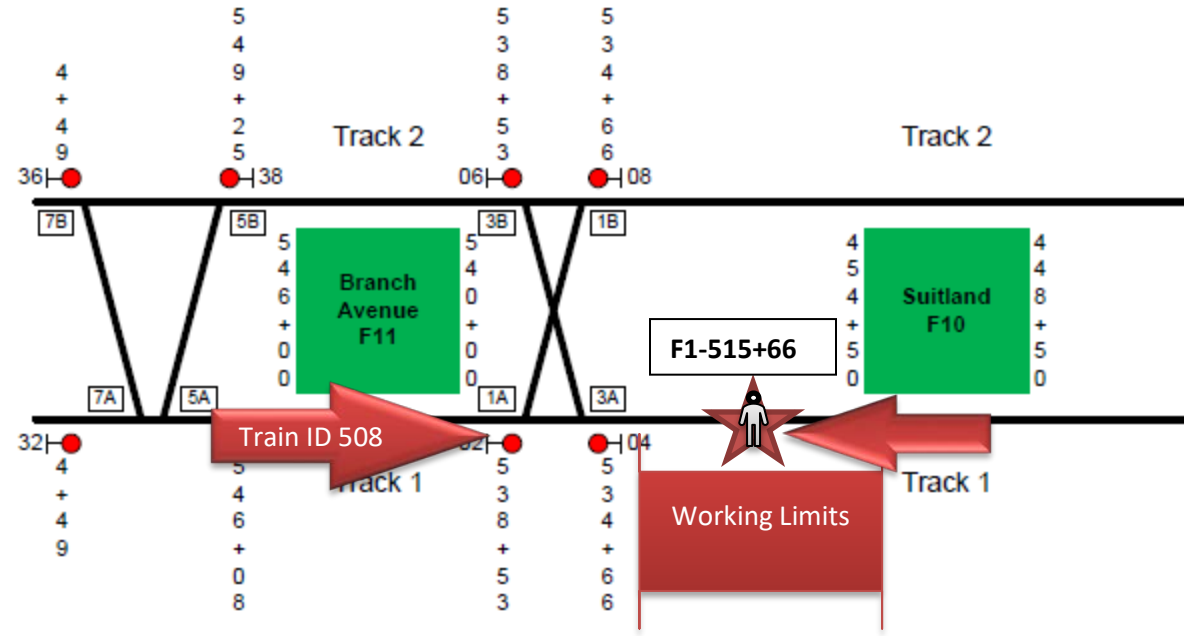
Title	Time	Comment:
FTA	14:42 hrs.	
TOC	14:42 hrs.	

Incident Site

Between F11 to F10 Track 1, CM F1 515+66

Field Sketch/Schematics

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019



Investigation

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

On Monday, July 16, 2018 at approximately 11:33 hrs., Rail Operations Control Center (ROCC) received a report of a RWP event that occurred between F11 and F10 Track 1 CM F1 515+66. The Track and Structures (TRST) Roadway Worker-In-Charge (RWIC) reported that Train ID 508 passed the work crew in an excess of 10 mph. A SAFE investigator was assigned to the incident to conduct a formal investigation. The RWIC initially requested a pickup from ROCC and was granted the pickup from Train ID 507. However, when Train ID 507 arrived, the work crew was not ready to board and they requested to board the next inbound train (Train ID 508) departing F11. The RWIC then told the Advanced Mobile Flagger (AMF) to board the train that would be picking them up at the requested location. The AMF gathered all safety warning equipment and boarded Train ID 508. When the T/O boarded Train ID 508, the AMF was positioned in the first seat facing the cab. Review of car-borne passenger area Close-circuit Television (CCTV) footage, the AMF did not communicate to the Train Operator (T/O) that a work crew was on the roadway. Therefore, the T/O was unaware a work crew was on the roadway requiring a pickup via train. When the T/O left F11 and noticed the crew (who was using the Slow Down Hand Signal to stop the train), the train could not stop in time and over ran the crew by two car lengths. Once the work crew realized they would not be able to board, the work crew RWIC communicated to the T/O to proceed and they would request a pick up from the next train. The RWIC reported the incident to ROCC via radio.

Interviews:

Office of Track and Structure (TRST)

Advanced Mobile Flagger (AMF)

The AMF had 18-years of experience as a track repairer, and no incidents within the last Three (3) years. The AMF stated during SAFE interview, before work began, the RWIC performed a Roadway Job Safety Briefing (RJSB) on the platform with all personnel involved, informed personnel of the scope of work being conducted (Track inspection), the location of work between F11 and F10, Track 1, and how personnel would reach their work area (Via train drop off). The AMF stated understanding the role and responsibility, which is to notify the T/O's that personnel are on the roadway walking in the opposite direction of traffic flow and or standing at a specific location. The AMF stated, when the RWIC reached the working limits, Track 1 between F11 and F10, the RWIC contacted ROCC, informed ROCC of his location then requested to go direct (communicate directly) to the AMF positioned at F11.

The AMF further stated, he communicated with all trains operating inbound, Track 1 towards the work crew at the specified location. The AMF stated notifying approximately

Three (3) T/O's leaving F11. The AMF informed SAFE, he only had One (1) lantern/e-flare at F11 positioned at the 8-car marker, however, F11 is a terminal location where trains leave from both sides of the platform. The AMF had only One (1) lantern/e-flare; therefore, the AMF asked the RWIC where should it be placed. The RWIC replied, on Track 1 side. The AMF further stated, he conducted briefings with T/O's on Track 1 and Track 2. The RWIC stated, memorizing the briefing, and did not read off the card as per WMATA'S AMF procedures. However, the AMF did recite the briefing accordingly in the presence of SAFE personnel. The AMF heard the RWIC request a pick-up at CM F1 500+00, the AMF communicated with the T/O of Train ID 507 that personnel required pick-up on the roadway; the T/O acknowledged. The AMF stated, the RWIC notified ROCC that they are now going to take the next train after Train ID 507; ROCC acknowledged. The AMF stated, Train ID 508 arrived on Track 2, the RWIC notified the AMF via radio to board that train, meet us at the pickup location so we can proceed to the next station (F10) to perform another inspection between F10 and Naylor Road (F09) stations.

