

**WMSC Commissioner Brief: W-0184 – Improper Roadway Worker Protection – King Street Station – June 15, 2022**

*Prepared for Washington Metrorail Safety Commission meeting on November 15, 2022*

**Safety event summary:**

An Advance Mobile Flagger (AMF) at King Street Station, track 2, did not brief three train operators that personnel were on the roadway, resulting in a near miss involving one of the trains. When work crews are on the roadway under AMF protection, the AMF is responsible for notifying Train Operators of the personnel using an illuminated lantern and by reading a script that instructs them on operating procedures when personnel are on the roadway, upon encountering personnel, and after fully passing personnel, including reducing speed, dimming lights and sounding the train's horn.

After getting their crew into position on the roadway using Foul Time protection, the Roadway Worker In Charge (RWIC) relinquished Foul Time and instructed the AMF to resume AMF protection at 9:50 a.m. The AMF acknowledged and repeated the instruction. At 9:56 a.m. the AMF, who was a Metrorail contractor, was seen on closed-circuit television (CCTV) turning off their lantern and sitting at a platform shelter. As the AMF sat at the shelter, 35 feet from the 8-car marker, trains 301, 402, 302 serviced and departed the station without being briefed. Blue and Yellow Line trains diverge when traveling outbound leaving King Street Station. Blue Line Train 402 was the first train to travel in the direction of the work crew. At 10:16 a.m., when Train 402 unexpectedly identified personnel on the roadway while approaching at 51 mph, the Train Operator applied brakes, sounded their road horn and reported to the Rail Operation Control Center (ROCC) that they were not briefed about the personnel on the roadway by the AMF.

At 10:17 a.m. the ROCC Rail Traffic Controller contacted the RWIC to inform them of the report from the Train Operator. The RWIC contacted the AMF who reported they were standing in position at the 8-car marker but did not brief the train. CCTV footage showed that the AMF was standing under the platform shelter and not at the 8-car marker when Train 402 serviced the platform at King Street Station. The ROCC Controller canceled the remainder of the inspection, and the crew was picked up safely by another train.

When interviewed, the AMF stated they thought they heard the RWIC tell them to "Stand Down" over the radio, which they understood to mean they were no longer required to perform their AMF duties. Review of audio playback did identify unclear transmissions and radio interference during the event.

Metrorail's contractor terminated the AMF.

**Probable Cause:**

The probable cause of this event is a lack of training, experience and supervisory oversight. Contributing to this event were radio communications systems deficiencies.

**Corrective Actions:**

Metrorail is evaluating AMF procedures, training, experience, and oversight requirements for areas of improvement.

**WMSC staff observations:**



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As WMATA continues to implement its safety management system, the Office of Rail Transportation has identified radio communication unpredictability in known dead zones in the yard and the mainline as its highest hazard.

Despite audio playback identifying issues with radio transmission performance, the Office of Radio Communication (COMR) stated there were no abnormalities. This inability for COMR to effectively identify and fix radio communications deficiencies in the field is a recurring issue the WMSC recently identified in its audit of WMATA's communications systems published on September 29, 2022 ([see Finding 4](#)). The WMSC is reviewing and will provide feedback for WMATA's proposed corrective action plans to address this and 8 other findings from the audit.



Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations  
**FINAL REPORT OF INVESTIGATION A&I E22365**

<b>Date of Event:</b>	June 15, 2022
<b>Type of Event:</b>	Improper RWP
<b>Incident Time:</b>	10:15 hours
<b>Location:</b>	King Street Station, Track 2
<b>Time and How received by SAFE:</b>	10:23 hours, Mission Assurance Coordinator (MAC)
<b>WMSC Notification Time:</b>	11:26 hours
<b>Responding Safety Officers:</b>	WMATA: N/A WMSC: N/A Other: N/A
<b>Rail Vehicle:</b>	Train ID 402 [L3192-3193.3090-3091.3153-3152T]
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Number</b>	20220620#101092

# King Street Station - Improper RWP

June 15, 2022

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## **Abbreviations and Acronyms**

<b>AIMS</b>	Advanced Information Management System
<b>AMF</b>	Advanced Mobile Flagger
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>CM</b>	Chain Marker
<b>COMR</b>	Office of Radio Communications
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>MTPD</b>	Metro Transit Police Department
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>OM</b>	Operations Manager
<b>OPMS</b>	Operations Management Services
<b>RJSB</b>	Roadway Job Safety Briefing
<b>RWIC</b>	Roadway Worker in Charge
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation
<b>ROCC</b>	Rail Operations Control Center
<b>SAFE</b>	Department of Safety
<b>SMS</b>	Safety Measurement System
<b>SRC</b>	Safety Risk Coordinator
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission

### **Executive Summary**

On Friday, June 15, 2022, from approximately 09:57 hours to 10:15 hours, a Rail Pro contractor Advanced Mobile Flag Person (AMF), positioned at King Street Station on Track 2, failed to brief two yellow line trains (Train ID 301 and 302) and one blue line train (Train ID 402) that personnel were on the roadway walking towards King Street Station. The AMF briefed Train ID 401, which was the last train before the three noted above, and the train departed the station. The AMF then spoke with a customer, turned off their lantern, walked to the platform shelter and sat down.

