



## **WMSC Commissioner Brief: W-0282 – W-0287 Improper Roadway Worker Protection Events – March-April 2023**

*Prepared for Washington Metrorail Safety Commission meeting on May 14, 2024*

Metrorail's Roadway Worker Protection Program is designed to protect employees, contractors and, in emergencies, first responders and customers while they are on and around the tracks.

In 2023, Metrorail reported 51 improper roadway worker protection (RWP) safety events to the WMSC. These events included personnel entering the roadway without permission and without the proper protection, and improper use of watchmen/lookouts. The investigation reports attached are five final reports related to some of the events that occurred in March 2023, each of which are now ready for consideration by the Commissioners.

The WMSC is finalizing the draft report of our audit on Metrorail's Roadway Worker Protection Program that began in 2023 and continued into early 2024.

Metrorail currently has related open CAP C-0181 addressing the finding that elements of Metrorail have a culture that accepts noncompliance with written operational rules, instructions, and manuals. (Expected completion date October 2024) Metrorail has revised its Safety Management System related to Rail Operations. This has included implementing new methods of hazard and risk reporting, training of personnel on reporting and implementation of a new data collection system for those issues so they can be properly evaluated and addressed. The WMSC is currently reviewing this CAP to ensure the deliverables and intended outcomes of this CAP have been met.

Investigations W-0278-W-0292 being considered at the May 14, 2024, meeting led to specific corrective actions including:

- Metrorail is conducting an ongoing safety campaign that requires Rail supervisors to conduct job briefings and train operation check rides with Train Operators, specifically related to RWP adherence, which must be documented.
- A safety bulletin issued on January 13, 2023, regarding improper RWP events, advanced mobile flagging procedures, and foul time requirements.
- Another safety bulletin issued on February 8, 2023, in relation to events on January 16 ([W-0264](#)) and January 29, 2023 (below), communicating the differences between direction from Power Desk Controllers and Rail Traffic Controllers, and associated adjustments to Power Desk Controller communications that emphasize the need for protection to be requested from and granted by the Rail Traffic Controller.
- Safety briefings for personnel on the importance of RWP awareness
- Metrorail reinforced the importance of reviewing the site conditions during the Job Safety Briefing to include track access right with work crews.
- A safety bulletin issued highlighting the proper method to retrieve items in close proximity of the third rail and the required PPE.
- Retraining on radio communications procedures and RWP requirements.

**Safety event summaries:**

**W-0282 – Excessive Speed Past Workers - McPherson Square Station – March 10, 2023 (WMATA ID: E23164)**

A Train Operator approached workers at a speed greater than Metrorail's then-required 15 mph and, also contrary to Metrorail rules, accelerated further while the train was still passing the workers on the roadway. The Automatic Train Control Maintenance Roadway Worker In Charge at the McPherson Square Interlocking reported this safety event to the Rail Traffic Controller. The ATC crew had local control of the interlocking panel and signals but did not have an Advanced Mobile Flagger to alert train operators when the signal is lunar (proceed). The crew had turned speed couplers to medium (35 mph) to send that speed command to trains on initial departure from the station. This did not apply to blocks the lead car would encounter beyond the interlocking. The Ops 2 Rail Traffic Controller made one general announcement 45 minutes prior to this event directing train operators to operate at 15 mph due to personnel in the roadway at McPherson Square.

The Roadway Worker In Charge reported that the Train Operator sounded a horn approaching the work crew, but then accelerated as it passed, creating strong wind pressure that impacted the crew. The Train Operator reported that no Advanced Mobile Flagger was present at the platform, but that they observed the crew as they approached the interlocking.

Review of vehicle data showed that the six-car train accelerated up to 39 mph on departure from McPherson Square Station, reaching 39 mph 832 feet after departing the station. Based on the location of the interlocking and the length of the train, that means the train was travelling up to 39 mph when parts of the train were passing the interlocking where the work crew was present. The train reached 21 mph as the rear of the trailing car left the station platform.

The work crew added speed restrictions to additional areas by turning couplers in the Train Control Room.

**Probable Cause:**

The probable cause of this improper RWP event is Metrorail's lack of training, qualification, and oversight related to the use of Local Signal Control, and Metrorail's culture of noncompliance with operational rules, procedures, and manuals.

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**W-0283 – Excessive Speed Past Workers - Spring Hill Station – March 29, 2023 (WMATA ID: E23211)**

The Train Operator of Silver Line Train 605 operated at excessive speed in an area with roadway workers between Spring Hill Station and Wiehle-Reston East Station. After being briefed by the Advanced Mobile Flagger, the Train Operator properly sounded their horn on an ongoing basis for approximately 2.5 miles, but operated the train at up to 46 mph, which exceeds Metrorail's safety requirement of 15 mph when observing and passing the work crew and half the regulated speed at all other times between stations where mobile work crews are present (Note: There may be multiple work crews. Also note: Metrorail adjusted the specific speed requirements in March 2024). Metrorail's maximum permitted speeds are 59 mph and 65 mph depending on the location in the system. The Train Operator applied emergency braking as the train approached the work crew. The Train Operator did not report the emergency brake application as required by Metrorail rules and procedures. The train stopped beyond the work crew. The Roadway Worker In Charge reported this near miss by phone to the Rail Traffic Controller. In an investigative interview, the Train Operator stated they had difficulty seeing the work crew while approaching due to the shadow from a bridge. The Roadway Worker In Charge reported that they were able to notice the train travelling at excessive speed and get against



the wall before the train passed them. The roadway workers reported that the highway noise made it difficult to hear the train's horn.

The Rail Traffic Controller was working alone. The WMSC continues Metrorail's progress to meet its staffing requirements under CAP C-0056. Metrorail has made progress since CAP implementation to increase the number of certified Rail Traffic Controllers.

**Probable Cause:**

The probable cause of this event is Metrorail's culture of noncompliance with operational rules, procedures, manuals and instructions.

**W-0284 – Train Passing Work Crew at Excessive Speed and Without Sounding Horn – Capitol South Station – April 15, 2023 (WMATA ID: E23255)**

A Train Operator operating Train 452 between Eastern Market and Capitol South stations did not follow the instructions of an Advanced Mobile Flagger by improperly moving the train past a mobile work crew at greater than 15 mph and not sounding the train's horn. Vehicle data show the train was travelling 42 mph 537 feet after it departed Eastern Market Station where the Advanced Mobile Flagger had informed the Train Operator of the work crew ahead. The Train Operator applied B5 braking. The Train Operator sounded the horn after passing the work crew. The train then continued to the next station at no more than 16 mph.

The Roadway Worker In Charge reported this safety event to a Rail Traffic Controller as the Train Operator not sounding the horn. The Roadway Worker In Charge did not initially mention the excessive speed. The Rail Traffic Controller provided a general announcement reminding operators to follow rules to dim train lights and tap the train horn when passing the work crew. The Train Operator told a responding Rail Supervisor that, after being briefed by the Advanced Mobile Flagger, they had forgotten that there was a work crew on the roadway. The Rail Traffic Controller had also previously announced the location of the mobile work crew over the radio.

42 mph was nearly 3 times the allowed 15 mph speed when observing and passing roadway workers. In March 2024, Metrorail changed this allowed speed past roadway workers to 35 mph.

The Train Operator reported that they had raised concerns to a Terminal Supervisor prior to starting this trip about their fitness for duty to maintain adequate focus to continue operating. This concern was due to an event that they had heard reported over the radio involving a person struck by train that occurred earlier in the day, that caused this operator to think of a similar event that they had been involved in. The Terminal Supervisor dispatched the Train Operator back into service after the Train Operator reported they decided to remain and continue their shift.

**Probable Cause:**

The probable cause of this event is Metrorail's lack of regular fitness for duty checks.

**W-0285 – Excessive Speed Past Roadway Workers – Van Dorn Street Station – April 17, 2023 (WMATA ID: E23263)**



A Rail Transportation Quality Control Officer performing a roadway/hand signal acknowledgement audit identified and reported that the Train Operator of the train they were riding for this work operated at excessive speed past roadway workers.

The Quality Control Officer reported that the Train Operator was briefed by an Advanced Mobile Flagger but operated at excessive speed. Vehicle data show the train travelled at up to 46 mph, greater than half the regulated speed. The regulated speed was 49 mph, meaning the train was travelling nearly twice the required safe speed. The train continued operating above 15 mph when passing the work crew. In March 2024, Metrorail changed this required speed to 35 mph. The Train Operator did sound the horn. The WMSC appreciates Metrorail's auditing work identifying this safety issue. This event demonstrates the importance of Metrorail developing and implementing effective performance monitoring and other supervisory oversight programs that can allow for similar oversight on a consistent, ongoing basis.

**Probable Cause:**

The probable cause of this event is lack of attention to safety-critical train status information, specifically train speed.

**W-0286 — Train passed personnel at excessive speed – Arlington Cemetery Station April 23, 2023 (WMATA ID: E23283)**

A Train Operator operating Train 457 between Arlington Cemetery and Rosslyn stations operated past a mobile work crew at excessive speed. The Roadway Worker In Charge reported this safety event by phone.

Vehicle data show the Train Operator, after being briefed by an Advanced Mobile Flagger, improperly moved the train at up to 51 mph. The train was travelling approximately 37 mph when the Train Operator applied B5 braking, leading to the train stopping 589 feet beyond the roadway workers (Note: This is based on vehicle data from trailing cars. The lead car's Vehicle Monitoring System was not functioning, which prevents data collection of horn activation and specific speed limits. The Train Operator stated they did not sound the horn. 51 mph exceeds any authorized speed for this operational scenario of approaching roadway workers, and exceeds Metrorail's 15 mph speed for passing roadway workers in effect at the time of this near miss.). The Train Operator then continued toward Rosslyn Station without communicating this near-miss to the Rail Traffic Controllers. The Rail Traffic Controllers had announced the presence of the mobile work crew over the radio just before the train departed Arlington Cemetery Station.

**Probable Cause:**

The probable cause of this event is lack of attention to safety-critical information, specifically the presence of roadway workers.

**W-0287 — Train passed personnel at excessive speed – Eisenhower Avenue Station – April 26, 2023 (WMATA ID: E23289)**

A Train Operator operating Train 451 between Eisenhower Avenue and King Street stations operated past a mobile work crew at excessive speed. Vehicle data show the train travelled up to 52 mph, and passed the workers at approximately 47 mph, exceeding the 15 mph required under Metrorail's applicable rules. The near miss was not



immediately reported. The Train Operator did not sound the horn. The Roadway Worker In Charge reported this near miss via phone several minutes later after reaching the Eisenhower Station platform.

In an investigative interview, the Roadway Worker In Charge described this near miss as involving the work crew reaching a place of safety just before the train passed. The RWIC described feeling the wind and vibration and hearing noise and realizing that the train was moving fast and the crew had to quickly get on the safety walk.

Metrorail rules require personnel to utilize a "need vs. speed" chart to place a watchman/lookout far enough ahead of the crew that they can reach a place of safety at least 15 seconds before a train travelling at the highest allowed speed in the area passes.

The Train Operator had spoken with the Advanced Mobile Flagger at Eisenhower Avenue Station while the AMF held the train due to the work crew having Foul Time. The Train Operator reported that after the Foul Time was relinquished and the AMF and Rail Traffic Controller allowed them to proceed, they lost focus on the fact that there were still roadway workers ahead. The Train Operator proceeded after receiving a lunar (proceed) signal and associated speed commands as if there were no personnel ahead.

**Probable Cause:**

The probable cause of this event is lack of attention to safety-critical information, specifically the presence of roadway workers. Contributing to this event is Metrorail's culture of non-compliance with written operational rules, procedures and manuals, including the safety requirement to properly place watchmen/lookouts.



Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)  
**FINAL REPORT OF INVESTIGATION A&I E23164**

<b>Date of Event:</b>	March 10, 2023
<b>Type of Event:</b>	Improper RWP
<b>Incident Time:</b>	17:55 Hours
<b>Location:</b>	McPherson Square Station, track 2
<b>Time and How received by SAFE:</b>	17:59 Hours – SAFE/MAC
<b>WMSC Notification Time:</b>	18:49 Hours
<b>Responding Safety Officers:</b>	None
<b>Rail Vehicle:</b>	Train ID 401 - L6105X6104.6107X06.6073X6072T
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Incident Number:</b>	20230314#106878

# McPherson Square Station –Improper RWP

March 10, 2023

## Table of Contents

Abbreviations and Acronyms	3
Executive Summary	5
Incident Site	5
Field Sketch/Schematics	6
Purpose and Scope	6
Investigative Methods	6
Investigation	7
Chronological Event Timeline	9
Advanced Information Management System (AIMS)	10
Office of the Chief Mechanical Officer, Incident Investigation Team (IIT)	10
Interview Findings	12
ATCM	12
RTRA	12
Weather	13
Related Rules and Procedures	13
Human Factors	14
Fatigue	14
Post-Incident Toxicology Testing	14
Findings	14
Immediate Mitigation to Prevent Recurrence	14
Probable Cause Statement	14
Recommended Corrective Actions	15
Appendices	16
Appendix A – Interview Summaries	16
ATCM	16
RTRA	16
Appendix B – RTRA – RWP & STOV Safety Notice	18
Appendix C – Incident Investigation Forms-Written Statements	19
Appendix D – Roadway Safety Briefing	23
Appendix E – Why-Tree Analysis	25

## **Abbreviations and Acronyms**

<b>AIMS</b>	Advanced Information Management System
<b>AOM</b>	Assistant Operations Manager
<b>ARS</b>	Audio Recording System
<b>ATC</b>	Automatic Train Control
<b>ATCM</b>	Automatic Train Control Maintenance
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>CMOR</b>	Office of the Chief Mechanical Officer
<b>ETO</b>	Exclusive Track Occupancy
<b>IIT</b>	Incident Investigation Team
<b>LCP</b>	Local Control Panel
<b>LSC</b>	Local Signal Control
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>PMI</b>	Preventive Maintenance Inspection
<b>RTRA</b>	Office of Rail Transportation
<b>ROCC</b>	Rail Operations Control Center
<b>ROQT</b>	Rail Operations Quality Training
<b>RWIC</b>	Roadway Worker-in-Charge
<b>RWP</b>	Roadway Worker Protection
<b>RSDAR</b>	Rail Supervisor Daily Activity Report
<b>RTC</b>	Rail Traffic Controller
<b>SAFE</b>	Department of Safety
<b>SMS</b>	Safety Measurement System



**VMS**

Vehicle Monitoring System

**WMATA**

Washington Metropolitan Area Transit Authority

**WMSC**

Washington Metrorail Safety Commission

**Washington Metropolitan Area Transit Authority  
Department of Safety – Office of Safety Investigations**

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**Executive Summary**

*\*Note that all times listed are approximate and may contain minor variations due to differences between systems of record. \**

On Friday, March 10, 2023, at 17:55 hours, an Office of Automatic Train Control Maintenance (ATCM) Roadway Worker In Charge (RWIC) located at McPherson Square Station Interlocking, track 2 reported to the Rail Operations Control Center (ROCC) Radio Rail Traffic Controller (RTC) that Train ID 401 (L6105X6104.6107X06.6073X6072T) passed their location at speeds greater than 15 Miles Per Hour (MPH).

The ATCM crew was working under Exclusive Track Occupancy (ETO) – Local Signal Control (LSC) with permission from the ROCC.

The Radio RTC notified the ROCC Assistant Operations Manager (AOM) and instructed an Office of Rail Transportation (RTRA) Rail Supervisor to take over operating Train ID 401 at Rosslyn Station. The ATCM Work Crew was instructed to clear the roadway.

Based on the analysis conducted by the Office of the Chief Mechanical Officer's (CMOR) Incident Investigation Team (IIT), Train ID 401 passed the work crew's location at approximately 19 MPH and accelerated prior to completely clearing the interlocking where the crew was working.

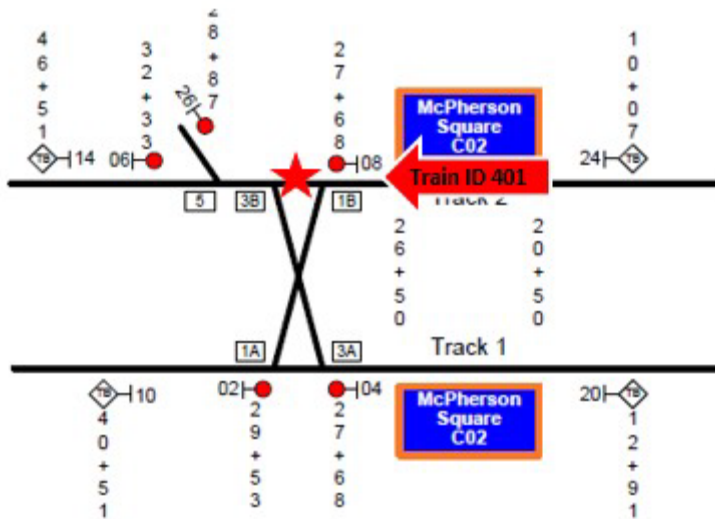
RTRA removed the Train Operator from service for post-incident testing. The train consist was removed from service for post-incident inspection.

The probable cause of the Improper Roadway Protection (RWP) event on March 10, 2023, was a failure to adhere to established procedures for passing a work crew. Train Operators are instructed to count eight chain markers (800 feet) at the required passing speed of 15 MPH to ensure they are completely clear of the mobile work crew before accelerating. There were no findings related to the mobile work crew's access to the roadway.

**Incident Site**

McPherson Square Station Interlocking, track 2. Chain Markers (CM) C2 27+68 to 32+33  
Approximately 118 feet from the end of the platform

## Field Sketch/Schematics



The above depiction is not to scale.

## Purpose and Scope

The purpose of this accident 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.

## Investigative Methods

Upon receiving notification of the Improper RWP event on March 10, 2023, SAFE dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Site assessment through video and document review.
- Formal Interviews – SAFE interviewed one individual as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual:
  - Train Operator
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from the personnel present during the event.
  - ATCM RWIC
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
  - Train Operator Training Records
  - Train Operator Certifications

- Train Operator 30-Day work history review
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Rail Operations Control Center (ROCC) Incident Report
  - Maximo Data
  - AMF/LSC Roadway Access Sheets
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
    - Audio Recording System (ARS) playback including OPS 3 Radio
    - Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Analysis
    - Advanced Information Management System (AIMS)

### Investigation

On Friday, March 10, 2023, at 16:47 hours, an ATCM RWIC contacted ROCC and requested permission to perform an Interlocking Inspection at McPherson Square Station on tracks 1 & 2 using ETO-LSC Protection with speed couplers. The Radio RTC granted permission for the interlocking inspection, advised Train Operators that ATCM personnel were working in the interlocking and to reduce the train speed to 15 MPH upon seeing personnel.

Radio Call #	Location (track, chain markers)	Type of work / Support Restrictions	Type of Protection (AMF, LSC)	Pwr Out (Y/N)	Start time	End time
6321	C08-05 C05-04	Track Inspection	AMF	N	0215	0346
2443	G05	Switch PMT	LSC	N	0230	0355
6177/6030	D10-D10 TRK 1	Track Inspection	AMF	N	0848	1004
2265/2241 2447	D04	Interlocking Inspection	2415 LSC	N	0847	0941
6252/6002	G05-G01 TRK 1	Track Inspection	AMF	N	0910	1133
6021/6056	C04-D02 TRK 2	Track Inspection	AMF	N	0913	1112
2515/2057 2268	G03	Int. Insp.	2371 LSC	N	1014	1044
2042/2543 2479	D11	Int. Insp.	2093 LSC	N	0930	0950
2173/2144	C05	Int. Insp.	2087 LSC	N	1007	1026
2128/2140	C02	Int. Insp.	2087 LSC	N	1046	1056
2418 2341 2510 2522	C02	Switch PMT	2522 ETO	N	1649	1812

Figure 1: ROCC AMF/LSC Roadway Access Sheet for Foul Times.

The Audio Recording System (ARS) revealed that at 17:55 hours, the ATCM RWIC reported to the Radio RTC that Train ID 401 (L6105X6104.6107X06.6073X6072T) passed their location on track 2 at a speed greater than 15MPH. At 17:59 hours, the Radio RTC inquired if the speed

couplers were turned and the ATCM RWIC responded that the speed couplers were set to medium speed.

The Radio RTC notified the ROCC AOM of the event and instructed the Rail Supervisor located at Rosslyn Station to intercept and take over operating Train ID 401. The ATCM Work Crew was instructed to clear the roadway.

During an informal interview, the RWIC stated that they performed a Roadway Job Safety Briefing with the crew of 4 prior to receiving permission to enter the roadway. The work crew was performing Interlocking Preventive Maintenance Inspection (PMI) work using ETO-LSC as roadway protection with a medium speed restriction and speed couplers set to F9, installed on tracks 1 and 2. The RWIC stated that the train approached them at moderate speed and activated the train horn. The RWIC stated that the train appeared to increase speed as it passed generating strong wind pressure that impacted the crew. The RWIC stated ROCC instructed them to clear the roadway after they reported the incident.

During the formal interview, the Train Operator stated that the event occurred during the last trip of their schedule, and they did not hear any transmissions from the ATCM Crew or ROCC about the crew in the interlocking. At McPherson Square, they held for one minute. The Train Operator stated that they acknowledged that the ATCM Crew was working in the interlocking. The Train Operator stated the train had speed commands when they departed McPherson Square Station, and the crew's Flagman gave the proceed signal. The Train Operator stated that they passed the ATC Crew at 15 MPH and remained at 15 MPH the entire time.

CMOR/IIT performed an inspection and provided an analysis. A six-car consist is approximately 475 feet in length. Their report stated:

“Based on the VMS data, after servicing McPherson Square Station, track 2, Train ID 401 departed with the Master Controller in the P5 Power position. The Master Controller was cycled back and forth between lower power modes and accelerated up to 20 MPH, 174 feet after departing McPherson Square Station. Upon departure, the Limiting and Regulated speed limits were 35 MPH; 165 feet after leaving McPherson Square, the regulated and limiting speeds increased to 50 and 39 MPH, respectively.

The Master Controller was moved to a P2 Power position and eventually to a P5 Power position soon after, accelerating to speeds up to 39 MPH, 832 ft. after departing McPherson Station. The train comes to a complete stop at the 8-Car Marker at Farragut West and serviced the station.

Based on VMS Data, no fault with the train contributed to the cause of this incident. There was no emergency braking or road horn activations during the reported incident. The train performed as commanded.”

## Chronological Event Timeline

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

Time	Description
16:47:49 hours	<p><u>ATCM</u>: Requested permission to perform an Interlocking Inspection at McPherson Square, tracks 1 &amp; 2 using ETO Local Control Protection and speed couplers.</p> <p><u>Radio RTC</u>: Acknowledged and repeated. Granted permission to take control of the panel and announced to Train Operators that ATC Personnel were in the Interlocking at McPherson Square Station.</p> <p><u>ATCM</u>: Acknowledged and repeated. Advised in control of the panel.</p> <p><u>Radio RTC</u>: Granted permission to enter the roadway. [OPS 2]</p>
17:10:10 hours	<p><u>Radio RTC</u>: Announced to Train Operators to operate at 15 MPH personnel in the roadway at McPherson Square. [Ops 2]</p>
17:55:43 hours	<p><u>ATCM</u>: Reported Train ID 401 passed at a speed greater than 15 MPH at McPherson Square, track 2. [Ops 2]</p>
17:56:30 hours	<p><u>Radio RTC</u>: Notified the ROCC AOM. [Phone]</p>
17:59:20 hours	<p><u>Radio RTC</u>: What are the speed couplers turned to?</p> <p><u>ATCM</u>: Medium.</p> <p><u>Radio RTC</u>: Standby.</p> <p><u>ATCM</u>: Acknowledged. [Phone]</p>
18:00:03 hours	<p><u>Radio RTC</u> Announced to Train Operators to operate at 15 MPH, personnel in the roadway at McPherson Square. [Ops 2]</p>
18:00:56 hours	<p><u>Radio RTC</u> Instructed the Rail Supervisor located at Rosslyn to take over operating Train ID 401. [Phone]</p>
18:01:11 hours	<p><u>Radio RTC</u> Instructed the ATCM Personnel at McPherson Square to clear the roadway. [Ops 2]</p>
18:17:07 hours	<p><u>Radio RTC</u> Notified ATCM Management of the event. [Phone]</p>

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

## Advanced Information Management System (AIMS)

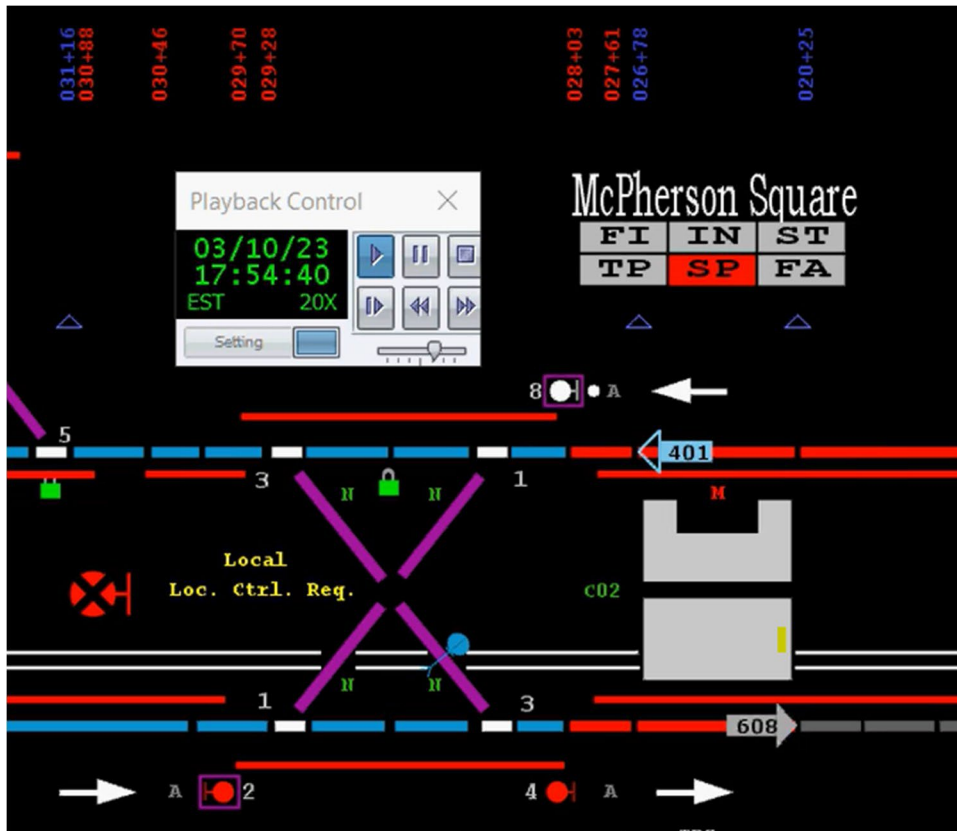


Figure 2: Train ID 401 located at McPherson Square Station with blue block displayed at 17:54 hours

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

*Adopted from the CMOR/IIT Report:*

“Based on the Vehicle Monitoring System (VMS) data, after servicing McPherson Square Station, track 2, Train ID 401 departed with the Master Controller in the P5 Power position. Upon departure, the Limiting and Regulated speed limits were 35 MPH; 165 feet after leaving McPherson Square, the regulated and limiting speeds increased to 50 and 39 MPH, respectively. The Master Controller was cycled back and forth between lower power modes and accelerated up to 20 MPH, 174 feet, after departing McPherson Square Station.

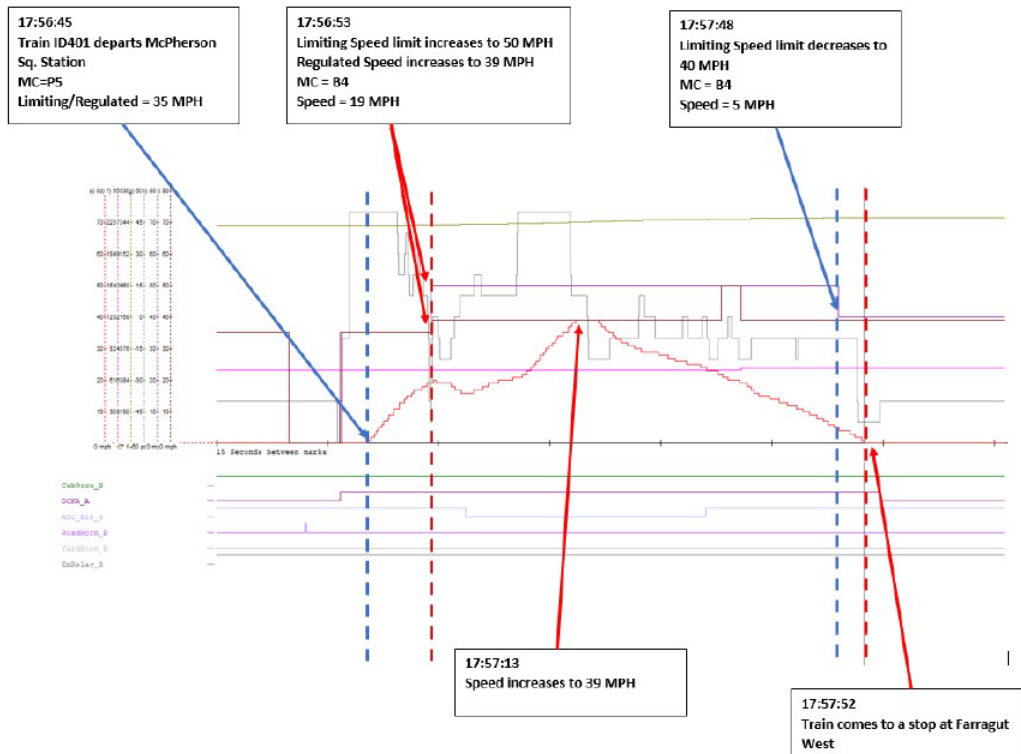
The Master Controller was moved to a P2 Power position and eventually to a P5 Power position soon after, accelerating to speeds up to 39 MPH, 832 feet, after departing McPherson Station. The train came to a complete stop at the 8-Car Marker at Farragut West and serviced the station.

Based on VMS Data, no fault with the train contributed to the cause of this incident. There were no emergency braking or Road horn activations during the reported incident. The train performed as commanded.”

See timeline of events below:

Time	Description of Events	Train Speed	Master Controller	Limiting Speed	Regulated Speed
17:56:45.000	Train ID 401 departed McPherson Sq, Track #2, with the Master Controller in the P5 Power position, with limiting and regulated speeds both at 35 MPH	<1 MPH	P5	35 MPH	35 MPH
17:56:49.188	Master Controller moved to P2 Power position. Train speed was 11 MPH, 48 ft. after departing McPherson Sq.	11 MPH	P2	35 MPH	35 MPH
17:56:50.148	Master Controller moved to P4 Power position. Train speed was 14 MPH, 69 ft. after departing McPherson Sq.	14 MPH	P4	35 MPH	35 MPH
17:56:50.724	Master Controller moved to the P1 Power Position, Train speed was 15 MPH, 83 ft. after departing McPherson Sq.	15 MPH	P1	35 MPH	35 MPH
17:56:51.749	Master Controller moved to P3 Power position, Train speed was 17 MPH, 109 ft. after departing McPherson Sq.	17 MPH	P3	35 MPH	35 MPH
17:56:53.412	Master Controller placed in B5 Braking position, train speed was 19 MPH, 154 ft. after departing McPherson Sq.	19 MPH	B5	35 MPH	35 MPH
17:56:53.604	Limiting Speed limit increases to 50 MPH, Train speed was 19 MPH and Master Controller moved to B4 Braking position.	19 MPH	B4	50 MPH	35 MPH
17:56:53.765	Regulated Speed limit increases to 39 MPH, and Master Controller moved to the "Coast" position, train speed was 19 MPH, 164 ft. after departing McPherson Sq.	19 MPH	Coast	50 MPH	39 MPH
17:56:54.784	Master Controller placed in B2 Braking position, Train speed 19 MPH, 193 ft. after departing McPherson Sq.	19 MPH	B2	50 MPH	39 MPH
17:56:59.420	Master Controller moved to the P2 Power position, Train speed was 17 MPH, 311 ft. after departing McPherson Sq.	17 MPH	P2	50 MPH	39 MPH
17:57:05.240	Master Controller moved to the P5 Power position, Train speed was 21 MPH, 477 ft. after departing McPherson Sq.	21 MPH	P5	50 MPH	39 MPH
17:57:14.832	Master Controller moved to the B2 Braking position, Train speed was 39 MPH, 933 ft. after departing McPherson Sq.	39 MPH	B2	50 MPH	39 MPH
17:57:21.672	Master Controller moved to P1 Power Position, Train speed was 30 MPH, 1,270 ft. after departing McPherson Sq.	30 MPH	P1	50 MPH	39 MPH
17:57:24.868	Train enters into Farragut West Station at a speed of 24 MPH, with the Master Controller in the B1 Braking position.	12 MPH	B1	50 MPH	39 MPH
	Master Controller moved to B2 Braking position,				
17:57:31.104	Train speed was 23 MPH, 361 ft. from the 8-Car Marker	23 MPH	B2	50 MPH	39 MPH
17:57:32.796	Regulated Speed limit increases to 50 MPH, and Master Controller moved to the B1 Braking position, train speed was 22 MPH, 307 ft. from the 8-Car Marker	22 MPH	B1	50 MPH	50 MPH
17:57:35.388	Regulated Speed limit reduces back to 39 MPH, Train speed 19 MPH, 231 ft. from the 8-Car Marker	19 MPH	B2	50 MPH	39 MPH
17:57:36.764	Master Controller placed in B1 Braking position, Train speed was 17 MPH, 196 ft. from the 8-Car Marker.	17 MPH	B1	50 MPH	39 MPH
17:57:48.528	Limiting Speed limit decreases to 40 MPH, Train speed was 5 MPH and Master Controller moved to B4 Braking position, 11 ft. from the 8-Car Marker.	5 MPH	B4	40 MPH	39 MPH
17:57:51.180	Master Controller placed in B5 Braking position, train speed was 2 MPH.	2 MPH	B5	40 MPH	39 MPH
17:57:52.075	Train comes to a complete stop at the 8-car Marker at Farragut West Station and Doors open to service the station.	0 MPH	B5	40 MPH	39 MPH





Note: Times above may vary from other systems' timelines based on clock settings.

