



WMSA Commissioner Brief: W-0057 – Improper RWP near Fort Totten & Takoma Stations – August 27, 2020

Prepared for Washington Metrorail Safety Commission meeting on January 26, 2021

Safety event summary:

A Metrorail track inspection team made up of an employee and a contractor walking from Takoma Station to Fort Totten Station on August 27, 2020 traversed a hot spot identified in the Roadway Worker Protection Track Access Guide at approximately 11:15 a.m. without being granted Foul Time. Based on weather reports, the temperature was 92 degrees.

The inspectors had first properly requested and were granted Foul Time to travel from Chain Marker B1-350+00 to B1-339+00 with a properly positioned Advanced Mobile Flagger.

Then the inspectors requested additional Foul Time between B1-325+00 to B1-305+00, but were told to stand clear to allow a train to pass. The investigation determined that this request for foul time was made prior to reaching the second hot spot (a restricted view curve), apparently in an effort to make the inspection more efficient by eliminating time waiting for ROCC approval. The Roadway Worker In Charge (RWIC) said in an interview that they assumed that after the train cleared the team had permission to re-enter the roadway with Foul Time. The RWIC also stated that they were not paying attention on the roadway, but that they did not feel rushed. The contract inspector stated that they were not paying attention to the radio, and assumed that Foul Time had been granted.

When the inspectors were on the roadway under what they believed to be Foul Time protection, they saw a train on approach and cleared the tracks.

At that time, the inspectors reported to the Rail Operations Control Center that they were relinquishing Foul Time and had traversed the second hot spot. The inspectors reported that they were relinquishing Foul Time at B1-308+00, approximately 300 feet short of the actual end of the hot spot.

The ROCC identified that the inspection team had traversed a hot spot without any protection in place, and the inspection team was removed from service.

Probable Cause:

The attempt to reduce the amount of time required to complete the inspection, communications breakdowns, and an apparent acceptance of non-adherence to written Metrorail rules, procedures or processes contributed to this event.

Corrective Actions:

The Roadway Worker In Charge (RWIC) was sent for re-training on RWP Level IV and TRST developed and implemented a Lessons Learned/Tabletop based on the event.



WMSC staff observations:

The investigation suggests that Metrorail has allowed procedures to be ignored, including inspection teams taking it upon themselves to determine that they have adequate time to clear a hot spot based on current headways. This is dangerous and suggests that WMATA should place a renewed focus on safety promotion and safety assurance efforts to ensure that workers understand safety rules and that they are allowed and required to properly implement those rules.

The investigation also suggests that crews may be working around certain safety rules such as RWP to complete their work more quickly.

Staff recommendation: Adopt final report.



Washington Metro Area Transit Authority

Department of Safety and Environmental
Management (SAFE)

FINAL REPORT OF INVESTIGATION A&I E20318

Date of Event:	8/27/2020
Type of Event:	Improper Roadway Worker Protection
Incident Time:	11:22 hrs.
Location:	Fort Totten Station
Time and How received by SAFE:	11:43 hrs. SAFE On-call Phone
WMSC Notification Time:	13:25 hrs.
Responding Safety Officers:	WMATA SAFE: Yes WMSC: No Other: N/A
Rail Vehicle:	None
Injuries:	None
Damage:	None
Emergency Responders:	N/A
SMS I/A Incident Number:	20200827#88632

Fort Totten Station – Improper Roadway Worker Protection

August 27, 2020

Table of Contents

Abbreviations and Acronyms	3
Executive Summary	4
Incident Site	5
Field Sketch/Schematics.....	5
Purpose and Scope	5
Investigation Process and Methods	5
Investigation Methods	6
Investigation.....	6
Chronological Timeline of Events.....	7
Advanced Information Management System (AIMS)	8
Interview Findings	8
Immediate Mitigation to Prevent Recurrence.....	8
Findings	8
Weather	9
Human Factors	9
Fatigue	9
Post-Incident Toxicological Testing.....	9
Probable Cause Statement.....	9
SAFE Recommendations.....	9
Appendix A – Interviews	10
- Office of Track and Structures (TRST)	10
Roadway Worker in Charge	10
Advance Mobile Flagger.....	10
Track Inspector.....	11

