



**WMSC Commissioner Brief: W-0076 – Improper Roadway Worker Protection – Near Suitland Station – September 17, 2020**

*Prepared for Washington Metrorail Safety Commission meeting on April 13, 2021*

**Safety event summary:**

The Rail Operations Control Center (ROCC) allowed a three-person Automatic Train Control Maintenance (ATCM) crew to be dropped off in a “hot spot” near Suitland Station that is designated as a restricted view curve in Metrorail’s Roadway Worker Protection (RWP) Quick Access Guide that requires foul time to safely traverse.

Foul time means that the ROCC stops trains from moving through the area. In this case, no such protection was requested by or put in place for this work crew,

The ROCC and the work crew had not identified that this area was a hot spot that required foul time at the time the ATCM crew entered the roadway even though the ATCM crew’s roadway job safety briefing form notes this hot spot.

A separate Track and Structures (TRST) crew requested and was granted foul time in this area around the same time that this ATCM crew was dropped off by the revenue train they had boarded. The TRST and ATCM crew each had their own Advance Mobile Flagger (AMF) on the station platform.

The ROCC granted foul time protection to the TRST crew approximately 1.5 minutes after the ATCM crew accessed the roadway. Three minutes later, after consulting the Quick Access Guide, the ROCC Radio Controller contacted the ATCM crew to request their location, then instructed them to clear the roadway and await a train pickup.

Approximately 30 minutes after that, the ROCC informed the ATCM crew that they would be required to report for post-incident testing. No ROCC personnel were removed from service.

**Probable Cause:**

The probable cause of this improper RWP event was Metrorail’s failure to develop and implement sufficient, redundant safety procedures to ensure that ROCC personnel and roadway workers properly identify hot spots and follow required protections in those areas at all times.

**Corrective Actions:**

Metrorail developed a lessons learned document for the ROCC focused on proper communication and RWP.

Metrorail is also considering rule or procedure changes to ensure that personnel being dropped off on the roadway by a train are not dropped off in a hot spot.

This work crew received refresher training on RWP “hot spots”.



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**WMSC staff observations:**

Metrorail does not have a written procedure governing train drop offs for work crews that is being followed. The interview with the ROCC controller in this event and other WMSC observations indicate that Metrorail management has directed personnel to take steps that are not documented that are intended to improve safety during train drop offs but that are outside of the written RWP protections.

An unsigned Metrorail safety bulletin issued on October 31, 2018 regarding pick up and drop off procedures that the WMSC reviewed as part of this investigation describes “modified foul time” in a way that contradicts foul time protections described in RWP rules. A safety bulletin is not a form that Metrorail has approved to implement or change a rule, and there is no documentation of it in the RWP rules.

**Staff recommendation:** Adopt final report.



## Washington Metro Area Transit Authority

### Department of Safety and Environmental Management (SAFE)

#### FINAL REPORT OF INVESTIGATION A&I E20355

<b>Date of Event:</b>	9/17/2020
<b>Type of Event:</b>	Improper Roadway Worker Protection
<b>Incident Time:</b>	10:55 hrs.
<b>Location:</b>	Suitland Station, Track 2
<b>Time and How received by SAFE:</b>	11:16 hrs. SAFE On-call Phone
<b>WMSC Notification Time:</b>	12:28 hrs.
<b>Responding Safety Officers:</b>	WMATA SAFE: Yes WMSC: No Other: N/A
<b>Rail Vehicle:</b>	None
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	N/A

# Suitland Station – Improper Roadway Worker Protection

September 17, 2020

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## Abbreviations and Acronyms

<b>AIMS</b>	Advanced Information Management System
<b>ARS</b>	Audio Recording Service
<b>ATCE</b>	Automatic Train Control Engineering
<b>ATCM</b>	Automatic Train Control Maintenance
<b>CM</b>	Chain Marker
<b>FT</b>	Foul Time
<b>MOC</b>	Maintenance Operations Center
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic Atmospheric Administration
<b>ROCC</b>	Rail Operations Control Center
<b>ROQT</b>	Rail Operations Quality Training
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation
<b>RWIC</b>	Roadway Worker in Charge
<b>RWPQAG</b>	Roadway Worker Protection Quick Access Guide
<b>SAFE</b>	Department of Safety & Environmental Management
<b>SOP</b>	Standard Operating Procedure
<b>TCV</b>	Track Circuit Verification
<b>WMATA</b>	Washington Metropolitan Area Transit Authority