## Interview Findings

As part of the investigation launched into the event, SAFE interviewed two people. The interviews 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.

### ATCM

#### RWIC

- The RWIC stated that they performed a Roadway Job Safety Briefing with the crew of 4 prior to receiving permission to enter the roadway.
- The work crew was performing Interlocking PMI work on a switch using ETO Local Signal as roadway protection with medium speed restriction and speed couplers set to F9, installed on tracks 1 and 2.
- The RWIC stated that the train approached them at moderate speed and activated the train horn.
- The RWIC stated that the train appeared to increase speed as it passed generating strong wind pressure that impacted the crew.
- The RWIC stated the ROCC instructed them to clear the roadway.

## RTRA

### *Train Operator*

- The Train Operator stated that the event occurred during their last trip in their schedule.
- At McPherson Square, they were instructed to hold for one minute.
- The Train Operator stated that they acknowledged that the ATCM Crew was working in the interlocking.
- The Train Operator stated the train had speed commands when they departed McPherson Square Station, the Flagman gave the proceed signal.
- The Train Operator stated that they passed the ATCM Crew at 15 MPH and remained at 15 MPH the entire time.

### **Weather**

On March 10, 2023, at the time of the incident, NOAA recorded the temperature as 65° F, and partly sunny. The event occurred within a tunneled area of the system. Weather was not a contributing factor in this incident (Weather source: NOAA – Location: Washington, DC.)

### **Related Rules and Procedures**

MSRPH SOP 1.3.2, Speed Restrictions: “A given speed less than the normal operating speed for a section of track or rail vehicle/equipment. This speed is imposed by verbal instructions, written notices (i.e., RSA's or general orders), flagging procedures and/or speed commands issued by ROCC to mitigate special situations.”

MSRPH 5.13.7.5, Exclusive Track Occupancy (ETO) Local Signal Control (LSC):“ETO LSC is the handling of control of signals at an interlocking by qualified ATC personnel at a mainline or rail yard location equipped with a Local Control Panel (LCP). This allows for controlling the interlocking and/or signal aspects. LSC must be coordinated with and authorized by ROCC or Rail Yard Tower. ATC personnel accomplish ETO utilizing LSC by taking local control of an interlocking to establish Roadway Worker Protection via speed restrictions and canceling routes. Normal operations will resume after it is verified and confirmed through positive communications between ROCC or Rail Yard Tower and ATC RWICs that all ATC work crew personnel have cleared the Roadway.

To establish ETO LSC protection the ATC RWIC will:

- Request control of the LCP from ROCC or Rail Yard Tower
- ROCC or Rail Yard Tower will direct ATC personnel to take control of the LCP
- Cancel all automatic signals
- Ensure and confirm LCP operator set FIXED RED signals at all entrances to the working limits
- Direct ATC personnel to align routes as requested
- Notify ROCC or Rail Yard Tower once the work is completed and coordinate the relinquishing of control of the LCP.”

## **Human Factors**

### Fatigue

#### *Train Operator*

SAFE evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No indications of fatigue were present. The Train Operator reported feeling fully alert at the time of the incident. The Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk:

#### *Train Operator*

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were not present. Since fatigue evidence and risk factors were not present, the biomathematical fatigue modeling application (SAFTE-FAST Web SFC) was not applied.

### Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Train Operator complied with and was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/6.

## **Findings**

- The event occurred during the Train Operator's last trip in their schedule.
- The Train Operator acknowledged that they were aware of the ATCM crew working in the roadway.
- CMOR-IIT analysis found that the train passed the work crew in excess of 15 MPH, reaching speeds of up to 20 MPH and accelerated above half-regulated speed after passing the crew.
- ATCM set speed couplers to medium speed setting during their PMI inspection.

## **Immediate Mitigation to Prevent Recurrence**

- Train Operator was removed from service.
- ATCM Personnel were cleared from the roadway.

## **Probable Cause Statement**

The probable cause of the Improper RWP event on March 10, 2023, was a failure to adhere to established procedures for passing a work crew. Train Operators are instructed to count eight chain markers (800 feet) at the required passing speed of 15 MPH to ensure they are completely clear of the mobile work crew before accelerating.

**Recommended Corrective Actions**

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Estimated Completion Date</b>
106878_SAFE CAPS_RTRA _001	Review of RWP Safety Notice with Division Superintendent or Assistant Superintendent.	RTRA	Completed
106878_SAFE CAPS_RTRA _002	Enroll Train Operator in Refresher Training with emphasis on RWP Rule 5.13.6	RTRA	Completed
106878_SAFE CAPS_RTRA _003	Conduct an open-ended Safety Campaign that tasks RTRA Supervisors (Road and Terminal) to conduct job briefings and train operation check rides with Train Operators, specifically related to RWP adherence. Enter safety conversations and train operations check-rides in the RSDAR.	RTRA	On-Going

## Appendices

### **Appendix A – Interview Summaries**

*The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

#### ATCM

##### *RWIC*

During the informal interview, the RWIC stated that they performed a Roadway Job Safety Briefing with the crew of 4 prior to receiving permission to enter the roadway. The work crew was performing Interlocking PMI work on a switch using ETO Local Signal as roadway protection with medium speed restriction and speed couplers set to F9, installed on tracks 1 and 2.

The Flagman alerted them that a train was approaching, the crew cleared to the catwalk. The RWIC stated that the train approached them at moderate speed and activated the train horn. The RWIC was the first in the crew line along the roadway facing the oncoming train. The train appeared to increase speed as it passed generating strong wind pressure that impacted the crew. The RWIC stated that the work crew believed the speed of the train exceeded 15 MPH. The RWIC notified ROCC via radio of the issue. The RWIC and crew cleared the roadway and contacted their supervisor.

#### RTRA

##### *Train Operator*

The Train Operator is a WMATA employee with 19 years of service and ten (10) years of experience as a Train Operator. The Train Operator holds a Roadway Worker Protection (RWP) Level 2 certification that expires in March 2024.

During the virtual interview, the Train Operator stated that after departing Downtown Largo everything was going well. The Train Operator stated that the event occurred during their last trip in their schedule, and they did not hear any transmissions from the ATCM Crew or ROCC about the ATCM Crew in the interlocking. They were servicing Metro Center, track two, and as the train was departing ROCC contacted them and asked them to hold. They were already moving so they told ROCC that they would hold that at McPherson Square. At McPherson Square, they held there for one minute. The Train Operator stated that they acknowledged that the ATCM Crew was working in the interlocking. The Train Operator stated that the procedure for passing the personnel on the roadway was to dim the train lights, give two short horn blasts, and speed no greater than 15 MPH. Once clear of the wayside personnel, they continue to tap the train horn until the next station. The Train Operator stated the train had speed commands when they departed McPherson Square Station, the Flagman gave the proceed signal.

The Train Operator stated that before they departed, they tapped the train horn two times, placed the master controller in P1, and continued to pass the ATCM Crew in the interlocking. The Train Operator stated that they passed the ATCM Crew at 15 MPH and remained at 15 MPH the entire time. The Train Operator stated that after they passed the first set of ATCM personnel, they saw

a second group three chain markers away. When they arrived at Farragut West, they serviced the station, then continued. Between Foggy Bottom and Rosslyn, ROCC contacted them and gave them an incident time. When they arrived at Rosslyn, the Supervisor relieved them from duty. They thought they were behind schedule, then another Supervisor boarded the train to take them for post-incident testing.

## Appendix B – RTRA – RWP & STOV Safety Notice

Rail Station & Train Operations

# RWP & STOV SAFETY

### Roadway Worker Protection (RWP) Safety

RWP is a means of providing personnel with a uniform method of establishing On-Track protection, while minimizing dangers and hazards associated with working on the Roadway. Personnel are encouraged to raise and report safety concern(s) and Roadway specific issues.

**RWP Safety Tips**

**TIP #1:**  
Ensure you understand the AMF instructions.

**TIP #2:**  
Travel at half the regulated speed, continuously sounding your horn until you observe personnel on the roadway.

**TIP #3:**  
Upon observing personnel on the roadway and after receiving proper hand signal, 2 short horn blasts, and reduce speed to 15 mph until clear of personnel.

**TIP #4:**  
Once you are clear of personnel (count at least eight chain markers), travel at half the regulated speed until you reach the next station.

- 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.
- 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.
- 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.
- 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.
- 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.
- Once the rear of the Rail Vehicle has passed the entire work crew (count at least eight chain markers after passing the roadway workers), the Rail Vehicle Operator shall continue at half the regulated speed until they reach the next station.

### Station Overrun (STOV) Safety

Be observant of visual indications such as "S" markers. These are indications that a train is 2700 feet and 1200 feet from the approaching station. Monitor and adjust train speed, not to exceed 40 mph when entering station platforms. Reduce train speed even further when entering a station during inclement weather. Continue to monitor and adjust train speed, not to exceed 20 mph at the 20-car marker with the master controller in B1/B2 braking mode. Safely berth train at the 8-car marker to prevent a station overrun. If a station overrun occurs, immediately report the occurrence to ROCC and do not attempt to service the station without permission.

**August 2022**

Document 1 – RTRA RWP & STOV Safety Notice, Page 1 of 1

Incident Date: March 10, 2023 Time: 17:55 hours  
Final Report – Improper RWP  
E23164

Drafted By: SAFE 709 – 05/02/2023  
Reviewed By: SAFE 707 – 05/07/2023  
Approved By: SAFE 71 – 05/09/2023

Page 18





**PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)**

Name		Age	Employee # or MTPD Badge #
Phone Number		Job Title	Division/Section
Last Day Worked (prior to)		Hours Worked (within last 24 hrs)	Overtime?

**INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)**

Name	Phone Number	E-Mail
Address		

**INCIDENT**

Date	Incident Time	Date/Time Reported	Location
03/10/2023	17:50	18:00	C02 station Foggy Bottom
Incident ID# (From ROCC, BOCC, etc.)		Worksafes Incident #	

What happened prior to the incident?  
 we doing switch monthly PMI (1B/3B) we had peremtion from ROCC to use LCP for protection

Describe the incident  
 while we stand by standing clear for train movement from the platform operator blow the horn very loud and proceed in very high speed passing by it was very scary moment the WRIC call ROCC

What happened after the incident?  
 we ask to clear roadway

Form Completed by: (Print Name)	Date
Signature	03/21/2023

50.689 10/09 Original: RISK Copy 1: Department Copy 2: SAFE Copy 3: Employee File Photocopy to Employee

Attachment 2 of 4: This is the written by Crew Member # 1.

Incident Date: March 10, 2023 Time: 17:55 hours  
 Final Report – Improper RWP  
 E23164

Drafted By: SAFE 709 – 05/02/2023	Page 20
Reviewed By: SAFE 707 – 05/07/2023	
Approved By: SAFE 71 – 05/09/2023	

<b>INCIDENT</b>		Risk Rank		Today's Date 3/21/23	
Incident Date 3-10/23	Incident Time 17:55	Department ATC	Division 2	Work Area C02	
Location where Incident Occurred: C02 Interlocking					
Is this the final report? <input type="checkbox"/> ? If YES, is it within 7 days of the incident? <input type="checkbox"/> no					
If this is the Final Report, but it wasn't completed within 7 days, please explain why it wasn't completed within 7 days:					

**DESCRIPTION OF THE INCIDENT.**  
 Briefly describe the incident.

was performing the work at the switches 1B and 3B along with two more technicians plus the RWIC, which he was about 30-50 feet away from working crew. Trains are moving through the interlocking every 1 or two minutes on both tracks. There were a couple of trains moving faster than they are required when operator see workers on the roadway. The next thing i hear from the RWIC is that we need to clear the roadway per OCC. While inside the TCR room, I learned that the RWIC have called OCC over the radio to inform them that a train have passed our area at higher speed, even though we had speed restrictions in place (Medium restriction). Yes, this an issue we have observed through the system, that trains go faster than the required of Half of the regulated speed, miles per hour. Furthermore, some train operators keep blasting the high horn inside tunnels when they see workers on the roadway even though they should sound the low horn.

So while working in this station's interlocking, ATC is aware that there are many trains going through this area and so it makes it almost impossible to do the PM's (Preventive maintenance Index) during revenue and furthermore, it makes it more dangerous for technician for we have to move fast and rush to get the work done. There are many tripping hazards at interlockings so rushing to complete the work it increases the chances for someone to get hurt. This should recognized by management supervisors and management. If asked what can be done to prevent or avoid anyone from

**KNOWN FACTS.**  
 List in a logical order the known facts obtained during the investigation process.

interlocking ATC recommend if possible that this pmis can be done after revenue by midnight shift. Just ask any technicians that works in this area to do this pmis every month and they will tell you same suggestion as i am giving. I work on the C- line but that day i observed how challenging is to complete the work there.

So, as far as this is reported to safety as incident, the RWIC can provide with more details of what happened with him and occ communication that day. ■

50.690 1/3 04/09 Original: RISK Copy 1: Department Copy 2: SAFE Copy 3: LSC-I&I

Attachment 3 of 4: This is the written by Crew Member # 2.

**M** Incident Investigation Form  
metrolink WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Incident #		Risk Rank		Today's Date 03/21/2023	
Incident Date 03/10/2023	Incident Time 18:05	Department ATCM	Division DIV-2	Work Area C02 Interlocking	
Location where Incident Occurred: McPherson Square					
Is this the final report? <input checked="" type="checkbox"/> Yes      If YES, is it within 7 days of the incident? <input checked="" type="checkbox"/> No					
If this is the Final Report, but it wasn't completed within 7 days, please explain why it wasn't completed within 7 days:					
Incident investigation was initiated by safety and ATC was not notified.					

**DESCRIPTION OF THE INCIDENT.**  
 Briefly describe the incident.

On March 10, 2023, K99 ATC personnel was task to perform switch inspection PMI 1007, and 1008 at C02 (McPherson Square) station. ATC [redacted] called the Field Office around 18:05 to inform me that ATC personnel was asked to vacate the interlocking and clear the roadway. He informed me of a report he had made to OCC about a train passing through their work location at fast speed (speed over 15 mph). After his call i called MOC to find out more about what was going on and the protocol to follow if any. I was transferred to OCC who asked me to implement a new safety protocol to protect the work area before personnel can be allowed back on the roadway. I called the rwic [redacted] and ordered that additional speed c [redacted] ers be installed on track 2 before signal 6 and after signal 8. OCC then granted them permission to complete their task.

**KNOWN FACTS.**  
 List in a logical order the known facts obtained during the investigation process.

- 1- Train passed ATC work area at fast speed.
- 2- RWIC reported the incident to OCC.
- 3- OCC cleared personnel from the roadway.
- 4- RWIC ATC [redacted] called field office.
- 5- Supervisor called MOC and OCC to discuss any eventual protocol to follow and establish conditions to allow personnel back on the roadway.
- 6- ATC personnel added additional speed restrictions on track 2.
- 7- ATC personnel was allowed back on the roadway to complete their PMI.

50.690 1/3 04/09    Original: RISK    Copy 1: Department    Copy 2: SAFE    Copy 3: LSC-I&II

Attachment 4 of 4: This is the written by Crew Member # 3.

Incident Date: March 10, 2023 Time: 17:55 hours  
 Final Report – Improper RWP  
 E23164

Drafted By: SAFE 709 – 05/02/2023
Reviewed By: SAFE 707 – 05/07/2023
Approved By: SAFE 71 – 05/09/2023

## Appendix D – Roadway Safety Briefing

**WMATA Roadway Job Safety Briefing Form**

This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.

**Part 1: General Job Briefing**

Date: 03/10/23	Time: 16:30	RWIC: [REDACTED]
RWIC Call #: [REDACTED]	RWIC Cell Phone #: [REDACTED]	
2	Safety Contact: Watchman / Lookout	
	RWP Rule: Cardinal rule #1	
3	Work Location: C02	
	Job Task(s): Switcher pms	
4	Worksite, Electrical, Chemical, or Environmental Hazards: 3rd rail hot & energized, dark, loose cables, hardware, train, SW machinery	
5	PPE Inspected: <input checked="" type="checkbox"/> Electronic Device Policy Reviewed: <input checked="" type="checkbox"/> Radio Certification Date Inspected: <input checked="" type="checkbox"/> RWP Stickers Inspected: <input checked="" type="checkbox"/> Tools and Equipment Inspected: <input checked="" type="checkbox"/> Radio Checks Performed: <input checked="" type="checkbox"/>	
	What Specialized PPE Will Be Used? SW tools	
6	Emergency Response Plan: Meet @ the platform nearby hospital car	

**Part 2: RWP Briefing:** This section must be filled out before any Roadway Workers enter the Roadway.

\*\*Track Time On/Off: (6:49:18, 18:49:34, : 1 : \*\*

7	Rail Line: C	Track Number(s): 172	Track Access Guide (TAG) Speed: N/A
	Working Limits Chain Markers: 27+00 - 32+00		
	OPS Radio Channel: 2	OPS Phone Number: 21542 (Ext.)	
	Place of Safety: Catwalk	Time Needed to Reach Place of Safety: 10s	
	Are There Red Hot Spots Within Your Working Limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
	Red Hot Spot Chain Markers: N/A	Red Hot Spot Hazard(s): N/A	
8	Form of RWP: IT <input type="checkbox"/> ETO Authority <input type="checkbox"/> Local Signal Control <input checked="" type="checkbox"/> AMF <input type="checkbox"/> FT <input type="checkbox"/>		
	RWP Notes: [REDACTED] (wayside)		
9	Advanced Mobile Flagger Call #(s) or Last Name(s): N/A		
	Advanced Mobile Flagger Placement:		
	Watchman/Lookout Placement: [REDACTED]		
	Required Site Distance: 15ft	Watchman/Lookout Rotation Schedule: N/A	
	Will There be a Speed Restriction on the Adjacent Track? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
	How Will the Speed Restriction be Implemented? Medium		
11	Will Class 2 Vehicles be Part of the Working Limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
	# of Class 2 Vehicles: N/A	Type of Class 2 Vehicles: N/A	

FORM-SAFE-GRN-002-00

Attachment 1 of 2: This is the first page of the completed RJSB form.

Incident Date: March 10, 2023 Time: 17:55 hours  
Final Report – Improper RWP  
E23164

Drafted By: SAFE 709 – 05/02/2023  
Reviewed By: SAFE 707 – 05/07/2023  
Approved By: SAFE 71 – 05/09/2023

Page 23

**WMATA Roadway Job Safety Briefing Form**

This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.



**Part 2: RWP Briefing, continued:**

12	Power Outage: Red Tag <input type="checkbox"/> Supervisory <input type="checkbox"/>		Hot Sticking Chain Markers:	
	Red/Supervisory Tag #: N/A		N/A	
	Red/Supervisory Tag Holder:			
	Insulated Mat(s) Color Blue <input type="checkbox"/> Red <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Yellow <input type="checkbox"/>			
	WSAD Certification Due	WSAD Serial #/Asset ID	WSAD Certification Due	WSAD Serial #/Asset ID
	/ /	N/A	/ /	N/A
	/ /		/ /	
Will a Piggyback Crew(s) be Working Within Your Working Limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
13	Crew Leader/EIC Call #(s): N/A		Piggyback Work Area Chain Markers: N/A	
	Piggyback Work Assignment(s):			

**Part 3: Good Faith Challenge:** The following must be read aloud by the RWIC to the Roadway Workers.

"WMATA guarantees each Roadway Worker the right to challenge, in good faith, the effectiveness of the Roadway Worker Protection being provided. The Roadway Worker making the challenge, and those that are sympathetic to the challenge, shall remain clear of the roadway until the challenge has been resolved."

RWP Issues:	Worker Name(s):
Was the GFC Issue Resolved? Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Part 4: Roadway Worker Acknowledgement**

"I understand and agree with all aspects of the Roadway Job Safety Briefing I just received. I am adequately protected from any train movement or roadway hazards. I understand I have a responsibility to conduct myself in a safe manner at all times."

**ROADWAY WORKERS HAVE THE RIGHT AND RESPONSIBILITY TO INITIATE A GOOD FAITH CHALLENGE WHEN NECESSARY**

Roadway Worker Signature	Employee ID #	Roadway Worker Signature	Employee ID #	Crew Leader/EIC Signature	Crew Leader/EIC Employee ID #

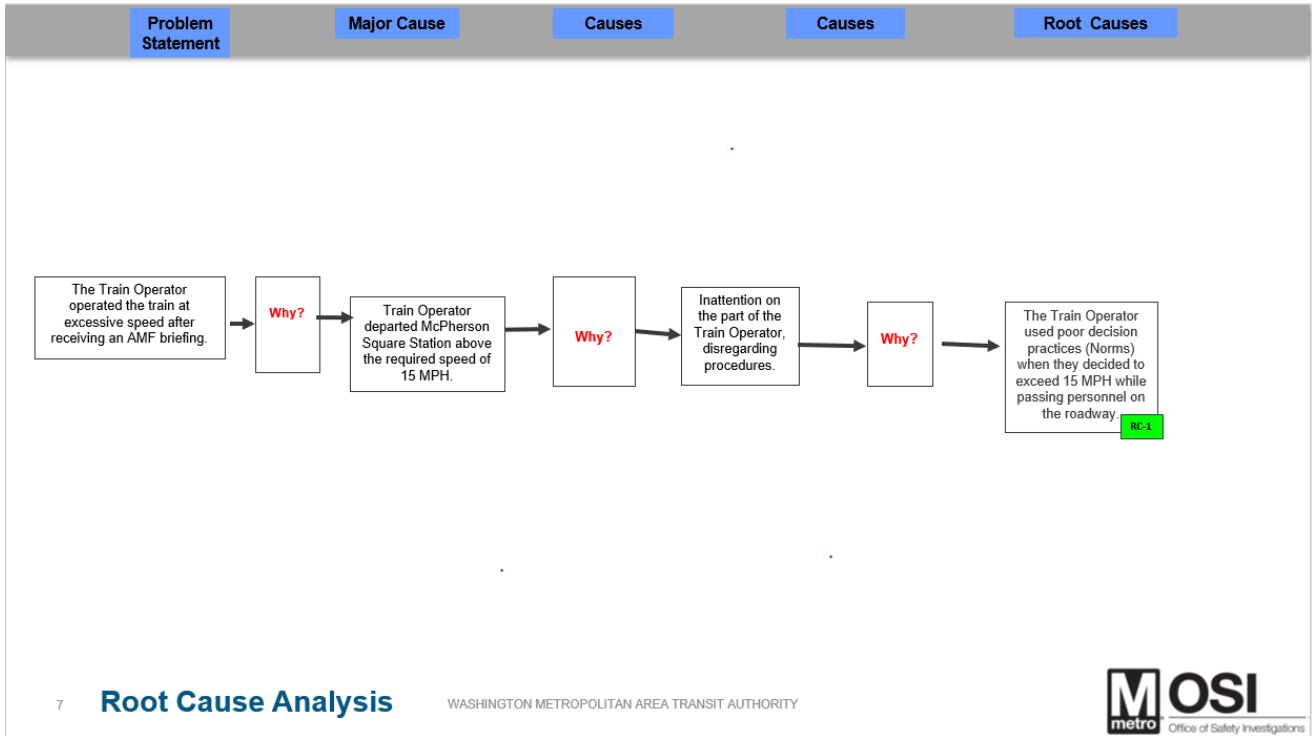
**Part 5: RWIC Signature(s)**

Additional RWIC Comments: Entrance TH1 / Exit TH2	
RWIC Signature: [Redacted]	Date: 03/10/2023
Relieving RWIC Name:	Relieving RWIC Employee ID #:
Relieving RWIC Signature:	Date/Time: / / , :
Relieving RWIC Call #:	Relieving RWIC Cell Phone #:

FOIIM-SAFE-9886-001-00

Attachment 2 of 2: This is the second page of the completed RJSB form.

## Appendix E – Why-Tree Analysis





Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)

**FINAL REPORT OF INVESTIGATION A&I E23211**

<b>Date of Event:</b>	March 29, 2023
<b>Type of Event:</b>	Improper Roadway Worker Protection (RWP)
<b>Incident Time:</b>	10:35 hours
<b>Location:</b>	Chain Marker (CM) N2 924+00
<b>Time and How received by SAFE:</b>	11:03 hours – Mission Assurance Coordinator
<b>WMSC Notification Time:</b>	11:44 hours
<b>Responding Safety Officers:</b>	None
<b>Rail Vehicle:</b>	L-7724-25x7601-00x7746-47x7731x30T
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Incident Number:</b>	20230403#107368

**CM N2 924+00 – Improper RWP**

**March 29, 2023**

**Table of Contents**

Abbreviations and Acronyms----- 3  
Executive Summary ----- 4  
Purpose and Scope ----- 5  
Investigation Methods----- 5  
Investigation ----- 6  
    Chronological ARS Timeline ----- 7  
    ROCS SPOTS Report ----- 8  
    Office of the Chief Mechanical Officer, Incident Investigation Team (IIT) ----- 8  
Interview Findings----- 9  
    Train Operator ----- 9  
    RWIC ----- 9  
    AMF ----- 9  
    RTC----- 10  
Weather ----- 10  
Human Factors ----- 10  
    Evidence of Fatigue ----- 10  
    Fatigue Risk ----- 10  
    Post-Incident Toxicology Testing ----- 10  
Related Rules and Procedures ----- 11  
Findings ----- 11  
Immediate Mitigation to Prevent Recurrence ----- 12  
Probable Cause Statement----- 12  
Recommended Corrective Actions ----- 12  
Appendices ----- 13  
    Appendix A – Interview Summaries ----- 13  
    Appendix B – RTRA Supervisor and Incident Reports (Redacted) ----- 15  
    Appendix C – Track Access Guide ----- 19  
    Appendix D – Roadway Worker Job Safety Briefing Form ----- 20  
    Appendix E – Why-Tree Analysis ----- 22



## Abbreviations and Acronyms

<b>AMF</b>	Advanced Mobile Flagger
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CM</b>	Chain Marker
<b>CCTV</b>	Closed-Circuit Television
<b>FT</b>	Foul Time
<b>MAC</b>	Mission Assurance Coordinator
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation
<b>ROCC</b>	Rail Operations Control Center
<b>ROCS</b>	Rail Operations Control System
<b>RWIC</b>	Roadway Worker In-Charge
<b>RWP</b>	Roadway Worker Protection
<b>SAFE</b>	Department of Safety
<b>SOP</b>	Standard Operating Procedures
<b>SMS</b>	Safety Measurement System
<b>TRST</b>	Office of Track and Structure
<b>VMDS</b>	Vehicle Monitoring and Diagnostic System
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission

**Washington Metropolitan Area Transit Authority  
Department of Safety – Office of Safety Investigations**

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**Executive Summary**

*\*Note that all times listed are approximate and may contain minor variations due to differences between systems of record. \**

On March 29, 2023, a Roadway Worker In-Charge (RWIC) and two members of a mobile work crew were conducting a scheduled track inspection between Wiehle-Reston East to Spring Hill Station, track 2. At 09:19 hours, the RWIC requested Foul Time (FT) from Chain Marker (CM) N2 1073+50 to 1071+00 and was granted permission to the roadway under FT protection at 09:24 hours. At 09:25, the RWIC relinquished FT and the work crew continued walking toward Spring Hill Station under Advanced Mobile Flagger (AMF) protection with an AMF on the platform at Spring Hill Station at the eight-car marker.

At 10:35 hours, the RWIC contacted the Rail Operations Control Center (ROCC) Radio Traffic Controller (RTC) to report a Near Miss with Train ID 605 operating above the regulated speed and failing to sound the train horn. The RWIC reported to the Radio RTC that they were at CM N2 924+00. A Rail Supervisor at Wiehle-Reston East took over operation of Train ID 605 and continued revenue service to Ashburn Station.

At 10:40 hours, the Radio RTC confirmed with the AMF that Train ID 605 was briefed before departing Spring Hill Station towards Wiehle-Reston East, track 2. The Office of Rail Transportation (RTRA) removed the Train Operator from service per Standard Operating Procedure (SOP) 102-01, *Removing An Employee From Service*. No injuries were reported,

The Probable Cause of the Improper Roadway Worker Protection (RWP) event was a Human Factors error in adhering to established procedures. This led to the Train Operator operating their train above half the regulated speed, as required by the MSRPH.

## Incident Site

CM N2 924+00 - Location is described in the Track Access Guide as a "Restricted View: Hill" but not noted as a Hot Spot.

## Field Sketch/Schematics

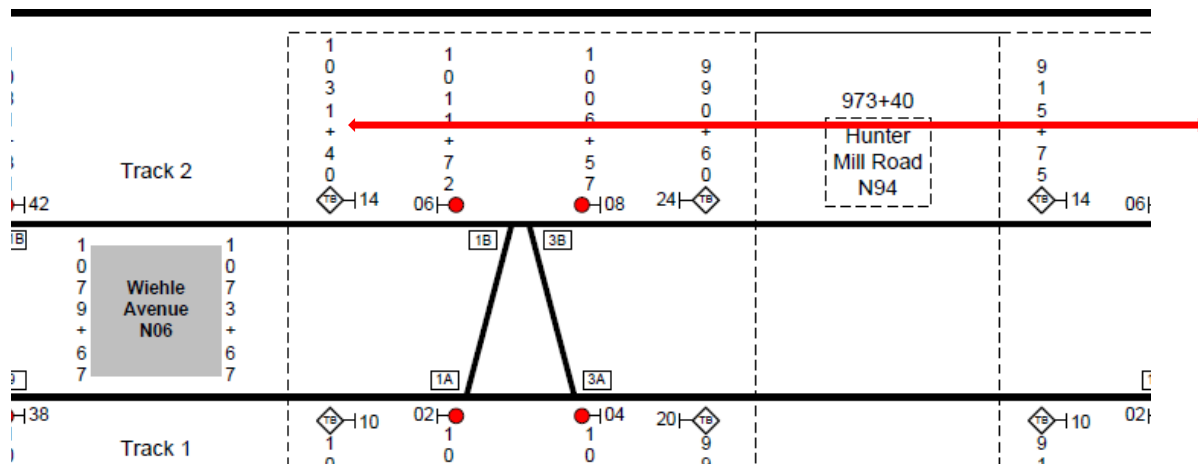


Figure 1 - AMF protected work area location

## 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 Methods

Upon receiving notification of the Improper RWP Event on March 29, 2023, SAFE dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Site assessment through video and document review.
- Formal Interview – SAFE interviewed four individuals during the investigation:
  - Train Operator
  - RWIC
  - AMF
  - RTC
- Informal Interviews - Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)

- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback, include OPS 3 Radio
  - Closed-Circuit Television (CCTV)

## **Investigation**

On March 29, 2023, a RWIC and two members of a mobile work crew were conducting a scheduled track inspection between Wiehle-Reston East to Spring Hill Station, track 2. According to the ARS playback at 09:19 hours, the RWIC requested FT from CM N2 1073+50 to 1071+00 and was granted permission to the roadway under FT protection at 09:24 hours. At 09:25, the RWIC relinquished FT, and the work continued walking toward Spring Hill Station under AMF protection with an AMF on the platform at Spring Hill Station at the eight-car marker.

CMOR-IIT ROCS SPOTS report reflected the Train ID 605 leaving the Spring Hill Station towards Ashburn Station, increasing speed to 46 MPH. The Train sounded the Road Horn 27 Times for approximately 13,400 Ft. At 13,437 Ft, the Master Controller was placed in “B4” and then moved to “B5” with a Train speed of 46 MPH. Train ID 605 Train Operator moved the Master Control into an Emergency Position at 10:31:24.750, which caused the Brake Pipe to Dump with a Train speed of 44 MPH. The Train passed Road Crew at 10:31:30.480 and came to a stop ~80 Ft passed the Road Crew the Train Operator did not report activation of the emergency brake system.

At 10:35 hours, the RWIC phoned the ROCC RTC to report a Near Miss event with Train ID 605. They reported that the train operated above half the regulated speed and did not sound the train horn. The RWIC told the RTC they were located at CM N2 924+00. A Rail Supervisor at Wiehle-Reston East took over the operations of Train ID 605 and continued in revenue service to Ashburn Station.

At 10:40 hours, the RTC confirmed with the AMF that Train ID 605 was briefed prior to departing Spring Hill Station towards Wiehle-Reston East, track 2.

At 10:41 hours, the Rail Supervisor took over the operations of Train ID 605 and continued rail service towards Ashburn Station. No injuries were reported, The Office of Rail Transportation (RTRA) removed the Train Operator from service per Standard Operating Procedure (SOP) 102-01, *Removing An Employee From Service*.