Closed Circuit Television (CCTV) playback showed that the AMF was positioned in the station platform shelter as trains 301, 402, and 302 serviced the station and departed. At approximately 10:18 hours, Train ID 402 observed personnel on the roadway, applied brakes, and reported the observation to ROCC.

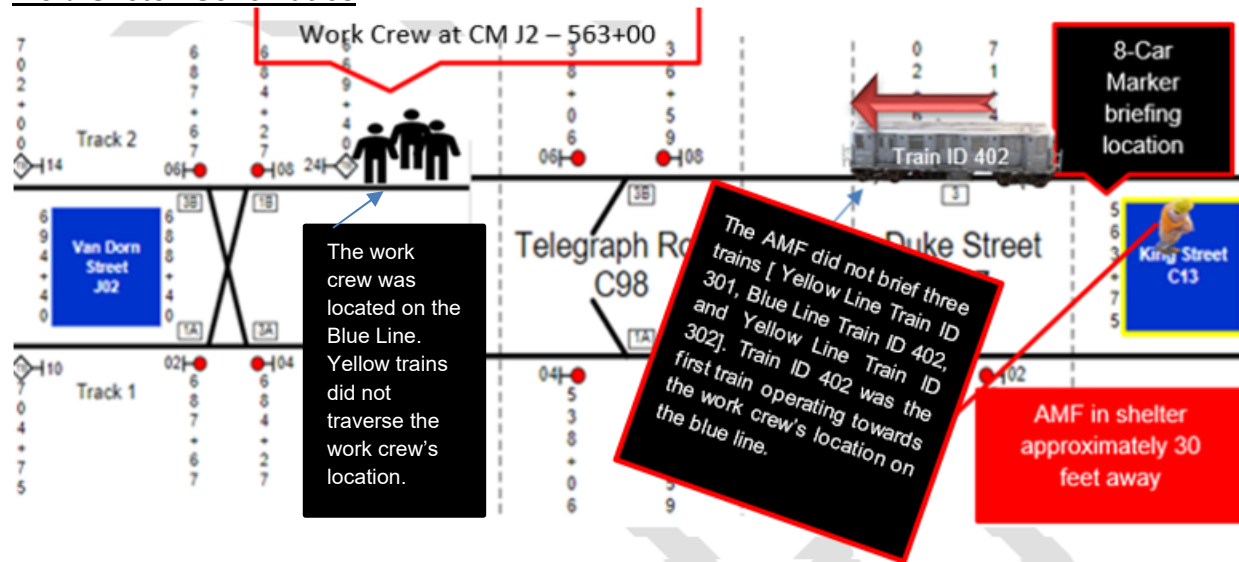
After the report by Train 402, ROCC verified the RWIC's location and dispatched a Station Manager to check on the status of the AMF. Following an initial investigation, the Radio RTC canceled the track inspection, and the mobile work crew returned to the platform via train pickup. There were no injuries or damage associated with this event.

The probable cause of the King Street Station Improper RWP event was a failure by the AMF to perform duties in accordance with established rules and procedures. Available video and audio evidence indicated that the AMF was aware of their responsibility to perform their duties, and their training certification was current. A Contributing Factor to the failure was limited experience by the AMF (two months of tenure) and a belief that they were instructed to cease their duties. Review of audio communications during the period did not find supporting evidence of that instruction.

### **Incident Site**

Between King Street and Van Dorn Street Stations, track 2

## Field Sketch/Schematics



Not to Scale

## Purpose and Scope

This incident investigation and candid self-evaluation aim to collect and analyze available facts, determine the incident's probable cause, contributing factors, and make recommendations to prevent a recurrence.

## Investigation Process and Methods

Upon discovering the Improper RWP event at King Street Station on June 15, 2022, SAFE engaged with a cross-functional team to assess the scene and conduct the investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

## Investigation Methods

The investigative methodologies included the following:

- Site Assessment
  - Formal Interviews – SAFE interviewed one individual as part of this investigation and reviewed two employee statements. The interviews included representatives from the Washington Metrorail Safety Commission (WMSC).
    - Train Operator [Statement]
    - AMF [Interview]
    - RWIC [Statement]
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information.
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Employee Training Procedures & Records
  - Certifications



- Metro Safety Rules and Procedures handbook (MSRPH)
- National Oceanic and Atmospheric Administration (NOAA) data
- Rail Operations Control (ROC) Report
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback [Radio and Landline Communications]
  - Office of Radio Communications (COMR) radio communication operational check
  - Closed-Circuit Television (CCTV)

## **Investigation**

On Friday, June 15, 2022, at approximately 09:13 hours, the Radio RTC granted a Mobile TRST work crew permission to enter the roadway to conduct a track inspection from Van Dorn to King Street stations. At approximately 09:41 hours, the RWIC requested and received Foul Time (FT) in the area of CM J2 675+00, following all applicable procedures. While under FT, Train ID 401 arrived on the platform at King Street Station and was held by the AMF, as required. The RWIC relinquished FT at approximately 09:50 hours and confirmed that the AMF was in position, ready to flag again. The AMF then briefed Train ID 401, and the train departed the station.