The AMF boarded Train ID 508, the T/O was not present. When the T/O boarded the train, the AMF stated, while positioned in the first car in proximity of the cab while wearing a WMATA approved vest and carrying all AMF equipment in hand that he notified the T/O that personnel were at CM F1 500+00. The AMF stated the T/O went straight into the cab and was unaware if the T/O understood, heard, and or acknowledged the statement. The AMF stated while in route, the train stopped in between stations briefly and then continued to F10 Station. Upon arrival, the AMF heard the RWIC notify ROCC the T/O was coming too fast and did not pickup them up from the roadway. The T/O informed ROCC via radio, no one told them personnel were on the roadway. The AMF stated, he responded to ROCC via radio that a he did inform the T/O. The AMF stated hearing ROCC attempt to call him; however, the radio channel was occupied, and his radio would not transmit.

Roadway Worker-In-Charge

The RWIC stated a RJSB was performed at F11 which included, the scope of work (Track Curb Inspection to Identify Defects) multiple drop offs and pickups during the inspection, identified all CM's, identified the AMF and Advance Watchman, notified the block house (terminal) of planned work, and identified the nearest hospital. The RWIC further stated calling ROCC requesting permission to be dropped off at CM F1 500+00. The RWIC stated he reviewed the RWP guide and CM 507+00 was a Hot Spot not CM F1 500+00. **Note: per RWP Quick Access Guide, the Hot Spot was from 496+00 to 507+00. Refer**

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to attachment 3. The RWIC and crew reached the requested location and performed an inspection.

Upon Completion, the RWIC requested pick-up from CM F1 512+00 to perform an inspection between F10 and Naylor Rd (F09) stations. ROCC notified Train ID 507 personnel on the roadway required pick-up. At that time, the RWIC communicated with ROCC via radio that the train coming was too early, the crew would board the following train (Train ID 508). The RWIC then notified the AMF to brief the T/O and get on Train ID 508 via radio. When Train ID 508 was on approach, the train was not slowing down. Therefore, the RWIC performed a slow-down hand signal for the approaching Train assuming Train ID 508 T/O knew of the pick-up.

The RWIC stated the train eventually stopped about 6 car lengths pass the work crew. The T/O communicated out the window and the RWIC stated, they were unable to board from their location due to the position of the train. The RWIC contacted ROCC and reported the train was exceeding 10 mph. ROCC stated, board the next train on approach from the bulkhead.

Office of Transportation (RTRA)

Train Operator

The T/O boarded the affected train at F11 station after returning from a scheduled break at the administrative building in F99 Yard. Upon boarding the train, the T/O did not see an Amber Light, Orange Flags, nor an AMF present. The T/O noticed a WMATA employee in approved vest sitting on the train but did not know the personnel was an AMF, eye contact was made; however, nothing was said to the T/O. The T/O then entered the cab, keyed up the console, performed door operations, and departed the station.

The T/O stated there was no information regarding personnel on the roadway given prior to and/or on approach to F10. The T/O further stated operating the train at approximately 48 Mph on approach to CM F1 512+00 after exiting a curve. The T/O stated the work crew was in a place of safety, acknowledged the hand signal given; however, was unable to stop in time due to the operating speed of the train and line of sight. When the train came to a complete stop, the T/O stated, personnel on the roadway were located at the rear of the consist. Personnel on the roadway communicated to the T/O using a waving hand signal to continue-on.

The T/O stated, the RWIC reported via radio Train ID 508 sped pass their work crew. Additionally, ROCC requested the AMF's location; the AMF responded on Train ID 508. In closing, the T/O stated responded via radio, the AMF did not notify Train ID 508 of personnel on the roadway at any time.

Note: All aforementioned C/M locations were from initial interview and reports procured from associated personnel.

RTRA T/O Division

After further investigation it was determined, RTRA management did not take any action against the T/O for this event. Therefore, the T/O actions did not contribute to this event and no longer considered a casual factor for this incident.

Resourced Evidence / Actual Event Account :

Audio Recording System (ARS)

SAFE reviewed play back of initial report from the RWIC to ROCC controller, The RWIC informed ROCC they were waiting for a pick-up at CM F1 512+00. He attempted to stop the train by initiating a slow-down signal because the train was exceeding 10 mph. The train sped passed the work crew and stopped. The RWIC stated, personnel were not in a curve at the time of pick-up; it is clear track. Therefore, the T/O should have seen us on the roadway. ROCC stated, we will have the next train pick you up from CM F1 512+00. We will address the event accordingly.

SAFE reviewed ARS playback between the RWIC and ROCC Assistant Superintendent (ROCC A/S) referencing the reported incident. ARS revealed, the RWIC did notify ROCC via radio of a request for personnel to be picked up at F1-512+00. The RWIC stated, the ROCC Radio Controller (R/C) replied, you can be picked up by the next train leaving F11. The AMF boarded Train ID 508 to rendezvous with personnel on the roadway. However, the train proceeded to pass personnel on the roadway. The RWIC further stated, the T/O said they were unaware personnel was on the roadway.