## Chronological ARS Timeline

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

Time	Description
09:19:13 hours	<u>RWIC</u> : Requested permission to enter the roadway with a crew of 2 for the purpose of track inspection from Wiehle-Reston East Station to Spring Hill Station. [Ops 4]
09:24:23 hours	<u>Rail RTC</u> : Granted permission for RWIC and crew to enter roadway under FT, from CM N2 1073+50 to 1071+00. [Ops 4]
09:25:06 hours	<u>RWIC</u> : Relinquished FT and continued walking under AMF protection. [Ops 4]
10:09:50 hours	<u>Train 605</u> : Reported no speed commands at Ballston Station. <u>Radio RTC</u> : Acknowledged and a permissive block was given with 100% repeat back. [Ops 4]
10:16:50 hours	<u>Radio RTC</u> : Blanket announcement of Track Walkers location including Track 2, between Spring Hill & Wiehle-Reston East. Reminded operators when personnel are seen to sound train horn, dim train lights and train speed is not to exceed 15 mph until the entire train consist is passes personnel with RWP procedures in place. [Ops 4]
10:22:43 hours	<u>Radio RTC</u> : Requested TRST CM location <u>TRST</u> : Confirmed location CM N2 924+00. [Ops 4]
10:35:05 hours	<u>TRST</u> : Reported to the Radio RTC that Train ID 605 nearly struck them on the roadway operating above the regulated speed and did not sound the train horn. [Phone]
10:36:59 hours	<u>Radio RTC</u> : Requested Rail Supervisor at Wiehle-Reston East Station to board the next train that arrives at the station on track 2. [Ops 4]
10:38:41 hours	<u>Radio RTC</u> : Instructed Train ID 606 to pick up TRST personnel from CM N2 905+50. [Ops 4]
10:38:47 hours	<u>Radio RTC</u> : Notified the Assistant Operations Manager (AOM) of the near miss that occurred with TRST and Train ID 605. [Phone]
10:40:45 hours	<u>Radio RTC</u> : Confirmed with AMF on the platform at Spring Hill Station if briefing was completed with Train ID 605. [Ops 4]
10:41:45 hours	<u>Rail Supervisor</u> : Took over operations of Train ID 605 and verified lead car as 7724. [Ops 4]
10:53:08 hours	<u>Train ID 606</u> : Reported they arrived at the requested CM and picked up TRST personnel. [Ops 4]

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

# ROCS SPOTS Report

### ROCS SPOTS REPORT

based on up-to-the-second operational performance data from the Rail Operations Control System  
Current date/time: Wed Mar 29 21:58:17 2023

**Road Crew # 1**

1. AMF Flagman was at the 8 Car Marker at **Spring Hill Station (N04-2)**.
2. Observed Road Crew standing under bridge 13,868.254 Ft past Spring Hill Station.
3. Train was traveling at 28.9 MPH.
4. Train Master Controller placed in Emergency and came to a stop ~80 Ft past Road Crew.

Select ID:

Select Date: Mar 29 2023 | Select Times (0-24HRS): From 10:00 To 12:00

ID	Platform	length	dcode	Right door open	Right door close	dwll	Left door open	Left door close	dwll	Head Arrived	Tail cleared	cars	Travel Time door open to door open
605	K01-2	8	68				10:03:21	10:03:37	16	10:02:44	10:04:05	unknown	-
605	K02-2	8	68	10:05:05	10:05:17	12				10:04:32	10:05:41	unknown	1:44
605	K03-2	8	68	10:06:43	10:06:54	11				10:06:10	10:07:16	unknown	1:38
605	K04-2	8	68	10:08:31	10:08:37	6	10:09:24	10:09:39	15	10:07:56	10:10:51	unknown	1:48
605	K05-2	8	68				10:14:31	10:14:51	20	10:13:59	10:15:14	unknown	6:00
605	N01-2	8	68							10:20:46	10:22:06	unknown	-
605	N02-2	8	68				10:23:12	10:23:28	16	10:22:42	10:23:56	unknown	8:41
605	N03-2	8	68				10:25:21	10:25:38	17	10:24:53	10:26:03	unknown	2:09
605	N04-2	8	68				10:27:18	10:27:35	17	10:26:46	10:28:10	unknown	1:57
605	N06-2	8	68	10:40:27	10:40:42	15	10:39:35	10:40:53	78	10:39:03	10:41:37	unknown	12:17
605	N07-2	8	68				10:44:36	10:44:55	19	10:43:50	10:45:21	unknown	5:01
605	N08-2	8	68				10:48:19	10:48:36	17	10:47:47	10:49:00	unknown	3:43
605	N09-2	8	68				10:51:25	10:51:42	17	10:50:52	10:52:08	unknown	3:06
605	N10-2	8	68				10:55:49	10:56:15	26	10:55:13	10:57:00	unknown	4:24
605	N11-2	8	68				11:04:27	11:04:44	17	11:03:55	11:05:09	unknown	8:38
605	N11-1	0	51				11:12:23	11:12:41	18	11:11:52	11:13:05	6061-6060,6138-6139,6027-6026	7:56

**Road Crew # 2**

1. AMF Flagman was at the 8 Car Marker at **Wiehle-Reston (N08-2)**.
2. Observed Road Crew standing on Cat Walk 589.356 Ft from Station at 10:41:29.160.
3. Train was traveling at 18.1 MPH.
4. Road Horn was sounded 20 Times after passing Road Crew.

**Road Crew # 3**

1. AMF Flagman was at the 8 Car Marker at **Dulles Airport Station (N10-2)**.
2. Road Horn was sounded 27 Times.
3. Observed Road Crew standing on Cat Walk on Elevated Track 788.604 Ft from Station at 10:57:03.630.
4. Train was traveling at 11.4 MPH.

Train 605 was taken out of Service after this Station and moved to Dulles Yard Trk 15.

Image 1 CMOR-IIT ROCS SPOTS REPORT with key notes

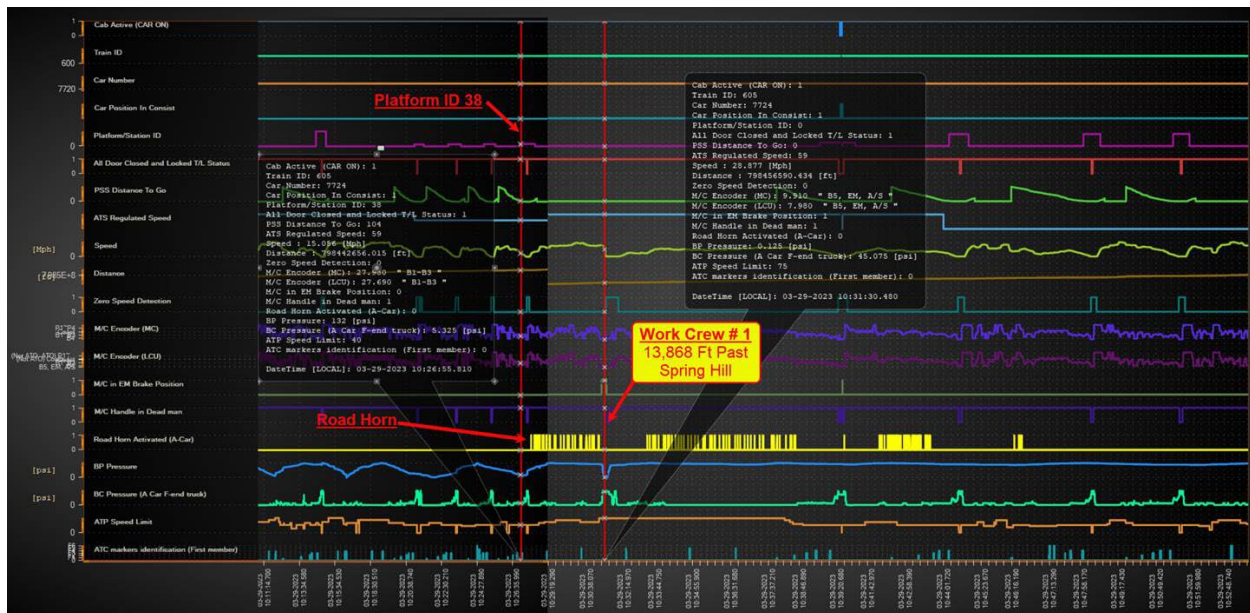
## Office of the Chief Mechanical Officer, Incident Investigation Team (IIT)

Adopted from CMOR-IIT reported the following findings:

“Train 605 was traveling on the Silver Line Outbound toward Dulles Airport, entered Springhill Station, and stopped at the 8-Car Marker. An AMF was seen in Car 7724 Forward Camera as the Train came to a stop. The Train left the Station and increased speed to 46 MPH. The Train sounded the Road Horn 27 Times for approximately 13,400 Ft. At 13,437 Ft, the Master Controller was placed in “B4” and then moved to “B5” with a Train speed of 46 MPH. The Master Control was moved into an Emergency Position at 10:31:24.750, which caused the Brake Pipe to Dump with a Train speed of 44 MPH. The Train passed Road Crew # 1 at 10:31:30.480 and came to a stop ~80 Ft passed the Road Crew. At 10:32:09.500, the Train resumes moving toward Dulles Station.

Train 605 entered Wiehle-Reston Station and stopped at the 8-Car Marker at 10:31:37.420. An AMF was seen in Car 7724 Forward Camera as the Train came to a stop. The Train left the Station and increased its speed to 18 MPH. The Train did not sound its Road Horn. The Train passed Work Crew # 2 at 10:41:29.160 at a speed of 18 MPH. The Train sounded its Road Horn 20 Times after passing the Road Crew. The Train increased its speed to 34 MPH and stopped at Reston Town Center at 10:44:17.550.

Train 605 entered Dulles Airport Station and stopped at the 8-Car Marker at 10:55:39.630. An AMF was seen in Car 7724 Forward Camera as the Train came to a stop. The Train left the Station and increased its speed to 13 MPH. The Train sounded its Road Horn 27 Times for approximately 788 Ft. At 783 Ft. The Train passed Work Crew # 3 at 10:57:03.630 at 11 MPH. No other Road Crews were seen as the Train moved toward the next Station.”



## Interview Findings

As part of the investigation launched into the event, SAFE interviewed four employees. The interview 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

- Train Operator acknowledged being briefed by the AMF at the platform prior to encountering the mobile work crew.
- Train Operator reported a shadow condition beneath a pedestrian bridge that obscured their view of the personnel.
- Train Operator stated they placed the train in emergency braking.

### RWIC

- RWIC conducted a safety briefing prior to entering the roadway and discussed hotspot areas.
- RWIC and work crew were working under AMF protection.

### AMF

- AMF stated they were located at Spring Hill Station at the eight-car marker and briefed the train operator that there may be multiple work crews ahead and to proceed at half the regulated speed until they reach the next station, while continuously sounding the train horn.

## RTC

- RTC stated they were working as the RTC Buttons and Radio when the RWIC contacted them to report a train passed them at excessive speed and requested the train ID number.
- The RTC contacted the AMF and they reported that they briefed every train that left the platform.

## **Weather**

On March 29, 2023, at the time of the incident, NOAA recorded the temperature as 52° F, with a few clouds, winds 5 mph, and 50% humidity. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Reston, VA.

## **Human Factors**

### Evidence of Fatigue

#### *Train Operator*

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

### Fatigue Risk

#### *Train Operator*

We evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident time of day did not suggest an increased risk of fatigue-related impairment. Employee reported some variation in the sleep schedule in the days leading up to the incident. The employee worked day shift in the days leading up to the incident. The employee was awake for 7 hours 25 minutes at the time of the incident. The employee reported 7 hours 50 minutes of sleep in the 24 hours preceding the incident. The off-duty period was 14 hours and 40 minutes which provides an opportunity for 7-9 hours of sleep. This was less than the employee's usual workday sleep duration. The employee reported no issues with sleep. The employee worked day shift in the days leading up to the incident.

### Post-Incident Toxicology Testing

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

### Certifications

- The Train Operator is RWP Level 2 certified with an expiration date of January 2024.
- The Train Operator was recertified on January 4, 2023, and received a rating of QL-1 (highest rating).



## Work History

- The Train Operator's discipline record does not reflect any safety violations in the last three years.

## Related Rules and Procedures

- MSRPH Operating Rule 3.87 (emphasis added)
  - Class I and Class II Rail Vehicle Operators shall maintain a constant lookout in the direction in which their vehicles are moving. When Rail Vehicle Operators observe persons on the roadway, they shall: a) Sound mainline horn (2 Long Sounds) to warn those people of the vehicle's approach and immediately reduce the train's speed to 15 MPH. When personnel are located on the same track as the operating rail vehicle, and they do not physically clear the roadway to a place of safety and appropriately acknowledge the horn signal; the Rail Vehicle Operator shall bring the vehicle to an immediate stop one car length away from the watchman's position. The Rail Vehicle Operator shall contact the ROCC and await their instructions before moving the vehicle. **Rail Vehicle Operators shall report all near misses to ROCC.**
- Rail Vehicle Operating Procedures During AMF "3."

MSRPH AMF Script to 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."*

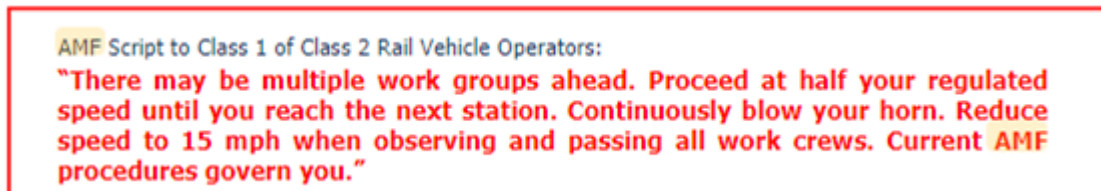


Figure 2 - AMF Script to Operators from MSRPH

## Findings

- A work crew was authorized to conduct track inspections between Spring Hill Station and Wiehle-Reston East Station.
- Train ID 605 sounded the train horn in approach to the work crew but did not sound the train horn when it passed personnel on the roadway under RWP protection.
- Train ID 605 did not operate at half of the regulated speed in approach to personnel on the roadway under RWP protection.
- AMF was observed in place through Car 7724's Forward Camera as the Train came to a stop at Spring Hill Station.
- When in proximity to the work crew, the Master Controller was moved into an Emergency Position at 10:31:24.750, which caused the Brake Pipe to Dump with a Train speed of 44 MPH.
- The train passed the mobile crew at 10:31:30.480 and came to a stop about 80 feet passed the crew.

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

- The Train Operator was removed from service and underwent post-incident testing.

### **Probable Cause Statement**

The Probable Cause of the Improper RWP event was a Human Factors error in adhering to established procedures. This led to the Train Operator operating their train above half the regulated speed, as required by the MSRPH.

### **Recommended Corrective Actions**

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Estimated Completion Date</b>
107368_SAFE CAPS_RTRA_0 01	(RC-1) The Train Operator will receive refresher training on AMF Operations.	RTRA SRC	Completed

## Appendices

### **Appendix A – Interview Summaries**

*The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

#### Train Operator

The Train Operator is a WMATA employee with seven years of service and three months of experience as a Train Operator. The Train Operator holds a RWP Level 2 certification that expires August 2023.

The Train Operator stated after they serviced the platform at Spring Hill Station, the AMF briefed them about the mobile work crew ahead on the roadway. The Train Operator stated as the Train departed Spring Hill Station, they sounded the train horn and visually surveyed the tracks ahead for roadway workers. The Train Operator stated the train approached a slight curve and there were no roadway workers observed until they reached a blind spot section under a pedestrian foot bridge<sup>1</sup>. The shadow from the pedestrian foot bridge made it a blind spot. The Train Operator placed the Master Controller in emergency braking causing the train to stop. The Train Operator stated the roadway worker were able to retreat to the catwalk out of the path of the train.

The Train Operator stated they continued to Wiehle-Reston East Station sounding the train horn. When they arrived at Wiehle-Reston East Station, an RTRA Rail Supervisor took over Train ID 605.

#### RWIC

The RWIC is a WMATA employee with three ½ years of service and experience as a Track Walker RWIC. The RWIC holds a Roadway Worker Protection Level 4 certification that expires August 2023.

The RWIC stated they were inspecting the track under AMF protection as they passed under a bridge when they notice a train approaching not sounding their horn at full speed. They were able to get against the wall before the train passed their location. The train came to a stop past the crew. They stated they contacted ROCC to request the trains ID.

The RWIC stated they conducted a safety briefing prior to entering the roadway and discussed hotspot areas.

#### AMF

The AMF stated they were located at Spring Hill Station at the eight-car marker and briefed the train operator that there may be multiple work crews ahead and to proceed at half the regulated speed until they reach the next station continuously sounding the train horn. They advised the Operators to reduce speed to 15 mph when observing and passing all work crews.

#### RTC

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<sup>1</sup> Per the Train Operator, the shadow from the pedestrian foot bridge made it hard to see the track walkers.

The RTC stated they were working as the RTC Buttons and Radio when the RWIC contacted them to report a train passed them at excessive speed and request the train ID number. They instructed the RWIC to stand by in a place of safety while they made to proper notifications. The RTC stated the Rail Supervisor at Wiehle-Reston Station took over operation of the train. The RTC stated they confirmed with the AMF at Spring Hill Station that a briefing was contacted with Train ID 605.

# Appendix B – RTRA Supervisor and Incident Reports (Redacted)

WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page \_\_\_ of \_\_\_

**Incident Information: This page must be completed for all incidents**

Date: 3-29-23 Incident Time: 10:35 am Time Reported: \_\_\_\_\_ Reported by: Customer  Employee   
 ROCC  Other

**Location**

Station: Spring Hill to Wiehle Mezzanine #: \_\_\_\_\_ Track #/Destination: Track 2 Ashburn Chain Marker/Signal Number: \_\_\_\_\_

**TYPE OF INCIDENT**

Property Damage  Smoke  Fire  Customer Complaint  
 Customer injury  Customer Illness  Employee Injury  Employee Illness  
 Criminal Activity  Elevator Entrapment  Rail Vehicle Incident  Other (Explain in description of incident)

**WEATHER** **LIGHT CONDITIONS (natural lighting)** **LIGHTING (artificial lighting)**

Clear  Rain  Dawn/Dusk  Daylight  Lights On  Lights Off   
 Snow  Sleet/Ice  Dark  Tunnel/Underground  Lights Not Working

**STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC**

Elevator/Escalator #: \_\_\_\_\_ AFC #: \_\_\_\_\_ Room Number/Location: \_\_\_\_\_

Failure Number(s): \_\_\_\_\_

Parking Lot  Paid Area  Free Area  Garage  Station Entrance  Stairway # \_\_\_\_\_  Platform  Ancillary Room

Injury/Illness reported aboard Train  Other

Name of Responding Supervisor: \_\_\_\_\_ Name/Department of PLNT/AFC or other WMATA responder: \_\_\_\_\_

**TRAIN INCIDENTS**

Train ID: 605 Destination: Ashburn Car Numbers (list all cars in consist): 7724 7601 7746 7731 Lead Car: 7724

Name of Responding Supervisor: \_\_\_\_\_ Name/Department of CMNT/TRST or other WMATA responder: \_\_\_\_\_

**DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.**

Describe any property damage and the extent of any injuries.

*I was operating half regulated sounding my horn between Spring Hill and Wiehle-Reston and the track walkers were in a blind spot around the curve by the time I seen them It was to late so I Immediately went to a breaking mode which I put the train in emergency which cause the train to stop. When I got to Wiehle-Reston supervisor [redacted] took over.*

28 MAR 23 14:02

**Employee Completing Report**

Employee Name: (print) \_\_\_\_\_ Employee Signature: (sign) \_\_\_\_\_ Employee #: \_\_\_\_\_ Date: 3-29-23

Division: West Falls Run #: 85 Block #: \_\_\_\_\_ Assigned Days: Wed/Thur

**To Be Completed By Reviewing Manager**

Supervisor Name: (print) \_\_\_\_\_ Supervisor Signature \_\_\_\_\_ Employee #: \_\_\_\_\_ Date: \_\_\_\_\_

Action taken/needed \_\_\_\_\_

SMS Number: \_\_\_\_\_

50.753A 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors

Attachment 1 – RTRA Supervisor Incident Report page 1 of 4

Incident Date: 03/29/2023 Time: 10:35 hours  
 Final Report – Improper RWP Rev. 1  
 E23211

Drafted By: SAFE 710 – 05/22/2023  
 Reviewed By: SAFE 704 – 05/30/2023  
 Approved By: SAFE 71 – 06/06/2023



# RTRA Supervisor Report

Date 3-29-2023	Incident Time 10:35 am	Incident Location (Station/ Mezzanine#) Supervisor Interview Report N 93	Track/Mezzanine # N/A two
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Equipment Number (Train ID & Car Numbers; Escalator/Elevator #: Room #)  
# 605 Load car 7724. 7601. 7746. 7731

Incident Description  
passed worker on roadway [excessive speed]

WMATA Personnel Involved	Employee#	Rule Violation? List Rule(s)	Home Division	Post Incident?
[REDACTED]	[REDACTED]	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a

**Customer Information** (Detailed information must be recorded on Station Manager Incident Report)

Name	n/a	Address	n/a	Injury?	n/a
Name	n/a	Address	n/a	Injury?	n/a
Name	n/a	Address	n/a	Injury?	n/a

**Fire Department/EMS/Other External Agency Responding** (Use supplemental sheet if necessary)

Arrival Time	Unit Number	Person In charge	Remarks
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a

### Chronological Account of Incident

(Note time for each entry; Include statement of Employee or witness at conclusion)

Your Arrival Time: - 12:30 pm

I transported operator [REDACTED] for a past incident, for passing roadway workers at an excessive speed.

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Officer Submitting Report (include payroll #)	Report Reviewed By	Date
[REDACTED]	[REDACTED]	

Report must be faxed to ROCC 202-962-2808 at end of tour

**OCCUPATIONAL HEALTH AND WELLNESS'  
DRUG AND ALCOHOL COMPLIANCE PROGRAM  
POST-ACCIDENT/POST-INCIDENT DETERMINATION REFERRAL FORM**

Federal Transit Administration (FTA) regulations and WMATA's drug and alcohol policy require employees involved in an accident/incident to submit to testing for prohibited drugs and alcohol as soon as possible following the occurrence. FTA regulations and WMATA's policy also require the testing of any other individual whose performance may have contributed to the accident/incident.

**EMPLOYEES MUST BE ESCORTED**  
*(Testing will not commence without supervisory escort.)*

**GENERAL INFORMATION (Please Print)**

Employee Name	Employee ID Number	Job Title
Superintendent	Supervisor	Phone #
		Dept./Location

*Train Operator*  
*RTRA - WFC*

**ACCIDENT / INCIDENT INFORMATION**

Accident / Incident Date 3-29-2023      Accident / Incident Time 10:35  
 Reported to Supervisor Date 3-29-23      Reported to Supervisor Time 12:00 pm

Please provide a brief description of what happened: *passed worker at excessive speed*

**DECISION MAKER QUESTIONNAIRE**

Select One:      **DOT Safety Sensitive**      **Non-Safety Sensitive (Non-DOT test ONLY)**

- |   |   |  |
|---|---|--|
| 1. Did the occurrence involve the <u>operation of a revenue service vehicle</u> ?   | YES<br><input checked="" type="radio"/> | NO<br><input type="radio"/>            |
| 2. Was there a fatality?  | YES<br><input type="radio"/>            | NO<br><input checked="" type="radio"/> |
| 3. Has any individual suffered bodily injury and immediately received medical treatment away from the scene of the accident/incident?   | YES<br><input type="radio"/>            | NO<br><input checked="" type="radio"/> |
| 4. If the vehicle involved was a bus, van, or automobile was there disabling damage as a result of the occurrence and any vehicle removed from the scene by a tow truck or other vehicle? | YES<br><input type="radio"/>            | NO<br><input checked="" type="radio"/> |
| 5. If the vehicle was a railcar, was the vehicle removed from revenue service as a result of the occurrence?  | YES<br><input checked="" type="radio"/> | NO<br><input type="radio"/>            |

If you responded "NO" to question number one, please proceed with Non-DOT testing as appropriate.

Escorting Supervisor (Print Clearly)	ID Number	Phone Number
---	-----------	--------------

Please Continue to Next Page

*Attachment 1 – RTRA Supervisor Incident Report page 3 of 4*





## Appendix C – Track Access Guide

**USA**

N-Line Track 2 – Ashburn Station to K&N Junction						
N-Line Track 2	Station	Station	Chain Marker	Chain Marker	Max Speed (MPH)	Notes
Clear View	N-10	N-09	1367+00	1347+00	65	
Clear View	N-10	N-09	1347+00	1341+70	55	
Interlocking	N-10	N-09	1341+70	1338+50	55	
Clear View	N-10	N-09	1338+50	1335+00	55	
Limited View	N-10	N-09	1335+00	1327+00	55	
Restricted View	N-10	N-09	1327+00	1326+00	40	
Restricted View	N-10	N-09	1326+00	1301+00	40	
<b>Innovation Station</b>	<b>N-09</b>	<b>N-09</b>	<b>1301+53</b>	<b>1295+00</b>	<b>55</b>	
Interlocking	N-09	N-08	1295+00	1290+00	65	
Clear View	N-09	N-08	1290+00	1278+00	65	
Limited Visibility	N-09	N-08	1278+00	1270+00	65	
Clear View	N-09	N-08	1270+00	1266+00	65	
No Clearance	N-09	N-08	1266+00	1263+00	65	
Restricted View	N-09	N-08	1263+00	1250+00	65	
Restricted View	N-09	N-08	1250+00	1241+00	45	
Limited Visibility	N-09	N-08	1241+00	1225+00	45	
Clear View	N-09	N-08	1225+00	1210+00	40	
<b>Herndon Station</b>	<b>N-08</b>	<b>N-08</b>	<b>1210+00</b>	<b>1204+00</b>	<b>65</b>	
Clear View	N-08	N-07	1204+00	1198+00	65	
Interlocking	N-08	N-07	1198+00	1181+00	65	
Clear View	N-08	N-07	1181+00	1164+00	65	
Clear View	N-08	N-07	1164+00	1140+00	40	
<b>Reston Town Center Station</b>	<b>N-07</b>	<b>N-07</b>	<b>1140+00</b>	<b>1133+00</b>	<b>55</b>	
Limited Visibility	N-07	N-06	1133+00	1116+00	55	
Clear View	N-07	N-06	1116+00	1094+00	55	
Interlocking	N-07	N-06	1094+00	1081+00	55	
Interlocking	N-07	N-06	1094+00	1081+00	55	
No Clearance	N-07	N-06	1087+00	1079+00	55	
<b>Wiehle-Reston East Station</b>	<b>N-06</b>	<b>N-06</b>	<b>1079+50</b>	<b>1073+50</b>	<b>75</b>	
No Clearance	N-06	N-05	1073+50	1071+00	75	
Clear View: Road Noise Caution	N-06	N-05	1071+00	1064+00	75	
Restricted View: Curve	N-06	N-05	1064+00	1011+00	75	
Interlocking Turnout #1B & 3B	N-06	N-05	1011+00	1007+00	75	
Clear View	N-06	N-05	1007+00	998+00	75	
Restricted View: Curve	N-06	N-05	998+00	945+00	75	
Clear View	N-06	N-05	945+00	928+00	75	
Restricted View: Hill	N-06	N-05	928+00	897+00	75	

Attachment 1 - Page 47 of Track Access Guide. Event area highlighted. 1 of 1.

# Appendix D – Roadway Worker Job Safety Briefing Form

## WMATA Roadway Job Safety Briefing Form



This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.

### Part 1: General Job Briefing

1	Date: 3/29/2023 Time: : RWIC: [REDACTED]
	RWIC Call #: [REDACTED] RWIC Cell Phone #: [REDACTED]
2	Safety Contact: H. H. HWP 5.14 RWP Rule: 706-704
3	Work Location: Job Task(s): Track Inspection
4	Worksite, Electrical, Chemical, or Environmental Hazards: n/a
5	PPE Inspected: <input checked="" type="checkbox"/> Electronic Device Policy Reviewed: <input type="checkbox"/> Radio Certification Date Inspected: <input checked="" type="checkbox"/> RWP Stickers Inspected: <input checked="" type="checkbox"/> Tools and Equipment Inspected: <input type="checkbox"/> Radio Checks Performed: <input checked="" type="checkbox"/> What Specialized PPE Will Be Used? n/a
6	Emergency Response Plan: Platform, Access Gate, Safety Walk

### Part 2: RWP Briefing: This section must be filled out before any Roadway Workers enter the Roadway.

\*\*Track Time On/Off: : / : , : / : , : / : \*\*

7	Rail Line: SILVER Track Number(s): 2 Track Access Guide (TAG) Speed: Half regulated
	Working Limits Chain Markers: OPS Radio Channel: 4 OPS Phone Number: [REDACTED]
	Place of Safety: Safety walk, Platform Time Needed to Reach Place of Safety:
	Are There Red Hot Spots Within Your Working Limits? Yes <input type="checkbox"/> No <input type="checkbox"/>
	Red Hot Spot Chain Markers: 1073+50 - 1071+00 Red Hot Spot Hazard(s): NO CLEARANCE
8	Form of RWP: IT <input type="checkbox"/> ETO Authority <input type="checkbox"/> Local Signal Control <input type="checkbox"/> AMF <input checked="" type="checkbox"/> FT <input checked="" type="checkbox"/> RWP Notes:
9	Advanced Mobile Flagger Call #(s) or Last Name(s): [REDACTED] Advanced Mobile Flagger Placement: Spring Mill Track 2 Watchman/Lookout Placement: n/a Required Site Distance: 50 FT. Watchman/Lookout Rotation Schedule: n/a
10	Will There be a Speed Restriction on the Adjacent Track? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> How Will the Speed Restriction be Implemented? n/a
11	Will Class 2 Vehicles be Part of the Working Limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> # of Class 2 Vehicles: Type of Class 2 Vehicles: n/a

FORM-SAFE-SRIM-001-00

52.002 06/22

Attachment 1 - RJSB Form Page 1 of 2

Incident Date: 03/29/2023 Time: 10:35 hours  
Final Report – Improper RWP Rev. 1  
E23211

Drafted By: SAFE 710 – 05/22/2023  
Reviewed By: SAFE 704 – 05/30/2023  
Approved By: SAFE 71 – 06/06/2023

Page 20

**WMATA Roadway Job Safety Briefing Form**



This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.

**Part 2: RWP Briefing, continued:**

12	Power Outage: Red Tag <input type="checkbox"/> Supervisory <input type="checkbox"/>	Hot Sticking Chain Markers:		
	Red/Supervisory Tag #:	n/a		
	Red/Supervisory Tag Holder:			
	Insulated Mat(s) Color Blue <input type="checkbox"/> Red <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Yellow <input type="checkbox"/>			
	WSAD Certification Due	WSAD Serial #/Asset ID	WSAD Certification Due	WSAD Serial #/Asset ID
	/ /		/ /	
	/ /		/ /	
Will a Piggyback Crew(s) be Working Within Your Working Limits? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
13	Crew Leader/EIC Call #(s):	Piggyback Work Area Chain Markers:		
	Piggyback Work Assignment(s):	n/a		

**Part 3: Good Faith Challenge:** The following must be read aloud by the RWIC to the Roadway Workers.

"WMATA guarantees each Roadway Worker the right to challenge, in good faith, the effectiveness of the Roadway Worker Protection being provided. The Roadway Worker making the challenge, and those that are sympathetic to the challenge, shall remain clear of the roadway until the challenge has been resolved."

RWP Issues:	Worker Name(s):
Was the GFC Issue Resolved? Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Part 4: Roadway Worker Acknowledgement**

"I understand and agree with all aspects of the Roadway Job Safety Briefing I just received. I am adequately protected from any train movement or roadway hazards. I understand I have a responsibility to conduct myself in a safe manner at all times."

**ROADWAY WORKERS HAVE THE RIGHT AND RESPONSIBILITY TO INITIATE A GOOD FAITH CHALLENGE WHEN NECESSARY**

Worker Signature	Employee ID #	Crew Leader/EIC Signature	Crew Leader/EIC Employee ID #
[Redacted]			

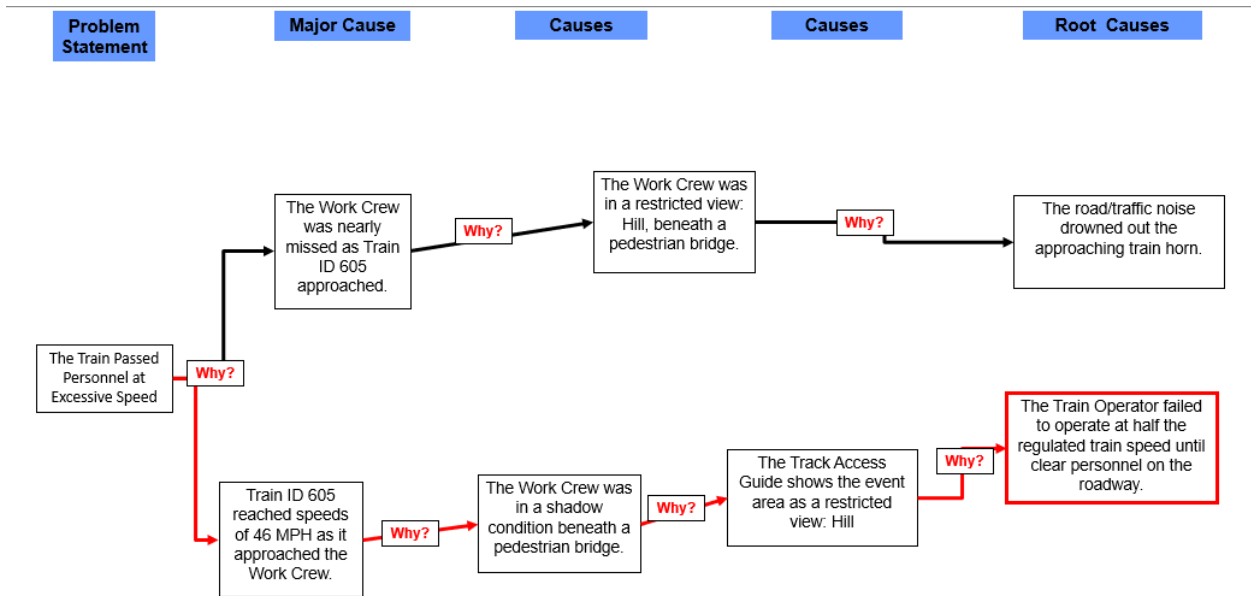
**Part 5: RWIC Signature(s)**

Additional RWIC Comments:

RWIC [Redacted]	RWIC Employee ID [Redacted]	Date: 3/29/2023
Relieving RWIC Name:	Relieving RWIC Employee ID #:	
Relieving RWIC Signature:	Date/Time: / / , :	
Relieving RWIC Call #:	Relieving RWIC Cell Phone #:	

FORM-SAFE-SRM-001-00

# Appendix E – Why-Tree Analysis



## Root Cause Analysis

Figure 3 - Root Cause Analysis





Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)

**FINAL REPORT OF INVESTIGATION A&I E23255**

<b>Date of Event:</b>	April 15, 2023
<b>Type of Event:</b>	Improper Roadway Worker Protection (RWP)
<b>Incident Time:</b>	12:09 hours
<b>Location:</b>	Capitol South Station, Track 2 CM D2 127+00
<b>Time and How received by SAFE:</b>	12:49 hours/MAC Notification
<b>WMSC Notification Time:</b>	12:49 hours
<b>Responding Safety Officers:</b>	None
<b>Rail Vehicle:</b>	Train ID 452 (L3242/43X3244/45X3266/67T)
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Number</b>	20230415#107738MX

# Capitol South Station – Improper RWP

April 15, 2023

## Table of Contents

Abbreviations and Acronyms	3
Executive Summary	4
Incident Site	4
Field Sketch/Schematics	5
Purpose and Scope	5
Investigative Methods	5
Investigation	6
Chronological Event Timeline	7
Advanced Information Management System (AIMS)	9
Office of Systems Maintenance, Office of Radio Communications (COMR)	9
Office of the Chief Mechanical Officer, Incident Investigation Team (IIT)	9
Office of Rail Track and Structures (TRST)	11
Office of Rail Transportation (RTRA)	11
Interview Findings	11
Train Operator (Train ID 452)	12
TRST RWIC	12
Weather	12
Related Rules and Procedures	12
Human Factors	13
Fatigue	13
RTRA	13
Post-Incident Toxicology Testing	13
Findings	13
Immediate Mitigation to Prevent Recurrence	14
Probable Cause Statement	14
Recommended Corrective Actions	14
Appendices	15
Appendix A – Interview Summaries	15
Train Operator (Train ID 452)	15
TRST RWIC	15
Appendix B – RTRA Statements	17
Train Operator (Train ID 452)	17
RTRA Supervisor’s Report	19
Appendix C – TRST Statements	20
TRST Assistant Superintendent Statement	21
TRST RWIC Statement	22
Appendix D – Why-Tree Analysis	23

## Abbreviations and Acronyms

<b>AIMS</b>	Advanced Information Management System
<b>AMF</b>	Advanced Mobile Flagger
<b>ARS</b>	Audio Recording System
<b>AOM</b>	Assistant Operations Manager
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<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>SPOTS</b>	System Performance On-Time Summary
<b>TRST</b>	The Office of Track and Structures
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission

**Washington Metropolitan Area Transit Authority  
Department of Safety – Office of Safety Investigations**

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**Executive Summary**

*\*Note that all times listed are approximate and may contain minor variations due to differences between systems of record. \**

On April 15, 2023, at 12:09 hours, a Track and Structures (TRST) Roadway Worker In Charge (RWIC) advised the Radio Rail Traffic Controller (RTC) on Ops 2 that Train ID 452 passed their work crew without sounding the train horn.