Abbreviations and Acronyms

AIMS	Advanced Information Management System
AMF	Advanced Mobile Flagger
ARS	Audio Recording Service
CM	Chain Marker
FT	Foul Time
MSRPH	Metrorail Rules and Procedures Handbook
NOAA	National Oceanic Atmospheric System
ROCC	Rail Operations Control Center
RTC	Rail Traffic Controller
RWIC	Roadway Worker in Charge
SAFE	Department of Safety & Environmental Management
TRST	Office of Track and Structures

Executive Summary

On Thursday, August 27, 2020, an Office of Track and Structures (TRST) Roadway Worker in Charge (RWIC) requested permission to walk from Takoma Station to Fort Totten Station, Track #1 to perform a track inspection. At approximately 11:06 hrs., TRST RWIC requested an initial Foul Time (FT) protection between Chain Markers (CM) B1-350+00 to 339+00. Upon relinquishing FT, TRST RWIC requested additional FT protection at approximately 11:15 hrs., between CM B1-325+00 to B1-305+00. TRST personnel was instructed by ROCC to standby and stand clear for train movement.

At approximately 11:20 hrs., ROCC received a transmission from TRST RWIC that all personnel were clear from FT (*which had not actually been granted*). ROCC ascertained TRST's current location via CM. TRST RWIC notified ROCC that they were standing by CM B1 308+00. ROCC instructed personnel to standby at a place of safety and instructed Train ID 104 to allow personnel to board their train. The ROCC removed all TRST personnel from service for post-incident testing. There were no injuries or equipment damage reported during this incident.

The probable cause of this RWP violation event was the attempt to lessen the amount of time required to complete the inspection and a lack of complete communication between the inspection crew and the ROCC.

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

Based on investigative findings, TRST RWIC acknowledged the ROCC instruction for personnel to stand by and stand clear for FT protection.

SAFE determined that TRST personnel traversed the roadway without permission nor FT protection from the ROCC. The TRST personnel were not in compliance with the Metrorail Safety Rules and Procedures Handbook (MSRPH) RWP, section 5.13.5., “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.*” As a qualified Level 4 Roadway Worker, the RWIC shall always use FT or greater protection when traversing or working in the “hot spot” areas noted in the track access guide. ROCC had not placed any protective measures or given permission to TRST personnel when they entered the roadway under the assumption of FT.

SAFE also determined, in addition to accessing the roadway without permission and proper protection, TRST personnel did not relinquish FT (*which had not actually been granted*) within the correct parameters via associated CM's B1-325+00 to B1-305+00.

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

The RWIC attends mandatory training in RWP level 4 procedures.

To TRST, to develop and implement mandatory Lessons Learned/Tabletop discussion, reenacting the associated improper roadway protection.

Incident Site

Between Takoma Station and Fort Totten Station, Track #1

Hot Spot: Restricted Curve [Blind Spot; Curve]