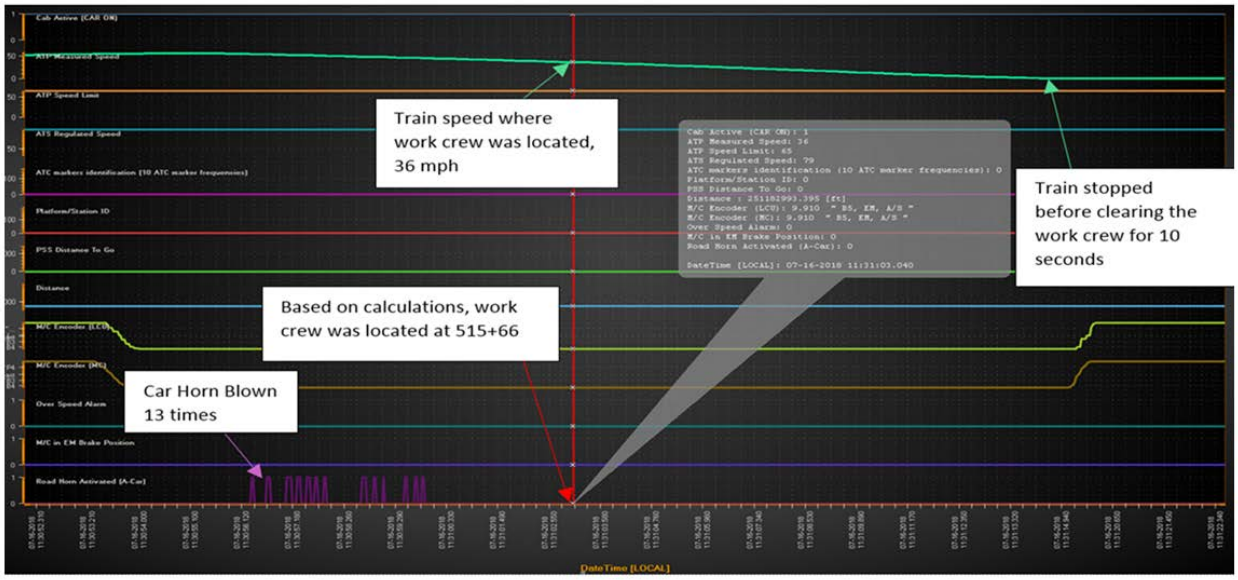
In response, the ROCC A/S stated, the T/O reported the AMF did not inform Train ID 508 upon boarding the train. The RWIC replies, correct, I heard the AMF state via radio I boarded the train with the T/O. Moreover, when ROCC made attempts to contact the AMF no response was given. The ROCC A/S then explained to the RWIC, if the AMF boarded the train with the T/O, the AMF was suppose to notify the T/O that TRST personnel were on the roadway awaiting pick up. The RWIC was in agreeance with ROCC A/S's statement.

The ROCC A/S asked the RWIC, should I report this event and notifiy appropriate personnel. The RWIC responded, no; we can disregard the incident and I will address the AMF. In closing, the ROCC A/S stated to the RWIC, the AMF would be in the right if he boarded the train, informed the T/O of personnel on the roadway, and performed duties accordingly as an AMF. The AMF was in total violation and can get all personnel involved administratively reprimanded. The RWIC agreed, and informed the ROCC A/S they would board the next train on approach.

Vehicle Program Services (CENV)

After further investigation and Vehicle Monitoring System (VMS) analysis, CENV determined, the work crew was positioned at CM F1-515+66. Car 7492 reported to be the lead car; later identified as the trailing and Car 7462 as the lead car operating between F11 and F10 stations. Based on the Forward-Facing video, Train ID 508 passed the work crew at 11:33:07 at 36 Mph. Train ID 508 stopped 220 feet past the work crew and dwelled for 10 seconds before resuming operation. CENV data shows, the T/O blew the horn 13 times prior to reaching the incident location.

Note: Actual C/M location identified through data analysis F1-515+66



Closed Circuit Television (CCTV)

After review of CCTV Car-borne footage, it was revealed, the T/O boarded lead Car 7462 and no verbal conversation was initiated from the AMF to the T/O. The T/O entered the cab as stated, performed door operations, and departed the F11 station. Refer to Photo 1.

Human Factors

Post-Incident

After reviewing the AMF post-incident testing results, it was determined that the AMF was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/5, therefore, being under the influence of a controlled substance has been excluded as a contributing factor.

Fatigue

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

Procedural and Rules:

Refer to attachments 1-4 Safety Bulletin (SB) 17-05, Permanent Order (P/O) R-17-03, RWPM roadway access Foul Time, and Roadway Worker Protection Manual (RWPM) RJSB form requirements.

Weather

At the time of the incident, the temperature was 89 °F, and partly cloudy. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Washington, DC.)

Findings

- TRST inspection crew was performing an inspection from F1 500+00 to 510+00 in a Hot Spot area without FT protection
- The RWIC failed to identify Blind Curve Hot Spot during RJSB
- The RWIC failed to request Foul Time between CM F1 500+00-CM - F1 507+00 while performing inspection.
- ROCC informed Train ID 507 to pick up work crew
- Work crew was not ready when Train ID 507 arrived, therefore they requested for the next train to pick them via radio
- RWIC communicated to the AMF to board the next train (Train ID 508) that would be picking them up
- AMF did not communicate to the T/O of Train ID 508, that a work crew was on the roadway and required pickup
- CENV data revealed the Work crew positioned at F1 CM 515+66
- VMS data determined the affected consist was traveling at 36 Mph at F1 CM 515+66
- VMS data revealed Train ID 508 stopped 220 ft. past the Work crew.

- VMS data determined the Train Horn was activated 13 times prior to arriving at F1 CM 515+66
- The AMF only had One (1) lantern/e-flare at F11 positioned at the 8-car marker, however, F11 is a terminal location where trains leave from both sides of the platform.

Conclusion

Based on salient facts as part of this investigation, ARS, MSRPH, and RWP manual review, SAFE concludes:

1. The RWIC failed to perform a complete RSJB to identify the Blind Curve Hot Spot within the planned working limits in accordance to RWPM RJSB section.
2. The RWIC failed to request Foul Time between CM F1 500+00 – CM F1 507+00 while performing inspection in accordance to RWPM roadway access guide.
3. The RWIC instructed the AMF to leave his assigned location while personnel were still on the roadway violating P/O R-17-03.
4. The AMF failed to notify Train ID 508 T/O in accordance P/O R-17-03 that personnel were on the right of way and required pick-up. This action caused the T/O to operate Train ID 508 under normal regulated operating speed conditions in the affected area subsequently causing the T/O to pass the work crew above the governed AMF procedures outlined in P/O R-17-03 *Which requires 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.*

Considering all the facts gathered from this investigation, SAFE has no further information to reveal regarding E18292 and recommends its closure.