### **Executive Summary**

On Thursday, September 17, 2020, at 10:38 hrs., Automatic Train Control Maintenance (ATCM) personnel requested permission to enter the roadway utilizing Advanced Mobile Flagging (AMF) Roadway Worker Protection (RWP) to conduct a Track Circuit Verification (TCV) walking between Branch Avenue and Suitland Stations, Track 2 between Chain Markers (CM) F2-504+00 to F2-415+00. The Roadway Worker in Charge (RWIC) requested a train drop off at CM F2-504+00. The Radio Rail Traffic Controller (RTC) instructed the RWIC to request a train drop off from the Train Operator onboard the next revenue train, however, the Radio RTC allowed personnel to get dropped off in a “Hot Spot” location. Once personnel were dropped off and exited the train, they stood by in a place of safety at CM F2-504+00 to continue their TCV.

At 10:50 hrs., the RWIC reported to the Radio RTC they were standing by in a place of safety. The Radio RTC granted the RWIC permission to conduct their TCV and instructed the RWIC to notify ROCC when they changed locations and cleared the roadway. At approximately 10:55 hrs., ROCC ascertained the location of the RWIC via CM and the RWIC reported they were standing by CM F2-494+00. The Radio RTC instructed the RWIC to standby in a place of safety and instructed them to board the next revenue train to clear the roadway. The RWIC contacted the Radio RTC and was instructed to contact the Maintenance Operations Center (MOC) Assistant Superintendent.

At 11:23 hrs., the RWIC contacted the MOC Assistant Superintendent and notified them they were removed from the roadway due to improper RWP.

The RWIC failed to request Foul Time (FT) RWP between CM F2-510+00 to F2-497+00 [restricted View, Curve] in accordance with the Roadway Worker Protection Quick Access Guide (RWPQAG). The work crew was removed from service for post-incident toxicology testing. There were no injuries or equipment damage reported during this incident.

The probable cause of the Suitland Station improper RWP event was an oversight from the RWIC to request FT RWP between CM F2-510+00 to F2-497+00 in accordance with the RWPQAG, Page 66, Table: F Line Track 2; which lists the area as a red hot spot with a Restricted View, Curve requiring FT RWP.

Analysis of data collected from systems of record and the results of interviews with staff, human factors failures occurred in this incident.

SAFE determined that ATCM personnel traversed the roadway without requesting permission for FT RWP to continue their TCV with ROCC. The ATCM personnel were not in compliance with the Metrorail Safety Rules and Procedures Handbook (MSRPH) RWP, section 5.13.5., *“The RWIC shall always use FT or greater protection when traversing or working in the “hot spot” areas noted in the track access guide.”*

Additionally, SAFE determined that the Radio RTC allowed ATCM to get dropped off in a “hot spot” location and granted permission to conduct their TCV without providing FT protection within the specified CMs in accordance with the RWPQAG.

As a result of this investigation, SAFE makes the following recommendations:

SAFE recommends remedial training for the RWIC and field personnel in identifying “hot Spot” locations during their RJSB and requesting the appropriate protection prior to entering the roadway in accordance with the MSRPH RWP Section 5.13.5.

To ROCC, SAFE recommends a lessons learned simulating the RWP event highlighting the Radio RTC acknowledging the associated CM's that were requested by TRST personnel that required FT and how the Radio RTC allowed ATC personnel to be dropped off within the same CM's that required FT protection.