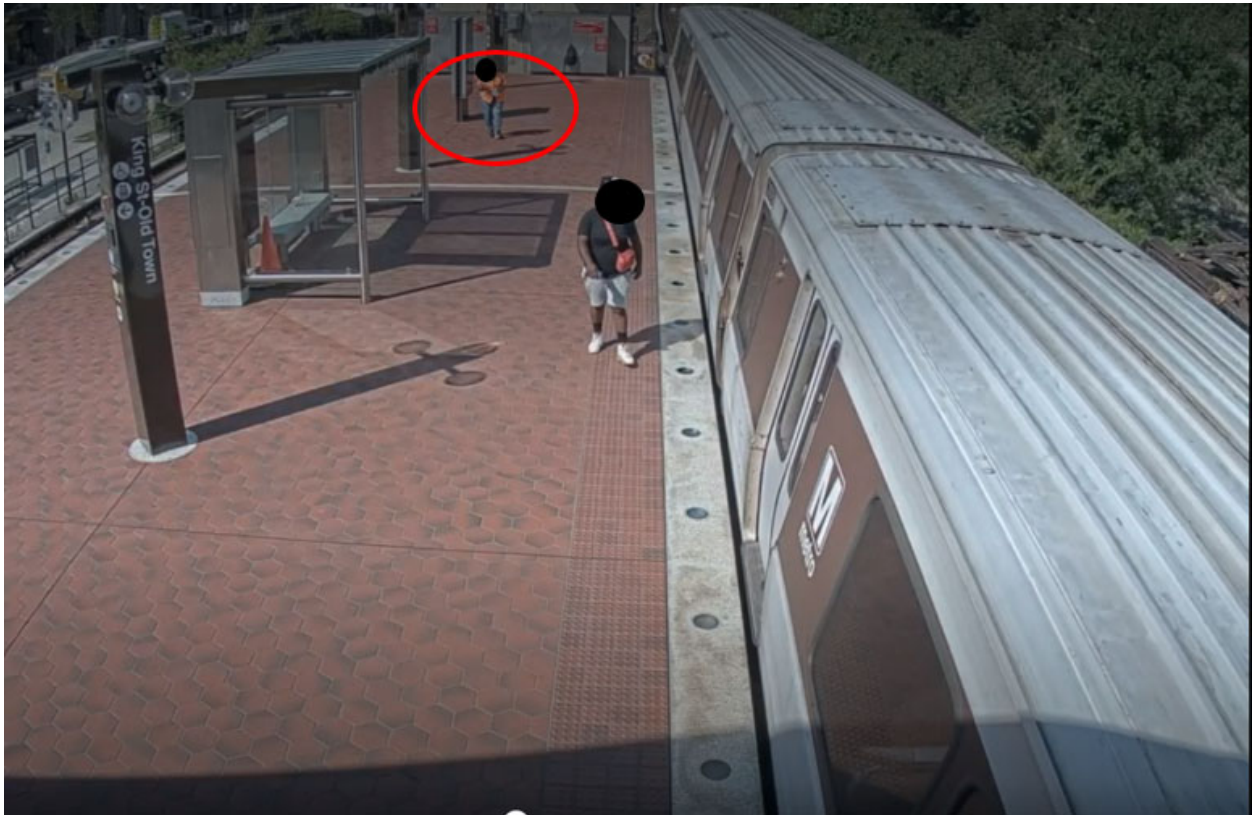
The AMF then spoke with a customer who approached them, turned off their lantern, and walked away from their work location at approximately 09:56 hours.



*Figure 1 - AMF turning off PPE equipment at approximately 09:56 hours.*



As the AMF walked away from the lantern, yellow line Train ID 301 entered the platform limits and the AMF failed to brief the Train Operator.



*Figure 2 - AMF walking away from the 8-car marker at approximately 09:56:31 hours*

CCTV footage showed the AMF acknowledged Yellow Line Train ID 301 Train Operator and waved at them from the station platform shelter.



*Figure 3 - AMF waved at Yellow Line Train ID 301 Train Operator and acknowledged their presence.*

CCTV playback showed that the AMF was positioned in the station platform shelter as trains 301, 402, and 302 serviced the station and departed. The platform shelter is approximately 35 feet away from the 8-car marker.



*Figure 4 - Train ID 402 operating in the direction of the Mobile Work Crew located at King Street Station at approximately 10:13 hours.*

Blue Line Train ID 402 departed King Street Station towards Franconia-Springfield at regulated speeds. CMOR IIT data determined Train ID 402 Train Operator was operating at 51 mph upon approaching the Mobile Work Crew. Train ID 402 observed personnel on the roadway and applied braking as they approached the work crew but did not enter emergency braking, according to the train's event recorder. The road horn was activated once during the reported incident time, 419 feet before coming to a complete stop at Van Dorn Street Station. At approximately 10:16 hours, Yellow Line Train ID 302 arrived at King Street Station and was not briefed by the AMF.