Immediate Mitigation to Prevent Re-Occurrence

- Train ID 508 was removed from service for post-incident investigation

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Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

- Work crew was picked up from the roadway.

Corrective Action Plan

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

1. WMATA shall take the appropriate action to include but not limited to the revision of the Roadway Worker Protection Quick Access Guide, 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 to reflect the usage of two AMF setups at terminal locations, flagging procedures, hotspot revision etc. Refer to attachments 5-12**
    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.**

Photos

Drafted By: SAFE 704 – 06/12/2019
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Approved By: SAFE 70 – 06/12/2019

Photo 1 – CCTV Car-borne still footage showing T/O boarding Train ID 508 with AMF present.

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Photo 2 – The affected-consist at approximately 832 ft. away from the Work crew.

Note: Approximate distance determined by Rail Ties in conjunction with the Emergency Telephone System (ETS) Box

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Photo 3 – Affected consist approximately 700 ft. away from Work crew

Photo 4 – Affected-consist approximately 300 ft. away from the Work crew

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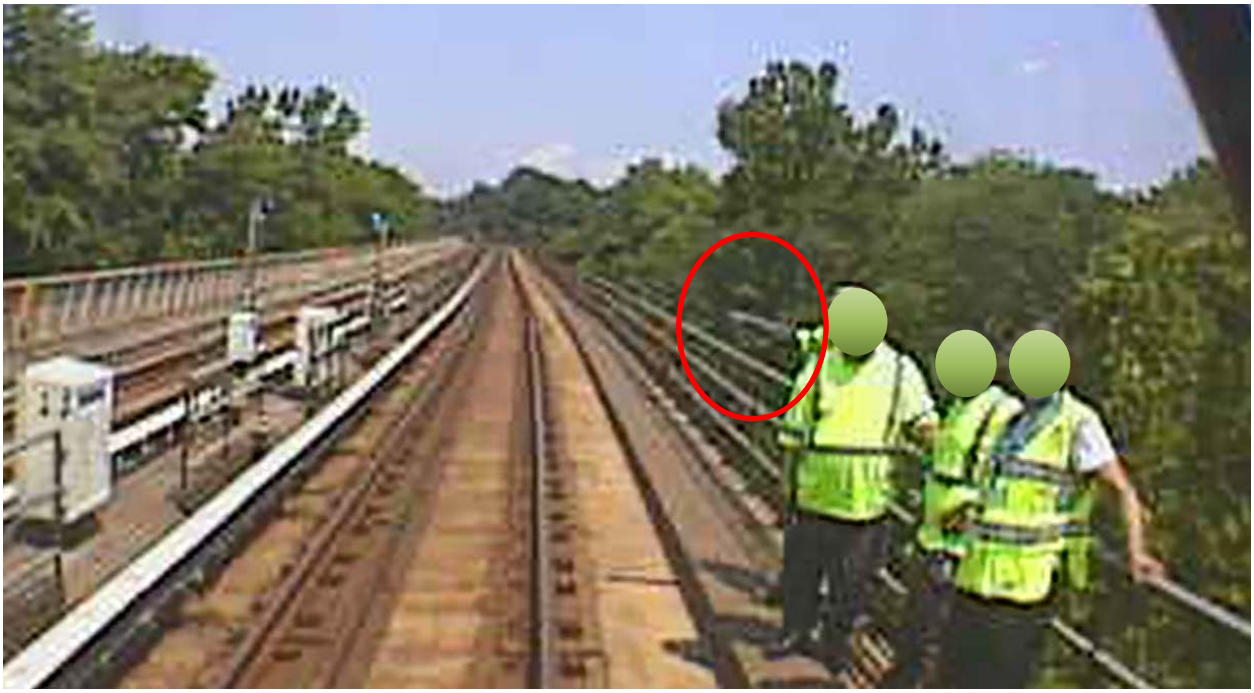

Photo 4 – RWIC giving Slow Down Hand Signal behind the Work crew; obstructed view.

Attachments

Drafted By: SAFE 704 – 06/12/2019
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Approved By: SAFE 70 – 06/12/2019

Washington Metropolitan Area Transit Authority
Department of Safety and Environmental Management

Safety Bulletin

SB #17-05 **May 8, 2017**

Advanced Mobile Flagger (AMF)

In accordance with ***Permanent Order R-17-03 Advanced Mobile Flagger***, the Advanced Mobile Flagger (AMF) is an assigned Roadway Worker positioned at the end of a platform (8 car marker or end gate) in the direction of normal travel for Class I/Class II Vehicles. The AMF is equipped with a Flashing Amber Lantern/E-Flare and Orange Flag. The duties of the AMF include but not limited to, notifying approaching Class I/Class II vehicle operators of Mobile Work Crews on the tracks ahead of them.

If the AMF is not in position at the 8 car marker, or requires to leave his/her position, the mobile work crew Roadway Worker In Charge (RWIC) must be notified by the assigned AMF and removed along with his/her crew from the Roadway prior to the AMF leaving his/her assigned position. The AMF must never leave their position while the Mobile Work Crew is still on the roadway.

The AMF will hold the Orange Flag in their hand as part of the AMF responsibilities.

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 on approach to assigned mobile work crew.

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
   - 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.

Attachment 1 – AMF SB 17-05

Drafted By: SAFE 704 – 06/12/2019
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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.