### **Incident Site**

Between Suitland and Branch Ave Station, Track 2

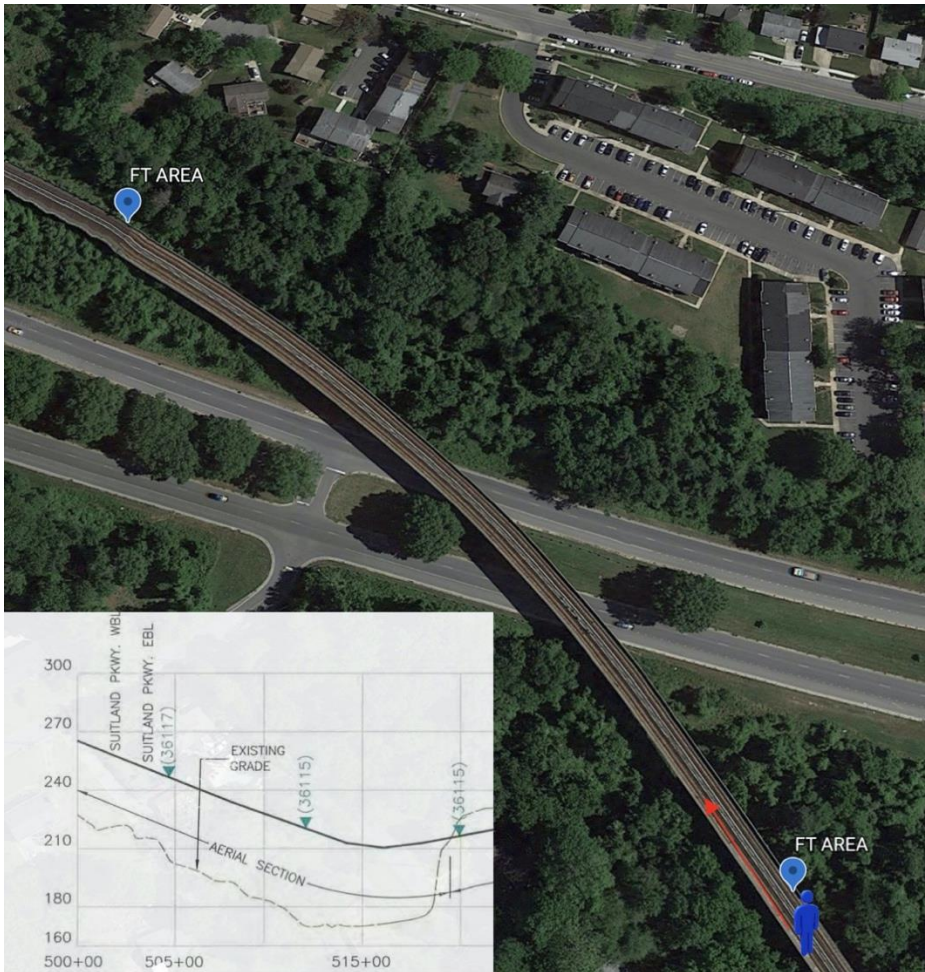
Hot Spot: Restricted Curve [Aerial Structure]

Red hot spot area: CM F2-510+00 to F2-497+00

Train Drop off on Track 2 CM F2-504+00



## Field Sketch/Schematics



### Purpose and Scope

The purpose of this incident investigation and candid self-evaluation is to collect and analyze available facts, determine the probable cause(s) of the incident, identify contributing factors, and make recommendations to prevent a recurrence.

### Investigation Process and Methods

Upon receiving notification of the Improper Roadway Worker Protection incident between Suitland and Branch Avenue Stations on September 17, 2020, SAFE launched a cross-functional investigation into this event. SAFE team members worked with relevant WMATA subject matter experts to review facts and data associated with the incident.



## **Investigation Process and Methods**

Upon receiving notification of the Person Struck by Train incident between Suitland and Branch Avenue Stations on September 14, 2020, SAFE launched a cross functional investigation into this event. SAFE team members worked with relevant WMATA subject matter experts to review facts and data associated with the incident.