*Figure 5 - Train ID 302 headed toward Huntington Station located at King Street Station at approximately 10:16 hours.*

At approximately 10:16:39 hours, Train ID 402 reported the incident to the Radio RTC and noted the AMF was not at the 8-car marker. Train ID 402 stated that the AMF did not brief them about a Mobile Work Crew on the roadway. At approximately 10:19 hours, the Radio RTC called the Rail Operations Information Center (ROIC) and requested the Station Manager contact the AMF. At approximately 10:22 hours, the Radio RTC instructed Train ID 403 to pick up Mobile Work Crew positioned at CM J2-586+00.

After the report by Train ID 402, ROCC verified the RWIC's location and dispatched a Station Manager to check on the status of the AMF. CCTV showed Station Manager communicating with the AMF at approximately 10:23 hours.



Figure 6 - Station Manager communicating with AMF.

ROCC canceled the track inspection, and the mobile work crew returned to the platform. There were no injuries or damage associated with this event.

### Chronological ARS Timeline

A review of ARS playback, i.e., phone and radio communications, revealed the following timeline:

Time	Description
09:02:16 hours	<ul style="list-style-type: none"><li>• <u>TRST RWIC</u>: Contacts ROCC by stating their Unit ID.</li><li>• <u>Radio RTC</u>: Responded.</li><li>• <u>TRST RWIC</u>: Does not respond. [Ops 3]</li></ul>
09:06:00 hours	<ul style="list-style-type: none"><li>• <u>Radio RTC</u>: Calls TRST RWIC by their Unit ID</li><li>• <u>[Inaudible]</u> [Ops 3]</li></ul>

Time	Description
09:13:08 hours	<ul style="list-style-type: none"> <li>• <u>TRST RWIC</u>: Requested permission to conduct track inspection between Van Dorn and King Street Stations. RWIC reported crew size, hot spots identified, safety briefing completed, and the AMF in place at King Street Station on Track 2.</li> <li>• <u>Radio RTC</u>: Repeated the request and gave permission to contact the AMF directly.</li> <li>• <u>TRST RWIC</u>: Contacted the AMF and advised to begin flagging</li> <li>• <u>AMF</u>: Confirmed their location and that they were ready to flag.</li> <li>• <u>Radio RTC</u>: Made announcements to Operators of the crew on the roadway and granted permission to begin track inspection. [Ops 3]</li> </ul>
09:41:33 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Granted TRST RWIC FT at CM: J2-675+00 to J2-645+00.</li> <li>• <u>TRST RWIC</u>: They will advise the Radio RTC when they relinquish FT to go back under AMF. TRST RWIC went direct to AMF and announced they were going under FT.</li> <li>• <u>AMF</u>: Advised under FT, holding all trains at this location.</li> <li>• <u>TRST RWIC</u>: Acknowledged AMF's transmission. [Ops 3]</li> </ul>
09:42:24 hours	<ul style="list-style-type: none"> <li>• <u>Train ID 401</u>: Good morning, Central 401 track 2 to Potomac Yards over.</li> <li>• <u>Radio RTC</u>: 401 you have a permissive block to C2 470+00; readouts continue with that location. How do you copy 401 over?</li> <li>• <u>Train ID 401</u>: Acknowledges permissive block. [Ops 3]</li> </ul>
09:50:26 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Checked TRST RWIC FT status.</li> <li>• <u>TRST RWIC</u>: Advised back under AMF protection</li> <li>• <u>Radio RTC</u>: Acknowledged, 09:50 hours, gives permission TRST to go direct to AMF.</li> <li>• <u>TRST RWIC</u>: Advised AMF to resume AMF protection. [Ops 3]</li> </ul>
09:51:30 hours	<ul style="list-style-type: none"> <li>• <u>AMF</u>: Advised understood TRST RWIC released FT and back under AMF protection. [Ops 3]</li> </ul>
09:51:31-09:56:30	<ul style="list-style-type: none"> <li>• <i>No related communications instructing the AMF to standby or cease AMF protections.</i></li> </ul>
09:56:31 hours	<ul style="list-style-type: none"> <li>• AMF turned off the lantern and began walking away from the 8-car marker. [CCTV]</li> </ul>
09:57:00 hours	<ul style="list-style-type: none"> <li>• Train ID 301 arrived and departed King Street Station and was not briefed [CCTV and AIMS]</li> </ul>
10:13:50 hours	<ul style="list-style-type: none"> <li>• Train ID 402 arrived and departed King Street Station and was not briefed [CCTV and AIMS]</li> </ul>
10:16:03 hours	<ul style="list-style-type: none"> <li>• Train ID 302 arrived and departed King Street Station and was not briefed [CCTV and AIMS]</li> </ul>
10:16:39 hours	<ul style="list-style-type: none"> <li>• <u>Train ID 402</u>: Central Control, this is Train ID 402 in approach to Van Dorn Street I have track walkers walking my way, looks like it, but AMF did not give me any information. [Ops 3]</li> </ul>
10:17:09 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Advised Train ID 402 of track walkers to sound their horns, dim lights, and reduce speed to 15 mph. [Ops 3]</li> </ul>