FT AREA: CM B1-325+00 to B1-305+00

Field Sketch/Schematics

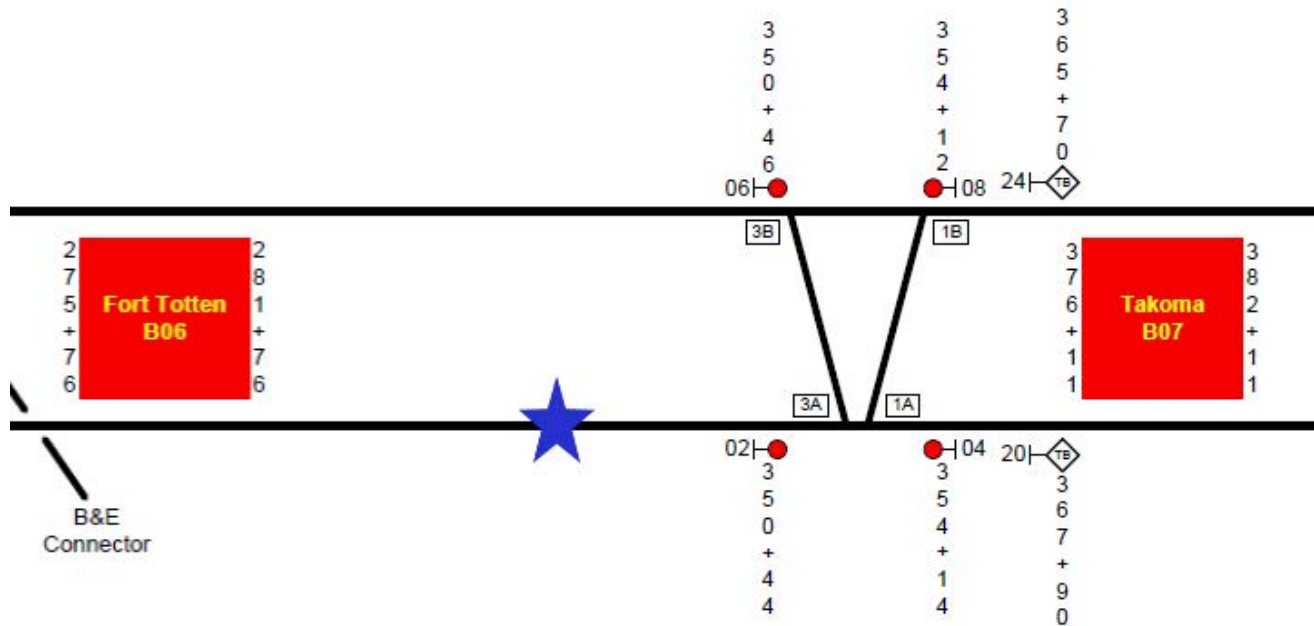


Figure 1: Track diagram of incident location.

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 Improper Roadway Worker Protection at Fort Totten Station on August 27, 2020, SAFE launched a cross-functional investigation into this event. 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:

- Physical Site Assessment
- Formal Interviews – SAFE interviewed three individuals as part of this investigation. Interviews include persons present during and after the incident, those directly involved in the response process, and Managers responsible for the process. SAFE interviewed the following individuals:
 - RWIC
 - Track Inspector
 - Advanced Mobile Flagger (AMF)
- Informal Interviews – Collected through conversations with individuals during the course of 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
 - The 30-Day work history review
 - MSRPH
 - National Oceanic Atmospheric Administration (NOAA) data review
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes: Advanced Information Management (AIM), Audio Recording System (ARS) playback (Radio and Phone Communications)

Investigation

On Thursday, August 27, 2020, TRST personnel were conducting a track inspection between Takoma Station and Fort Totten Station, Track #1. At approximately 11:06 hrs., TRST RWIC contacted ROCC and requested permission with the Radio Rail Traffic Controller (RTC) to continue their mainline inspection under FT protection between CM B1-350+00 and B1 339+00. The radio RTC acknowledged the request and instructed TRST personnel to standby and stand clear due to a revenue train in approach to the Fort Totten Station platform. At approximately 11:08 hrs., The Radio RTC granted TRST RWIC permission to continue their inspection under FT protection with all appropriate safety measures in place. TRST RWIC relinquished FT protection at approximately 11:12 hrs. and continued their walk under AMF protection. At approximately 11:15 hrs., TRST RWIC requested additional FT protection between CM B1-325+00 to B1- 305+00; the Radio RTC instructed personnel to stand by and stand clear to allow a revenue train to pass their location.