The investigative methodologies included the following:

- Physical Site Assessment
- Formal Interviews – Individuals were interviewed as part of this investigation. Interviews included persons present during and after the time of the incident, those directly involved in the response process, and Managers responsible for the process. The following individuals were interviewed:
  - RWIC
  - Radio RTC
  - Button RTC
- Informal Interviews – Collected through conversations with individuals during the course of the investigation to provide background and supporting information
- Documentation Review – Collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Employee Training Procedures & Records
  - Certifications
  - 30-Day work history review
  - MSRPH
  - RWPQAG
  - National Oceanic Atmospheric Administration (NOAA) data review
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
  - ARS playback (Radio and Phone Communications)
  - AIMS playback Review

## **Investigation**

On Thursday, September 17, 2020, at approximately 10:38 hrs., Automatic Train Control Maintenance (ATCM) personnel standing by on the platform at Suitland requested permission to enter the roadway to perform a TCV between Suitland and Branch Avenue Station. The RWIC requested a train drop off at CM F2-504+00 to walk to CM F2-415+00

under AMF protection with their AMF standing by at Suitland Station, Track 2 [8-car marker] to notify train operators of personnel on the roadway.

The Radio RTC instructed the RWIC to request a train drop off from the next revenue train Suitland Station, Track 2 and notify the Radio RTC when they exit the train and were standing by in a place of safety to continue their TCV. At approximately 10:50 hrs., the RWIC notified the Radio RTC that personnel were dropped off at CM F2-504+00 and standing in a place of safety. The Radio RTC granted permission for the RWIC to conduct their TCV and to advise ROCC when they change locations and when they were clear of the roadway.

At approximately 10:55 hrs., the Radio RTC realized that the RWIC never utilized FT before commencing their walk and accessed the RWPQRG and confirmed the restricted view. The Radio RTC ascertained the precise location of the ATCM personnel on the roadway by CM. The RWIC reported that personnel were standing by CM F2-494+00; the Radio RTC advised the RWIC they would be receiving train pickup and personnel were instructed to board the next revenue train in preparations to exit the roadway. The RWIC contacted the Radio RTC on the telephone and was instructed to contact the MOC Assistant Superintendent for further instruction. At approximately 11:23 hrs., the RWIC contacted the MOC Assistant Superintendent and was notified that there had been improper RWP because FT RWP was not requested while traversing a “hot spot” in the roadway.

Restricted View: Curve	F-11	F-10	510+00	497+00
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Note: Track Access Guide indicating a restricted view between CM F2-510+00 to F2-497+00.

The RWIC was instructed to notify the Division Supervisor. ATCM personnel were subsequently removed from service and transported for post-incident toxicology testing. The Radio RTC was not removed from service.

SAFE investigations from the Audio Recording System (ARS) include Ops 3.

Based on findings, ROCC had not placed any protective measures while ATCM traversed a known “hot spot” in accordance with the RWPQAG. Additionally, the Radio RTC allowed ATCM to get dropped off in a “hot spot” location and granted permission to conduct their TCV without providing FT RWP within the specified CM’s in accordance with the RWPQAG.

SAFE also determined that in addition to ATCM accessing the roadway, there was also a Track and Structures (TRST) personnel simultaneously performing a track inspection within the same segment of track utilizing AMF RWP and requested FT RWP between

CM F2-510+00 to F2-497+00, which prompted the Radio RTC to inquire the whereabouts of ATCM personnel in the same location.

Based on findings, the cause of the improper RWP was and oversight from the RWIC, who did not remember to request the appropriate protection while on the roadway.

### **Chronological Event Timeline**

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

10:38:56 hrs.	ATCM personnel requested permission to enter the roadway to perform a TCV between Branch Avenue and Suitland Station, starting at CM F2-504+00 via train drop off. [Radio]
10:46:12 hrs.	TRST personnel contacts the Radio RTC and request FT RWP between CM F2-510+00 and F2-457+00. Radio RTC instructs TRST to contact them when Train ID 508 clears their location [Radio]
10:50:52 hrs.	ATCM notified ROCC that personnel were standing by in a place of safety at CM F2-504+00. [Radio]
10:51:05 hrs.	Radio RTC granted permission for ATCM to perform their TCV. [Radio]
10:52:19 hrs.	FT RWP was granted to TRST personnel. [Radio]
10:55:24 hrs.	The Radio RTC ascertained the location of ATCM on the roadway. Upon notification of ATCM location at CM F2-494+00. The RWIC was instructed to clear the roadway via train pick up. [Radio]
10:57:49 hrs.	TRST relinquished FT RWP between CM F2-510+00 and F2-457+00. [Radio]
11:22:48 hrs.	The RWIC contacted the Radio RTC and was instructed to contact the MOC Assistant Superintendent. [Radio]
11:23:57 hrs.	The RWIC contacted the MOC Assistant Superintendent and was notified that personnel were removed from the roadway due to the failure to request FT RWP in a "hot spot" location. [Radio]