Time	Description
10:17:42 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Advised TRST RWIC to go direct to AMF, advised of the train (Audio unclear).</li> <li>• <u>TRST RWIC</u>: Called AMF, it sounds like another person may have transmitted "Loud and Clear."</li> <li>• <u>Radio RTC</u>: Advised AMF that the Train had passed by without receiving instructions.</li> <li>• <u>AMF</u>: Advised TRST RWIC they were in place 8-car marker, Track 2, King Street Station. [Ops 3]</li> <li>• <u>TRST RWIC</u>: Advised four cars and (inaudible) sound of a train. [Ops 3]</li> </ul>
10:19:21 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: To ROIC, do you have a Station Manager at King Street Station to check for an AMF on Track 2?</li> <li>• <u>ROIC</u>: Ok. [Phone]</li> </ul>
10:19:24 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Confirmed Train ID 402 did not receive a briefing at King Street Station, Track 2.</li> <li>• <u>Train 402</u>: Affirm. I saw them walking on my own and slowed down.</li> <li>• <u>Radio RTC</u>: Inquired of AMF were you standing at the 8-car marker, Track 2 when that Blue Line train serviced the station?</li> <li>• <u>AMF</u>: Responded I was standing in position at Track 2, King Street Station.</li> <li>• <u>Radio RTC</u>: Inquired AMF. Did you brief the Blue Line Train that just left? Radio RTC repeated the question.</li> <li>• <u>AMF</u>: Responded negative.</li> <li>• <u>Radio RTC</u>: Copy, you did not see that train. At this time, TRST RWIC and AMF, please clear up in a place of safety at this time.</li> <li>• <u>TRST RWIC</u>: Responded he was at CM 586+00 waiting for a train pick up. Corrects to CM J2-586+00.</li> <li>• <u>Radio RTC</u>: Confirmed TRST RWIC's position. [Ops 3]</li> </ul>
10:21:24 hours	<ul style="list-style-type: none"> <li>• <u>Radio RTC</u>: Asked whether Train Operator 302 was briefed by AMF at King Street Station, just had near miss.</li> <li>• <u>Huntington Terminal Supervisor</u>: We'll call 302 and ask them. [Phone]</li> </ul>
10:22:33 hours	<ul style="list-style-type: none"> <li>• <u>Button RTC</u>: Called the Terminal Supervisor at Franconia-Springfield and asked for Train ID 402 to fill out an incident report referencing the near miss.</li> <li>• <u>Terminal Supervisor</u>: Ok. [Phone]</li> </ul>
10:22:44 hours	<ul style="list-style-type: none"> <li>• <u>Train 403</u>: Advised Radio RTC of a dead radio spot from National Airport Track 2 to CM 240+50.</li> <li>• <u>Radio RTC</u>: Acknowledged and directed Train ID 403 to pick up crew at CM J2 586+00. The Radio RTC requested that all personnel stand by and clear while addressing the situation. [Ops 3]</li> </ul>
10:23:00 hours	<ul style="list-style-type: none"> <li>• A Station Manager walked to the 8-car marker per instructions from ROCC to speak with the AMF. [CCTV]</li> </ul>

**\*\*Note:** Times above may vary from other systems' timelines based on clock settings and reporting source.



## Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT)

### *Event Recorder (E/R) data and VMDS analysis*

CMOR IIT completed an analysis of data retrieved from the consist. According to the VMS data analysis for the unusual occurrence, CMOR IIT determined Train ID 402, Lead Car 3192, serviced King Street Station, Track 2, and departed towards Van Dorn Street Station. The Master Controller cycled back and forth between several Braking and Power modes, increasing speed up to 51 MPH, about 5,068 feet past King Street station.

Different braking modes were applied as the train entered Van Dorn Street Station, coming to a complete stop and servicing the station. Light braking modes were applied, and the train speed was eventually reduced to 2 MPH, 9,653 feet beyond King Street Station. The Master controller was then placed in various power modes increasing back up to 51 MPH. The Road Horn was activated once during the reported incident time, 419 feet, before coming to a complete stop at Van Dorn Street Station.

While traveling between King Street Station and Van Dorn Street Station, emergency braking was not initiated.

Based on the VMS data, no faults with the train may have contributed to the cause of this incident.

See the timeline of events below:

Time	Description
10:12:40.287 hours	Train ID 402 stopped at the 8-Car marker of King Street Station, Track 2.
10:12:48.447 hours	Left Door Open Push Button Activated and Left Side Doors Opened
10:13:01.148 hours	Left Door Close Push Button Activated and Left Side doors Close.
10:13:15.644 hours	Master Controller moved to P5 Power Mode.
10:13:18 hours	The train began to move towards Van Dorn Street Station.
10:13:27 hours	Master Controller moved to B4 Braking Mode, Train speed 28 MPH, 206 feet past 8-car marker at King Street Station.
10:13:36 hours	Master Controller moved to P3 Power Mode, train speed 14 MPH, 522 feet past 8-car marker at King Street Station.
10:13:40 hours	Master Controller moved to Coast; Train Speed was 16 MPH, 602 feet past 8-car marker at King Street Station.
10:13:58 hours	Master Controller moved to B4 Braking Mode, Train speed 28 MPH, 1,153 feet past 8-car marker at King Street Station.
10:14:00 hours	Master Controller moved to P1 Power Mode, train speed 27 MPH, 1,205 feet past the 8-car marker at King Street Station.
10:14:06 hours	Master Controller moved to B4 Braking Mode, Train speed 28 MPH, 1,470 feet past 8-car marker at King Street Station.
10:14:09 hours	Master Controller moved to P1 Power Mode, train speed 26 MPH, 1,577 feet past 8-car marker at King Street Station.