PERMANENT ORDER Page 4 of 7

Attachment 2 – P/O R-17-03

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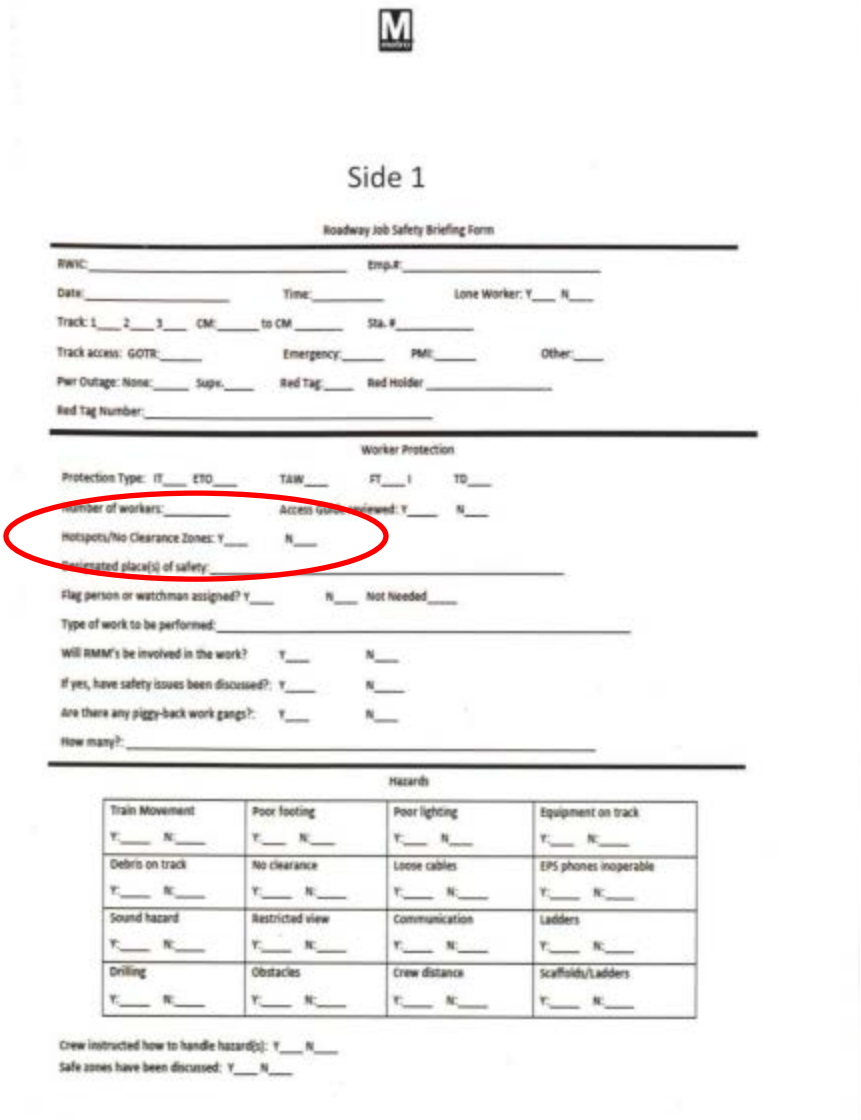
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

F LINE							
TRACK 1					TRACK 2		
NOTES	STATION END	STATION START	Ch. Mkr # Start	Ch. Mkr#	STATION START	STATION END	NOTES
CLEAR VIEW	F02	F01	00+00	17+00	F02	F01	CLEAR VIEW
CLEAR VIEW	F03	F02	17+00	42+00	F02	F01	CLEAR VIEW
ROSSOVER: CAUTION	F03	F02	42+00	45+00	F03	F02	CROSSOVER; CAUTION
CLEAR VIEW	F03	F02	45+00	52+00	F03	F02	CLEAR VIEW
CONVERGING TRACK	F04	F03	52+00	57+00	F04	F03	CONVERGING TRACK
CLEAR VIEW	F04	F03	57+00	73+00	F04	F03	CLEAR VIEW
RVE: RESTRICTED VIEW	F04	F03	73+00	80+00	F04	F03	CURVE: RESTRICTED VIEW
CLEAR VIEW	F04	F03	80+00	85+00	F04	F03	CLEAR VIEW
CLEAR VIEW	F05	F04	85+00	125+00	F05	F04	CLEAR VIEW
CLEAR VIEW	F06	F05	125+00	130+00	F06	F05	CLEAR VIEW
RVE: RESTRICTED VIEW	F06	F05	130+00	147+00	F06	F05	CURVE: RESTRICTED VIEW
CLEAR VIEW	F06	F05	147+00	185+00	F06	F05	CLEAR VIEW
CLEAR VIEW	F07	F06	185+00	192+00	F07	F06	CLEAR VIEW
BLIND SPOT	F07	F06	192+00	196+00	F07	F06	RESTRICTED VIEW
CLEAR VIEW	F07	F06	196+00	200+00	F07	F06	CLEAR VIEW
RESTRICTED VIEW	F07	F06	200+00	207+00	F07	F06	BLIND SPOT
CLEAR VIEW	F07	F06	207+00	213+00	F07	F06	CLEAR VIEW
RESTRICTED VIEW	F07	F06	213+00	217+00	F07	F06	BLIND SPOT
CLEAR VIEW	F07	F06	217+00	224+00	F07	F06	CLEAR VIEW
RESTRICTED VIEW	F07	F06	224+00	232+00	F07	F06	BLIND SPOT
CLEAR VIEW	F07	F06	232+00	255+00	F07	F06	CLEAR VIEW
CLEAR VIEW	F08	F07	255+00	262+00	F08	F07	CLEAR VIEW
RESTRICTED VIEW	F08	F07	262+00	265+00	F08	F07	BLIND SPOT
CLEAR VIEW	F08	F07	265+00	273+00	F08	F07	CLEAR VIEW
BLIND SPOT	F08	F07	273+00	279+00	F08	F07	RESTRICTED VIEW
CLEAR VIEW	F08	F07	279+00	285+00	F08	F07	CLEAR VIEW
RVE: RESTRICTED VIEW	F08	F07	285+00	302+00	F08	F07	BLIND SPOT
CLEAR VIEW	F08	F07	302+00	310+00	F08	F07	CLEAR VIEW
CLEAR VIEW	F09	F08	310+00	325+00	F09	F08	CLEAR VIEW
PORTAL	F09	F08	325+00	330+00	F09	F08	PORTAL
CLEAR VIEW	F09	F08	330+00	338+00	F09	F08	CLEAR VIEW
LIND 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
RVE: 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
ROSSOVER: 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
ROSSOVER: CAUTION	F11	F10	535+00	538+00	F11	F10	CROSSOVER: CAUTION
CLEAR VIEW	F11	F10	538+00	547+00	F11	F10	CLEAR VIEW