B Line Track 1					
Restricted View: Curve	B-09	B-08	520+00	507+00	
Clear View	B-09	B-08	507+00	495+00	
Restricted View: Curve	B-09	B-08	495+00	480+00	
Portal	B-09	B-08	480+00	480+00	
Clear View: Uphill	B-09	B-08	480+00	472+00	
Clear View: Interlocking Switch #9 & 11 (Pocket Track)	B-09	B-08	472+00	467+00	
Clear View	B-09	B-08	467+00	462+00	
Clear View: Interlocking Switch #5A & 5B (Pocket Track)	B-09	B-08	462+00	457+00	
Silver Spring Station	B-08	B-08	457+00	451+00	
Restricted View: Interlocking	B-08	B-07	451+00	440+00	
Restricted View: Curve	B-08	B-07	440+00	414+00	
Clear View	B-08	B-07	414+00	382+00	
Takoma Station	B-07	B-07	382+00	376+00	
Clear View	B-07	B-06	376+00	353+00	
Restricted View: Interlocking	B-07	B-06	353+00	350+00	
Blind Spot: Curve	B-07	B-06	350+00	339+00	
Clear View	B-07	B-06	339+00	325+00	
Blind Spot: Curve	B-07	B-06	325+00	305+00	
Clear View	B-07	B-06	305+00	282+00	
Fort Totten Station	B-06	B-06	282+00	276+00	
Clear View	B-06	B-05	276+00	263+00	
Clear View: B&E Connector/Interlocking Switch #5A	B-06	B-05	263+00	258+00	Note 4
Clear View	B-06	B-05	258+00	211+00	
Brookland Station	B-05	B-05	211+00	205+00	
Clear View	B-05	B-04	205+00	195+00	
Portal	B-05	B-04	195+00	185+00	
Restricted View: Curve	B-05	B-04	185+00	178+00	
Clear View: Interlocking	B-05	B-04	178+00	173+00	
Clear View	B-05	B-04	173+00	165+00	
Rhode Island Avenue Station	B-04	B-04	165+00	159+00	

Note: Track Access Guide indicating a restricted view between CM B1 325+00 to B1-305+00.

ROCC received a transmission from TRST personnel at approximately 11:20 hrs., stating that TRST personnel was relinquishing FT protection (*which had not actually been granted*); the Radio RTC attempted to ascertain TRST personnel's precise location via CM. The RWIC reported that all personnel were standing by CM B1 308+00. The Radio RTC instructed the RWIC to have all personnel standby at a place of safety at CM B1- 308+00. The Radio RTC then instructed Train ID 104 to allow TRST personnel to board their train. ROCC notified SAFE to report the improper roadway protection violation, and subsequently, all personnel were removed from service and transported for post-incident analysis.

SAFE investigations retrieved from the ARS include Ops 1.

Based on findings, ROCC had not placed any protective measures while TRST traversed a known "hot spot" under the RWP manual. Additionally, TRST personnel did not relinquish FT (*which had not actually been granted*) within the correct parameters via associated CM's B1-325+00 to B1-305+00.

The RWIC did not verify that ROCC granted their group authorization to traverse a "hot spot" location under the MSRPH RWP rules and procedures.

Chronological Timeline of Events

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

11:06:17 hrs.	TRST RWIC made an initial request for FT protection between CM B1-350+00 and B1- 339+00. The ROCC instructed TRST personnel to stand by clear due to a train in approach to Fort Totten Station Track #1.
11:08:12 hrs.	ROCC granted TRST RWIC FT to continue their inspection.
11:12:51 hrs.	TRST RWIC contacted ROCC and relinquished FT protection and continued their inspection under AMF protection.
11:15:03 hrs.	TRST personnel requested additional FT protection between CM B1-325+00 and B1-305+00. ROCC instructed personnel to standby and stand clear for permission to continue their inspection under FT protection.
11:20:55 hrs.	TRST RWIC contacted ROCC and notified them that all personnel were clear and relinquishing FT protection.
11:21:55 hrs.	ROCC ascertained where the personnel were via CM.
11:22:29 hrs.	ROCC contacted Train ID 104 and instructed them to pick up TRST personnel from the roadway.

NOTE: Based on a review of the ARS, the Radio RTC's actions were within the MSRPH procedures.