At approximately 10:14 hours, the TRST RWIC requested permission to perform a track inspection between Smithsonian Station and Stadium-Armory Station, track 2 under Advanced Mobile Flagger (AMF) protection. The Radio RTC granted permission to begin the track inspection between Smithsonian Station and L'Enfant Plaza Station, track 2.

The Mobile Work Crew arrived at Capitol South Station at 11:51 hours. The TRST RWIC requested permission from the Radio RTC to continue the track inspection to Eastern Market Station. At 11:52 hours, the Radio RTC granted permission to the TRST RWIC to enter the roadway between Capitol South Station and Eastern Market Station via track 2.

At 12:09 hours, the TRST RWIC advised the Radio RTC that a train had passed their crew without sounding the train horn. The Radio RTC inquired if the Train Operator of Train ID 452 had sounded the train horn while passing the Mobile Work Crew. The Train Operator advised that they had not sounded the train horn.

The TRST RWIC contacted the Rail Operations Control Center (ROCC) and reported the event. The Radio RTC instructed an Office of Rail Transportation (RTRA) Rail Supervisor located at Pentagon Station to take over operating Train ID 452.

RTRA removed the Train Operator from service for post-incident testing. The train consist was removed from service for post-incident inspection.

There were no injuries or damage resulting from this event.

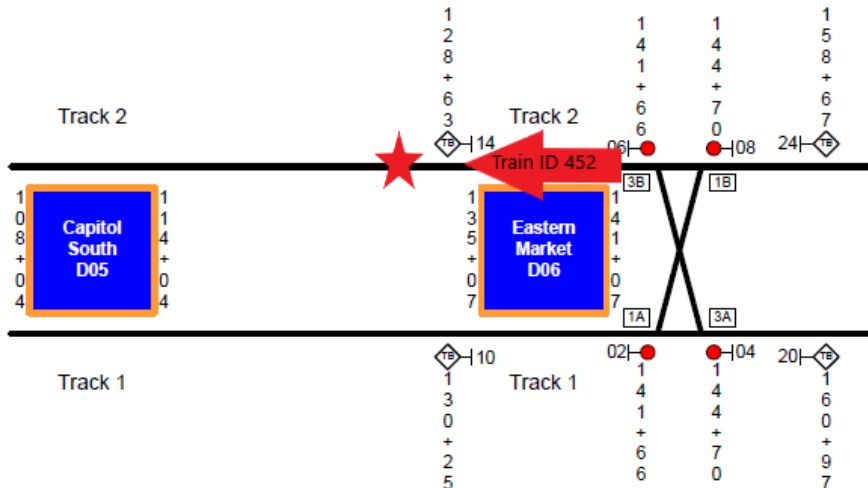
The probable cause of the Improper RWP event on April 15, 2023, at Capitol South Station was a failure to follow established procedure, as the Train Operator did not operate the train horn nor adhere to a 15 MPH speed restriction as they passed the Mobile Work Crew between Eastern Market Station and Capitol South Station. A Contributing Factor to the even was distraction, as the Train Operator reported thinking about a Person Struck by Train Event that occurred the same day.

**Incident Site**

Between Capitol South Station and Eastern Market Station, Track 2  
CM D2 127+00



## Field Sketch/Schematics



The above depiction is not to scale.

## Purpose and Scope

The purpose of this accident 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.

## Investigative Methods

The investigative methodologies included the following:

- Formal Interviews – SAFE interviewed two individuals as part of this investigation. The interviews included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual:
  - Train Operator (Train ID 452)
  - TRST Roadway Worker in Charge (RWIC)
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Train Operator Training Records
  - Train Operator Certifications
  - Train Operator 30-Day work history review
  - RWIC Training Records
  - RWIC Certifications
  - RWIC 30-Day work history review

- System Data Recording Review – A collection of Metro Data Recording Systems information. This data includes:
  - Audio Recording System (ARS) playback, including OPS 2 Radio
  - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT)
  - Advanced Information Management System (AIMS)
  - System Performance On-Time Summary (Spots)
  - Closed-Circuit Television (CCTV)

## **Investigation**

On April 15, 2023, at 10:14 hours, a TRST RWIC requested permission to perform a track inspection between Smithsonian Station and Stadium-Armory Station, track 2 under AMF protection. The TRST RWIC advised that the crew would begin the track inspection from Smithsonian Station to L'Enfant Plaza Station on track 2. The Radio RTC instructed the TRST RWIC to confirm that the AMF was in place at L'Enfant Plaza Station.

The Audio Recording System (ARS) revealed that the AMF confirmed their location at L'Enfant Plaza Station on track 2 at the 8-car marker. At 10:15 hours, the Radio RTC granted permission to begin the track inspection between Smithsonian Station and L'Enfant Plaza Station, track 2.

Between 10:15 hours and 11:50 hours, the Mobile Work Crew performed a track inspection between Smithsonian Station and Capitol South Station on track 2.

At 11:51 hours, the TRST RWIC advised ROCC that they were located at Capitol South Station and requested to continue the track inspection to Eastern Market Station. The Radio RTC instructed the TRST RWIC to confirm that the AMF was in place at Eastern Market Station. At 11:52 hours, the Radio RTC granted permission to the TRST RWIC to enter the roadway between Capitol South Station and Eastern Market Station, track 2.

The Radio RTC announced on Radio Ops 2 that personnel were in the roadway between Capitol South and Eastern Market Stations, track 2, and further advised the Train Operators to dim the train lights, tap the train horn, and proceed past the work crew at a speed no greater than 15 mph until clear.

The Advanced Information Management System (AIMS) revealed that Train ID 452 arrived at Eastern Market Station at 12:08 hours. As confirmed by the Train Operator during their interview, the Train Operator was briefed by the AMF before the train departed Eastern Market Station.

At 12:09 hours, the TRST RWIC reported to ROCC that a train passed their crew without sounding the train horn at Chain Marker (CM) D2 127+00. The Radio RTC inquired if the Train Operator of Train ID 452 sounded the train horn before passing the Mobile Work Crew. The Train Operator advised that they had not sounded the train horn. The Radio RTC instructed the Train Operator to proceed at half the regulated speed to the next station. The Radio RTC then instructed an Office of Rail Transportation (RTRA) Rail Supervisor located at Pentagon Station to take over operating Train ID 452.

At 12:11 hours, the Radio RTC announced a reminder that personnel were on the roadway between Eastern Market and Capitol South Stations and advised them to dim the train lights and tap the train horn when proceeding past the past work crews.

At 12:12 hours, Rail Supervisor #1 contacted ROCC and advised the Buttons RTC via landline that they spoke with the Train Operator on Train ID 452, and the Train Operator reported that they

spoke with the AMF at Eastern Market Station, then forgot that there was a work crew on the roadway after departing the station. The Rail Supervisor advised that they re-instructed the Train Operator of Train ID 452 at Capitol South Station on AMF procedures for Rail Vehicle Operators.

At 12:28 hours, the Button RTC instructed Rail Supervisor #2 located at Pentagon Station to remove the Train Operator of Train ID 452 from service.

The CMOR/IIT performed an inspection of the train consist and provided the following analysis, “Based on the VMS data, Train ID 452, with lead car 3242, departed Eastern Market Station with the Master Controller in the P5 Power position. The Master Controller was placed in B5 Braking Mode 537 feet after departing Eastern Market Station while travelling 42 MPH. The Road Horn was activated at 800 feet. The train passed CM D2 127+00, 807 feet after departing Eastern Market Station. The Road Horn has activated again at 923 feet after departing Eastern Market Station. The train then continued to the next station at speeds no greater than 16 MPH.”

During the formal interview, the Train Operator stated that while operating the train to New Carrollton they heard transmissions relating to a death on the roadway that had occurred. The Train Operator stated that they had been involved in a previous event in which a person was fatally injured. The Train Operator stated that they were triggered by the transmissions and notified the Terminal Supervisor at New Carrollton Station. The Train Operator stated that they were unsure if they would be able to continue operating, however, they continued to operate towards Huntington Station. The Train Operator acknowledged arriving at Eastern Market Station and receiving a briefing from the AMF. The Train Operator stated that when they departed Eastern Market Station the instructions left their mind and when they saw the Mobile Work Crew they began to brake and sound the train horn and the train passed at excessive speed.

### Chronological Event Timeline

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

Time	Description
10:14:30 hours	<p><u>TRST RWIC</u>: Requested to perform a track inspection from Smithsonian Station to Stadium Armory Station by way of track 2. Further advised AMF in position at L'Enfant Plaza, track 2 eight-car marker.</p> <p><u>Radio RTC</u>: Acknowledged, repeated back, and gave permission to go direct with their AMF.</p> <p><u>TRST RWIC</u>: Acknowledged and requested if AMF was in position.</p> <p><u>TRST AMF</u>: Advised the RWIC that they were in position, at L'Enfant Plaza Station, eight-car marker, track 2 ready to flag.</p> <p><u>TRST RWIC</u>: Acknowledged.</p> <p><u>Radio RTC</u>: Acknowledged and repeated. Granted permission to perform a track inspection between Smithsonian Station and L'Enfant Plaza Station, track 2.</p> <p>[Radio, OPS 2]</p>
10:15 hours – 11:50 hours	<p>The Mobile Work Crew performed a track inspection between Smithsonian Station and Capitol South Station on track 2. [Radio, OPS 2]</p>

<b>Time</b>	<b>Description</b>
11:51:39 hours	<u>TRST RWIC:</u> Advised located at Capitol South Station and requested to go direct with their AMF to confirm they were in position at Eastern Market Station. <u>Radio RTC:</u> Acknowledged, repeated back. <u>TRST AMF:</u> Advised the RWIC that they were in position, at Eastern Market Station, eight-car marker, track 2 ready to flag. <u>TRST RWIC:</u> Acknowledged. [Radio, OPS 2]
11:52:19 hours	<u>Radio RTC:</u> Announced to all personnel on OPS 2 that personnel were in the roadway between Capitol South and Eastern Market Stations, track 2. Further advised that all train operators are to dim their lights, tap their horns and proceed at no greater than 15 mph until clear. Advised the TRST RWIC they had permission to enter track 2 and advised to remain vigilant. <u>TRST RWIC:</u> Acknowledged, repeated back, and advised the TRST AMF that they were en route to their location and to commence flagging duties. <u>TRST AMF:</u> Acknowledged and repeated back. [Radio, OPS 2]
12:08:15 hours	Train ID 452 arrived at Eastern Market Station, track 2. [AIMS]
12:09:47 hours	<u>TRST RWIC:</u> Advised the Radio RTC that a train passed their work location at CM D2 127+00 without sounding their horn. <u>Radio RTC:</u> Acknowledged, requested if Train ID 452 sounded their horn while passing a work crew in the roadway. <u>Train Operator Train ID 452:</u> Advised they did not. <u>Radio RTC:</u> Acknowledged and advised the Train Operator to proceed at half the regulated speed to the next station. [Radio, OPS 2]
12:10:57 hours	TRST RWIC advised the Buttons RTC by landline that the Train Operator of Train ID 452 failed to sound their horn when passing the work crew at Chain Marker 127+00. The Buttons RTC advised the RWIC that the Train Operator was being re-instructed. [Phone, OPS 2]
12:11:03 hours	<u>Radio RTC:</u> Announced a reminder that personnel were on the roadway between Eastern Market and Capitol South Stations and ATC at the interlocking of D&G Junction and advised to dim lights and tap horns when proceeding past crews. [Radio, OPS 2]
12:12:16 hours	RTRA Supervisor #1 advised the Buttons RTC by landline that they spoke with the Train Operator, and they reported that they spoke with the AMF, then forgot that there was a work crew on the roadway. Advised that they re-instructed the Train Operator of Train ID 452 at Capitol South Station. [Phone, OPS 2]
12:18:16 hours	The AOM requested the time and location of the incident from the Buttons RTC by landline. [Phone, OPS 2]
12:19:30 hours	<u>Radio RTC:</u> Requested lead car information and location from Train ID 452. <u>Train Operator Train ID 452:</u> Advised located at Metro Center, lead car 3242. <u>Radio RTC:</u> Acknowledged. [Radio, OPS 2]
12:28:14 hours	The Buttons RTC instructed the RTRA Supervisor #2 located at Pentagon Station to remove the Train Operator of Train ID 452 from service. [Phone, OPS 2]

Time	Description
12:29:06 hours	The Buttons RTC advised the AOM that the Train Operator of Train ID 452 would be removed from service. [Phone, OPS 2]
12:41:36 hours	<u>Radio RTC</u> : Announced a reminder that personnel are on the roadway between Eastern Market and Capitol South Stations and ATC at the interlocking of D&G Junction. [Radio, OPS 2]

Note: Times above may vary from other systems' timelines based on clock settings.

### Advanced Information Management System (AIMS)

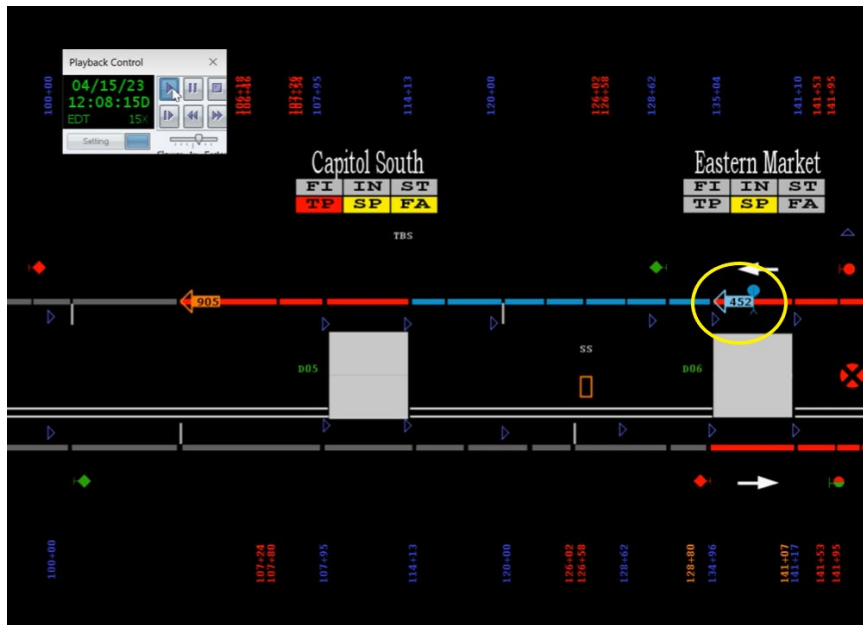


Figure 1 – AIMS depicting Train ID 452 located at Eastern Market Station, track 2 with blue block in place between Capitol South and Eastern Market Stations at 12:08 hours.

### Office of Systems Maintenance, Office of Radio Communications (COMR)

No reports of communications related issues were observed during this incident.

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

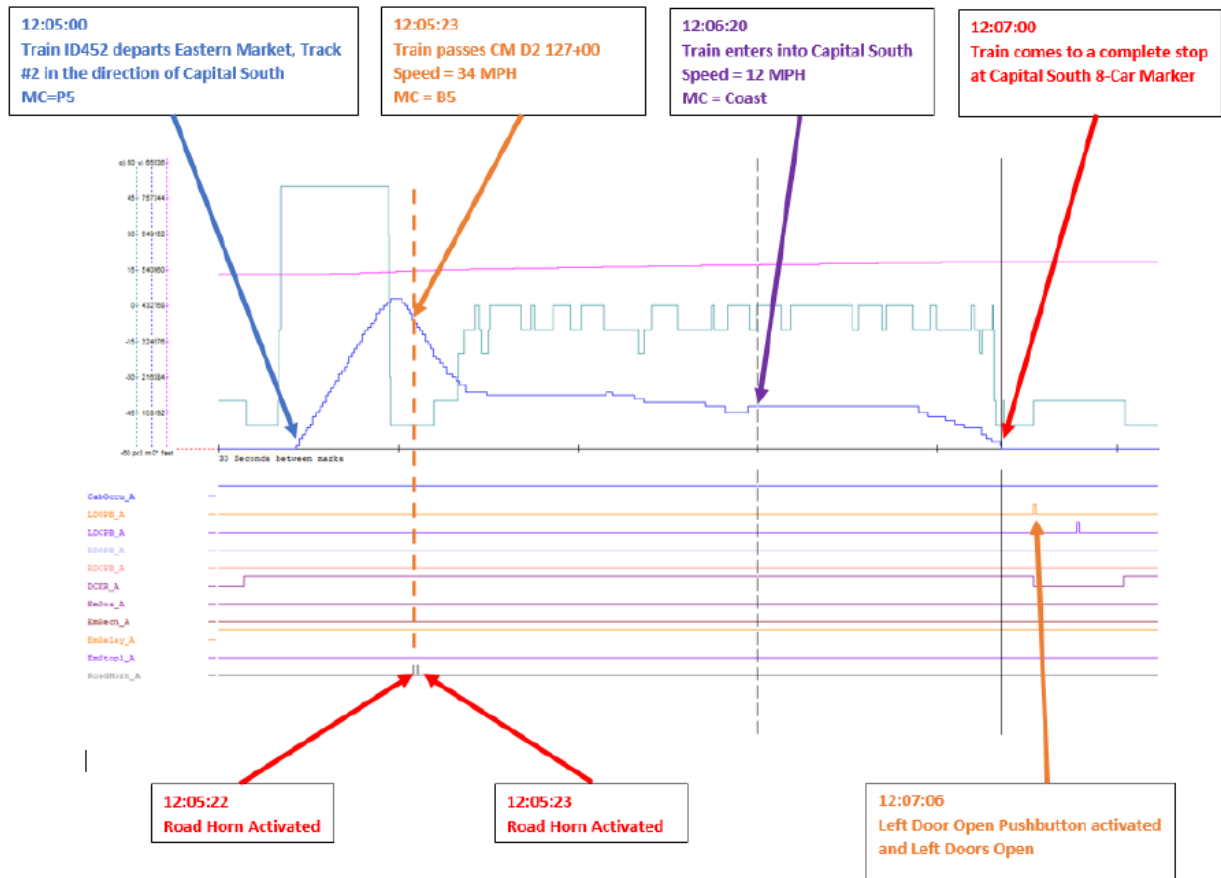
Adopted from CMOR IIT report with minor formatting and grammatical edits:

"Based on the VMS data, Train ID 452, with lead car 3242, departed Eastern Market with the Master Controller in the P5 Power position. The Master Controller was placed in B5 Braking Mode 537 ft. after departing Eastern Market. The Road Horn was activated at 800 ft. The Train passes the D2 127+00 Chain marker 807 ft. after departing Eastern Market. The Road Horn is activated again 923 ft. after departing Eastern Market. The train then continued on to the next station at speeds no greater than 16 MPH.

Based on the VMS data, there was no fault with the train that contributed to the cause of this incident. The train performed as commanded."

Time	Description of Events	Train Speed	Master Controller
12:05:00.331	Train ID452 at Eastern Market, Track #2, placed Master Controller in the P5 Power position and began to move in the direction of Capital South Station,	0 MPH	P5
12:05:18.588	Master Controller placed in B5 Braking position, Train speed 42 MPH, 537 ft. after departing Eastern Market Station.	42 MPH	B5
12:05:22.168	Road Horn Activated, Train speed was 36 MPH, Master Controller in the B5 Braking Position, 755 ft. after departing Eastern Market Station.	36 MPH	B5
12:05:23.064	Road Horn Activated again, Train speed was 34 MPH, Master Controller in the B5 Braking Position, 800 ft. after departing Eastern Market Station.	34 MPH	B5
12:05:23.192	Train passes CM D2 127+00 at a speed of 34 MPH, with the Master Controller in the B5 Braking position, 807 ft. after departing Eastern Market Station.	34 MPH	B5
12:05:25.812	Master Controller moved to the B4 Braking position, Train speed was 26 MPH, 923 ft. after departing Eastern Market Station.	26 MPH	B4
12:05:32.620	Master Controller placed in Coast, train speed was 16 MPH, 1,125 ft. after departing Eastern Market Station.	16 MPH	Coast
12:05:33.644 - 12:06:19.680	Master Controller cycled back and forth between B2 Braking Mode and Coast, traveling as speeds no greater than 16 MPH	<=16 MPH	VAR
12:06:19.680	Train enters into Capital South Station, Train speed was 12 MPH, Master Controller in the Coast Position.	12 MPH	Coast
12:06:19.680 - 12:06:45.544	Master controller moved to B1 Braking position, Train speed was 12 MPH, 153 ft. before the 8-Car Marker at Capital South	12 MPH	B1
12:06:48.420	Master Controller placed in the Coast position, Train speed was 9 MPH, 107 ft. from the 8-Car Marker at Capital South	9 MPH	Coast
12:06:49.572	Master Controller moved to the B1 Braking position, Train speed was 9 MPH, 91 ft. from the e8-Car Marker	9 MPH	B1
12:06:55.260	Master Controller placed in the Coast position, Train speed was 6 MPH, 28 ft. from the 8-Car Marker at Capital South	6 MPH	Coast
12:06:59.352	Master Controller placed in B5 Braking mode, Train speed was 2 MPH, 2 ft. before the 8- Car Marker at Capital South.	2 MPH	B5
12:07:00.248	Train comes to a complete stop at Capital South 8-Car Marker	0 MPH	B5
12:07:05.748	Left Door Open Pushbutton activated and the Left Doors Open	0 MPH	B5
12:07:12.876	Left Door Close Pushbutton activated and the Left Doors Close	0 MPH	B5
12:07:12.876	DCKR goes HIGH, Indicating all doors closed and locked.	0 MPH	B5

Table 1 - VMS data from Train ID 452 as the train passed the work crew.



Graph 1 - Data Analysis from lead car 3242.

### Office of Rail Track and Structures (TRST)

TRST collected statements from the TRST RWIC, the Assistant Superintendent and the Track Inspector, all of which detailed their action on scene and observations. All three personnel articulated that Train ID 452 was traveling fast past the work crew and that the train horn did not sound upon approach.

### Office of Rail Transportation (RTRA)

RTRA determined that the Train Operator involved in this event would receive the following retraining:

- Train Operator to receive re-instruction on RWP procedures with Division Management.
- Train Operator to receive RWP refresher training with an emphasis on procedures pertaining to train horn utilization and restricted speed when passing work crews on the roadway.

### Interview Findings

As part of the investigation launched into the event, SAFE interviewed two employees. The interviews 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 (Train ID 452)

- The Train Operator stated they were en route to Arlington Cemetery Station when they heard transmissions relating to a fatality event that had occurred.
- The Train Operator stated this triggered them to think back to an incident that they were involved in.
- The Train Operator stated they were unsure about continuing to operate the train and reported their concerns to the Terminal Supervisor.
- The Train Operator acknowledged that they received an adequate briefing from the AMF at Eastern Market Station.
- The Train Operator stated that the briefing from the AMF "completely left my head," when they departed Eastern Market Station.
- The Train Operator acknowledged that when they observed the personnel on the roadway they initiated braking and passed the work crew at an excessive speed while sounding the train horn.

## TRST RWIC

- The TRST RWIC stated the train sped past them, sounding the horn as the train went by them.

## **Weather**

On April 15, 2023, at the time of the incident, NOAA recorded the average temperature as 72°F, with significant cloud cover, winds 6.6 mph, and 52% humidity. The event occurred within a tunneled section of the rail system. Weather was not a contributing factor in this incident. (Weather source: NOAA – Location: Washington, DC.)

## **Related Rules and Procedures**

MSRPH Section 3 - Operating Rules 3.168 Rail Vehicle Horn Signals:

“Warning for mobile work crews when operating under AMF procedures, shall be sounded regardless of any horn prohibitions. a. When utilized for AMF procedure warning, this signal must be utilized from the station where the AMF was encountered until the next station and may only be suspended when the leading end of equipment is immediately passing on-track personnel.”

MSRPH Section 5 RWP – 5.13.6 Advanced Mobile Flagging (AMF) – Mobile Work Crew  
Rail Vehicle Operator Procedures during AMF

“The Rail Vehicle Operator will be given face-to-face verbal instructions regarding working crews on the tracks.

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.

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.

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.

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.”

## **Human Factors**

### Fatigue

#### RTRA

*Train Operator (Train ID 452)*

#### *Signs and Symptoms of Fatigue*

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. The video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident from the video. The Train Operator reported feeling fully alert at the time of the incident and reported experiencing no symptoms of fatigue in the time leading up to the incident.

#### *Fatigue Risk*

Incident data was evaluated for fatigue risk factors. There were no major risk factors for fatigue identified. The incident time of day (12:09 hours) does not suggest an increased risk of fatigue-related impairment. The Train Operator worked day shifts (04:44 – 16:17 hours) in the days leading up to the incident. The Train Operator reported 7 hours of sleep in the last sleep period preceding the incident and was awake for 7.15 hours at the time of the incident. The Train Operator was off duty for a calculated total of 13.75 hours, which provided the opportunity for 7-9 hours of sleep. The Train Operator reported usual workday sleep durations of 8 hours and no issues with sleep.

#### Post-Incident Toxicology Testing

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

## **Findings**

- The RWIC reported the Train Operator failed to sound the train horn when passing, to the ROCC; however, their written statement suggested the train also passed at excessive speed.
- The Train Operator of Train ID 452 acknowledged that they were speeding when the train passed the TRST personnel and did not sound the train horn when they departed Eastern Market Station, track 2, after receiving a briefing from the AMF.
- The Train Operator reported to the Terminal Supervisor that that they did not feel completely comfortable with operating due to a prior incident and person struck by train event that occurred earlier in the day.
- The CMOR-IIT report confirmed that the train horn on Train ID 452 was not utilized when the train departed Easter Market Station.

- The CMOR-IIT report confirmed that the train horn on Train ID 452 was utilized at approximately the same time as the train passed the work crew at 34 MPH.

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

- The Train Operator received a verbal re-instruction by a Rail Supervisor.
- The Train Operator was removed from service.

### **Probable Cause Statement**

The probable cause of the Improper RWP event on April 15, 2023, at Capitol South Station was a failure to follow established procedure, as the Train Operator did not operate the train horn nor adhere to a 15 MPH speed restriction as they passed the Mobile Work Crew between Eastern Market Station and Capitol South Station. A Contributing Factor to the even was distraction, as the Train Operator reported thinking about a Person Struck by Train Event that occurred the same day.

### **Recommended Corrective Actions**

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Estimated Completion Date</b>
107738MX _SAFECAPS_ RTRA_001	Train Operator to receive re-instruction on RWP procedures with Division Management.	RTRA	Completed
107738MX _SAFECAPS_ RTRA_002	Train Operator to receive RWP refresher training with an emphasis on procedures pertaining to train horn utilization and restricted speed when passing work crews on the roadway.	RTRA	Completed

## Appendices

### **Appendix A – Interview Summaries**

*The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

#### Train Operator (Train ID 452)

The Train Operator is a WMATA employee with 9.5 years of service and 8 years of experience as a Train Operator. The Train Operator is currently qualified as an RWP Level 2 that expires 06/30/2023.

The Train Operator stated they were on their second trip between New Carrollton and Huntington Stations. The Train Operator stated they were en route to Arlington Cemetery Station when they changed over to Ops 3, and heard transmissions related to a fatality on the roadway incident.

The Train Operator stated the event was triggering and made them remember an incident that they were involved in where a customer jumped in front of their train.

The Train Operator stated they arrived at the end of the line, reversed ends and go back to Huntington Station. The Train Operator stated they then went to use the restroom when an RTRA Supervisor advised them to take the next train out. The Train Operator stated they were conflicted about remaining on the job and had discussed with the Terminal Supervisor the possibility of going home. The Train Operator stated they decided to remain, and continue their shift.

The Train Operator stated they arrived at the eight-car marker of Eastern Market, track 2, and received an adequate safety briefing from the AMF. The Train Operator stated they proceeded toward Capitol South Station.

The Train Operator stated that the knowledge of the trackwalkers between Eastern Market and Capitol South Stations "completely left my head," while in the tunnel and remembered seeing flashlights against a wall. The Train Operator stated they braking and attempted to slowdown the train.

The Train Operator acknowledged that they passed the work crew at an excessive speed. The Train Operator stated they sounded the horn while passing the work crew, however, did not sound the horn while leaving Eastern Market Station.

The Train Operator stated they were re-instructed at Capitol South Station by a Rail Supervisor. The Train Operator stated they had continued "down the line," past L'Enfant Plaza Station before being removed from service.

The Train Operator stated they were then submitted to post-incident testing.

#### TRST RWIC

The TRST RWIC stated that during the time of the incident, Train ID 452 sped past them, activating their horn as they passed.

The TRST RWIC stated they initially reported a failure to sound the horn to the ROCC and did not report that the train was perceived to be traveling at excessive speed.

The TRST RWIC stated the reason for this was that they were focused on ensuring their personnel were out of the roadway and further described being "shaken up," as a result.

# Appendix B – RTRA Statements

## Train Operator (Train ID 452)

**WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle)** Page 1 of 2

**Incident Information: This page must be completed for all incidents**

Date: 4-15-23 Incident Time: 12:10pm Time Reported: Reported by: Customer  Employee   
 ROCC  Other

**Location**

Station: Mezzanine #: Track #/Destination: Chain Marker/Signal Number:

**TYPE OF INCIDENT**

Property Damage  Smoke  Fire  Customer Complaint  
 Customer Injury  Customer Illness  Employee Injury  Employee Illness  
 Criminal Activity  Elevator Entrapment  Rail Vehicle Incident  Other (Explain in description of incident)

**WEATHER** **LIGHT CONDITIONS (natural lighting)** **LIGHTING (artificial lighting)**

Clear  Rain  Dawn/Dusk  Daylight  Lights On  Lights Off   
 Snow  Sleet/Ice  Dark  Tunnel/Underground  Lights Not Working

**STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC**

Elevator/Escalator#: AFC #: Room Number/Location:

Failure Number(s):

Parking Lot  Paid Area  Free Area  Garage  Station Entrance  Stairway #  Platform  Ancillary Room   
 Injury/Illness reported aboard Train  Other

Name of Responding Supervisor: Name/Department of PLNT/AFC or other WMATA responder:

**TRAIN INCIDENTS**

Train ID: 452 Destination: Huntington Car Numbers (list all cars in consist): 6 Lead Car:  
 Name of Responding Supervisor: Name/Department of CMNT/TRST or other WMATA responder:

**DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.**

Describe any property damage and the extent of any injuries. *Prior to my incident I was at Arlington Com. #K12 when I heard the transmission over the radio that it was a jumper at Pentagon City. Hearing that 4:15 pm 2:05 triggered my anxiety and I was somewhat upset. I was offload at Pentagon (2) and was told to reverse ends and head back to New Carrollton. Once I arrived to NC, Supervisor [redacted] met me on the platform and said I had to take that train back out. He stated they called someone from the yard, but they wouldn't get there in time. I told Supervisor [redacted] I need sometime to get myself together and I was actually suppose to be on meal break. Once I came to the bathroom the other operator came and took the train. AFTER*

**Employee Completing Report**

Employee Name (print): [redacted] Employee Signature (sign): [redacted] Employee #: [redacted] Date: 4-15-23  
 Division: New Carrollton Run #: 802 Block #: 204 Assigned Days: Wed/Thur

**To Be Completed By Reviewing Manager**

Supervisor Name (print): [redacted] Supervisor Signature: [redacted] Employee #: [redacted] Date: 4-17-2023

Action taken/needed: *On file SMS*

SMS Number: *20230415#107738 MX*

50.753A 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators, remains in kiosk for use of elevator/escalator inspectors

Document 1 – Train Operator's Report, Page 1 of 2

Incident Date: 04/15/2023 Time: 12:09 hours  
 Final Report – Improper RWP  
 E23255

Drafted By: SAFE 705 – 06/14/2023  
 Reviewed By: SAFE 707 – 06/14/2023  
 Approved By: SAFE 71 – 06/14/2023

**WMATA/RTRA Incident/Accident Report (Other than Motor Vehicle) Page 2 of 2**

Additional Information- Complete this page for any incident where the information is available and when additional space is needed for incident description.