Attachment 3 – Blind Spot Location from CM F1 496+00 – F1 CM 507+00

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019



Side 1

Roadway Job Safety Briefing Form

RWIC:_____ Emp.#:_____

Date:_____ Time:_____ Lone Worker: Y___ N___

Track: 1___ 2___ 3___ CM:_____ to CM _____ Sta. #_____

Track access: GOTR:_____ Emergency:_____ PMI:_____ Other:____

Pwr Outage: None:_____ Supv.____ Red Tag:____ Red Holder _____

Red Tag Number:_____

Worker Protection

Protection Type: IT___ ETD___ TAW___ FT___ TD___

Number of workers:_____ Access roads reviewed: Y___ N___

Hotspots/No Clearance Zones: Y___ N___

Designated place(s) of safety:_____

Flag person or watchman assigned? Y___ N___ Not Needed___

Type of work to be performed:_____

Will RMM's be involved in the work? Y___ N___

If yes, have safety issues been discussed?: Y___ N___

Are there any piggy-back work gangs?: Y___ N___

How many?:_____

Hazards

Train Movement Y:___ N:___	Poor footing Y:___ N:___	Poor lighting Y:___ N___	Equipment on track Y:___ N:___
Debris on track Y:___ N:___	No clearance Y:___ N:___	Loose cables Y:___ N:___	EPS phones inoperable Y:___ N:___
Sound hazard Y:___ N:___	Restricted view Y:___ N:___	Communication Y:___ N:___	Ladders Y:___ N:___
Drilling Y:___ N:___	Obstacles Y:___ N:___	Crew distance Y:___ N:___	Scaffolds/Ladders Y:___ N:___

Crew instructed how to handle hazard(s): Y___ N___

Safe zones have been discussed: Y___ N___

Attachment 4 – RJSB form indicating the identification of hotspots within RWPM

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

5.5 Roadway Job Safety Briefing (RJSB)

The RJSB is conducted by the RWIC before anyone enters the Roadway.

When multiple work crews are included within the working limits (including piggyback crews), each person shall participate in the RJSB. Another RWP Level 4 qualified employee can be designated to provide any subsequent briefing(s), which will be equivalent to the initial RJSB.

The RJSB is deemed completed ONLY after each Roadway Worker acknowledges their understanding by signing the RJSB form.

The briefing must include, but is not limited to, the following information:

1. How On-Track safety is to be provided
2. Level(s) of protection(s) to be followed
3. All hazard(s) related to the location and tasks being performed are to be identified and discussed, including:
    a. Unique site conditions to include all **Red Hot Spots**
    b. Operating and noise hazards created by equipment/tools being used, adjacent track speeds, highway/aircraft traffic noise, and environmental conditions
4. Places of safety and emergency evacuation protocols
5. Each person performing a role of protection is to be clearly identified to the entire work crew
6. The RJSB is turned in and retained by the Department Supervisor for 90 days

A new RJSB shall be conducted:

- When there is a change in the safety environment
- Significant change to the work or work conditions

Notice: A sample of the RJSB is located in Appendix A.

Responsibilities of individual Roadway Workers:

- Follow ALL RWP and MSRPH Roadway safety policies and rules.
- Ensure that they attend the RJSB and agree with the RWP provided before fouling the Roadway.
- Immediately report to the RWIC any unsafe acts or conditions that could result in an accident or incident.
- Refuse any directive to violate any RWP, MSRPH, safety policy, rules or procedures and initiate a Good Faith Challenge (GFC).

Section 5 – Roadway Worker Protection 5-9 Approved August 2018

Section 5 – RWP

Attachment 5 – MSRPH Section 5.5 RJSB 3a. Red Hot Spots revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

5.13.5 Foul Time Protection (FT)

A method of RWP in which a qualified Level 2 or Level 4 Roadway Worker requests that ROCC Stop all rail vehicle movement in a specific area for a limited amount of time. FT is used to safely clear a **RED HOT SPOT** area or when additional RWP is required. FT can only be requested by a qualified Level 2 or Level 4 Roadway Worker.

Important: When there are **RED HOT SPOTS**, FT protection from ROCC must be obtained prior to moving through the area.

Mobile Work Crews must use an AMF in conjunction with FT.

FT may be granted to individuals who are RWP level 2 or RWP Level 4 qualified that are accessing rooms along the Roadway, to include vent shafts, who are not engaged in work activities.

Procedures to initiate FT Protection:

1. From a place of safety, the requestor contacts ROCC and requests permission to initiate FT.
    a. Provide ROCC the track number and location (chain markers or station) for the area requested.
    b. Provide ROCC the reason for the FT Protection
2. Using the FT checklist, the ROCC controller will:
    a. Repeat back, word for word, the FT request and advise the requestor and crew to standby and stand clear.
    b. Cancel all approaching signals to ensure FT area is protected by **RED SIGNALS** (remove automatic signaling, if applicable).
    c. Establish "Prohibit Exits" in FT area.
    d. Inform Rail Vehicle Operators approaching the FT area that there is a **RED SIGNAL**. Confirm and acknowledge Train ID, if applicable.
    e. Establish "Blue Block Traffic" in FT area.
    f. Establish "Human Form" in FT area.
    g. Confirm over the radio to the requestor that all protections have been established and which signals have been canceled.
    h. Requestor must repeat back confirmation that they are aware of chain marker(s), track number, canceled signal(s), and Train ID contacted, if applicable.
    i. Grant FT to Requestor.