### **Advanced Information Management System (AIMS)**

Date: 9/3/2020 Time: 23:47 hrs.  
Final Report Rev.1 – Improper Roadway Worker  
Protection  
E20355

Rev. 1 Drafted By: SAFE 703 – 03/31/2021  
Rev.1 Reviewed By: SAFE 704 – 03/31/2021  
Rev.1 Approved By: SAFE 2 – 03/31/2021

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Photo 1: AIMS display indicating FT RWP for TRST at 10:46 hrs. Prohibit exits and red signals in place at F06-06 and F08-08 signals. TRST instructed to notify the Radio RTC when Train ID 508 clears their location on the mainline.

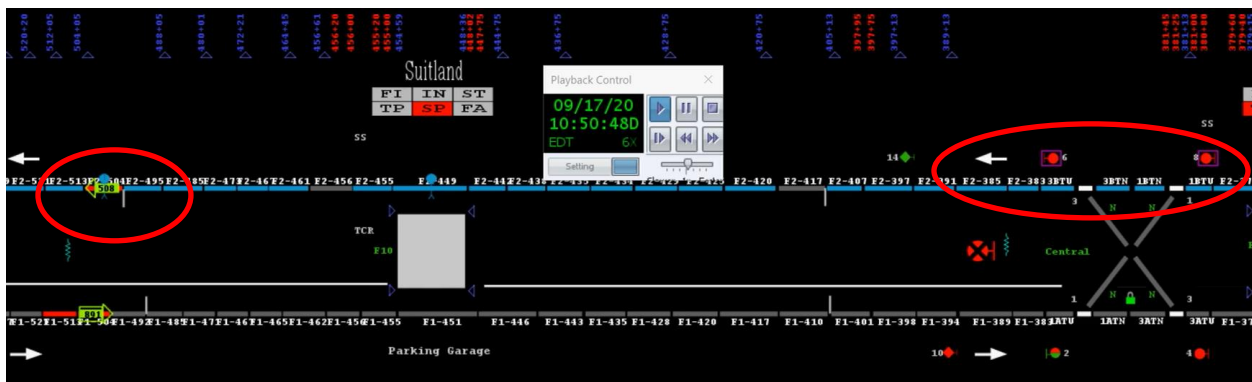


Photo 2: Train ID 508 dropping off ATCM personnel at CM F2-504+00. Naylor Road interlocking remains placed under FT RWP.