Customer Involved  Employee Involved  Witness

Last Name, First Name [Redacted] Employee # [Redacted]

Date of Birth 10-22-74 Sex F Home Phone [Redacted] Work Phone [Redacted] Cell Phone [Redacted]

Home Address [Redacted] Email Address [Redacted]

Nature of Injury/Illness N/A

Assistance Offered: Accepted  Declined

**If Transported:**

Hospital: [Redacted] Ambulance Number: [Redacted] Arrival: [Redacted] Departure: [Redacted]

Customer Involved  Employee Involved  Witness

Last Name, First Name [Redacted] Employee # [Redacted]

Date of Birth [Redacted] Sex [Redacted] Home Phone [Redacted] Work Phone [Redacted] Cell Phone [Redacted]

Home Address [Redacted] Email Address [Redacted]

Nature of Injury/Illness [Redacted]

Assistance Offered: Accepted  Declined

**If Transported:**

Hospital: [Redacted] Ambulance Number: [Redacted] Arrival: [Redacted] Departure: [Redacted]

**Police/Fire/Other Agencies Involved**

Jurisdiction/Arrival Time	Name	Badge/Unit Number
[Redacted]	[Redacted]	[Redacted]
[Redacted]	[Redacted]	[Redacted]

DESCRIBE THE INCIDENT (continued or witness statement): Include what you did to correct the problem and who you notified and when. Describe any property damage and the extent of any injuries.

about 10-15mins [Redacted] told me to take the 452 out. I stated in the terminal just speaking in general about how it triggered me and that should go home. [Redacted] did ask why did it and I told him I had jumper not too long ago and that I was serious when I said I needed some to get myself together. So I take the 452 out. I was briefed by the AME, but it completely left my mind until I saw the flash light reflection in the tunnel. I immediately went into braking they was around the corner. The train slowed down but not to the 15mph. Definitely not say [Redacted] was at fault in anyway. I should have went to

**Employee Completing report**

Employee Name (print) [Redacted] Employee Signature (sign) [Redacted] Employee #: [Redacted] Date: 2-15-23


50.753B 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors  
SMS 20230415#107738 MX

Document 2 – Train Operator's Report, Page 2 of 2

Incident Date: 04/15/2023 Time: 12:09 hours  
Final Report – Improper RWP  
E23255

Drafted By: SAFE 705 – 06/14/2023  
Reviewed By: SAFE 707 – 06/14/2023  
Approved By: SAFE 71 – 06/14/2023

RTRA Supervisor's Report

		<b>RTRA Supervisor's Report</b> <small>WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY</small>		DEPARTMENT OF OPERATIONS-RAIL SERVICE <b>Office of Rail Transportation</b>	
		<b>Date</b> 04-15-2023	<b>Incident Time</b> 12:10 pm	<b>Incident Location (Station Mezzanine#)</b> Between Potomac Avenue and Eastern Market	<b>Track/Mezzanine#</b> Track 2
<b>Equipment Number (Train ID &amp; Car Numbers; Escalator/Elevator #, Room #)</b> Train ID Number 452					
<b>Incident Description</b> Transported Train Operator Blagburn to OHAW					
<b>WMATA Personnel Involved</b>		<b>Employee #</b>	<b>Rule Violation?</b>	<b>Home Division</b>	<b>Post Incide</b>
[REDACTED]		015314	RWP	New Carrollton	Yes
<b>Name</b> N/A		<b>Address</b> N/A			<b>Injury?</b> N/A
<b>Name</b>		<b>Address</b>			<b>Injury?</b>
<b>Name</b>		<b>Address</b>			<b>Injury?</b>
<b>Arrival Time</b>	<b>Unit Number</b>	<b>Person In Charge</b>		<b>Remarks</b>	
1:10 pm	43	Norris, Terri			

**Chronological Account of Incident**

**Note time for each entry; Include statement of Employee or Witness at conclusion**

1:10 pm – Operator [REDACTED] stated due to the jumper at Pentagon City and her prior experience with a jumper, she felt anxiety. When she arrived at New Carrollton's terminal, she requested her scheduled break to Supervisor [REDACTED]; however, due to the lack of manpower, she was required to operate the train to Huntington. She departed at approximately 11:50am. When she arrived at Potomac Avenue Station, she was informed of the roadway workers by the Flagman. She proceeded on track 2 without blowing her horn. As she was travelling, she observed a light flashing on the wall, so Operator Blagburn begin braking. She was unsuccessful with the speed reduction to 15 mph while passing the workers.

1:20 pm – Operator [REDACTED] and I arrived at OHAW for a 10-75.

2:05 pm – Departed OHAW

2:42 pm – Arrived at New Carrollton Division

4:00 pm - Clear

50.437 09/10

REPORT MUST BE FAXED TO ROCC 202-962-2808 at end of tour

[Redacted]

Date 4-17-2023

RTRA Supervisor's Report

Page 2 of 2

Details (continued from front)

[Lined area for details]

Key Findings (Detail below)

[Lined area for key findings]

Supervisor Submitting Report (Initials) [Redacted] Report Reviewed By (Initials) [Redacted]

Document 4 – RTRA Supervisor's Report, Page 2 of 2


Appendix C – TRST Statements

Incident Date: 04/15/2023 Time: 12:09 hours
Final Report – Improper RWP
E23255

Drafted By: SAFE 705 – 06/14/2023
Reviewed By: SAFE 707 – 06/14/2023
Approved By: SAFE 71 – 06/14/2023



TRST Assistant Superintendent Statement


 <b>Witness or Employee Statement Form</b> WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY USE SEPARATE FORM FOR EACH PERSON		TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS Page <span style="float: right;">of</span>
<b>PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)</b>		
Name	Age	Employee # or MTPD Badge #
Phone Number	Job Title	Department
Last Day Worked (prior to)	Hours Worked (within last 24 hrs)	Division/Section
<b>INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)</b>		
Name	Phone Number	E-Mail
Address		
<b>INCIDENT</b>		
Date	Incident Time	Date/Time Reported
Location	Incident ID# (From ROCC, BOCC, etc.)	
What happened prior to the incident?		Worksafe Incident #
Describe the incident		
What happened after the incident?		
Form Completed by: (Print Name)		Date
Signature		

Document 5 – TRST Assistant Superintendent Statement, Page 1 of 1

Incident Date: 04/15/2023 Time: 12:09 hours  
 Final Report – Improper RWP  
 E23255

Drafted By: SAFE 705 – 06/14/2023  
 Reviewed By: SAFE 707 – 06/14/2023  
 Approved By: SAFE 71 – 06/14/2023

TRST RWIC Statement

 <b>Witness or Employee Statement Form</b>		TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS	
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		USE SEPARATE FORM FOR EACH PERSON	
		Page	of
<b>PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)</b>			
Name	Age	Employee # or MTPD Badge #	
Phone Number	Job Title	Department	Division/Section
Last Day Worked (prior to)	Hours Worked (within last 24 hrs)		Overtime?
<b>INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)</b>			
Name	Phone Number	E-Mail	
Address			
<b>INCIDENT</b>			
Date	Incident Time	Date/Time Reported	Location
Incident ID# (From ROCC, BOCC, etc.)	Worksafe Incident #		
What happened prior to the incident?			
Describe the incident			
What happened after the incident?			
Form Completed by: (Print Name)		Date	
Signature			

50.689 10/09 Original: RISK Copy 1: Department Copy 2: SAFE Copy 3: Employee File Photocopy to Employee

Document 6 – TRST RWIC Statement, Page 1 of 1

TRST AMF Statement

Incident Date: 04/15/2023 Time: 12:09 hours  
 Final Report – Improper RWP  
 E23255

Drafted By: SAFE 705 – 06/14/2023 Reviewed By: SAFE 707 – 06/14/2023 Approved By: SAFE 71 – 06/14/2023
--

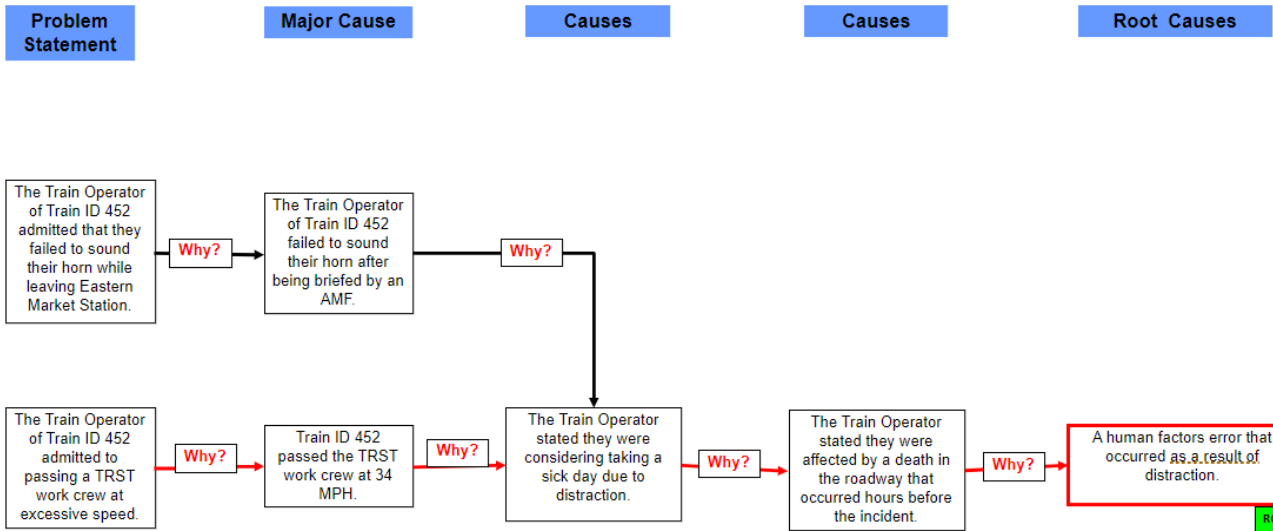
Date: <b>4/15/2023</b>		Incident Time: <input type="checkbox"/> AM <input type="checkbox"/> PM	Date/Time Reported: <input type="checkbox"/> AM <input checked="" type="checkbox"/> PM	Worksafe Incident ID#
Location: <b>T35 METRO SUPPLY FACILITY 8201 ARDWICK-ARDMORE DR. LANDOVER, MD 20785</b>				Incident ID# (From ROCC, 80CC, etc.)
Type of Incident: <input type="checkbox"/> Altercation <input type="checkbox"/> External Complaint <input type="checkbox"/> Gas Detection Alarm <input type="checkbox"/> Medical Treatment <input type="checkbox"/> Vandalism <input type="checkbox"/> Assault <input type="checkbox"/> Fatality <input type="checkbox"/> Hazardous Material <input type="checkbox"/> Near Miss <input type="checkbox"/> Other: _____ <input type="checkbox"/> Derailment <input type="checkbox"/> Fire <input type="checkbox"/> Handling <input type="checkbox"/> No Treatment <input type="checkbox"/> Rupture or Spill <input type="checkbox"/> Elevator Entrapment <input type="checkbox"/> First Aid Case <input type="checkbox"/> Internal Complaint <input type="checkbox"/> Rupture or Spill <input type="checkbox"/> Escalator <input type="checkbox"/> Flood <input type="checkbox"/> Leak <input type="checkbox"/> Trespassing				
WMATA PERSONNEL INVOLVED				
Name: [REDACTED]		Age: [REDACTED]		
Job Title: <b>AMF</b>		Department:	Division/Section:	
Last Day worked (prior to):		Hours Worked (within last 24 hrs):	Overtime? <input type="checkbox"/> Yes <input type="checkbox"/> No	
COMPLETE FOR INCIDENTS WITHIN THE RAIL SYSTEM:				
Train/Vehicle ID	Direction	Track #	Car/Vehicle Numbers	Trouble Code
Mezzanine #	AFC Equipment #	Escalator/Elevator #	Entrance	Platform
			Track	Room#
COMPLETE FOR INCIDENTS WITHIN THE BUS SYSTEM:				
Bus or Tag Number	Vehicle or Tag Number	Block Number	Run Number	
DESCRIBE THE INCIDENT AND PROPERTY/EQUIPMENT DAMAGE				
Provide factual information about the task, actions before and after the incident, the injury causing agent and any damage caused to property or equipment. Provide a diagram(s) and/or photos as attachments. If necessary, provide diagram in this space or on a separate page.				
<b>Performed Flagging Duties At Eastern Market station track 2. Bricked every train</b>				
EXTERNAL AGENCIES INVOLVED				
<input type="checkbox"/> Fire Dept. - Arrival Time: _____		<input type="checkbox"/> EMS - Arrival Time: _____		
<input type="checkbox"/> Police - Arrival Time: _____		<input type="checkbox"/> Other - Arrival Time: _____		
Name	Badge Number	Complaint Number	Jurisdiction	
Engine Number	Ambulance Number	Hospital		
ACTIONS TAKEN BY SUPERVISOR:				
Describe immediate changes made to address the incident.				
[REDACTED]		Date: <b>4/15/2023</b>		
[REDACTED]		Date: <b>4/15/2023</b>		

Document 7 – TRST AMF Statement, Page 1 of 1

**Appendix D – Why-Tree Analysis**

Incident Date: 04/15/2023 Time: 12:09 hours  
 Final Report – Improper RWP  
 E23255

Drafted By: SAFE 705 – 06/14/2023  
 Reviewed By: SAFE 707 – 06/14/2023  
 Approved By: SAFE 71 – 06/14/2023



## Root Cause Analysis





Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)  
**FINAL REPORT OF INVESTIGATION A&I E23263**

<b>Date of Event:</b>	April 17, 2023
<b>Type of Event:</b>	O-23 – Improper RWP
<b>Incident Time:</b>	10:20 hours
<b>Location:</b>	Van Dorn Station
<b>Time and How received by SAFE:</b>	10:20 hours MAC Desk
<b>WMSC Notification Time:</b>	11:10 hours
<b>Responding Safety Officers:</b>	N/A
<b>Rail Vehicle:</b>	Train 401 (7230/31x7257/56x7260/61x7740/41)
<b>Injuries:</b>	N/A
<b>Damage:</b>	N/A
<b>Emergency Responders:</b>	N/A
<b>SMS I/A Number</b>	20230417#107778

# Van Dorn Station – Improper RWP

April 17, 2023  
Table of Contents

Abbreviations and Acronyms-----	3
Executive Summary-----	4
Incident Site-----	4
Field Sketch/Schematics-----	4
Purpose and Scope-----	5
Investigative Methods-----	5
Investigation-----	5
Chronological Event Timeline-----	6
The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)-----	7
ROCC SPOTS Report-----	11
Office of Rail Transportation (RTRA)-----	11
Interview Findings-----	11
Weather-----	11
Related Rules and Procedures-----	12
Human Factors-----	12
Fatigue-----	12
Post-Incident Toxicology Testing-----	13
Findings-----	13
Immediate Mitigation to Prevent Recurrence-----	13
Probable Cause Statement-----	13
Recommended Corrective Actions-----	14
Appendices-----	15
Appendix A – Interview Summary-----	15
Appendix B – RTRA Investigative Report-----	16
Appendix C – Why-Tree Analysis-----	19

## **Abbreviations and Acronyms**

<b>AMF</b>	Advanced Mobile Flagger
<b>AIMS</b>	Advanced Information Management System
<b>AOM</b>	Assistant Operations Manager
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>CM</b>	Chain Marker
<b>DAP</b>	Discipline Administration Program
<b>IIT</b>	Incident Investigation Team
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>OR</b>	Operating Rule
<b>QA</b>	Quality Assurance
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation
<b>RWP</b>	Roadway Worker Protection
<b>ROCC</b>	Rail Operations Control Center
<b>SAFE</b>	Department of Safety
<b>SMS</b>	Safety Measurement System
<b>SOP</b>	Standard Operating Procedure
<b>SPOTS</b>	System Performance on Time Summary
<b>TRST</b>	Office of Tracks and Structures
<b>VMDS</b>	Vehicle Monitoring and Diagnostic System
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission





## **Purpose and Scope**

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

## **Investigative Methods**

The investigative methodologies included the following:

- Physical Site Assessment through document review.
- Formal Interviews – SAFE interviewed one individual as part of this investigation. The interview included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual:
  - Train Operator
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed by personnel present during the event.
  - RTRA Quality Control Officer
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include the following:
  - Train Operator Training Records
  - Train Operator Certifications
  - Train Operator 30-Day work history review
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Rail Operations Control Center (ROCC) Incident Report
  - ROCC SPOTS Report
  - RTRA Quality Assurance/Quality Control Group Internal Audit Report
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
  - ARS (Audio Recording System) playback [Radio and Landline Communications]
  - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT) Vehicle Monitoring and Diagnostic System (VMDS)
  - Closed-Circuit Television (CCTV)

## **Investigation**

On April 17, 2023, at 10:29 hours, a ROCC Buttons RTC received a telephone call from an RTRA Quality Control Officer stating that they were on board Train ID 401 and the Train Operator committed an Improper RWP violation. The RTRA Quality Control Officer was conducting a roadway/hand signal acknowledgment audit when they identified the Improper RWP violation. The RTRA Quality Control Officer informed the Buttons RTC that the Train Operator of Train ID 401 was briefed by an AMF at Van Dorn Station, but they did not travel at half the regulated speed to King Street Station. During the formal interview, the Train Operator admitted to being briefed by an AMF and knowing the proper AMF procedures.

The VMDS data showed that the Train Operator tapped their horn continuously until they arrived at King Street Station, but they failed to travel at half the regulated speed. The Train Operator never reduced their speed to 15 MPH or less when they passed the work crew. On multiple occasions, the Train Operator achieved a speed of 46 mph. During the interview, the Train Operator was asked what the proper speed limit from Van Dorn was to King Street Station. The Train Operator thought the regulated speed limit was 59 mph when it was 49 mph. The Train Operator stated they learned of the correct speed limit when they returned to the division to have an interview with the Superintendent.<sup>1</sup>

After the RTRA Quality Control Officer reported the RWP violation, the Buttons RTC informed the ROCC AOM of the violation. The ROCC AOM informed the division superintendent of the violation, who then removed the Train Operator from service. The Train Operator operated Train ID 401 to Pentagon City Station, where an RTRA Supervisor took over the train operations. The Train Operator was removed from service for post-incident testing.

### Chronological Event Timeline

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

Time	Description
10:29:12 hours	<u>RTRA Quality Control Officer</u> : Contacted the Buttons RTC to inform them that Train ID 401 committed an improper RWP violation by not traveling at half their regulated speed when they left Van Dorn Station. [Phone-Ops. 3]
10:30:23 hours	<u>Buttons RTC</u> : Informed the ROCC AOM that a RTRA Quality Control Officer contacted them about an improper RWP violation with Train ID 401. [Phone-Ops. 3]
10:31:17 hours	<u>ROCC AOM</u> : Contacted the ROCC Operations Manager to inform them that a RTRA Quality Control Officer contacted the ROCC about Train ID 401 committing an improper RWP violation. [Phone – Rail 1]
10:31:24 hours	<u>Buttons RTC</u> : Contacted the train operator's division to obtain the train operator's name and employee ID. [Phone- Ops. 3]
10:34:40 hours	<u>Radio RTC</u> : Instructed an RTRA Supervisor to board Train ID 401. [Ops. 3]
10:34:59 hours	<u>ROCC AOM</u> : Contacted the RTRA Quality Control Officer to inquire about the improper RWP that they reported. [Phone – Rail 1]
10:35:55 hours	<u>RTRA Supervisor</u> : Contacted the Buttons RTC to inform them that they were on board Train ID 401 if they were needed to take over the train operations. [Phone- Ops. 3]
10:37:29 hours	<u>ROCC AOM</u> : Contacted the Division Superintendent to inform them of the RWP violation that a RTRA Quality Control Officer reported. The Superintendent told them the Train Operator should be removed from service. [Phone – Rail 2]

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

<sup>1</sup> These statements are not in alignment with achieving a speed of 46 mph. Half-regulated speed for a 49 mph area would be no greater than 24 mph.

## The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor formatting and grammatical edits. Highlighted rows show times when Train Operator exceeded half-regulated speed.

“IIT completed the analysis of the RWP violation incident. Based on the analysis, Train ID 401 operated above half the regulated speed most of the time from Van Dorn Station Platform (J02) Track-1 to King Street Station Platform (C13) on track-1. Train ID 401 traveled an estimated 20,771 feet and stopped at the King Street Station Platform on Track-1. All the areas marked yellow color exceeded half the regulated speed.”

Time	Description of Event	Master Controller Position	Train Speed	Regulated speed	Limiting Speed	Distance beyond the Van Dorn 8 Car Marker
10:20:25	First Road horn is activated, Master Controller in P5, Speed 9MPH, Regulated Speed 49MPH, Distance beyond the 8 Car Marker	P5	9MPH	49MPH	50MPH	29 Feet
10:20:27 - 10:20:33	Master Controller is recycled in P5, P1-P4, SPEED 24MPH, Regulated speed 49MPH, Limiting Speed 50MPH, Distance 235 Feet and Road horn activated two(2) times	P5.P1-P4	24MPH	49MPH	50MPH	235 feet
10:20:34 - 10:20:39	Master Controller recycled through P1-P4, Coast, SPEED 28MPH, Regulated Speed 49MPH, Limiting Speed 50MPH, Distance 511 Feet and Road horn activated 4 times	P1-P4	28MPH	49MPH	50MPH	511 Feet
10:20:45	Master Controller recycled in, Coast P1-P4, SPEED 37MPH, Regulated Speed 49MPH, Limiting Speed 50MPH, Distance 791 Feet and Road horn activated 5 times	Coast, P1-P4	37MPH	49MPH	50MPH	791 Feet
10:20:51	Master Controller in recycled through P1-P4, Coast, speed 41MPH, Regulated speed 49MPH, Limiting Speed 50MPH, Distance 1,166 Feet, Road horn activated 6 times	Coast, P1-P4	41MPH	49MPH	65MPH	1,166 Feet
10:21:01	Master Controller recycled through P1-P4, Coast, Speed 45MPH, Regulated speed 49MPH, Limiting Speed 65MPH, Distance 1,793 Feet, Road horn activated 8 times	P1-P4, Coast	45MPH	49MPH	65MPH	1,793 Feet
10:21:24	Master Controller in B1-B3, Speed 46MPH, Regulated Speed 49MPH, Limiting Speed 75MPH, Distance 3,220 Feet and Road horn activated 13 times	B1-B3	46MPH	49MPH	75MPH	3,220 Feet
10:21:24	Master Controller recycled in B1-B3, Coast, Speed 46MPH, Regulated Speed 49MPH, Limiting Speed	B1-B3 Coast	46MPH	49MPH	75MPH	4,211 Feet

Time	Description of Event	Master Controller Position	Train Speed	Regulated speed	Limiting Speed	Distance beyond the Van Dorn 8 Car Marker
	7MPH, Distance 4,211 Feet beyond the Van Dorn Station 8 Car Marker. The road horn was activated 15 times.					
10:22:08	Master Controller recycled in B1-B3,Coast, Speed 44MPH, Regulated Speed 49MPH, Limiting Speed 75MPH, Distance 6,221 Feet and Road horn activated 18 times	B1-B3, Coast	44MPH	49MPH	75MPH	6,221 Feet
10:22:23	Master Controller in B4, Speed 34MPH, Regulated Speed 49MPH, Limiting Speed 75MPH, Distance 7,219 Feet and Road horn activated 21 times	B4	34MPH	49MPH	75MPH	7,219 Feet
10:22:29	Master Controller in B1-B3, Speed 24MPH, Regulated Speed 49MPH,Limiting Speed 75MPH, Distance 7,460 Feet and Road horn activated 22 times	B1-B3	24MPH	49MPH	75MPH	7,460 Feet
10:23:28	Master Controller recycled in B1-B3, P1-P4 , Coast, Speed 20MPH, Regulated Speed 49MPH, Limiting Speed 75MPH, Distance 9,009 Feet and Road horn activated 23 times	B1-B3, P1-P4 Coast	20MPH	49MPH	75MPH	9,009 Feet
10:23:31	Master Controller in P1-P4, Speed 26MPH, Regulated Speed 49MPH, Limiting speed 75MPH, Distance 9,106 Feet and the Road horn activated 23 times	P1-P4	26MPH	49MPH	75MPH	9,106 Feet
10:23:59	Master Controller recycled through P1-P4, Coast, B1-B3, SPEED 39MPH, Regulated Speed 49MPH, Limiting speed 75MPH, Distance 10,649 Feet and the Road horn activated 30 times	P1-P4 Coast B1-b3	39MPH	49MPH	75MPH	10,649 Feet
10:24:31	Master Controller recycled in P1-P4, Coast, B1-B3, Speed 39MPH Regulated Speed 49MPH, Limiting Speed 75 MPH, Distance 12,377 Feet, and the Road horn activated 37 times.	P1-P4 Coast B1-B3	39MPH	49MPH	75MPH	12,377 Feet
10:25:22	Master Controller recycled through P1-P4, Coast, Speed 45MPH, Regulated speed 75 MPH, Limiting Speed 75MPH, Distance 15,809 Feet and the Road horn activated 42 times	P1-P4 Coast	45 MPH	75MPH	75MPH	15,809 Feet

Time	Description of Event	Master Controller Position	Train Speed	Regulated speed	Limiting Speed	Distance beyond the Van Dorn 8 Car Marker
10:25:29	Master Controller recycled through P1-P4, Coast, Speed 46 MPH, Regulated Speed 55MPH, Limiting Speed 55MPH, Distance 16,290 Feet	P1-P4 Coast	46 MPH	55MPH	55MPH	16,290 Feet
10:25:51	Overspeed Alarm detected FSBR applied by design, Master Controller in B4, Speed 43MPH, Regulated Speed 55MPH, Limiting Speed 28MPH, Distance 17,773 Feet, and the Road horn activated 45 times.	B4	43MPH	55MPH	28MPH	17,773 Feet
10:26:22	Master Controller in Coast, speed 22MPH, Regulated Speed 28MPH, Limiting Speed 28MPH, Distance 19,063 Feet and the Road horn activated 45 times	Coast	22MPH	28MPH	28MPH	19,063 Feet
10:26:31	Master Controller in P1-P4, Speed 23MPH, Regulated Speed 28MPH, Limiting Speed 28MPH, Distance 19,378 Feet and the Road horn activated 46 times	P1-p4	23MPH	28MPH	28MPH	19,378 Feet
10:27:40	Train ID 401 came to a complete Stop at the King Street Station Platform (C13), TWC(221) on Track-1, Speed 00MPH, Regulated Speed 44MPH, Limiting Speed 55MPH, Distance beyond Van Dorn Station 8 Car Marker 20,771 Feet.	B5	00MPH	44MPH	55MPH	20,771 Feet Total Distance traveled from Van Station To King Street Station full stop

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

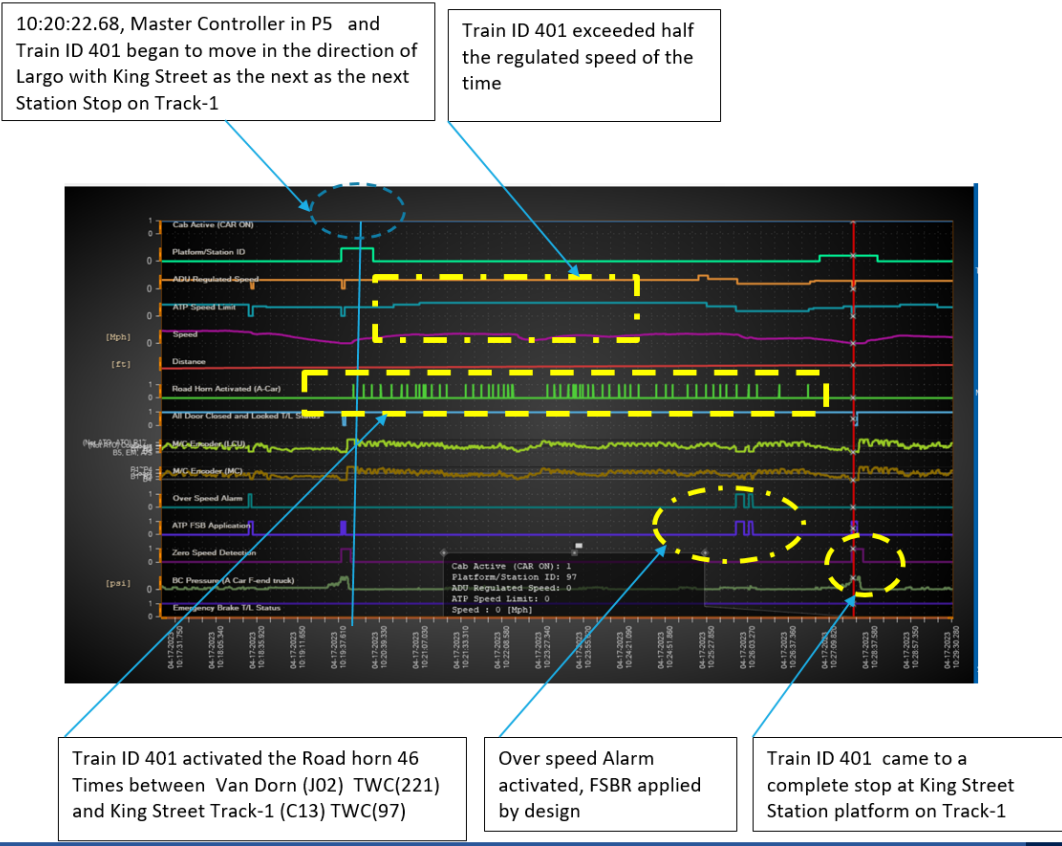


Figure 1: Lead Car 7230 ER Analysis Graph #1

# ROCC SPOTS Report

Select Platform:  and/or Select ID:  Leave blank to remove criteria  
 and/or Select 4-digit car number:  Leave blank to remove criteria  
 Select Date:    Select Times (0-24HRS): From  To

Generate Report

ID	Platform	length	dcode	Right door open	Right door close	dwll	Left door open	Left door close	dwll	Head Arrived	Tail cleared	cars	Headway door open to door open
411	J02-1	6	72				10:05:36	10:06:07	31	10:05:04	10:06:38	6140-6141.6124-6125.6068-6069	-
401	J02-1	8	72				10:19:50	10:20:10	20	10:19:14	10:20:49	7230-7231.7257-7256.7260-7261.7741-7740	14:14
402	J02-1	6	72				10:35:02	10:35:29	27	10:34:29	10:35:51	6136-6137.6130-6131.6147-6146	15:12
721	J02-1	8	99							10:37:51	10:39:10	7604-7605.7285-7284.7536-7537.7295-7294	-
403	J02-1	8	72				10:50:14	10:50:55	41	10:49:34	10:51:29	7420-7421.7667-7666.7724-7725.7573-7572	15:12

Figure 2: This chart shows when Train ID 401 entered and left Van Dorn Street Station.

## Office of Rail Transportation (RTRA)

Adopted from RTRA report with minor edits for grammar:

“The Alexandria Division Managers considered many factors in determining the appropriate disciplinary penalty for the Train Operator’s actions. The Train Operator has been a Train Operator since October 18, 2020. The Train Operator’s performance record indicated that they had zero discipline administration program (DAP) points before this violation. For violating OR (Operating Rule) 3.87 and the RWP Safety Notice dated August 2022, the Train Operator was assessed a Level II safety operational violation resulting in six (6) DAP points and a written warning which will give the Train Operator a total of 6 DAP points. The Train Operator used their accumulated six positive DAP points to reduce their points to zero, resulting in no action being taken.” [\(See Appendix B\)](#)

## Interview Findings

As part of the investigation launched into the event, SAFE interviewed one person. The interview identified the following key findings associated with this event. The findings detailed below include reported information from involved personnel and may conflict with other data sources contained in the report.

During the interview, the Train Operator stated:

- They were completing their third trip when they were notified of the violation.
- They were briefed by an AMF at Van Dorn Street Station and were aware of the AMF procedures.
- They continuously tapped their horn but failed to maintain the proper speed after departing Van Dorn Street Station.
- They were unaware of the proper speed between Van Dorn Street Station and King Street Station.
- They noticed the work crew when they were approximately 100 yards away from them.
- The train operated as intended and they did not experience any mechanical issues while operating the train.
- They operated the train to Pentagon City, where an RTRA Supervisor took over the train operations.

## Weather

On April 17, 2023, at the time of the incident, NOAA recorded the temperature as 59° F, clear skies, the wind speed was 11.2 mph northwest, and 60% humidity. The weather did not contribute to this incident. (Weather source: NOAA) – Location: Alexandria, VA.)

## Related Rules and Procedures

- **MSRPH 5.10.4 – Rail Vehicle Operators**
  - 1. Rail Vehicle Operators will be attentive to ALL ROCC announcements with regard to the location(s) of fixed work zones and mobile work crews within their routes.
  - 2. Rail Vehicle Operator must be vigilant and able to respond to all WMATA approved Hand Signals given by Roadway Workers.
- **OR 3.87 – Rail vehicle operators shall maintain a constant lookout in the direction in which their vehicles are moving. When rail operators observe persons on the roadway, they shall:**
  - A. Sound the mainline horn to warn those people of the vehicle's approach. If personnel does not physically clear the roadway and appropriate acknowledgment of the horn signal is not received, the vehicle shall be brought to an immediate stop, and the train operator shall contact the ROCC and await their instructions before moving the train. Train Operators shall report all near misses to ROCC.
  - B. Upon receiving the appropriate proceed/clear signal from the watchman/lookout on the roadway and verifying that all personnel and equipment are clear of the roadway, the Train Operator shall:
    - Acknowledge the proceed/clear signal with two mainline horn blasts
    - Stop and switch to Mode 2, Level 1, if not already in manual mode.
    - Discontinue sounding train horn after acknowledgment, and.
    - Continue at 15 mph until clear of personnel on either track.
- **RWP Safety Notice /January 2022**
  - 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.
  - 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 short blasts to acknowledge the hand signal being given by the watchman/lookout, then operate at speed no greater than 15 mph past the work crew.
  - Once the rear of the rail vehicle has passed, the entire work crew (count at least eight chain markers after passing the roadway workers). The rail vehicle operator shall continue at half regulated speed until they reach the next station.