Time	Description
10:14:09 – 10:15:22 hours	Master Controller cycled back and forth between several Power and Braking modes at increasing speeds up to 51 MPH, 5,068 feet beyond King Street Station.
10:15:36 hours	Master Controller placed in B2 Braking Mode, Train Speed 44 MPH, 6,943 feet past 8-car marker at King Street Station.
10:15:45 – 10:17:34 hours	Master Controller cycled back and forth between B2 Braking Mode and Coast, steadily reducing train speed to 2 MPH, 9,653 feet past the 8-car marker at King Street Station.
10:17:38 – 10:18:20 hours	Master Controller cycled back and forth between P2 Power Mode and Coast, increasing speed no greater than 16 MPH.
10:18:22 hours	Master Controller placed in P5 Power Mode, Train speed 18 MPH
10:19:48 hours	Master Controller placed in B4 Braking Mode, Train speed 51 MPH
10:19:48 – 10:20:20 hours	Master Controller cycled back and forth between B4 Braking and P5 Power Modes, reducing Train speed to 22 MPH.
10:21:09 hours	Road Horn Signal Goes High.
10:21:29 hours	The train came to a complete stop at Van Dorn Street Station.
10:21:35 hours	Left Door Open Push Button activated and Left Doors Open.

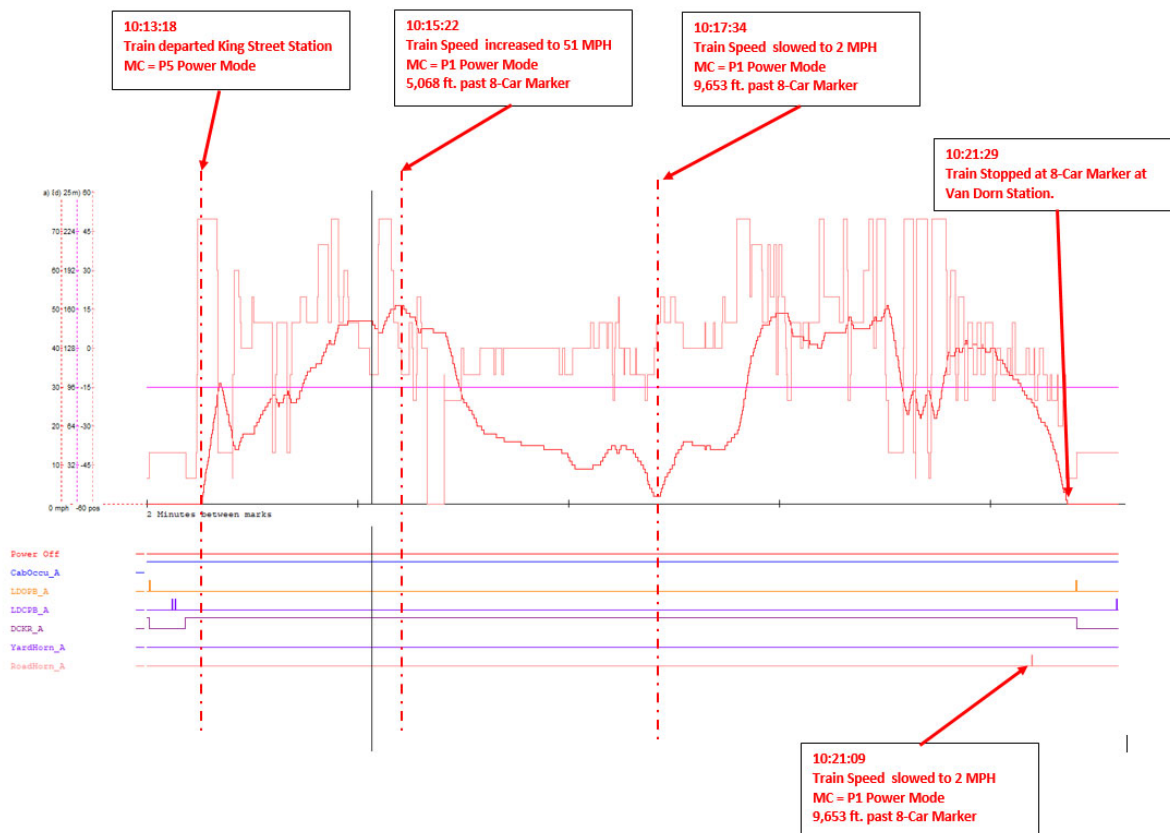


Figure 7 - CMOR IIT Data Graph

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

RTRA determined that the Train Operators were not a contributing factor in this event.

## **Office of Radio Communications (COMR)**

COMR conducted comprehensive radio checks between King Street and Van Dorn Street Stations on track 2 above ground and within both tunnels. All tests were loud and clear. No issues were found.