Section 5 – Roadway Worker Protection 5-37 Approved August 2018

Section 5 – RWP

Attachment 6 – MSRPH Section 5.13.5 Foul Time Protection revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

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 7 – MSRPH Section 5.13.6 AMF Procedures revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

7. The RWIC will also request the location of any Rail Vehicles on the Roadway that may currently be operating or stopped between the station where the AMF is positioned and the station where the Mobile Work Crew is preparing to enter the Roadway.
8. Once ROCC gives the RWIC permission to enter the Roadway, the RWIC will note their "On-Track Time" given by ROCC on their RJSB form.
9. Once ROCC gives permission, and before the Mobile Work Crew enters the Roadway, the RWIC will notify the AMF to begin AMF operations.

    a. The AMF will place a flashing amber lantern/e-flare into its base and position it at the end of the station platform (eight (8) car marker or end gate area).
    b. The AMF will also have an Orange Warning Flag in their hand at all times and be prepared to signal Rail Vehicle Operators to **STOP**.
    c. If the AMF hears multiple horn blasts from a Class 1 Rail Vehicle, this means that the vehicle is not planning to service the station. The AMF must make every effort, using the orange flag, to stop the approaching vehicle.
    d. Once the Rail Vehicle is stopped, the AMF will provide face-to-face instructions to the Rail Vehicle Operator.

    AMF Script to Rail Vehicle Operators:

    "There may be multiple work groups ahead. Proceed at half your regulated speed until you reach the next station. Continuously blow your horn. Reduce speed to 15 mph when observing and passing all work crews. Current AMF procedures govern you."

    e. When FT procedures are in effect, the RWIC shall inform the AMF to hold the Rail Vehicle until FT is relinquished and the AMF procedures can resume.
    f. Upon entering the Roadway, the RWIC will position Watchman/Lookout(s) a minimum of 50 feet in advance of the Mobile Work Crew.
10. Once the RWIC, with their Mobile Work Crew, reaches the platform where the AMF is set up, the RWIC repeats this process until the tasks of the Mobile Work Crew are complete.

Important: The AMF will not give a Proceed Signal to a rail operator while FT is in effect.

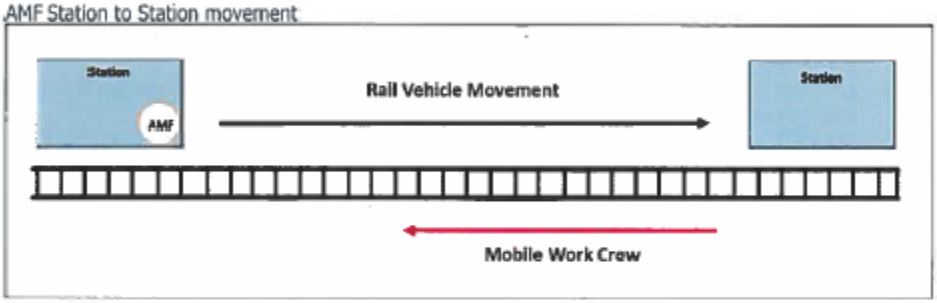
Notice: This procedure will be repeated until the Mobile Work Crew completes their assignment for the day and clears the roadway.

Notice: The Mobile Work Crew has the right to increase their level of protection to FT at any time.

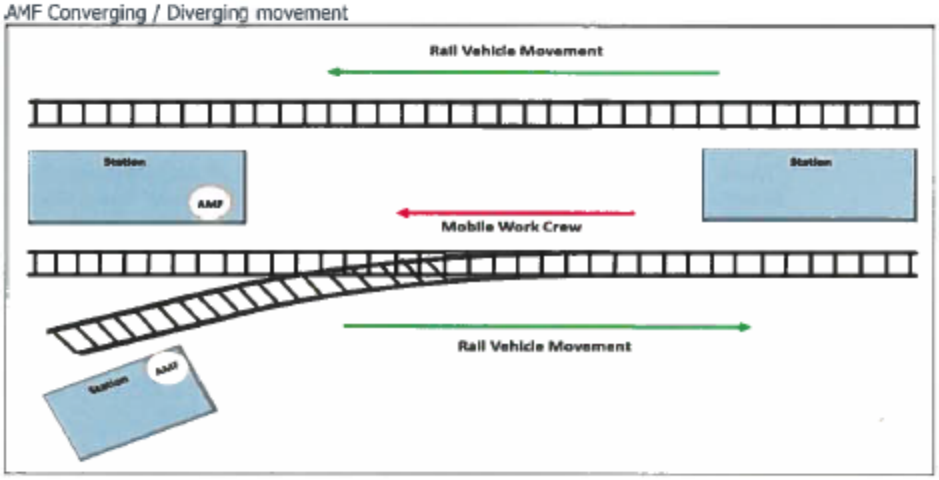
Attachment 8 - MSRPH Section 5.13.6 AMF Procedures revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

AMF Station to Station movement



AMF Converging / Diverging movement



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 A03 (Dupont Circle); while walking OUTBOUND on TRACK #1, **YOU MUST HAVE TWO AMFs** – ONE at A04 (Woodley Park) and ONE at A03 (Dupont Circle).
- For an inspection commencing at A04 (Woodley Park); while walking INBOUND on TRACK #2, **YOU MUST HAVE TWO AMFs** – ONE at A04 (Woodley Park) and ONE at A03 (Dupont Circle).
- 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 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.