## Human Factors

### Fatigue

#### *Signs and Symptoms of Fatigue*

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. The video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident from the video. The Train Operator reported feeling fully alert at the time of the incident. The Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.



## *Fatigue Risk*

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 Train Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Train Operator was on sick leave in the days leading up to the incident. The Train Operator was awake for 5.8 hours at the time of the incident. The Train Operator reported 6 hours of sleep in the 24 hours preceding the incident. The off-duty period was 397 hours, providing an opportunity for 7-9 hours of sleep. The Train Operator was not working leading up to the incident. This was more time than the Train Operator's usual workday sleep durations. The Train Operator reported no issues with sleep.

## Post-Incident Toxicology Testing

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

## **Findings**

- The Train Operator received a briefing from an AMF at Van Dorn Street Station.
- The Train Operator audibly activated the horn over 40 times during the journey from Van Dorn Street Station to King Street Station.
- The Train Operator maintained a speed exceeding half of the regulated limit.
- The Train Operator never reduced their speed to 15 MPH or less when they passed the work crew.
- No mechanical issues were reported with the train.
- The Train Operator demonstrated a lack of awareness regarding the appropriate speed limit.

## **Immediate Mitigation to Prevent Recurrence**

- The Train Operator was removed from service for post-incident testing.

## **Probable Cause Statement**

The probable cause for the Improper RWP event was a failure to follow established AMF procedures due to complacency with a repeated task. The Train continuously blew the train horn, indicating they were aware that they were operating under AMF procedures, but operated at excessive speed in approach to and after passing the mobile work crew.

**Recommended Corrective Actions**

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Estimated Completion Date</b>
107778_SAFE CAPS_RTRA_ 001	Train Operator to complete refresher training on AMF Operating procedures.	RTRA SRC	Completed

## **Appendices**

### **Appendix A – Interview Summary**

*The below narrative summarizes the incident and represents the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

The Train Operator is a WMATA employee with sixteen (16) years of service with three and a half (3.5) years as a Train Operator. The Train Operator previously worked as a Bus Operator. The Train Operator is RWP Level 2 certified and must recertify in July 2023. The Train Operator was last recertified as a Train Operator in July 2022. The Train Operator mentioned feeling fully alert right before the incident. The Train Operator stated they were on sick leave for two weeks before returning to work when this violation occurred. The Train Operator mentioned no personal or non-work related circumstances affecting their sleep.

The Train Operator reported to work at 05:55 hours and completed their third-round trip when this incident occurred. The Train Operator mentioned that they did not experience any mechanical issues with the train while they operated it. The Train Operator stated that when they stopped at the 8-car marker at Van Dorn Street Station, they were briefed by an AMF. The Train Operator stated that was the first time an AMF briefed them during that shift. The Train Operator was operating their regular run on the day of the incident. The Train Operator felt the AMF procedures were sufficient.

The Train Operator stated they were about 100 feet from the work crew when they noticed them. The Train Operator needed to be made aware of the proper speed limit. The Train Operator thought the speed limit between Van Dorn Street and King Street was 59 mph when it was 49 mph. The Train Operator stated that when they arrived at King Street Station, the QA personnel notified them of the violation. The Train Operator said they operated the train until Pentagon City Station, where they were relieved by an RTRA Supervisor and taken for post-incident testing.

# Appendix B – RTRA Investigative Report



## WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

INVESTIGATION REPORT		DIVISION Alexandria	GARAGE N/A	FILE NO. N/A	
DATE OF OCCURRENCE April 17, 2023	TIME 10:20AM	VEHICLE NO. L7230-7257-7260-7741	RUN # AX-400	SHIFT AM	BLOCK NO. 401
LINE BLUE	LOCATION Van Dorn Street Track 1 (J02)		DESTINATION Downtown Largo		
TYPE OF CASE O.R. 3.87, RWP Safety Notice			REPORTED BY QA/QC Officer [REDACTED]		
NAME OF EMPLOYEE INVOLVED [REDACTED]			EMPLOYEE NO. [REDACTED]		
NATURE OF OCCURRENCE ROW Violation					
1. SUMMARY OF INCIDENT INVESTIGATION. 2. SUMMARY OF EMPLOYEE STATEMENT 3. RULE(S)/POLICY VIOLATED 4. ANALYSIS OF FACTS /EVIDENCE IN SUPPORT OF RULE(S) VIOLATED 5. ASSESSMENT OF DISCIPLINE					
<p>1. On Monday, April 17, 2023, at approximately 10:20am, while riding aboard train ID 401 QA/QC reported that the Operator [REDACTED] after receiving instructions from the AMF did not operate at half the regulated speed after departing Van Dorn Street station and failed to maintain a speed of 15 mph while passing personnel on the roadway. He was subsequently removed from service and transported for post incident testing.</p> <p>2. [REDACTED] you were instructed to submit an incident report concerning this incident. In the submitted report you stated, "QA stated I was operating over half regulated speed after passing personnel on the roadway."</p>					
<p><b>ACTION TAKEN: LEVEL II SAFETY OPERATIONAL VIOLATION, 6 POINTS AND A WRITTEN WARNING</b>  <b>REDUCED TO 0 POINTS AND NO ACTION TAKEN AFTER 6 POSITIVE POINTS USED</b></p>					
DATE 5/8/2023	ACTION TAKEN BY: [REDACTED]		SIGNATURE [REDACTED]		TITLE Assistant Superintendent
EMPLOYEE SIGNATURE [REDACTED]		5-8-2023			
I certify that the above has been called to my attention, and I understand that my signature does not imply admission of guilt					
EMPLOYEE MAY WRITE A STATEMENT IN THIS SPACE					

4.21 (6/79)  
Green;

Orig. Office of Bus Service (BUSV) or RAIL.  
Employee Division File

Yellow: Employee  
Pink: Union

068 00 0736 R1  
Gold: Marketing

Attachment 1: Page 1 of 3 of the RTRA Investigative Report.

3. [REDACTED] this incident has been investigated and the following rules and procedures were violated:

**OR 3.87** Rail vehicle operators shall maintain a constant look out in the direction in which their vehicles are moving. When rail operators observe persons on the roadway, they shall:

- a. Sound mainline horn to warn those people of the vehicle's approach. If personnel do not physically clear the roadway and appropriate acknowledgement of the horn signal is not received, the vehicle shall be brought to an immediate stop and the train operator shall contact the Rail Operations Control Center (ROCC) and await their instructions before moving the train. Train Operators shall report all near misses to ROCC.

Notice: Opposite Track Trains: This rule shall not apply to gang(s) with designated watchman/lookouts working on the opposite track. The watchman/lookout shall acknowledge the approaching train by facing the train and giving/displaying the proper proceed/clear signal. The Train Operator shall acknowledge with two horn blasts. The gang shall not have to clear the tracks.

- b. Upon receiving the appropriate proceed/clear signal from the watchman/lookout on the roadway and verifying that all personnel and equipment are clear of the roadway, the Train Operator shall:
- acknowledge the proceed/clear signal with 2 mainline horn blasts (individuals on the roadway do not have to continually proceed trains after the Train Operator's acknowledgement).
  - stop and switch to Mode 2, Level 1 if not already in manual mode.
  - discontinue sounding train horn after acknowledgement, and.
  - continue at 35 mph until clear of personnel on either track. (Revised to 15mph)
- c. Upon clearing the personnel on the roadway, return to the prescribed operating mode.

RWP Safety Notice / January 2022 (Notice attached to all operator manifests)

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 blast, until they encounter the mobile work crew. Upon observing a work crew, the Rail Vehicle Operator **MUST** reduce speed to 15mph, change to low beam headlights, and be prepared to stop.

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 short blast to acknowledge the Hand Signal being given by the Watchman / Lookout, then operate at a speed no greater than 15 mph past the work crew.

Once the rear of the Rail Vehicle has passed the entire work crew (Count at least eight chain markers after passing the roadway workers). The rail Vehicle Operator shall continue at half the regulated speed until they reach the next station.

4. [REDACTED] an investigation into this incident was conducted to include your incident report and VMS Train Data . It was determined that:
- You **did not** operate half the regulated speed after departing Van Dorn Street Station
  - You **did not** operate your train at 15 mph while passing personnel on the roadway.

Attachment 1: Page 2 of 3 of the RTRA Investigative Report.

---

5. [REDACTED] in determining the appropriate disciplinary penalty for your actions, the Alexandria Division Managers considered many factors. The records of WMATA indicate that you have been an employee since February 12, 2007. You have been a Train Operator since October 18, 2020. Your performance record indicates that prior to this violation you had a total of zero (0) Discipline Administration Program (DAP) points. For violating O.R. 3.87 and the RWP Safety Notice dated August 2022, you are hereby assessed a Level II Safety Operational Violation/six (6) DAP points and a written warning which will bring your total accumulated DAP Points to a total of six (6). These six (6) points warrant a written warning. However, after using six (6) accumulated DAP points your points have been reduced to zero (0) which results in no action taken.

[REDACTED] any future violations of this nature will result in progressive disciplinary actions taken to include termination of your employment with the Washington Metropolitan Area Transit Authority.

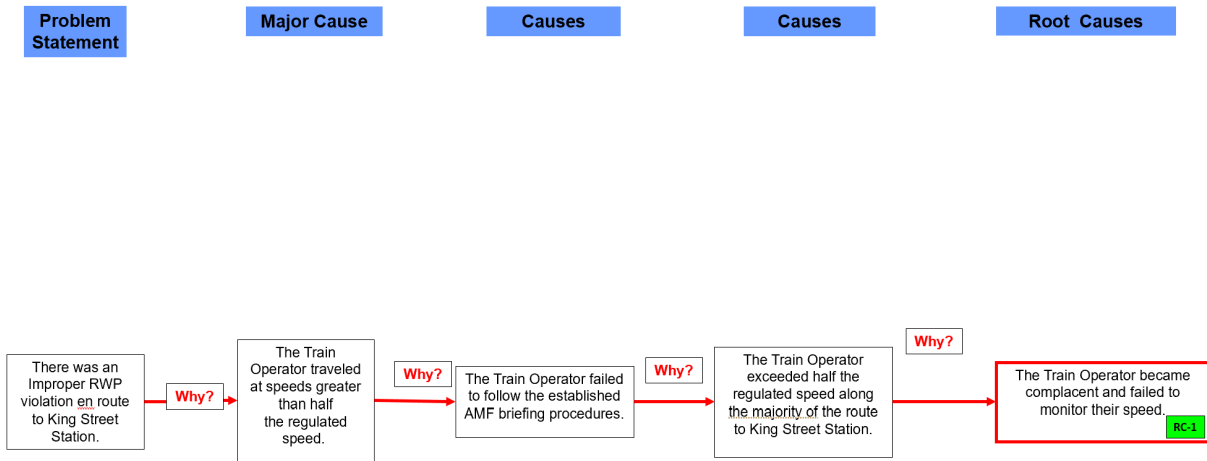
Post Incident drug and alcohol testing results \_\_\_ Positive \_\_\_X Negative

EMPLOYEE: [REDACTED] PAYROLL# [REDACTED] DATE: 5-F-2023

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*Attachment 1: Page 3f 3 of the RTRA Investigative Report.*

## Appendix C – Why-Tree Analysis



## Root Cause Analysis





Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)

**FINAL REPORT OF INVESTIGATION A&I E23283**

<b>Date of Event:</b>	April 23, 2023
<b>Type of Event:</b>	Train Passed Personnel at Excessive Speed
<b>Incident Time:</b>	10:22 hours
<b>Location:</b>	Arlington Cemetery Station, Track 1 CM C1 153+00
<b>Time and How received by SAFE:</b>	11:14 hours/MAC Notification
<b>WMSC Notification Time:</b>	11:14 hours
<b>Responding Safety Officers:</b>	None
<b>Rail Vehicle:</b>	Train ID 457 L6111/10X6023/22X6084/85T
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Number</b>	20230423#107913MX



# Arlington Cemetery Station – Train Passed Personnel at Excessive Speed

April 23, 2023

## Table of Contents

Abbreviations and Acronyms-----	3
Executive Summary-----	4
Incident Site-----	4
Field Sketch/Schematics-----	4
Purpose and Scope-----	5
Investigative Methods-----	5
Investigation-----	6
Chronological Event Timeline-----	8
Office of Systems Maintenance, Office of Radio Communications (COMR)-----	9
Office of the Chief Mechanical Officer, Incident Investigation Team (IIT)-----	9
Office of Rail Transportation (RTRA)-----	11
Interview Findings-----	11
Train Operator of Train ID 457-----	11
TRST RWIC-----	12
Weather-----	12
Related Rules and Procedures-----	12
Human Factors-----	13
Fatigue-----	13
Post-Incident Toxicology Testing-----	13
Findings-----	13
Immediate Mitigation to Prevent Recurrence-----	13
Probable Cause Statement-----	13
Recommended Corrective Actions-----	14
Appendices-----	15
Appendix A – Interview Summaries-----	15
Train Operator of Train ID 457-----	15
TRST RWIC-----	15
Appendix B – TRST Statements-----	16
TRST RWIC’s Statement-----	16
TRST Track Inspector’s Statement-----	17
Appendix C – RTRA Statements-----	18
RTRA Supervisor’s Statement-----	18
Appendix D – Why-Tree Analysis-----	19

## **Abbreviations and Acronyms**

<b>AIMS</b>	Advanced Information Management System
<b>AMF</b>	Advanced Mobile Flagger
<b>AOM</b>	Assistant Operations Manager
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>OM</b>	Operations Manager
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation
<b>ROCC</b>	Rail Operations Control Center
<b>RWIC</b>	Roadway Worker In-Charge
<b>SAFE</b>	Department of Safety
<b>SMS</b>	Safety Measurement System
<b>SPOTS</b>	System Performance On-Time Summary
<b>TRST</b>	The Office of Track and Structures
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission

**Washington Metropolitan Area Transit Authority  
Department of Safety – Office of Safety Investigations**

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**Executive Summary**

*\*Note that all times listed are approximate and may contain minor variations due to differences between systems of record. \**

On April 23, 2023, at 10:26 hours an Office of Track and Structures (TRST) Roadway Worker In-Charge (RWIC) reported to the Rail Operations Control Center (ROCC) Button Rail Traffic Controller (RTC) on the Ops 2 Desk Phone that Train ID 457 (L6111/10X6023/22X6084/85T) passed their work crew between Rosslyn and Arlington Cemetery Stations, track 1 without sounding their horn or dimming their lights at excessive speed.

The Radio RTC contacted the Train Operator of Train ID 457 to confirm that they received a briefing from the Advanced Mobile Flagger (AMF) at Arlington Cemetery Station, to which the Train Operator replied that they had.

The Button RTC advised the Operations Manager (OM) of the event. The Button RTC instructed an Office of Rail Transportation (RTRA) Rail Supervisor located at Eastern Market Station to take over operating Train ID 457 upon its arrival.

RTRA removed the Train Operator from service. The train consist was removed from service for post-incident inspection.

The probable cause of the Train Passed Personnel at Excessive Speed event on April 23, 2023, between Rosslyn and Arlington Cemetery Stations failure to follow established procedures for AMF operations. A Contributing Factor to the event was a human factors error of complacency by the Train Operator, who received a briefing from the AMF prior to encountering the work crew.

**Incident Site**

Arlington Cemetery Station, Track 1  
CM C1 153+00

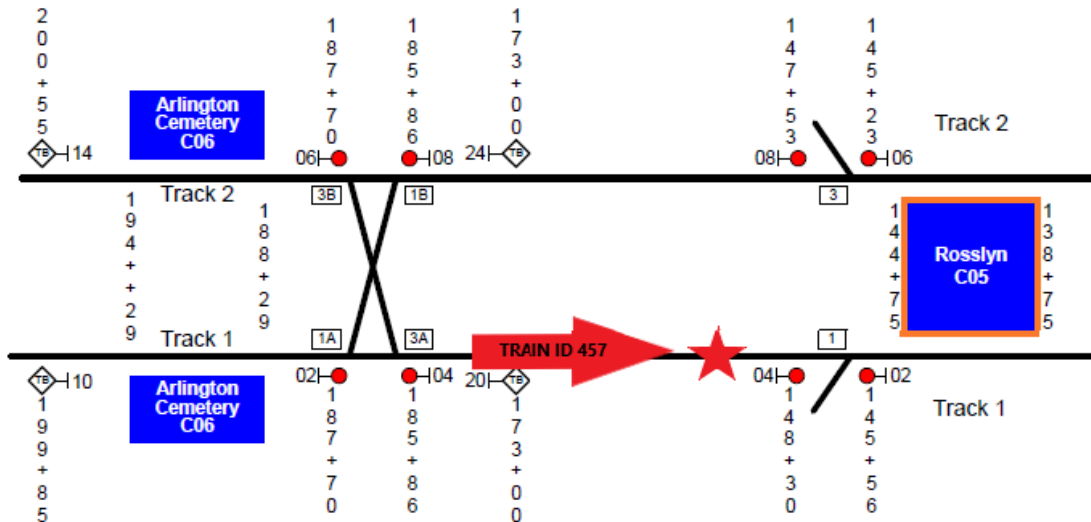
**Field Sketch/Schematics**

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Incident Date: 04/23/2023 Time: 10:22 hours  
Final Report – Train Passed Personnel at Ex Speed  
E23283

Drafted By: SAFE 705 – 06/21/2023
Reviewed By: SAFE 707 – 06/21/2023
Approved By: SAFE 71 – 06/22/2023

Page 4



The above depiction is not to scale.

## Purpose and Scope

The purpose of this accident 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.

## Investigative Methods

The investigative methodologies included the following:

- Site assessment through document and video review.
- Formal Interviews – SAFE interviewed two individuals as part of this investigation. The interviews included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual:
  - Train Operator (Train ID 457).
  - TRST RWIC
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.
- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)
  - National Oceanic and Atmospheric Administration (NOAA)
  - Train Operator Training Records
  - Train Operator Certifications
  - Train Operator 30-Day work history review
  - RWIC Training Records
  - RWIC Certifications
  - RWIC 30-Day work history review

- System Data Recording Review – A collection of Metro Data Recording Systems information. This data includes:
  - Audio Recording System (ARS)
  - The Office of Chief Mechanical Officer (CMOR) Incident Investigation Team (IIT)
  - Advanced Information Management System (AIMS)
  - System Performance On-Time Summary (Spots)
  - Closed-Circuit Television (CCTV)

## Investigation

On April 23, 2023, at 10:15 hours, the Audio Recording System (ARS) determined that the TRST RWIC contacted ROCC and requested to perform a track inspection between Rosslyn and Pentagon City Stations, on track 1 and had two AMFs in their work crew positioned at Arlington Cemetery and Court House Stations on track 1 and ready to flag. The TRST RWIC also requested to start with foul time between CM C1 145+00 to C1 148+00.

At 10:17 hours, the Radio RTC granted permission for the TRST RWIC to enter the roadway to perform the track inspection between Rosslyn and Arlington Cemetery Stations, track 1 then announced to all personnel on OPS 2 that the crew was in the roadway.

At 10:18 hours, the Train Operator of Train ID 457 requested permission from the Radio RTC to properly berth the train at Arlington Cemetery Station, track 1. The Radio RTC granted the request and advised the Train Operator that foul time was in effect ahead. At the same time, the TRST RWIC confirmed with both AMFs that foul time was in effect.

At 10:20 hours, the TRST RWIC relinquished foul time and advised the Radio RTC that they were back under AMF protection. The TRST RWIC then instructed the AMF at Arlington Station to resume normal AMF Operations. The AMF at Arlington Cemetery then provided a briefing to Train ID 457 before the train departed the station.

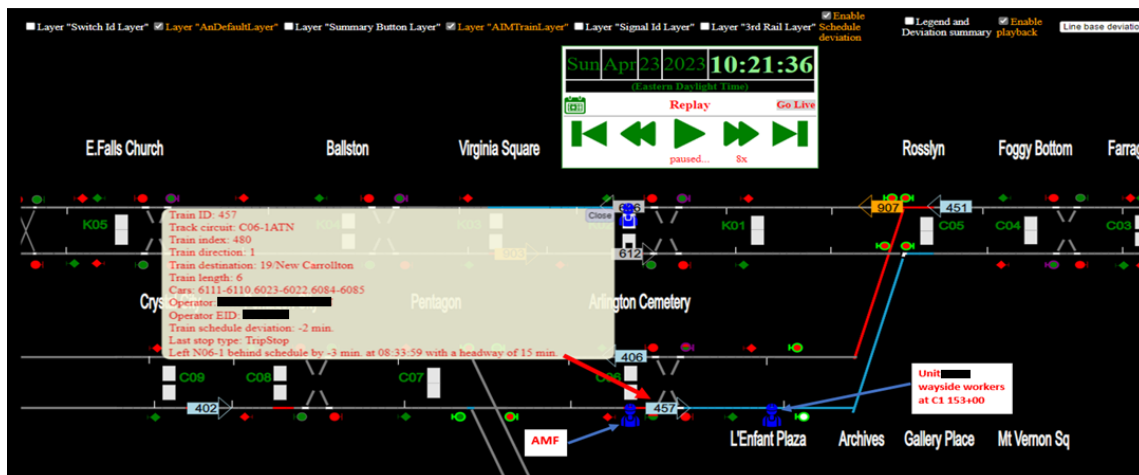


Figure 1 – AIMS snapshot of Train ID 457 proceeding from Arlington Station to Rosslyn Station, track 1, with identifying information.

At 10:22 hours, the Train Operator of Train ID 457 reported that they did not have speed readouts on approach to Rosslyn Station. The Radio RTC provided a permissive block to the eight-car marker of Rosslyn Station, track 1.

At 10:26 hours the TRST RWIC contacted the Button RTC via cellular phone and reported that Train ID 457 passed their work crew without sounding their horn or dimming their lights at excessive speed.

At 10:29 hours, Train ID 457 was approaching McPherson Square Station, track 1 the Radio RTC verified with the Train Operator that they had encountered an AMF at Arlington Cemetery Station, to which the Train Operator advised that they had.

At 10:31 hours, the OM contacted the Button RTC and advised that they were aware of the incident and requested further information regarding the event. The Button RTC advised the OM that the TRST RWIC was able to identify Train ID 457 as the train that passed without blowing the horn and at excessive speed because it was the first train to pass their location after relinquishing foul time.

At 10:40 hours, the Button RTC advised the RTRA Supervisor located at Eastern Market of the incident and instructed them to take over operating Train ID 457.

The TRST RWIC and work crew continued performing their track inspection to Pentagon City Station and cleared the roadway at 11:58 hours.

The Office of the Chief Mechanical Officer, Incident Investigation Team (CMOR/IIT) performed an inspection of the consist involved in the event and provided the following analysis:

“Train ID 457 departed Arlington Cemetery Station in the direction of Rosslyn Station, the Master Controller placed in P5 power mode, and the train reached a maximum speed of 51 MPH after traveling 2061 feet. The train passed CM C1 153+00 at a speed of 37 MPH, the Master Controller was placed in B5 braking mode, and the train came to a complete stop 589 feet after passing the wayside workers. The train resumed its speed and continued to Rosslyn Station.”

RTRA determined that the Train Operator involved in this event was in violation of Roadway Worker Protection (RWP) procedures, and the Train Operator was issued a written reprimand and retraining.

## Chronological Event Timeline

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

Time	Description
10:15:07 hours	<p><u>TRST RWIC</u>: Requested from the Radio RTC to perform a track inspection from Rosslyn to Pentagon City Stations, via way of track 1 and had an AMF positioned at both Arlington Cemetery and Court House Stations, track 1, ready to flag. Also requested to start with foul time between CM C1 145+00 to C1 148+00.</p> <p><u>Radio RTC</u>: Acknowledged, repeated back, advised to go direct with both AMFs</p> <p><u>TRST RWIC</u>: Acknowledged, requested if AMF was in position at Arlington Cemetery Station.</p> <p><u>TRST AMF #1</u>: Advised the RWIC that they were in position, ready to flag.</p> <p><u>TRST RWIC</u>: Acknowledged, requested if AMF was in position at Court House Station.</p> <p><u>TRST AMF #2</u>: Advised the RWIC that they were in position, ready to flag.</p> <p><u>TRST RWIC</u>: Acknowledged.</p> <p><u>Radio RTC</u>: Acknowledged, announced to all personnel on OPS 2 that personnel were in the roadway between Rosslyn and Arlington Cemetery Stations, track 1. Further announced to dim lights, tap horn, and pass at no greater than 15 MPH.</p> <p>[Radio, OPS 2]</p>
10:17:46 hours	<p><u>Radio RTC</u>: Announced to all personnel on OPS 2 that personnel were in the roadway between Rosslyn and Arlington Cemetery Stations, track 1. Further announced to dim lights, tap horn, and pass at no greater than 15 MPH.</p> <p>Granted the <u>TRST RWIC</u> foul time between CM C1 145+00 to C1 148+00 in order to begin track inspection between Rosslyn and Arlington Cemetery Stations.</p> <p><u>TRST RWIC</u>: Acknowledged and repeated back.</p> <p>[Radio, OPS 2]</p>
10:18:27 hours	<p><u>Train Operator Train ID 457</u>: Requested permission from the Radio RTC to properly berth the train at Arlington Cemetery Station, track 1.</p> <p><u>Radio RTC</u>: Acknowledged, permissive block to berth the train, foul time ahead.</p> <p><u>Train Operator Train ID 457</u>: Acknowledged and repeated back.</p> <p>[Radio, OPS 2]</p>
10:18:53 hours	<p><u>TRST RWIC</u>: Confirmed from both AMF's foul time was in effect.</p> <p><u>TRST AMF #1</u>: Advised stopping all trains.</p> <p><u>TRST AMF #2</u>: Advised stopping all trains.</p> <p><u>TRST RWIC</u>: Acknowledged.</p> <p>[Radio, OPS 2]</p>

Time	Description
10:20:06 hours	<p><u>TRST RWIC</u>: Relinquished foul time, back under AMF protection.  <u>Radio RTC</u>: Acknowledged, repeated back.  <u>TRST RWIC</u>: Acknowledged, advised AMF #2 to stand down, and advised AMF #1 that the crew was now under AMF protection.  <u>TRST AMF #1</u>: Acknowledged and repeated back.  <u>TRST AMF #2</u>: Advised would stand down.  <u>TRST RWIC</u>: Acknowledged.  <u>Radio RTC</u>: Acknowledged, then announced to all personnel on OPS 2 that personnel were in the roadway between Rosslyn and Arlington Cemetery Stations, track 1. Further announced to dim lights, tap horn, and pass at no greater than 15 MPH.  [Radio, OPS 2]</p>
10:22:39 hours	<p><u>Train Operator Train ID 457</u>: Advised the Radio RTC that they did not have speed readouts while approaching Rosslyn Station, track 1.  <u>Radio RTC</u>: Acknowledged, permissive block to the eight-car marker  <u>Train Operator Train ID 457</u>: Acknowledged and repeated back.  [Radio, OPS 2]</p>
10:26:00 hours	<p>TRST RWIC advised the Buttons RTC that Train ID 457 had gone past their work crew at “full speed,” without dimming their lights or sounding their horn. The Buttons RTC advised the RWIC that they would advise supervision of the incident.  [Radio, OPS 2 Phone]</p>
10:29:45 hours	<p><u>Train Operator Train ID 457</u>: Advised the Radio RTC that they did not have speed readouts while approaching McPherson Square Station, track 1.  <u>Radio RTC</u>: Acknowledged, permissive block to the eight-car marker.  <u>Train Operator Train ID 457</u>: Acknowledged and repeated back.  <u>Radio RTC</u>: Inquired whether the Train Operator observed an AMF at Arlington Cemetery Station track 1.  <u>Train Operator Train ID 457</u>: Affirm.  <u>Radio RTC</u>: Acknowledged.  [Radio, OPS 2]</p>
10:31:58 hours	<p>The OM inquired from the Buttons RTC how Train ID 457 was identified. The Buttons RTC stated that the TRST RWIC identified the train by location.  [Radio, Rail 1 Phone]</p>
10:40:26 hours	<p>Buttons RTC advised the RTRA Supervisor of the incident and further advised the RTRA Supervisor that the Train Operator of Train ID 457 would need to be removed from service.  [Radio, OPS 2 Phone]</p>
11:58:08 hours	<p><u>TRST RWIC</u>: Advised that all personnel were clear of the roadway, good track inspection.  <u>Radio RTC</u>: Acknowledged, repeated back.  [Radio, OPS 2]</p>

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

**Office of Systems Maintenance, Office of Radio Communications (COMR)**

No reports of communications-related issues were received as a result of this incident.

**Office of the Chief Mechanical Officer, Incident Investigation Team (IIT)**



Adopted from IIT report with minor formatting and grammatical edits:

“IIT has completed analysis of data retrieved from Train ID 457, cars (L6111X6110-6023X6022-6084X6085), was reported for a possible RWP Violation at CM 153+00.

Unfortunately, the lead car 6111’s VMS was not recording data during the time of the incident, we were unable to confirm road horn activation nor speed limits and/or regulated speed. All data analysis was performed based on trailing car 6084 VMS data and RPM data.

Train ID 457 departed Arlington Cemetery Station in the direction of Rosslyn Station, the Master Controller placed in P5 power mode, and the train reached a maximum speed of 51 MPH after traveling 2061 feet. The train passed CM C1 153+00 at a speed of 37 MPH, the Master Controller was placed in B5 braking mode, and the train came to a complete stop 589 feet after passing the wayside workers. The train resumed its speed and continued to Rosslyn Station.

Based on VMS data, there were no faults observed with the train that may contributed to the cause of this incident. The train performed as commanded.

See timeline of events below

Time	Description of Events	Train Speed	Master Controller	Distance from Arlington Cemetery 8-Car Marker
10:19:07.1	Train ID 457 entered Arlington Cemetery platform limits C06, Track #1. Master Controller placed in the P1 Power mode and train speed was 10 Mph.	10 MPH	P5	600 ft.
10:19:29.4	Train comes to a complete stop at 247 feet to the 8 <sup>th</sup> car marker.	0 MPH	B4	247 ft.
10:19:38.3	Train begins to move towards C06 8 <sup>th</sup> car marker. Master Controller placed in the P4.	2 MPH	P4	244 ft.
10:19:48.2	Train reached the maximum speed of 10 Mph at 107 feet to the 8 <sup>th</sup> car marker.	10 MPH	Coast	107 ft.
10:19:58.6	Train comes to a complete stop at Arlington Cemetery’s 8 <sup>th</sup> car marker.	0 MPH	B5	0 ft.
10:20:03.0	Doors opened and station serviced. Per RPM Traffic Display, the AMF can be seen present on Arlington Cemetery platform.	0 MPH	B4	0 ft.
10:21:10.4	Doors closed and locked	0 MPH	Coast	0 ft.
10:21:26.1	Train begins to move towards C05 8 <sup>th</sup> Rosslyn Station. Master Controller placed in the P4.	3 MPH	P4	5 ft.
10:22:03.2	Train reached the maximum speed of 51 Mph at 2061 feet from C06 8 <sup>th</sup> car marker.	51 MPH	B4	2061 ft.
10:22:26.8	<b>Train ID457 passes C1 153+00 Chain Marker (wayside workers) at a speed of 37 MPH, with Master Controller in B5 barking mode.</b>	<b>37 MPH</b>	<b>B5</b>	<b>3523 ft.</b>
10:22:53.6	Train comes to a complete stop at 4112 feet from C06 8 <sup>th</sup> car marker, 589 feet after passing wayside worker.	0 MPH	B4	4112 ft.
10:23:12.0	Train again begins to move towards Rosslyn Station.	1 MPH	P3	4113 ft.
10:24:08.1	Train comes to a complete stop at Rosslyn Station 8 <sup>th</sup> car marker.	0 MPH	B4	4937 ft.
10:24:37.3	Doors opened and Rosslyn station serviced.	0 MPH	B4	4937 ft.

Figure 2 – VMS data depicting Train ID 457 passed the work crew at 37 MPH. Horn activation data was not available.

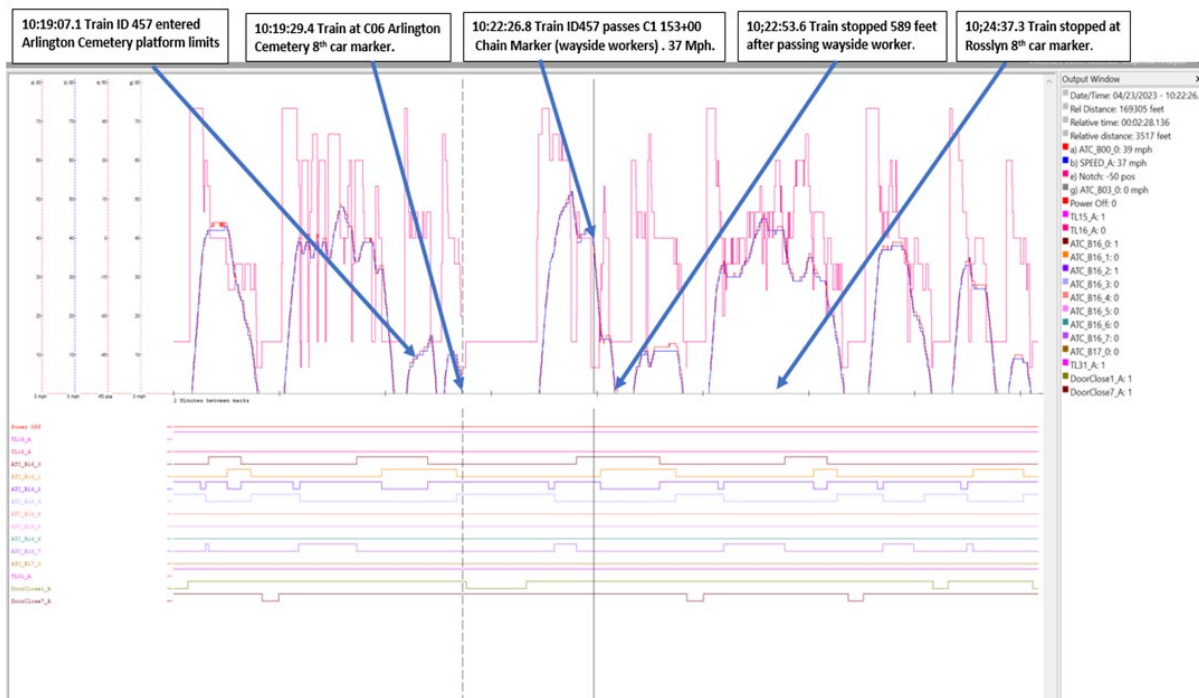


Figure 3 – VMS Graph.