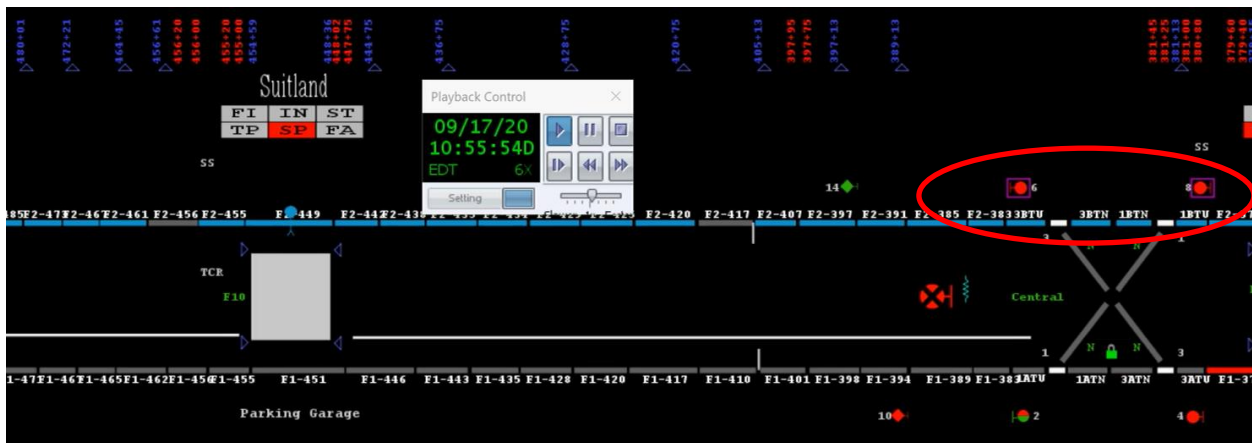


Photo 3: ATCM personnel removed from service. Naylor Road interlocking placed under FT RWP.

## **Interview Findings**

Based on the investigation into the Branch Avenue Station Improper Roadway Worker Protection event, SAFE conducted two (3) investigative interviews and identified the following key findings associated with this event:

At the time of the incident, ROCC had TRST personnel simultaneously traversing the same track segment while ATCM personnel were on the roadway. At the time ATCM were dropped off at CM F2-504+00, the RWIC failed to request FT RWP prior to commencing their TCV.

SAFE determined that the Radio RTC allowed ATCM to get dropped off in a “hot spot” location and granted permission to conduct their TCV without providing FT RWP within the specified CM’s in accordance with the RWPQAG.

## **Findings**

- Roadway Job Safety Briefing (RJSB) conducted at Suitland Train Control Room (TCR) identified all hot spots on the roadway.
- A total of three (3) crew members were on the roadway; only the RWIC had the responsibility for identifying any “hot spots.”
- The RWIC did not utilize the track access guide of the RJSB form when personnel were dropped off on the roadway.
- The RWIC for the ATCM crew did not request their own FT RWP while traversing an identified “hot spot.”
- The Radio RTC realized that the RWIC did not request permission for FT protection prior to entering the roadway. The Radio RTC referenced the RWPQAG for confirmation.
- The Radio RTC allowed ATCM to get dropped off in a “hot spot” location and without requesting FT RWP, then proceeded to grant permission to conduct their TCV without providing FT RWP within the specified CM’s in accordance with the RWPQAG.

## **Weather**

At the time of the incident, the temperature was 78° F, with clear visibility, SAFE has concluded that weather was not a contributing factor in this incident (Weather source: National Oceanic Atmospheric Administration (NOAA) – Location: Washington, DC.)

## **Human Factors**

### **Fatigue**

Based on SAFE interview question related to Fatigue Factors and a review of all employees' 30-day work history, SAFE determined, the RWIC'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*

### **Post-Incident Toxicological Testing**

After reviewing all employee post-incident testing results, SAFE determined that the RWIC involved was not in violation the Drug and Alcohol Policy and Testing Program 7.7. Members of the RWIC's crew were not tested.

## **Probable Cause**

The probable cause of this improper RWP event was Metrorail's failure to develop and implement sufficient, redundant safety procedures to ensure that ROCC personnel and roadway workers properly identify hot spots and follow required protections in those areas at all times.

Upon review of the identified hotspot during the daily safety briefing of the area where personnel would be walking, the RWIC forgot to request the proper RWP from the curve, causing a restricted view in their work location.

## **SAFE Recommendations**

As a result of this investigation, SAFE makes the following recommendations:

To ROCC, SAFE recommends a lessons learned simulating the RWP event highlighting the Radio RTC acknowledging the associated CM's that were requested by TRST personnel that required FT and how the Radio RTC allowed ATC personnel to be dropped off within the same CM's that required FT protection.

To TRST, SAFE recommends field personnel that require to be dropped off in a "hot spot" request permission with ROCC to be dropped off and a CM prior to the "hot spot" and request the FT protection as needed.

## **Appendix A Interview Summaries**

### **Interview Details**

#### **Automatic Train Control Maintenance (ATCM)**

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

A RWIC is a employee with nineteen (19) years of experience as an ATC "C" Mechanic.