## **Interview Findings**

As part of the investigation launched into the King Street Station Improper RWP event, SAFE interviewed one Rail Pro contractor and reviewed one written statement. The interview and written statements identified the following key findings associated with this event. Findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

### **Train Operator** [Written Statement]

The AMF was not positioned at the 8-car marker to brief track personnel walking from Van Dorn to King Street Station, track 2. The AMF was in the shelter; no lantern was on. I left the platform and continued at normal speeds towards Van Dorn Street Station, Track 2. As I was operating, I saw track walkers and placed the train in emergency braking [B5] until I slowed down enough and came to a complete stop.

### **AMF**

- The AMF reported that they worked with the RWIC in the past and received a Job Safety Briefing.
- They recounted holding a train under Foul Time and then leaving their position at the eight-car marker after hearing the phrase “Stand Down [AMF Name] over the radio.” They believed they were no longer required to perform AMF duties at that time.
- The AMF was able to describe the duties and responsibilities of the position.

### **RWIC** (Written Statement)

RWIC advised while working track between J02 and C-13, he requested and received FT status. He contacted the AMF directly at King Street Station, and the AMF acknowledged FT protection. RWIC relinquished FT at 0950 hours and went direct again with AMF to notify the crew was under AMF protection. The AMF acknowledged saying the AMF understood. Then three trains came past, and the fourth came past and advised they had not been briefed.

## **Weather**

On June 15, 2022, at the time of the incident, NOAA recorded the temperature as 84 °F with ten-mile visibility. The weather was not a contributing factor in this incident (Weather source: NOAA – Location: Alexandria, VA)

## **Human Factors**

### **Fatigue**

Evidence of Fatigue: AMF

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. The available data indicated no sign of fatigue. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident from the video. The employee reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk: AMF

SAFE evaluated incident data for fatigue risk factors. No significant risk was identified. The incident time of day did not suggest an increased risk of fatigue-related impairment. The AMF reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked dayshift in the days leading up to the incident. The AMF was awake for 5.75 at the time of the incident. The AMF reported 7.5 of sleep in the 24 hours preceding the incident. The off-duty period was 16 hours, providing an opportunity for 7-9 hours of sleep. This was more than the employee's usual workday sleep durations. The employee reported no issues with sleep.

### **Post-Incident Toxicology Testing**

WMATA's Drug and Alcohol Program determined that the AMF complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

### **Findings**

- The AMF walked away from the 8-car marker and failed to brief Train ID 301, 402, and 302.
- Train ID 402 was traveling at the normal regulated speed [51 mph] on approach to the Mobile Work Crew
- Audio playback revealed some unclear transmissions when the RWIC relinquished FT.
- Audio playback confirmed radio communication interference; however, the Office of Radio Communication determined there were no anomalies identified,
- The Rail Pro Contractor had only two months of experience as an AMF.

### **Immediate Mitigation to Prevent Recurrence**

- The Mobile work crew stopped their walking track inspection and was picked up from the roadway.
- The Rail Pro contractor terminated the AMF, effective June 27, 2022.

### **Probable Cause Statement**

The probable cause of the King Street Station Improper RWP event was a failure by the AMF to perform duties in accordance with established rules and procedures. Available video and audio evidence indicated that the AMF was aware of their responsibility to perform their duties, and their training certification was current. Contributing to the event, the AMF experienced an unintentional mental error resulting in a knowledge-based and rule-based mistake due to a lack of experience.

### **Recommendations/Corrective Actions**

The following are the recommendations and corrective actions identified due to this investigation. Recommendations and corrective actions are tracked using WMATA's Safety Measurement System Incidents/Accidents (SMS I/A) Module and are verified by SAFE upon completion. The responsible department is identified in the corrective action code, and the respective departmental Safety Risk Coordinator (SRC) will manage the mitigation. Refer to the SMS I/A module for additional information.

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Target Completion Date</b>
101092_SAFECAPS_TRST_001	(RC-1, CF-1) The Rail Pro contractor terminated the AMF, effective June 27, 2022.	TRST/SRC	Completed
101092_SAFECAPS_SAFE_001	(RC-1, FC-1) Evaluate AMF procedures, training, experience, and oversight requirements for areas of improvement.	OPMS/SRC SAFE/OOP	12/1/2022

## Appendix A – Interview Summary

### AMF

*The below narrative summarizes the written statement by the involved personnel. As such, times and details may conflict with the data contained in systems of record.*

The WMATA contractor has two months of service as an AMF and employee at WMATA. The AMF is RWP Level 2 certified with an expiration date of 06/30/2023.

On the day of the event, the AMF was directed to report to the work site at King Street Station by their supervisor; they met at the work site prior to the assignment. After the assignment, they joined the RWIC to get information on when they would start, where to be, and sign paperwork (Roadway Job Safety Briefing). The AMF had worked with the RWIC prior to the event date. The AMF advised that the safety briefing was not done with RWIC but with the supervisor. RWIC lets us know our destination, OPS we will be on, the radio on that, we have his phone number. This was AMF's first assignment of the day. They arrived at the work site in a metro vehicle with the crew. Commenced work at about 08:30 —no. No issues or concerns regarding the assignment.