**Office of Rail Transportation (RTRA)**

*Adopted from RTRA report:*

On Sunday, April 23, 2023, at approximately 10:22AM, Track Unit (Redacted) reported that the operator of train ID 457 operated their train at an excessive speed other than the established speed of 15 mph while passing personnel working between Arlington Cemetery and Rosslyn Station. The operator was subsequently removed from service and transported for post incident testing.

The Train Operator of Train ID 457 had two previous violations to include Accepting the Wrong Lead on 12/2023 and an RWP violation on 08/2022.

The Train Operator of Train ID 457 was issued a written reprimand.

**Interview Findings**

*As part of the investigation launched into the event, SAFE interviewed two employees. The interviews 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 of Train ID 457

- The Train Operator stated they were at Arlington Cemetery Station, track 1 prior to the incident.
- The Train Operator stated they received the briefing from the AMF as there was foul time was in effect.

- The Train Operator stated their “internal routine” was interrupted when they did not sound their horn while leaving the platform. The Train Operator stated they “lost focus,” during the course of the incident.
- The Train Operator stated that they observed a light in the tunnel, then placed the train into B5 breaking mode. The Train Operator stated they sounded the horn and passed the work crew at excessive speed, potentially “above 20 MPH”.
- The Train Operator stated they observed the crew as they passed them, however, did not advise the ROCC of the incident.

### TRST RWIC

- The TRST RWIC stated they relinquished foul time at CM C1 145+00 – 148+00 and commenced their track inspection, toward Arlington Cemetery Station.
- The TRST RWIC stated they were located on the catwalk when they observed Train ID 457 excessively speed past their location, then sound their horn and the train did not dim the lights.
- The TRST RWIC stated they were uncertain of the speed but felt themselves being pulled towards the train as it passed.
- The TRST RWIC stated they did not air the incident over the radio for fear of “retaliation” from Train Operators, choosing to report the event by telephone.

### **Weather**

On April 23, 2023, at the time of the incident, NOAA recorded the average temperature as 66°F, with significant cloud cover, winds 11.1 mph, and 69% humidity. Weather was not a contributing factor in this incident (Weather source: NOAA – Location: Rosslyn, VA)

### **Related Rules and Procedures**

MSRPH Operating Rules 1.32:

“Employees involved in, witnessing, or informed of an accident or incident, to include near misses, on the Metrorail system shall inform their supervisor, Transit Police, ROCC and/or other appropriate authority as soon as possible, and shall file a written report.”

MSRPH Operating Rules 1.46:

“Employees shall not permit unnecessary conversation, reading, lounging, or any other action or condition of mind to divert their attention from the safe and efficient performance of duty.”

MSRPH Operating Rules 3.87:

“Upon receiving the appropriate proceed signal from the watchman/lookout on the roadway, and verifying that all personnel and equipment are clear of the roadway, the Rail Vehicle Operator shall:

- Acknowledge the proceed signal with two short mainline horn blasts (individuals on the roadway do not have to continually proceed trains after the Rail Vehicle Operator's acknowledgement;
- Stop and switch to Mode 2, Level 1 if not already in manual mode;
- Discontinue sounding train horn after acknowledgement, and;
- Continue at 15 MPH until clear of personnel on either track.”

MSRPH Operating Rules 3.87.1:

“Rail vehicle operators shall sound their horns when entering and exiting tunnel portals, except when the installed Automatic Train Approach Warning System (ATAWS) is functioning properly,

indicated to the operator by a briefly flashing strobe light on approach to the portal. Rail vehicle operators shall notify ROCC of failed or malfunctioning ATAWS.”

## **Human Factors**

### Fatigue

#### *Signs and Symptoms of Fatigue*

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. The 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 and reported experiencing no symptoms of fatigue in the time leading up to the incident.

#### *Fatigue Risk*

Incident data was evaluated for fatigue risk factors. There were no major risk factors for fatigue identified. The incident time of day (10:22 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day shifts (06:40 – 15:15 hours) in the days leading up to the incident. The employee reported 7.5 hours of sleep in the last sleep period preceding the incident and was awake for 7.5 hours at the time of the incident. The employee was off duty for a calculated total of 15.42 hours, which provided the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 8 hours and no issues with sleep.

### Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Train Operator of Train ID 457 complied with the Drug and Alcohol Policy and Testing Program 7.7.3/6.

## **Findings**

- The RWIC advised the Button RTC of the incident via landline, fearing “retaliation” from Train Operators as their reasoning for not reporting over the radio.
- The Train Operator of Train ID 457 admitted to speeding past a work crew in the roadway.
- The Train Operator of Train ID 457 did not report speeding past the work crew to the ROCC.
- CMOR-IIT was unable to confirm horn activation or regulated speed from the data.
- CMOR-IIT determined that the Train Operator was operating the train up to 51 MPH in approach to the work crew and at 37 MPH passing the work crew.

## **Immediate Mitigation to Prevent Recurrence**

- The Train Operator of Train ID 457 was removed from service.

## **Probable Cause Statement**

The probable cause of the Train Passed Personnel at Excessive Speed event on April 23, 2023, between Rosslyn and Arlington Cemetery Stations failure to follow established procedures for AMF operations. A Contributing Factor to the vent was a human factors error of complacency by the Train Operator, who received a briefing from the AMF prior to encountering the work crew.

**Recommended Corrective Actions**

<b>Corrective Action Code</b>	<b>Description</b>	<b>Responsible Party</b>	<b>Estimated Completion Date</b>
107913MX _SAFECAPS_ RTRA_001	Train Operator re-training and reassessment in RWP and speed limitation.	RTRA	Completed

## Appendices

### **Appendix A – Interview Summaries**

*The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

#### Train Operator of Train ID 457

The Train Operator has been with WMATA for approximately 15 years and has spent 13 years as a Train Operator. The Train Operator is currently qualified as an RWP Level 2 that expires 04/30/2024.

The Train Operator stated they were operating Train ID 457 on their second trip for the shift of the day. The Train Operator stated they were at Arlington Cemetery Station, track 1 prior to the incident. The Train Operator stated they then received the briefing from the AMF as there was foul time was in effect.

The Train Operator stated they then commenced moving the train when permitted to do so. The Train Operator stated their “internal routine” was interrupted when they did not sound their horn while leaving the platform. The Train Operator stated as a result they “lost focus,” resulting in complacency during the course of the incident.

The Train Operator stated that they observed a light in the tunnel, then placed the train into B5 breaking mode. The Train Operator stated they hit their horn and passed the work crew at excessive speed, potentially “above 20 [MPH]”. The Train Operator stated they observed the crew as they passed them, however, did not advise the ROCC of the incident.

The Train Operator stated they were removed from service at Capitol South Station and submitted to post-incident testing.

#### TRST RWIC

The TRST RWIC has been a Track Walker with WMATA for approximately 3 years. The TRST RWIC is currently qualified as an RWP Level 4 that expires 08/31/2023.

The TRST RWIC stated they relinquished their foul time at CM C1 145+00 – 148+00 and commenced their track walk, near Arlington Cemetery Station. The TRST RWIC stated they were located on the catwalk when they observed Train ID 457 excessively speed past their location, then sound their horn.

The TRST RWIC stated they were uncertain of the speed but felt themselves being pulled towards the train as it passed.

The TRST RWIC stated they then called the ROCC via landline to report the incident. The TRST RWIC stated they did not air the incident over the radio for fear of “retaliation” from Train Operators. The TRST RWIC stated the train did not dim its lights either.

# Appendix B – TRST Statements

## TRST RWIC's Statement

M Witness or Employee Statement Form		TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS	
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		USE SEPARATE FORM FOR EACH PERSON	
PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)		Page of	
Name	Age	Employee # or MTPD Badge #	
Phone Number	Job Title	Department	Division/Section
Last Day Worked (prior to)	Hours Worked (within last 24 hrs)	Overtime?	
INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)			
Name	Phone Number	E-Mail	
Address			
INCIDENT			
Date	Incident Time	Date/Time Reported	Location
Incident ID# (From ROCC, BOCC, etc.)	Worksafe Incident #		
What happened prior to the incident?			
Describe the incident			
What happened after the incident?			
Form Completed by: (Print Name)		Date	
Signature			

Document 1 – TRST RWIC's Statement, Page 1 of 1

Incident Date: 04/23/2023 Time: 10:22 hours  
 Final Report – Train Passed Personnel at Ex Speed  
 E23283

Drafted By: SAFE 705 – 06/21/2023  
 Reviewed By: SAFE 707 – 06/21/2023  
 Approved By: SAFE 71 – 06/22/2023

TRST Track Inspector's Statement

M Witness or Employee Statement Form		TO BE COMPLETED AND DISTRIBUTED WITHIN 24 HOURS	
WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY		USE SEPARATE FORM FOR EACH PERSON	
		Page <u>1</u> of <u>1</u>	
<b>PERSONNEL INVOLVED (Use This Block For WMATA Employees and Contractors)</b>			
Name	[Redacted]	Age	54
Phone Number	[Redacted]	Employee # or MTPD Badge #	[Redacted]
Job Title	Track Inspector	Department	TRST
Last Day Worked (prior to)	04-22-2023	Division/Section	Alex
Hours Worked (within last 24 hrs)	7:00am - 3:00pm	Overtime?	No
<b>INVOLVED PERSON OR WITNESS (Use This Block For Non-WMATA Involved Person or Witness)</b>			
Name		Phone Number	
E-Mail			
Address			
<b>INCIDENT</b>			
Date	Incident Time	Date/Time Reported	Location
Incident ID# (From ROCC, BOCC, etc.)		Worksafe Incident #	
What happened prior to the incident?			
No Incident			
Describe the incident			
No Incident			
What happened after the incident?			
Form Completed by: (Print Name)		Date	
Signature		04-23-2023	

50.689 10/09 Original: RISK Copy 1: Department Copy 2: SAFE Copy 3: Employee File Photocopy to Employee

Document 2 – TRST Track Inspector's Statement, Page 1 of 1

Incident Date: 04/23/2023 Time: 10:22 hours  
 Final Report – Train Passed Personnel at Ex Speed  
 E23283

Drafted By: SAFE 705 – 06/21/2023  
 Reviewed By: SAFE 707 – 06/21/2023  
 Approved By: SAFE 71 – 06/22/2023



**Appendix C – RTRA Statements**  
**RTRA Supervisor's Statement**



**RTRA Supervisor Report**

Date 4-23-2023	Incident Time 10:25am	Incident Location (Station/ Mezzanine#) Arlington/Con	Track/Mezzanine # 1
Equipment Number (Train ID & Car Numbers; Escalator/Elevator #; Room #) 6085 6022 6110 #457			
Incident Description Speeding Pass Track Walkers			
WMATA Personnel Involved	Employee #	Rule Violation? List Rule(s)	Home Division Post Incident?
[Redacted]	[Redacted]		Alexandria Yes
Customer Information (Detailed information must be recorded on Station Manager Incident Report)			
Name	Address		Injury?
Name	Address		Injury?
Name	Address		Injury?
Fire Department/EMS/Other External Agency Responding (Use supplemental sheet if necessary)			
Arrival Time	Unit Number	Person In charge	Remarks

**Chronological Account of Incident**

(Note time for each entry; Include statement of Employee or Witness at conclusion)

Your Arrival Time: @ 11:05 I was notified by ROCC that operator [Redacted] was being Removed from Service for passing track walkers at a speed more than regulated. Upon my interview with operator [Redacted] he stated that it slipped his mind that he just spoke with the AMF about personnel on the roadway. Operator [Redacted] acknowledge he did not follow RWP procedures.

Supervisor Submitting Report (include payroll #)	Date	Report Reviewed By	Date
[Redacted]	[Redacted]	[Redacted]	[Redacted]

Report must be faxed to ROCC 202-962-2808 at end of tour

Document 3 – RTRA Supervisor's Report, Page 1 of 2

Incident Date: 04/23/2023 Time: 10:22 hours  
 Final Report – Train Passed Personnel at Ex Speed  
 E23283

Drafted By: SAFE 705 – 06/21/2023  
 Reviewed By: SAFE 707 – 06/21/2023  
 Approved By: SAFE 71 – 06/22/2023

**Incident Information: This page must be completed for all incidents**

Date: 4/23/23 Incident Time: 10:25 AM Time Reported: \_\_\_\_\_ Reported by: Customer  Employee   
 ROCC  Other  \_\_\_\_\_

**Location**

Station: Leaving Arlington Mezzanine #: \_\_\_\_\_ Track #/Destination: 1 New Carrollton Chain Marker/Signal Number: \_\_\_\_\_

**TYPE OF INCIDENT**

- Property Damage     Smoke     Fire     Customer Complaint  
 Customer Injury     Customer Illness     Employee Injury     Employee Illness  
 Criminal Activity     Elevator Entrapment     Rail Vehicle Incident     Other (Explain in description of incident)

**WEATHER**    **LIGHT CONDITIONS (natural lighting)**    **LIGHTING (artificial lighting)**

Clear  Rain  Dawn/Dusk  Daylight  Lights On  Lights Off   
 Snow  Sleet/Ice  Dark  Tunnel/Underground  Lights Not Working

**STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC**

Elevator/Escalator#: \_\_\_\_\_ AFC #: \_\_\_\_\_ Room Number/Location: \_\_\_\_\_

Failure Number(s): \_\_\_\_\_

Parking Lot  Paid Area  Free Area  Garage  Station Entrance  Stairway #  Platform  Ancillary Room

Injury/Illness reported aboard Train  Other  \_\_\_\_\_

Name of Responding Supervisor: \_\_\_\_\_ Name/Department of PLNT/AFC or other WMATA responder: \_\_\_\_\_

**TRAIN INCIDENTS**

Train ID: 487 Destination: NC Car Numbers (list all cars in consist): 6110-6022-6085 Lead Car: 6085  
 Name of Responding Supervisor: \_\_\_\_\_ Name/Department of CMNT/TRST or other WMATA responder: \_\_\_\_\_

**DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.**

Describe any property damage and the extent of any injuries.

N/A damage or injury

I left AMF after servicing Arlington, I forgot to blow as soon as I left as a reminder to continue to blow horn, I came upon road crew and blew horn twice and slowed train as I passed.

**Employee Completing Report**

\_\_\_\_\_  
 Date: 4/23/23

Division: Alex Run #: 35 Block #: \_\_\_\_\_ Assigned Days: F/S

**To Be Completed By Reviewing Manager**

\_\_\_\_\_  
 Date: 4/24/24

Action taken/needed: UNDER INVESTIGATION

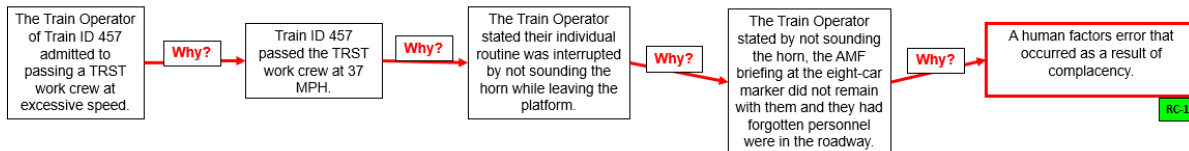
SMS Number: 20230423#104913MX

50.753A.09/11 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors

**Appendix D – Why-Tree Analysis**

Incident Date: 04/23/2023 Time: 10:22 hours  
 Final Report – Train Passed Personnel at Ex Speed  
 E23283

Drafted By: SAFE 705 – 06/21/2023  
 Reviewed By: SAFE 707 – 06/21/2023  
 Approved By: SAFE 71 – 06/22/2023



## Root Cause Analysis





Washington Metropolitan Area Transit Authority  
Department of Safety (SAFE)  
Office of Safety Investigations (OSI)  
**FINAL REPORT OF INVESTIGATION A&I E23289**

<b>Date of Event:</b>	April 26, 2023
<b>Type of Event:</b>	Improper RWP
<b>Incident Time:</b>	12:21 hours
<b>Location:</b>	Between Eisenhower Avenue and King Street Stations, track 1 – CM C1 582+00
<b>Time and How received by SAFE:</b>	12:31 hours – SAFE/MAC
<b>WMSC Notification Time:</b>	13:28 hours
<b>Responding Safety Officers:</b>	None
<b>Rail Vehicle:</b>	Train ID 451 L3242x3243-3244x3245-3266x3267T
<b>Injuries:</b>	None
<b>Damage:</b>	None
<b>Emergency Responders:</b>	None
<b>SMS I/A Number</b>	20230426#107995MX

# Eisenhower Avenue Station – Improper RWP

April 26, 2023

## Table of Contents

Abbreviations and Acronyms	3
Executive Summary	4
Incident Site	4
Field Sketch/Schematics	5
Purpose and Scope	5
Investigative Methods	5
Investigation	6
Chronological Event Timeline	8
The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)	10
Office of Systems Maintenance, Office of Radio Communications (COMR)	12
Office of Rail Transportation (RTRA)	12
Interview Findings	12
Weather	13
Related Rules and Procedures	13
Human Factors	14
Fatigue	14
Post-Incident Toxicology Testing	14
Findings	14
Immediate Mitigation to Prevent Recurrence	15
Probable Cause Statement	15
Recommended Corrective Actions	15
Appendices	16
Appendix A – Interview Summaries	16
RTRA	16
Train Operator	16
TRST	16
RWIC	16
AMF (Informal Interview)	17
Appendix B – Reports and Statements (Redacted)	18
Appendix C – Maximo Work Order	25
Appendix D – Why-Tree Analysis	27

## **Abbreviations and Acronyms**

<b>AMF</b>	Advanced Mobile Flagger
<b>AOM</b>	Assistant Operations Manager
<b>ARS</b>	Audio Recording System
<b>CAP</b>	Corrective Action Plan
<b>CCTV</b>	Closed-Circuit Television
<b>CMOR</b>	Office of the Chief Mechanical Officer
<b>IIT</b>	Incident Investigation Team
<b>MSRPH</b>	Metrorail Safety Rules and Procedures Handbook
<b>NOAA</b>	National Oceanic and Atmospheric Administration
<b>ROCC</b>	Rail Operations Control Center
<b>RTRA</b>	Office of Rail Transportation
<b>RTC</b>	Rail Traffic Controller
<b>RWIC</b>	Roadway Worker In Charge
<b>RWP</b>	Roadway Worker Protection
<b>SAFE</b>	Department of Safety
<b>SMS</b>	Safety Measurement System
<b>SPOTS</b>	System Performance On-Time Summary
<b>TRST</b>	Office of Track and Structures
<b>VMS</b>	Vehicle Monitoring System
<b>WMATA</b>	Washington Metropolitan Area Transit Authority
<b>WMSC</b>	Washington Metrorail Safety Commission

**Washington Metropolitan Area Transit Authority**  
**Department of Safety – Office of Safety Investigations**

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**Executive Summary**

*\*Note that all times listed are approximate and may contain minor variations due to differences between systems of record. \**

On Wednesday, April 26, 2023, an Office of Track and Structures (TRST) Roadway Worker in Charge (RWIC) reported to the Rail Operations Control Center (ROCC) that Train ID 451 (L3242x3243-3244x3245-3266x3267T) passed their location at a high rate of speed after they relinquished foul time between King Street Station and Eisenhower Avenue Station on track 1. The Radio Rail Traffic Controller (RTC) contacted the Train Operator of Train ID 451 and inquired if they had received a briefing from the Advanced Mobile Flagger (AMF) when they were located at Eisenhower Avenue Station. The Train Operator confirmed that they had spoken with the AMF at Eisenhower Avenue Station when the Mobile Work Crew was under foul time.

The Radio RTC notified the Assistant Operations Manager (AOM) of the event and instructed an Office of Rail Transportation (RTRA) Rail Supervisor to intercept and take over operating the train.

RTRA removed the Train Operator from service. The train was removed from service for post-incident inspection.

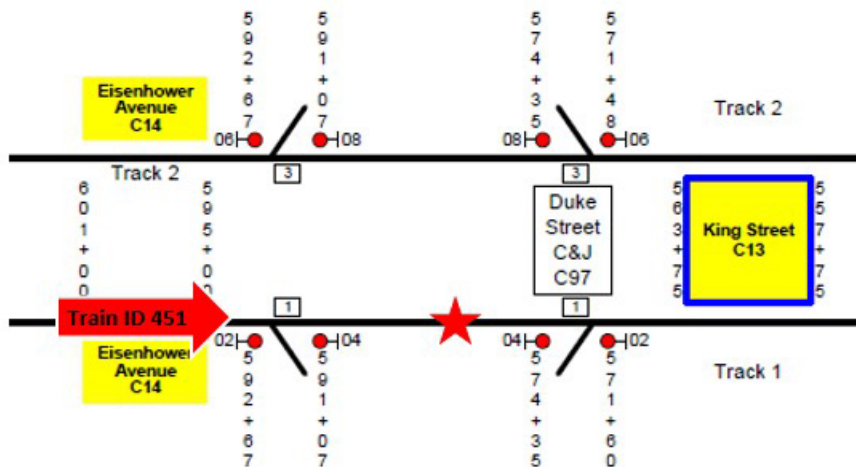
In the Train Operator's written statement they noted, "while stopped at 8-car marker, talked with AMF, made announcements to customers while waiting lunar, speed commands and correct rail before proceeding. I got distracted because of too much conversation from AMF."

The probable cause of the Improper RWP event on April 26, 2023, between King Street Station and Eisenhower Avenue Station was distraction by the Train Operator. After they received the briefing from the AMF and held the location during Foul Time, the two engaged in conversation that diverted the Train Operator's attention from the instructions that were given. Upon receiving a lunar aspect and speed commands, the Train Operator operated as if under normal operating conditions.

**Incident Site**

Between Eisenhower Avenue and King Street Stations, track 1 – CM C1 582+00

## Field Sketch/Schematics



The above depiction is not to scale.

## Purpose and Scope

The purpose of this accident 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.

## Investigative Methods

The investigative methodologies included the following:

- Site assessment through video and document review
- Formal Interviews – SAFE interviewed three individuals as part of this investigation. The interviews included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). SAFE interviewed the following individual:
  - Train Operator (Train ID 451)
  - RWIC
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information.
  - AMF
- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:
  - Train Operator Training Records
  - Train Operator Certifications
  - Train Operator 30-Day work history review
  - Employee Statements and Incident Reports
  - Roadway Job Safety Briefing
  - Metrorail Safety Rules and Procedures Handbook (MSRPH)



- National Oceanic and Atmospheric Administration (NOAA)
- Rail Operations Control Center (ROCC) Incident Report
- Maximo Data
- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:
  - Audio Recording System (ARS) playback
  - Office of Chief Mechanical Officer (CMOR) Incident Investigation Team
  - Advanced Information Management System (AIMS)
  - System Performance On-Time Summary (SPOTS)
  - Closed-Circuit Television (CCTV)

## Investigation

On Wednesday, April 26, 2023, at 10:03 hours, the RWIC requested permission to conduct a track inspection from King Street Station to Van Dorn Street Station and King Street Station to Huntington Station on track 1, with their AMFs located at Van Dorn Street Station and Eisenhower Avenue Station. The Radio RTC granted permission to conduct the track inspections.

Between 10:11 and 11:20 hours, the Mobile Work Crew performed a track inspection between King Street Station and Van Dorn Street Station on track 1. At 12:13 hours, the RWIC requested permission to continue the track inspection between King Street Station and Eisenhower Avenue Station on track 1, then verified that the AMF was in place at Van Dorn Street Station and Eisenhower Avenue Station, and the Radio RTC granted permission at 12:14 hours.

The track inspection began under Foul Time protection between Chain Markers (CM) C1 564+00 to 582+00. At 12:15 hours, Train ID 451 arrived at Eisenhower Station, track 1, and the AMF informed them that the Mobile Work Crew was under Foul Time.

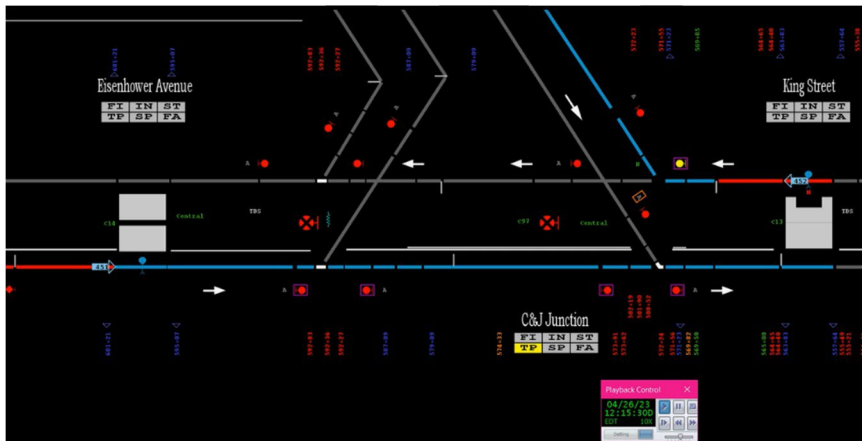


Figure 1 - Blue block in place between King Street Station and Eisenhower Avenue Station, track 1 at 12:15:30 hours.

At 12:19 hours the RTC inquired of Train ID 804 why they were holding at Van Dorn Station. Train ID 804 responded an AMF had them under Foul Time. The RTC responded there was no Foul time in place. The RTC then inquired of a RWIC that they had been under Foul Time for six minutes. The RWIC responded they relinquished Foul Time but did not indicate how long ago they had cleared the Foul Time area. The RWIC advised ROCC that they were relinquishing Foul Time and instructed the AMFs located at Van Dorn Street Station and

Eisenhower Avenue Station to release the trains. At 12:22 hours, the AMF located at Eisenhower Avenue Station provided the briefing to the Train Operator, then Train ID 451 departed Eisenhower Avenue Station. Shortly after Train ID 451 departed Eisenhower Avenue Station the Train Operator encountered the Mobile Work Crew. The train passed the RWIC and Inspector at approximately 47 MPH according to the data analysis completed by the Office of the Chief Mechanical Officer's (CMOR) Incident Investigation Team (IIT).

At 12:31 hours, the RWIC contacted ROCC via landline and reported that they were located at Eisenhower Avenue Station and Train ID 451 passed their location at a high rate of speed after Foul Time was relinquished. The Radio RTC made an announcement that personnel were walking between King Street Station and Eisenhower Avenue Station on track 1.

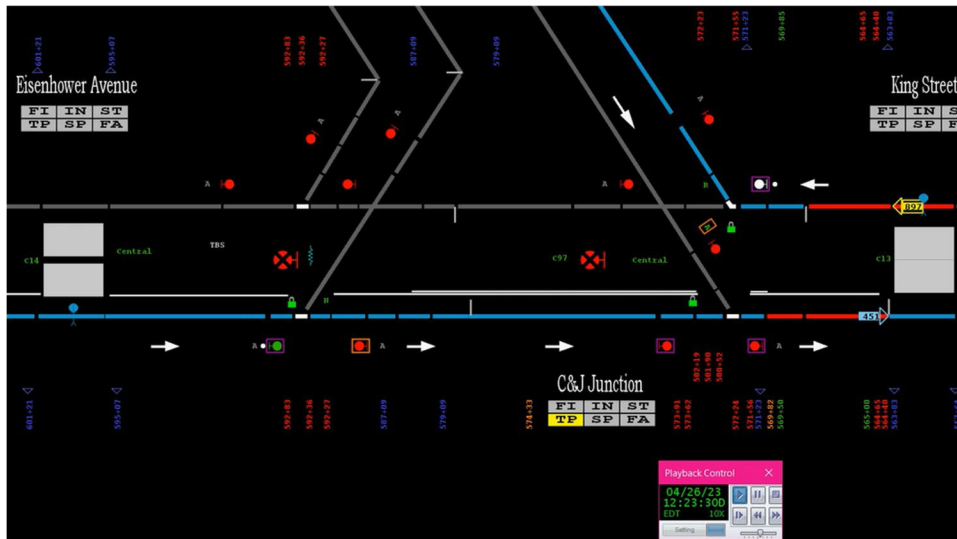


Figure 2 – Train ID 451 arriving at King Street Station at 12:23:53 hours.

At 12:37 hours, the Radio RTC contacted the Train Operator of Train ID 451, now located at Pentagon Station, and inquired if they received a briefing from the AMF when they were located at Eisenhower Avenue. The Train Operator confirmed that they had received the briefing. At 12:44 hours, the Radio RTC instructed a Rail Supervisor to intercept Train ID 451 at Metro Center Station and take over operating.

Closed Circuit Television (CCTV) revealed that the train arrived at Eisenhower Avenue Station, at 12:16:41 hours and was met by the AMF. The Train Operator and AMF engaged in conversation while under Foul Time and then the train departed the station at 12:21:50 hours.

CMOR IIT performed an inspection of the consist and provided the following analysis:

“Based on VMS data, the train departed Eisenhower Station at 35 MPH limiting and regulated speed limits, with the train traveling up to 31 MPH during that time. The speed limits dropped to 0 MPH, then increased back up to 22 MPH, applying B4 (Full-Service Brake) braking rate until the limiting and regulated speed limits increased up to 55 MPH.

The train continues in power modes up to 52 MPH during that time. The train passed CM C1 582+00 at a speed of 47 MPH, 1,300 ft, after departing Eisenhower Station. The limiting and regulated speed limits decreased to 45 MPH, 1,982 ft. after departing Eisenhower Station and remained until reaching King Street Station. The train continued and came to a complete stop at

King Street Station and serviced on the left side, opening, and closing left side doors. There were no Road Horn activations observed between Eisenhower and Kind Street Stations.

Based on the VMS data, there was no fault with the train that contributed to the cause of this incident.”

During the formal interview, the Train Operator stated that they had spoken with the AMF and the crew was under foul time. A red signal was ahead. While they were waiting, they engaged in conversation with the AMF for 5 or 6 minutes. The Train Operator stated that when they departed Eisenhower Avenue Station, they forgot what the AMF said because they were engaged in conversation. The Train Operator confirmed that they received the briefing from the AMF, and they just forgot. The Train Operator stated that when they saw the personnel on the roadway they dumped the train (placed the train in emergency braking), then proceed at 15 MPH. <sup>1</sup>

During the formal interview, the RWIC stated that they had just finished the first leg of the inspection, King Street to Van Dorn. They rode the train back to King Street and requested to continue the second half of the inspection, King Street to Huntington. The RWIC stated that ROCC contacted them and said that they had been under foul time for 6 minutes and asked what the status was. The RWIC stated that they were walking up to chain markers 581 and 582 and told ROCC that foul time was relinquished and went back under AMF protection. The RWIC stated that they felt the wind of the train coming, the vibration, and the noise made them realize that the train was coming at a very high rate of speed, and they needed to get on the catwalk. The RWIC stated that in less than ample time the train came by going about 55 MPH. The RWIC stated that at Eisenhower, they called ROCC and let them know that the train that left Eisenhower passed them at a high rate of speed. The RWIC stated that they did not immediately report the event because they would have to wait for a train pickup.

RTRA determined that the Train Operator in this event would be provided with Written Re-Instruction and Refresher Training.