Based on a SAFE interview, the RWIC stated, they were conducting a TCV between Branch Avenue and Suitland Stations. The RWIC stated, an RJSB was conducted in the Train Control Room (TCR) at Suitland Station and all personnel in the crew signed the RSJB acknowledging several "hot spots" on the roadway. The RWIC requested a train drop off to perform the TCV and was instructed to make their request with the next revenue train to get dropped off at CM F2-504+00. Upon exiting the train, the RWIC and crew were given permission to perform their TCV once the train they exited cleared their location. The RWIC stated, "while performing their TCV, the Radio RTC instructed them to board the next revenue train and exit the roadway."

The RWIC was not notified of the reason that they were being instructed to exit the roadway; when the RWIC reported back to Suitland Station, they received a call from ROCC, and they were instructed to contact MOC and their field office. The RWIC confirmed that a total of three (3) crew members entered the roadway and they did not utilize the track access guide or the RSJB when they entered the roadway. The RWIC also stated, there was TRST work crew on the roadway on the same segment of track that ATCM personnel were walking through. The RWIC iterated that their crew and TRST were both utilizing AMF protection with separate AMF's and that at no time was anyone in the crew designated to identify any roadway "hot spots" and assumed the responsibility of notifying ROCC of any FT RWP request.

#### **Rail Operations Control Center (ROCC)**



### Radio Rail Traffic Controller (RTC)

A WMATA employee with six (6) years of experience as a Rail Traffic Controller and 12 years of service in various positions, Car Cleaner and Track Inspector.

Based on a SAFE interview, the Radio RTC stated, that the ATCM personnel contacted them on the radio and requested a train drop off at CM F2 504+00 to perform TCV walking back to the platform at Suitland Station under AMF protection. The Radio reported that TRST personnel were also on the roadway walking between Branch Avenue and Suitland utilizing AMF protection. The Radio RTC instructed the RWIC to request the train drop off with the next train at Suitland track two. The Radio RTC reported that the RWIC was dropped off at 10:50 hrs. and was given modified FT to exit the train. The Radio RTC then stated that at 1052 hrs., TRST personnel requested FT between CM's F2 510+00 to F2 457+00. Upon granting permission to TRST personnel to continue their walk under FT protection The Radio RTC reported that they were in the process of granting ATCM personnel FT after they were dropped off from the train, when they realized that ATCM personnel were dropped off in a "Hot Spot." The Radio RTC confirmed CM 504+00 was a "Hot Spot" in the RWPQAG; the Radio RTC then contacted ATCM personnel on the radio to ascertain their position on the roadway. The Radio RTC stated that ATCM personnel were standing by F2 494+00. The Radio RTC instructed ATCM personnel to standby at their location and provided a train pick up. The Radio RTC then notified their immediate Supervision to report the violation. The Radio RTC stated that they did not provide information to ATCM personnel that they were being dropped off in a "hot spot", they assumed that ATCM personnel were aware of the "hot spot" prior to requesting enter the Roadway.

### Radio Rail Traffic Controller (RTC)

A WMATA employee with three (3) years of experience as a Rail Traffic Controller and 9 years of service in various positions, Bus Operator and RTRA Supervisor.

Based on a SAFE interview, the Button RTC stated, that there was a TRST crew walking between Branch Avenue to Southern Avenue Stations. The Button RTC reported that due to their knowledge of FT locations between the stations they preemptively placed FT protection on the associated signals in places of the known "hot spots." The Button RTC reported that when TRST personnel requested FT they were instructed to standby due to a train that was in the process of dropping off ATCM personnel to perform a TCV. The Button RTC set up FT protection at Naylor Road interlocking to protection for the TRST crew as well as the ATCM crew. The Button RTC reported that the TRST crew were given instructions to standby and once the revenue train that dropped off ATCM personnel cleared their location they were granted permission to utilize FT protection to continue their walk to Southern Avenue Station. The Button RTC stated they did not hear the Radio RTC notify ATCM personnel that they were being dropped off in a "hot spot." The Button RTC reported that after the violation the Radio RTC instructed the next revenue train to pick ATCM personnel on the roadway at CM F2 494+00.