Attachment 9 - MSRPH Section 5.13.6 AMF Procedures revision

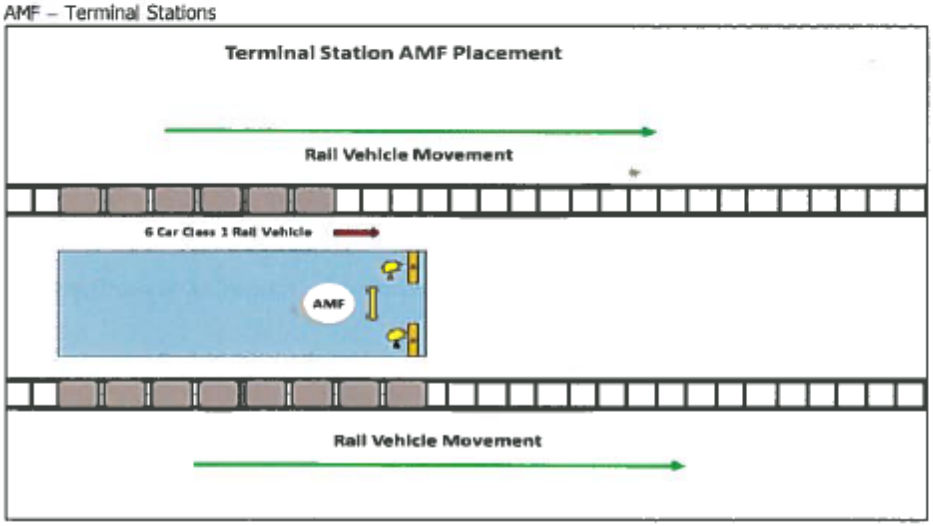
Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

- 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.
- 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 C14 (Eisenhower Avenue); while walking INBOUND on TRACK #2, **YOU MUST REQUEST FOUL TIME** at C14. CM 592+00.
- For an inspection commencing at D08 (Stadium-Armory); while walking OUTBOUND on TRACK #2, **YOU MUST HAVE TWO AMFs** - ONE at G01 (Benning Road) and ONE at D09 (Minnesota Avenue).
- 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 Plaza); 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); while walking OUTBOUND on TRACK #1, **YOU MUST HAVE TWO AMFS** - ONE at K06 (West Falls Church) and ONE at N01 (McLean).
- For inspections commencing at terminal stations, **YOU MUST HAVE ONE AMF WITH TWO AMF SETUPS**. An AMF setup is required on both sides of the platform at the terminal station.

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

Section 5 – RWP

AMF – Terminal Stations



Attachment 10 - MSRPH Section 5.13.6 AMF Procedures revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

Rail Vehicle Operator Procedures during AMF:

1. As the Rail Vehicle Operator approaches an AMF, all Rail Vehicle Operators **MUST** come to a **COMPLETE STOP** at the end of the station platform (eight (8) car marker or end gate area).
   - When departing from a terminal station Class 1 Rail Vehicle Operators are required to stop at the end of the platform to receive instructions from the AMF regardless of the number of cars in a consist.
2. The Rail Vehicle Operator will be given face-to-face verbal instructions regarding working crews on the tracks.

Important: It is the Rail Vehicle Operator's responsibility to ensure they receive all necessary instructions before proceeding.

3. The Rail Vehicle Operator will depart the station at half the regulated speed until the operator reaches the next station, staying alert for multiple work crews.
   - The Rail Vehicle Operator **MUST REMAIN VIGILANT** and on the lookout for all work crews.
   - The Rail Vehicle Operator must blow the train horn continuously, in short blasts, until they encounter the mobile work crew.
   - Upon observing a work crew, the Rail Vehicle Operator **MUST** reduce speed to 15 mph, change to low beam headlights, and be prepared to stop.
4. As the Rail Vehicle Operator approaches the location of the Watchman/Lookout, and receives the approved Hand Signal to proceed, the Operator will sound the Mainline horn, using two (2) short blasts to acknowledge the Hand Signal being given by the Watchman/Lookout, then operate at a speed no greater than 15 mph past the entire work crew.
5. If the Rail Vehicle Operator **DOES NOT** receive the proper approved Hand Signal to proceed from the Watchman/Lookout, the Rail Vehicle Operator **MUST IMMEDIATELY STOP** one car length away from the Watchman/Lookout and contact ROCC for further instructions.
6. Once the rear of the Rail Vehicle has passed the entire work crew, the Rail Vehicle Operator shall continue at half the regulated speed until they reach the next station.

ROCC Procedures:

Should any personnel on the Roadway report a close call during any Mobile Work Crew activity, ROCC must immediately take action to ensure all personnel are clear of the Roadway and in a place of safety.

1. ROCC will instruct all personnel to suspend work.
2. ROCC will identify the Rail Vehicle involved, wayside personnel, and any other factors involved in the incident.
3. ROCC will immediately notify SAFE and other departments, as required, so an investigation can commence.

Attachment 11 - MSRPH Section 5.13.6 AMF Procedures revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
Approved By: SAFE 70 – 06/12/2019

5.12.4 Standard Hand Signals

All hand signals are given facing oncoming Rail vehicles. To enhance signaling, flags and/or lights may be used.

When giving hand signals:

1. Use the proper safety equipment when required.
2. Hand signals must be given in sufficient time to permit compliance. It must be given from a point where it can be plainly seen and so that it cannot be misunderstood.

Important: Any object waved violently by anyone on or near the Roadway is a signal to STOP. If there is doubt as to the meaning of the signal, or for whom it is intended, it must be regarded as a stop signal.

Notice: Approved flashlight, flags, lanterns, and/or E-Flares may be used when conveying signals by hand at night, in inclement weather, or when visibility is impaired.

Attachment 12 – MSRPH Section 5.12.4 Standard Hand Signals revision

Drafted By: SAFE 704 – 06/12/2019
Reviewed By: SAFE 701 – 06/12/2019
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