They were walking from Van Dorn Street Station to King Street Station. The set-up was fine; I had my equipment, just waiting for notice that the RWIC was ready to walk. The RWIC tried calling on the radio it was busy. So many people calling in radio communications wasn't great that day. When the RWIC tried calling to get on, the RWIC was told to wait, then was able to call out to advise what they were doing and where and asked to come over to me on the radio. ROCC called the RWIC 3-4 times, and the radio was bad. This was an assignment the AMF had worked on prior. The investigator asked if the radio issue appeared new or had been a previous issue. AMF responded that they always had issues.

The investigator asked the AMF to describe their duties. The AMF advised that when the train arrives, flag them, they stop, and AMF reads a notice to them regarding people on the track. I have to read to each train. They let me know they see me by sounding horns. When asked if AMF was under FT at the time of the event, the AMF replied not the first couple of times I read it. The third train, I think, was under FT. When I read it to the operator, they knew we were under FT. We talked while we waited for FT to be relinquished. When it was relinquished, I let the operator go.

When asked if there was any time a train passed, AMF replied yes, "when I thought I was on stand down after that FT. Because of my communication over the radio, I thought I was standing by what I heard. I guess that's not what I heard and why we are here." Investigator asked for a description of the communications the AMF took as instructions flagging was no longer required. AMF responded, "When I relinquished FT, I heard stand down (AMF's name). So, I was standing down. Another train came up, and I was standing down. Another train came up and wasn't standing right there, but I could see him. Because I was sitting right there, but I wasn't standing there. I guess that's the train that said I didn't read him the stop sign thing [placard with AMF script]. That's when they called and got me over the radio. They called me over the radio, but it didn't give that chirping noise. I tried to let them know I was here. That I wasn't standing there, but I was there. I had trouble getting through, and that is when they stopped the walk.

The Investigator asked if the RWIC was instructed to go under AMF after relinquishing FT. AMF's response was that's when I thought I was told to stand down. I did not hear it go back under

protection. The investigator asked whom voice did you hear telling you to stand down? AMF's response was, "my RWIC. That's why I stand down. I am good with this; I do it every day, but I heard standdown, then the radio went in and out; I never responded. I just stood down." When asked about other communications options to contact RWIC, the AMF replied, "we have our phone. I didn't try to call RWIC because I was sure I heard stand down." The investigator asked if RWIC had briefed that a stand-down instruction might be given. AMF replied, "Yes, that means you don't have to flag right now. Until RWIC comes back over the radio and tells you to flag again."

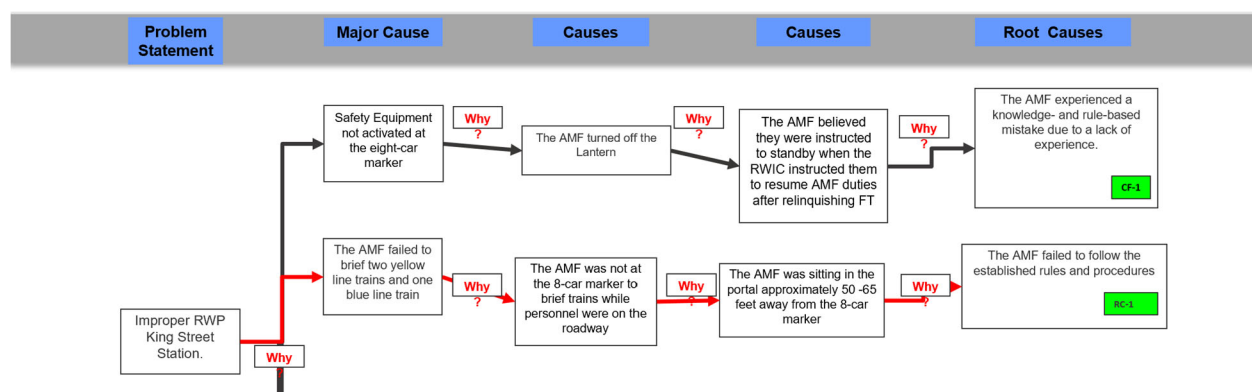
When asked if AMF removed warning equipment, the AMF stated they kept the equipment there and just moved it over a bit. The lantern was not flashing. I could see the train operator making eye contact. Investigator inquired if AMF knew the mobile crew was still on the roadway. AMF replied, "Yes, now that I know." Investigator asked did they think stand down meant the crew was no longer on the roadway. The reply was yes. The investigator followed up on how stand-down could mean they were no longer on the roadway. AMF's response was I thought they were not walking.

### Train Operator

*The below narrative summarizes the written statement by the involved personnel. As such, times and details may conflict with the data contained in systems of record.*

The Train Operator reported they pulled up to the 8-car marker at King Street Station, track 2 on Train ID 402, at approximately 10:15 hours. The AMF was not positioned at the 8-car marker to brief track personnel walking from Van Dorn to King Street Station, track 2. The AMF was in the shelter; no lantern was on. I left the platform and continued at normal speeds towards Van Dorn Street Station, Track 2. As I was operating, I saw track walkers and placed the train in emergency braking [B5] until I slowed down enough and came to a complete stop. I notified track personnel of the situation and have already notified ROCC. Cameras will show the AMF was not present.

### Appendix B - Root Cause



Attachment 1 – Root Cause Analysis page 1 of 1.