Advanced Information Management System (AIMS)

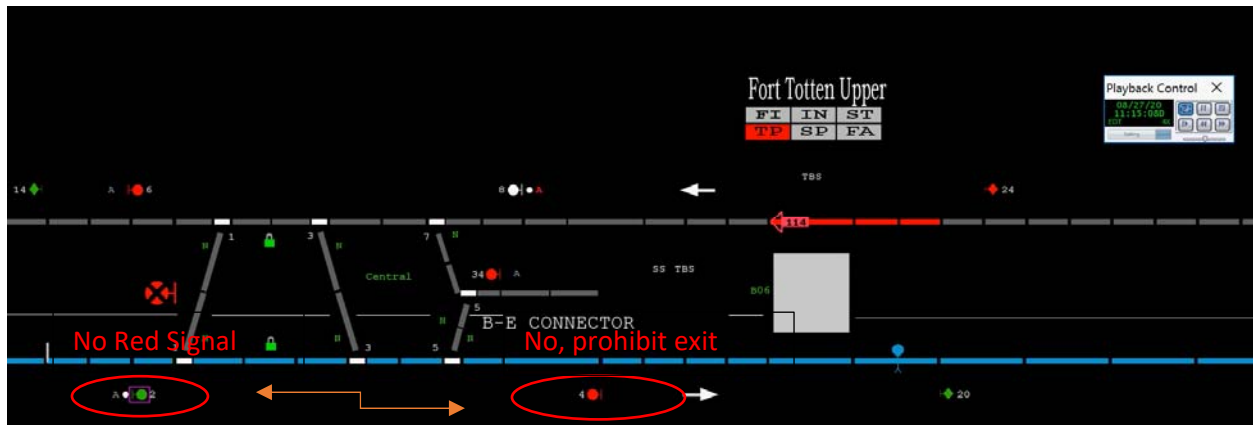


Figure 2: AIM display indicating no FT protection for TRST at 11:15 hrs. B06-02 signal remained fledged, and the B06-04 signal did not display a prohibit exit. TRST RWIC was instructed to standby and stand clear.

Note: Had TRST been permitted FT, the Button RTC would have canceled the B06-02 signal and placed a prohibit on the B06-04 signal.

Immediate Mitigation to Prevent Recurrence

- RWIC was required to re-attend RWP level 4 training.

Findings

- The TRST RWIC requested FT protection before reaching CM B1- 325+00 in an attempt to lessen their time to standby before receiving permission to continue under FT protection.
- RWIC was not granted required foul time to traverse through hot spot location.
- The TRST RWIC relinquished foul time (*which had not actually been granted*) at CM B1- 308+00 instead of B1- 305+00.

Weather

At the time of the incident, the temperature was 92° F, with no visibility restrictions. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: NOAA – Location: Washington, DC.)

Human Factors

Fatigue

The employee's 30-day work schedule leading up to the incident was compliant with WMATA's *Policy/Instruction 10.7/1 Hours of Service Limitations for Prevention of Fatigue* and did not present a significant risk of impairment due to fatigue. Based on employee interviews, there were no personal factors present that would have increased the likelihood of fatigue-related impairment. The employees had no history of sleep issues to report.

Post-Incident Toxicological Testing

After reviewing the RWIC, Rail Pro Contractor, and AMF's post-incident testing results, it was determined that the employees involved were 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.

Probable Cause Statement

The probable cause of this RWP violation event was the attempt to lessen the amount of time required to complete the inspection and a lack of complete communication between the inspection crew and the ROCC. The RWIC was not in compliance with MSRPH RWP Rule 5.13.3. *The RWIC shall always use FT or greater protection when traversing or working in the "hot spot" areas noted in the track access guide.*

Despite reviewing the identified hotspot during the daily safety briefing of the area where personnel would be walking, the RWIC did not wait to receive permission from the Radio RTC to continue their inspection with the proper FT protection.

SAFE Recommendations

The following are the recommendations and corrective actions identified as a result of this investigation. These 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. Refer to the SMS I/A module for additional information.

Corrective Action Code	Description
88632_SAFECAPS_TRST_001	The RWIC of this incident should, at a minimum, attend the RWP Level 4 refresher.
88632_SAFECAPS_TRST_002	Develop and distribute a Lessons Learned to TRST personnel, reenacting the associated improper roadway protection.

Appendix A – Interviews - Office of Track and Structures (TRST)

Roadway Worker in Charge

WMATA employee with nine years of service as a Track Repairman. The Track Repairman was last certified in 2019.

Based on the interview, the RWIC reported that they were conducting a mainline inspection and held a safety brief at the Silver Spring Station platform; the RWIC said that all personnel were aware of the "hot spots" on the mainline. The RWIC requested to utilize FT initially between CM B1 350+00 and B1 339+00. The RWIC stated that they were instructed to stand by and stand clear to allow a revenue train to pass their location. The RWIC reported that they notified ROCC that a revenue train cleared their area. ROCC then permitted the RWIC to continue their inspection under AMF protection. The RWIC stated that there were no discrepancies with their initial request, and they relinquished FT back to ROCC at CM B1 339+00. The RWIC reported that they made an additional FT request between CM B1- 325+00 to B1- 305+00 and was instructed to stand by and stand clear for train movement. The RWIC reported that they could not recall if they acknowledged the request to stand by and stand clear. The RWIC reported that they assumed they were permitted to continue under FT protection. The RWIC said that both FT requests incorporated safety parameters on the initial FT request. The RWIC stated they failed to report to ROCC that the revenue train had cleared their location and continued their inspection on the mainline. The RWIC noted that they were not paying attention while on the roadway. The RWIC reported that they did not feel rushed at any time while on the roadway. The RWIC said there was no contingency plan if they were to oversee the mainline. The RWIC reported that there were no radio communications. The RWIC said that personnel noticed a train in approach while they were mainline under the assumption that they were FT protection and were standing by at a place of safety. The RWIC then stated that ROCC instructed their crew to remain at their current location for a train pick up.

Advance Mobile Flagger

A WMATA employee with nine years of experience as a Track Walker D. The Track Walker was last certified in 2019.

Based on the SAFE Interview, the AMF reported that upon completing their safety briefing, the RWIC and the track inspector exited a revenue train at Takoma Station and the AMF continued to Fort Totten Station. The AMF arrived at Fort Totten Station and stood by the 8-car marker Track #1 to notify Train Operators of personnel that would be on the roadway between Takoma Station and Fort Totten Station. The AMF reported the RWIC made a second FT request, and ROCC instructed the RWIC to stand by and stand clear for a revenue train to pass their location. The AMF reported that the revenue train in approach to personnel roadway was five (5) minutes away from the Fort Totten Station platform at the time of the FT request from RWIC. The AMF reported the train had departed the platform when the RWIC relinquished their FT, and ROCC instructed personnel to stand by and stand clear for a train pick up.

Track Inspector

Rail Pro Contractor with three years of service as a Track Inspector. The Track Inspector was last certified in 2019.

Based on the SAFE interview, the Track Inspector reported that a safety briefing was performed at the Silver Spring Station platform before entering the roadway at Takoma Station; the Inspector said that the "hot spots" on the roadway were identified in the Safety Briefing. The Track Inspector reported that personnel were walking from Takoma Station in the direction of Fort Totten Station. The RWIC stated that TRST personnel were given permission to utilize FT protection through an initial FT location. The Track Inspector reported that the RWIC made an additional FT request, and personnel were instructed by ROCC to standby and allow a revenue train to clear their location. The Track Inspector reported that when the revenue train passed their area, personnel continued their walk; additionally, the Inspector stated that they requested to utilize FT protection early if they were instructed to stand by and stand clear. Once personnel were on the roadway, the Track Inspector reported that they were inspecting the roadway when they experienced a train approaching their location. The Inspector said that personnel were standing in a place of safety as the revenue train approached. The Inspector then stated that the RWIC notified ROCC that they were clear under FT protection. The Track Inspector said they were notified to stand by and board a revenue train to clear the roadway. The Track Inspector reported that they were not paying attention to the radio and assumed that personnel had permission to enter the roadway under FT protection.