### Chronological Event Timeline

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

Time	Description
10:03:24 hours	<p><u>TRST RWIC</u>: Requested to perform a track inspection from King Street to Van Dorn Street and King Street to Huntington, track 1. Advised AMF in place at Van Dorn and Eisenhower Avenue, track 1.</p> <p><u>ROCC Radio RTC</u>: Acknowledged and repeated. Instructed to contact the AMFs and advised to stand by.</p> <p><u>TRST RWIC</u>: Acknowledged and repeated. Verified AMFs in position at Van Dorn Street and Eisenhower Avenue, track 1.</p> <p><u>AMF #1 &amp; #2</u>: Confirmed their locations at Van Dorn Street and Eisenhower Avenue, track 1.</p> <p><u>TRST RWIC</u>: Advised AMFs the Work Crew was under foul time.</p> <p><u>AMF #1 &amp; #2</u>: Acknowledged and advised they were holding trains. [Radio Ops 3]</p>
10:11:48 hours	<p><u>ROCC Radio RTC</u>: Granted permission to begin track inspection between King Street and Van Dorn Street, track 1 with foul time.</p> <p><u>TRST RWIC</u>: Acknowledged and repeated. [Radio Ops 3]</p>

<sup>1</sup> Review of the CMOR IIT report does not provide information to support the Train Operator’s report that the train was placed into emergency braking, then proceeding at 15MPH

<b>Time</b>	<b>Description</b>
10:17:26 hours	<u>TRST RWIC</u> : Attempted to relinquish foul time at C97-12. <u>ROCC Radio RTC</u> : Instructed to remain under foul time until clear of foul time area. [Radio Ops 3]
10:20:27 hours	<u>TRST RWIC</u> : Relinquished foul time. [Radio Ops 3]
11:20:00 hours	<u>TRST RWIC</u> : Reported clear of the roadway at Van Dorn Street Station. [Radio Ops 3]
12:13:04 hours	<u>TRST RWIC</u> : Requested to continue a track inspection from King Street to Huntington, track 1. Advised AMFs in place at Van Dorn and Eisenhower Avenue, track 1. <u>ROCC Radio RTC</u> : Acknowledged and repeated. Advised to standby. <u>TRST RWIC</u> : Acknowledged and repeated. Verified AMFs in position at Van Dorn Street and Eisenhower Avenue, track 1. <u>AMF #1 &amp; #2</u> : Confirmed their locations at Van Dorn Street and Eisenhower Avenue, track 1. [Radio Ops 3]
12:14:31 hours	<u>ROCC Radio RTC</u> : Granted permission to begin track inspection between King Street and Eisenhower Avenue, track 1 with foul time. <u>TRST RWIC</u> : Acknowledged and repeated. Advised AMFs the Work Crew was under foul time. <u>AMF #1 &amp; #2</u> : Acknowledged and advised they were holding trains. [Radio Ops 3]
12:15:34 hours	Train ID 451 arrived at Eisenhower Avenue Station, track 1. [Spots]
12:15:46 hours	<u>Train ID 451</u> : Requested a permissive block to Eisenhower Station platform, track 1. <u>ROCC Radio RTC</u> : Granted a permissive block to Eisenhower Avenue, track 1. Advised that a Work Crew was under foul time protection, C14-02 red. <u>Train ID 451</u> : Acknowledged and repeated. [Radio Ops 3]
12:19:58 hours	<u>ROCC Radio RTC</u> : Inquired why Train ID 804 was holding at Van Dorn Street Station, track 1. <u>Train ID 804</u> : Advised the train was being held by the AMF for foul time. <u>ROCC Radio RTC</u> : Advised no Foul Time in place for Van Dorn. Attempted to contact the TRST RWIC. <u>TRST RWIC</u> : Acknowledged. <u>ROCC Radio RTC</u> : Advised they had been under foul time for 6 minutes. <u>TRST RWIC</u> : Relinquished foul time. Instructed AMF #1 and #2 to release the trains. [Radio Ops 3]
12:22:20 hours	Train ID 451 departed at Eisenhower Avenue Station, track 1. [Spots]
12:23:28 hours	Train ID 451 arrived at King Street Station, track 1. [Spots]
12:31:22 hours	<u>TRST RWIC</u> reported to Button RTC that Train ID 451 passed their location at a high rate of speed after foul time was relinquished. [Phone Ops 3]
12:32:30 hours	<u>ROCC Radio RTC</u> : Announced personnel walking between King Street and Eisenhower Avenue, track 1. [Radio Ops 3]
12:33:42 hours	<u>ROCC Button RTC</u> : Notified Huntington Terminal of the event. [Phone Ops 3]
12:32:57 hours	<u>TRST RWIC</u> reported to the AOM that Train ID 451 passed their location at a high rate of speed after foul time was relinquished. [Phone Rail 1]

Time	Description
12:37:05 hours	<u>ROCC Radio RTC</u> : Inquired if Train ID 451 located at Pentagon Station received a briefing from the AMF when they were located at Eisenhower Avenue. <u>Train ID 451</u> : Confirmed they spoke with the AMF at Eisenhower Avenue when they were under foul time. [Radio Ops 3]
12:41:15 hours	<u>AOM</u> : Notified ROIC of the event. [Phone Rail 1]
12:44:28 hours	<u>ROCC Radio RTC</u> : Instructed a Rail Supervisor to take over operating Train ID 451 at Metro Center Station. <u>Rail Supervisor</u> : Acknowledged and repeated. [Phone Ops 3]
12:49:41 hours	<u>AOM</u> : Notified the TRST Supervisor of the event. [Phone Rail 1]
12:56:52 hours	Rail Supervisor took over operating Train ID 451 at L'Enfant Station. [Phone Rail 1]

Note: Times above may vary from other systems' timelines based on clock settings.

### The Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS)

Adopted from CMOR IIT report with minor formatting and grammatical edits:

“CMOR IIT performed an inspection of the consist and provided the following analysis. Based on VMS data, the train departed Eisenhower Station at 35 MPH limiting and regulated speed limits, with the train traveling up to 31 MPH during that time. The speed limits dropped to 0 MPH, then increased back up to 22 MPH, applying B4 (Full-Service Brake) braking rate until the limiting and regulated speed limits increased up to 55 MPH.

The train continues in power modes up to 52 MPH during that time. The train passed CM C1 582+00 at a speed of 47 MPH, 1,300 ft, after departing Eisenhower Station. The limiting and regulated speed limits decreased to 45 MPH, 1,982 ft. after departing Eisenhower Station and remained until reaching King Street Station. The train continued and came to a complete stop at King Street Station and serviced on the left side, opening, and closing left side doors. There were no Road Horn activations observed between Eisenhower and Kind Street Stations.

Based on the VMS data, there was no fault with the train that contributed to the cause of this incident.”

See timeline of events below:

Time	Description of Events Train Speed	Train Speed	Master Controller	Limiting Speed	Regulated Speed
12:17:46.532	Train ID451, Master Controller placed in P3 Power position and departed Eisenhower Station, #1.	<1	P3	35 MPH	35 MPH
12:17:50.944	Master Controller moved to the P4 Power position, Train speed was 2 MPH, 8-ft after departing Eisenhower Station.	2 MPH	P4	35 MPH	35 MPH
12:17:58.521	Master Controller moved to P5 Power position, Train speed was 23 MPH, 162 ft. after departing Eisenhower Station.	23 MPH	P5	35 MPH	35 MPH
12:18:03.093	Master Controller placed in B5 Braking position, Train speed was 34 MPH, 360 ft. after departing Eisenhower Station.	34 MPH	B5	35 MPH	35 MPH

12:18:05.940	Limiting speed and Regulated Speed drop to 0 MPH, Train speed was 33 MPH, activating overspeed condition and applying B4 Braking Rate, 504 ft. after departing Eisenhower Station.	<b>33 MPH</b>	<b>B4</b>	<b>0 MPH</b>	<b>0 MPH</b>
12:18:07.088	Limiting speed and Regulated Speed increase to 22 MPH, Train speed was 31 MPH, retaining overspeed alarm and B4 Braking Rate remains applied, 557 ft. after departing Eisenhower Station.	<b>31 MPH</b>	<b>B4</b>	<b>22 MPH</b>	<b>22 MPH</b>
12:18:09.680	Limiting and Regulated Speed increase to 55 MPH, Train speed was 25 MPH, 658 ft. after departing Eisenhower Station.	<b>25 MPH</b>	<b>B4</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:11.180	Master Controller placed in P5 Power Position, Train speed 21 MPH, 706 ft. after departing Eisenhower Station.	<b>21 MPH</b>	<b>P5</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:24.160	Train passes <b>CM C1 582+00</b> at a speed of 47 MPH, Master Controller in the P4 Power Position.	<b>47 MPH</b>	<b>P4</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:24.864	Master Controller moved to the B5 Braking position, train speed was 49 MPH, 1,352 ft. After departing Eisenhower Station.	<b>49 MPH</b>	<b>B5</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:25.824	Master Controller moved to P5 Power position, Train speed was 50 MPH, 1,423 ft. after departing Eisenhower Station.	<b>50 MPH</b>	<b>P5</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:27.964	Master Controller moved to B5 Braking position, train speed was 51 MPH, 1,579 ft. after departing Eisenhower Station.	<b>51 MPH</b>	<b>B5</b>	<b>55 MPH</b>	<b>55 MPH</b>
12:18:33.976	Limiting and Regulated Speed decreased to 45 MPH, Train speed was 39 MPH, 1,982 ft. after departing Eisenhower Station.	<b>39 MPH</b>	<b>B5</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:18:37.877	Master Controller moved to the Coast position, Train speed was 27 MPH, 2,162 ft. after departing Eisenhower Station.	<b>27 MPH</b>	<b>Coast</b>	<b>45 MPH</b>	<b>45 MPH</b>
<b>Time</b>	<b>Description of Events Train Speed</b>	<b>Train Speed</b>	<b>Master Controller</b>	<b>Limiting Speed</b>	<b>Regulated Speed</b>
12:18:44.651	Master Controller moved to P1 Power position, Train speed was 21 MPH, 2,392 ft. after departing Eisenhower Station.	<b>21 MPH</b>	<b>P1</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:18:47.432	Master Controller moved to B5 Braking position, train speed was 20 MPH, 670 ft. before King Street Station.	<b>20 MPH</b>	<b>B5</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:18:52.325	Master Controller moved to P2 Power position, train speed 13 MPH, 564 ft. before King Street Station.	<b>13 MPH</b>	<b>P2</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:18:52.325 - 12:19:15.984	Master Controller cycled back and forth between Coast and P2 Power position. Traveling at speeds no greater than 18 MPH	<b>&lt;=18 MPH</b>	<b>Various</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:19:15.984	Train ID451 enters into King Street Station at a speed of 16 MPH, with the Master Controller in the P2 Power position.	<b>16 MPH</b>	<b>P2</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:19:27.843	Master Controller moved to B3 Braking position, Train speed was 19 MPH, 271 ft. from the 8-Car Market at King Street.	<b>19 MPH</b>	<b>B3</b>	<b>45 MPH</b>	<b>45 MPH</b>
12:19:29.440	Master Controller moved to Coast, Train speed was 16 MPH, 232 ft. from the 8-Car Marker.	<b>16 MPH</b>	<b>Coast</b>	<b>45 MPH</b>	<b>45 MPH</b>

12:19:29.440 - 12:19:48.848	Master Controller cycled back and forth between Coast and B1 Power position. Decelerating to a stop	<=16 MPH	Various	45 MPH	45 MPH
12:19:51.116	Master Controller comes to a complete stop and Master Controller placed in B5 Braking position, 7 ft. shy of the 8-Car Marker.	0 MPH	B5	45 MPH	45 MPH

Figure 4 – Table of VMS timings pulled.

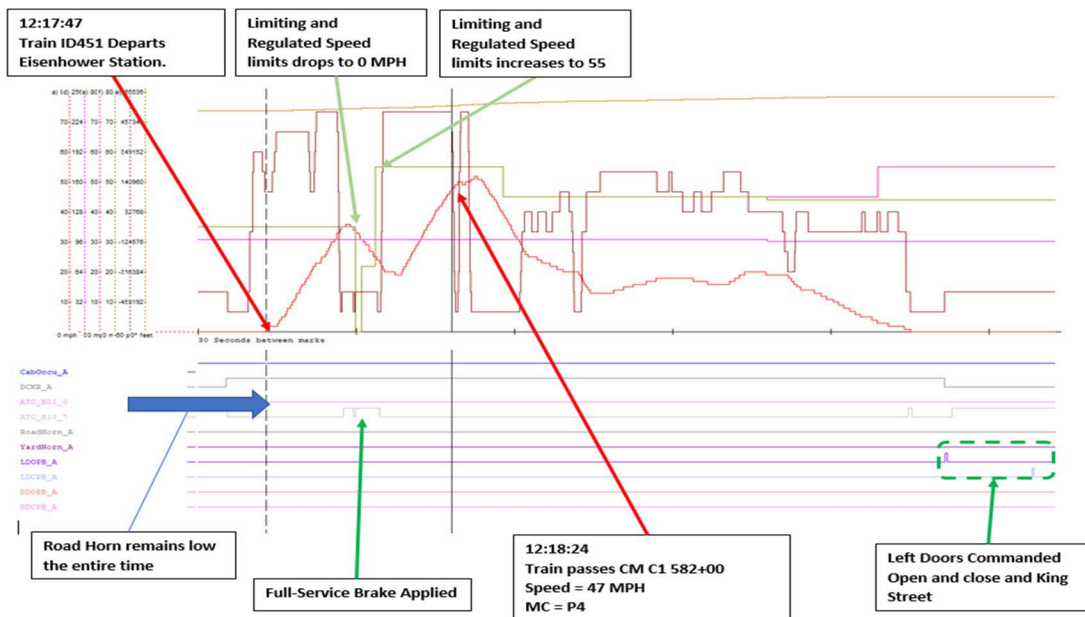


Figure 5 - Graphical analysis of VMS Data

**Office of Systems Maintenance, Office of Radio Communications (COMR)**

COMR performed testing and provided the following:

Eisenhower Avenue Station tracks 1 and 2 have been tested with no issues observed.

**Office of Rail Transportation (RTRA)**

Adopted from RTRA report:

RTRA determined that the Train Operator in this event would be provided a Written Re-Instruction and Refresher Training.

**Interview Findings**

As part of the investigation launched into the event, SAFE interviewed three people. The interviews 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**

- The Train Operator stated that they were working overtime on the day of the event.

- The Train Operator stated that they had spoken with the AMF and the crew was under foul time, a red signal was ahead.
- The Train Operator stated that while they were waiting, they engaged in conversation with the AMF for 5 or 6 minutes.
- The Train Operator stated that when they departed Eisenhower Avenue Station, they forgot what the AMF said because they were engaged in conversation.
- The Train Operator stated that they received the briefing from the AMF and they just forgot.
- The Train Operator stated that when they saw the personnel on the roadway they dumped the train, then proceeded at 15 MPH.

### RWIC

- The RWIC stated that they finished the first leg of the inspection, King Street to Van Dorn. They rode the train back to King Street and requested to continue the second half of the inspection, King Street to Huntington.
- The RWIC stated that ROCC contacted them and said that they had been under foul time for 6 minutes and asked what the status was. The RWIC stated that they were walking up to chain markers 581 and 582 and told ROCC that foul time was relinquished and went back under AMF protection.
- The RWIC stated that they felt the wind of the train coming, the vibration, and the noise made them realize that the train was coming at a very high rate of speed, and they needed to get on the catwalk. The RWIC stated that in 10 seconds the train came by going about 55MPH.
- The RWIC stated that at Eisenhower, they called ROCC and let them know that the train that left Eisenhower passed them at a high rate of speed.
- The RWIC stated that they did not immediately report the event because they would have to wait for a train pickup.

### AMF (informal interview)

- The AMF reported that they held the train under Foul Time and provided the proper briefing prior to the train departing the platform.
- The AMF did not recall significant conversation between the Train Operator and them.

### **Weather**

On April 26, 2023, at the time of the incident, NOAA recorded the temperature as 63° F, with mostly clear skies, winds 7 mph, and 48% humidity. The weather was not a contributing factor in this incident. (Weather source: NOAA – Location: Alexandria, VA).

### **Related Rules and Procedures**

- MSRPH Operating Rule 3.87
- Rail Vehicle Operating Procedures During AMF “3.”

MSRPH AMF Script to 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.”*



AMF Script to Class 1 of Class 2 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."**

- MSRPH Section 4 – Safety Rules, 4.1. Employees shall immediately report hazardous and/or unsafe conditions to their supervisor, including all near misses.

## Human Factors

### Fatigue

#### *Signs and Symptoms of Fatigue*

We evaluated conditions at the time of the incident to distinguish whether evidence of fatigue was present. No video of the Train Operator was available to ascertain whether evidence of fatigue was present. Train Operator reported feeling fully alert at the time of the incident. Train Operator reported experiencing no symptoms of fatigue in the time leading up to the incident.

#### *Fatigue Risk*

We 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. Train Operator reported keeping a regular sleep schedule in the days leading up to the incident. The Train Operator worked 7 shifts in the days leading up to the incident. The employee was awake for 7.85 hours at the time of the incident. The Train Operator reported 7.5 hours of sleep in the 24 hours preceding the incident. The off-duty period was 11.28 which provides an opportunity for 7-9 hours of sleep. This was a comparable amount to the employee's usual workday sleep durations. The employee reported no issues with sleep. The employee worked day shifts in the days leading up to the incident.

### Post-Incident Toxicology Testing

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

## **Findings**

- The RWIC was granted permission to begin the track inspection under foul time.
- Train ID 451 arrived at Eisenhower Avenue Station and was advised that the Mobile Work Crew was under foul time and verified a red signal.
- The Train Operator acknowledged receiving the briefing from the AMF prior to departing Eisenhower Avenue Station when foul time was relinquished.
- The Train Operator stated that they were distracted by the conversation that they engaged in with the AMF while they were waiting for foul time to be relinquished.
- Train ID 451 passed the Mobile Work Crew at approximately 47 MPH.
- The Train Operator did not immediately report the event.
- The RWIC did not immediately report the event.

- The Train Operator was removed from service at Metro Center Station.

**Immediate Mitigation to Prevent Recurrence**

- The Train Operator was removed from service for post-incident testing.
- ROCC instructed the RWIC to discontinue their inspection until an investigation was completed

**Probable Cause Statement**

The probable cause of the Improper RWP event on April 26, 2023, between King Street Station and Eisenhower Avenue Station was distraction by the Train Operator. After they received the briefing from the AMF and held the location during Foul Time, the two engaged in conversation that diverted the Train Operator’s attention from the instructions that were given. Upon receiving a lunar aspect and speed commands, the Train Operator operated as if under normal operating conditions

**Recommended Corrective Actions**

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
107995MX _SAFECAPS _RTRA_001	Train Operator to receive a Written Re-Instruction and Refresher Training.	RTRA	Completed

## Appendices

### **Appendix A – Interview Summaries**

*The below narratives summarize the incident and represent the statements made by the involved individual. As such, times and details may present a conflict with the data contained in systems of record.*

#### RTRA

##### *Train Operator*

The Train Operator is a WMATA employee with 8.5 years of service and 6.5 years of experience as a Train Operator. The Train Operator holds a Roadway Worker Protection (RWP) Level 2 certification that expires in June 2023.

During the formal interview, the Train Operator stated that were working overtime on the day of the event. The event occurred near the last round trip of their day. The Train Operator stated that they had spoken with the AMF and the crew was under foul time, a red signal was ahead. The Train Operator stated that while they were waiting, they engaged in conversation with the AMF for 5 or 6 minutes. They were talking about events on the system and communication.

The Train Operator stated that when they departed Eisenhower Avenue Station, they forgot what the AMF said because they were engaged in conversation, and they were at the station for 5 minutes. The Train Operator stated that they received the briefing from the AMF, and they forgot just that fast.

The Train Operator stated that when they saw the personnel on the roadway they dumped the train, then proceed at 15 MPH.

#### TRST

##### *RWIC*

The Track Walker is a WMATA employee with 13 years of service and 8 years of experience as an RWIC. The RWIC holds a Roadway Worker Protection (RWP) Level 4 certification that expires in January 2024.

The RWIC stated that they had just finished the first leg of the inspection, King Street to Van Dorn. They rode the train back to King Street and requested to continue the second half of the inspection, King Street to Huntington. The RWIC stated that they requested foul time. ROCC gave permission to start the walk under foul time. The RWIC stated that they instructed the AMFs to hold the trains.

The RWIC stated that they heard ROCC ask a train why they were not moving, and they said they were holding for foul time. Central came back over the radio and said there is no foul time in your area. The RWIC stated that 30 seconds after ROCC said that they had been under foul time for 6 minutes and asked what the status was. The RWIC stated that they were walking up to chain markers 581 and 582 and told ROCC that foul time was relinquished and went back under AMF protection.

The RWIC stated that they felt the wind of the train coming, the vibration, and the noise made them realize that the train was coming at a very high rate of speed, and they needed to get on the catwalk. The RWIC stated that in 10 seconds the train came by going about 55 MPH. The RWIC stated that they there were no lights and no horn, and the train did not slow down, the Train Operator saw them and did not stop.

The RWIC stated that at Eisenhower, they called ROCC and let them know that the train that left Eisenhower passed them at a high rate of speed. The RWIC stated that ROCC instructed them to discontinue the inspection until they perform an investigation. The RWIC stated that they heard ROCC ask the train operator did they talk to the AMF at Eisenhower.

The RWIC stated that they did not immediately report the event because they would have to wait for a train pickup.

*AMF (Informal Interview)*

The AMF is a Contractor with RAILPRO with six months AMF experience. The AMF holds a Roadway Worker Protection (RWP) Level 2 certification that expires in September 2023.

The AMF stated that while at the 8-car marker of Eisenhower Station platform, Foul Time began at 12:14 hours. A red signal was also displayed. The AMF approached the Train Operator and advised of the current Foul Time hold and would wait for Foul Time to be relinquished. The RWIC and the ROCC relinquished Foul Time. The signal went white. The AMF read the prepared script from the AMF placard and Train ID 451 departed the platform.

The AMF stated that no significant discussion took place during the Foul Time and the AMF instructions.

## Appendix B – Reports and Statements (Redacted)

WMATA/TRTA Incident/Accident Report (Other than Motor Vehicle) Page 1 of 1			
Incident Information: This page must be completed for all incidents			
Date: 4/26/23	Incident Time: 12:21 pm	Time Reported: 12:21 pm	Reported by: Customer <input type="checkbox"/> Employee <input checked="" type="checkbox"/> ROCC <input type="checkbox"/> Other <input type="checkbox"/>
Location			
Station: Eisenhower	Mezzanine #: N/A	Track #/Destination: 1	Chain Marker/Signal Number: N/A
TYPE OF INCIDENT			
<input type="checkbox"/> Property Damage	<input type="checkbox"/> Smoke	<input type="checkbox"/> Fire	<input type="checkbox"/> Customer Complaint
<input type="checkbox"/> Customer injury	<input type="checkbox"/> Customer Illness	<input type="checkbox"/> Employee Injury	<input type="checkbox"/> Employee Illness
<input type="checkbox"/> Criminal Activity	<input type="checkbox"/> Elevator Entrapment	<input type="checkbox"/> Rail Vehicle Incident	<input checked="" type="checkbox"/> Other (Explain in description of incident)
WEATHER		LIGHT CONDITIONS (natural lighting)	
Clear <input type="checkbox"/> Rain <input type="checkbox"/>	Dawn/Dusk <input type="checkbox"/> Daylight <input checked="" type="checkbox"/>	LIGHTING (artificial lighting)	
Snow <input type="checkbox"/> Sleet/Ice <input type="checkbox"/>	Dark <input type="checkbox"/> Tunnel/Underground <input type="checkbox"/>	Lights On <input checked="" type="checkbox"/> Lights Off <input type="checkbox"/>	Lights Not Working <input type="checkbox"/>
STATION INCIDENTS: Always include equipment number you use for MOC/AFC/EOC			
Elevator/Escalator#:	AFC #:	Room Number/Location:	
Failure Number(s):			
Parking Lot <input type="checkbox"/> Paid Area <input type="checkbox"/> Free Area <input type="checkbox"/> Garage <input type="checkbox"/> Station Entrance <input type="checkbox"/> Stairway # <input type="checkbox"/> Platform <input type="checkbox"/> Ancillary Room <input type="checkbox"/>			
Injury/Illness reported aboard Train <input type="checkbox"/> Other <input type="checkbox"/>			
Name of Responding Supervisor:		Name/Department of PLNT/AFC or other WMATA responder	
TRAIN INCIDENTS			
Train ID: 451	Destination: New Carrollton	Car Numbers (list all cars in consist): 3242	Lead Car: 3242
Name of Responding Supervisor:		Name/Department of CMNT/TRST or other WMATA responder	
DESCRIBE THE INCIDENT: Include what you did to correct the problem and who you notified and when.			
Describe any property damage and the extent of any injuries.			
<p>I proceeded to the eight car marker. I stop at the eight car marker talked to the AMF and then engaged in a conversation with the AMF and making announcements to the customers while waiting for lunar, speed commands and correct rail before proceeding on. I got distracted because of to much conversation from AMF.</p>			
Employee Completing Report			
Employee Name (print): [REDACTED]	Employee Signature (sign): [REDACTED]	Employee #:	Date: 4/26/23
Division: West Falls Church	Run #: 804	Block #: N/A	Assigned Day: W/F
To Be Completed By Reviewing Manager			
Supervisor Name (print):	Supervisor Signature:	Employee #:	Date:
Action taken/needed			
SMS Number:			
50.753A 04/12 White Copy: Division or Supervisor Yellow Copy: For any incident involving escalators or elevators; remains in kiosk for use of elevator/escalator inspectors			

Document 1 – Train Operator's Incident Report, Page 1 of 1

Incident Date: 04/26/2023 Time: 12:21 hours  
Final Report – Improper RWP E23289

Drafted By: SAFE 709 – 03/14/2024  
Reviewed By: SAFE 707- 06/22/2023  
Approved By: SAFE 71 – 06/26/2023

Page 18

**WMATA Roadway Job Safety Briefing Form**



This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.

**Part 2: RWP Briefing, continued:**

<b>12</b>	Power Outage: Red Tag <input type="checkbox"/> Supervisory <input type="checkbox"/>		Hot Sticking Chain Markers:	
	Red/Supervisory Tag #:			
	Red/Supervisory Tag Holder:			
	Insulated Mat(s) Color Blue <input type="checkbox"/> Red <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Yellow <input type="checkbox"/>			
	WSAD Certification Due	WSAD Serial #/Asset ID	WSAD Certification Due	WSAD Serial #/Asset ID
/ /		/ /		
/ /		/ /		
Will a Piggyback Crew(s) be Working Within Your Working Limits? Yes <input type="checkbox"/> No <input type="checkbox"/>				
<b>13</b>	Crew Leader/EIC Call #(s):		Piggyback Work Area Chain Markers:	
	Piggyback Work Assignment(s):			

**Part 3: Good Faith Challenge:** The following must be read aloud by the RWIC to the Roadway Workers.

"WMATA guarantees each Roadway Worker the right to challenge, in good faith, the effectiveness of the Roadway Worker Protection being provided. The Roadway Worker making the challenge, and those that are sympathetic to the challenge, shall remain clear of the roadway until the challenge has been resolved."

RWP Issues:	Worker Name(s):
Was the GFC Issue Resolved? Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Part 4: Roadway Worker Acknowledgement**

"I understand and agree with all aspects of the Roadway Job Safety Briefing I just received. I am adequately protected from any train movement or roadway hazards. I understand I have a responsibility to conduct myself in a safe manner at all times."

**ROADWAY WORKERS HAVE THE RIGHT AND RESPONSIBILITY TO INITIATE A GOOD FAITH CHALLENGE WHEN NECESSARY**

Roadway Worker Signature	Employee ID #	Roadway Worker Signature	Employee ID #	Crew Leader/EIC Signature	Crew Leader/EIC Employee ID #
		<i>Eisenhower</i>			

**Part 5: RWIC Signature(s)**

Additional RWIC Comments:			
RWIC Signature:		RWIC Employee ID #:	
Relieving RWIC Name:		Relieving RWIC Employee ID #:	
Relieving RWIC Signature:		Date/Time:	/ / , :
Relieving RWIC Call #:		Relieving RWIC Cell Phone #:	

FORM SAFE SRM 001-00

**WMATA Roadway Job Safety Briefing Form**



This form must be completed legibly and accurately and be retained and made available for inspection for a period of 90 days.

**Part 2: RWP Briefing, continued:**

12	Power Outage: Red Tag <input type="checkbox"/> Supervisory <input type="checkbox"/>		Hot Sticking Chain Markers:	
	Red/Supervisory Tag #:			
	Red/Supervisory Tag Holder:			
	Insulated Mat(s) Color Blue <input type="checkbox"/> Red <input type="checkbox"/> Green <input type="checkbox"/> Orange <input type="checkbox"/> Yellow <input type="checkbox"/>			
	WSAD Certification Due	WSAD Serial #/Asset ID	WSAD Certification Due	WSAD Serial #/Asset ID
/ /		/ /		
/ /		/ /		
Will a Piggyback Crew(s) be Working Within Your Working Limits? Yes <input type="checkbox"/> No <input type="checkbox"/>				
13	Crew Leader/EIC Call #(s):		Piggyback Work Area Chain Markers:	
	Piggyback Work Assignment(s):			

**Part 3: Good Faith Challenge:** The following must be read aloud by the RWIC to the Roadway Workers.

"WMATA guarantees each Roadway Worker the right to challenge, in good faith, the effectiveness of the Roadway Worker Protection being provided. The Roadway Worker making the challenge, and those that are sympathetic to the challenge, shall remain clear of the roadway until the challenge has been resolved."

RWP Issues:	Worker Name(s):
Was the GFC Issue Resolved? Yes <input type="checkbox"/> No <input type="checkbox"/>	

**Part 4: Roadway Worker Acknowledgement**

"I understand and agree with all aspects of the Roadway Job Safety Briefing I just received. I am adequately protected from any train movement or roadway hazards. I understand I have a responsibility to conduct myself in a safe manner at all times."

**ROADWAY WORKERS HAVE THE RIGHT AND RESPONSIBILITY TO INITIATE A GOOD FAITH CHALLENGE WHEN NECESSARY**

Roadway Worker Signature	Employee ID #	Roadway Worker Signature	Employee ID #	Crew Leader/EIC Signature	Crew Leader/EIC Employee ID #
		<i>Eisenhower</i>			

**Part 5: RWIC Signature(s)**

Additional RWIC Comments:		
RWIC Signature:	RWIC Employee ID #:	Date: <i>06/17/2023</i>
Relieving RWIC Name:	Relieving RWIC Employee ID #:	
Relieving RWIC Signature:	Date/Time: / / , :	
Relieving RWIC Call #:	Relieving RWIC Cell Phone #:	

FORM SAFE SRM 001-00

INCIDENT					
Incident #		Risk Rank		Today's Date	
Incident Date		Incident Time		Department	Division
4/26/2023		12:14-12:22		TRST	E-99
Work Area					
ALEXANDRIA					
Location where Incident Occurred:					
BETWEEN KING ST & EISENHOWER					
Is this the final report? If YES, is it within 7 days of the incident?					
If this is the Final Report, but it wasn't completed within 7 days, please explain why it wasn't completed within 7 days:					

DESCRIPTION OF THE INCIDENT.
Briefly describe the incident.
<p>ON 4/26/2023 BETWEEN THE TIME OF 12:14-12:22. I WAS WALKING UNDER FOUL TIME. I HAD AMF [REDACTED] AT EISENHOWER AND AMF [REDACTED] AT VAN DORP. FOUL TIME WAS REQUESTED AT 12:22. TRAIN 451 (WHICH I FOUND OUT LATER) WAS LEAVING EISENHOWER STATION AT A HIGH RATE OF SPEED. ANYWAY MYSELF AND [REDACTED] FELT THE WIND AND HEARD THE TRAIN COMING. WE BOTH WERE ABLE <del>STAND</del> STAND ON THE CAT WALK. WHILE 451 CAME BY. NO HORN, NO LIGHTS. WE CONTINUED TO THE PLAZA PLATFORM. AND I CONTACTED ROCC ABOUT WHAT HAPPENED. ONCE YOU LISTEN TO RECORDING, ROCC FORGET WE WERE <del>UNDER</del> UNDER FOUL TIME.</p>

KNOWN FACTS.
List in a logical order the known facts obtained during the investigation process.
<p>REQUESTED FOUL TIME. 12:14. REQUESTED 12:22</p>

50.690 1/3 02/10 Original: RISK Copy 1: Department Copy 2: SAFE Copy 3: LSC-I&I

Document 4 – TRST Written Statement, Page 1 of 1

Incident Date: 04/26/2023 Time: 12:21 hours  
 Final Report – Improper RWP E23289

Drafted By: SAFE 709 – 03/14/2024  
 Reviewed By: SAFE 707- 06/22/2023  
 Approved By: SAFE 71 – 06/26/2023



**M** Incident Investigation Form  
metro WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

INCIDENT					
Incident #		Risk Rank		Today's Date 4-30-23	
Incident Date 4-26-23	Incident Time 12:23 pm	Department TRST	Division ALST	Work Area C-13 - C14	
Location where Incident Occurred: C-13 - C14 TRK 1					
Is this the final report? If YES, is it within 7 days of the incident?					
If this is the Final Report, but it wasn't completed within 7 days, please explain why it wasn't completed within 7 days:					

DESCRIPTION OF THE INCIDENT.
Briefly describe the incident. While standing clear on the safety walk between King st - Eisenhower trk 1. The train came pass myself and [REDACTED] at a fast speed. [REDACTED] [REDACTED]

KNOWN FACTS.
List in a logical order the known facts obtained during the investigation process.



Washington Metropolitan Area Transit Authority  
Rail Operations Supervisor Report



Incident Date	Incident Time	Location (Station/Division)	Track/Mezz Number
4-26-23	12:21pm	Eisenhower	Trk#1
Type of Incident			
Rule Violation (SOP #)	Commendation (Yes/No)	Other	
N/A	N/A	RWP Violation	
Equipment Involved in the Incident			
Train ID and Car Numbers	Escalator Number	Elevator (Platform/Street)	Room Number
451	N/A	N/A	N/A
WMATA Employee/Contractor Involved Information			
Name	Employee Number	Division	
██████████	018580	West Falls Church	
N/A	N/A	N/A	
N/A	N/A	N/A	
Customer Involved Information			
Name	Address		
N/A	N/A		
N/A	N/A		
N/A	N/A		
Miscellaneous Information			
Customer Injury (Yes/No)		N/A	
Employee/Contractor Injury (Yes/No)		N/A	
Post Incident Transport (Yes/No)		Yes	
Responding Personnel			
Department	Arrival Time	Unit/Engine/Ambulance/Badge Number	Contact Person
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A



Washington Metropolitan Area Transit Authority  
 Rail Operations Supervisor Report



**Please Provide a Chronological Account of the Incident**

I was told by Central to take the Operator on 451 out of service due to an RWP Violation. I cushioned on 454 to L'Enfant Plaza awaiting for Operator [REDACTED] who was with Supervisor [REDACTED]. I took Operator [REDACTED] for a Post Incident and interviewed [REDACTED] using the fatigue questionnaire form, also telling [REDACTED] to do an incident report. I turned [REDACTED] over to Supervisor [REDACTED] out of West Falls Church Division.

Supervisor Name and Payroll	Signature	Date
[REDACTED]		4-26-23
Reviewed By	Signature	Date

# Appendix C – Maximo Work Order



## Washington Metropolitan Area Transit Authority Maintenance and Material Management System

Page 1 of 2  
MX76PRO D

Work Order #: 17832369  
Type: CM

### Work Order Details



Status: COMP  
04/26/2023 23:05

Work Description: TRST 6484 reported Train 451 passed personnel at excessive speed track one from C14 to C13.  
Job Plan Description:

Work Information			
Asset: R3242	3242, RAIL CAR, BRED A, 3000 AC, A CAR	Owning Office: CMNT-CMNT-CMNT	Parent:
Asset Tag: R3242		Maintenance Office: CMNT-ALEX-INSP	Create Date: 04/26/2023 13:39
Asset S/N: 3242		Labor Group: CMNT	Actual Start: 04/26/2023 13:41
Location: 1213	C99, ALEXANDRIA YARD	Crew:	Actual Comp: 04/26/2023 23:05
Work Location: 1230	D99, NEW CARROLLTON YARD	Lead:	Item: L18050002
Failure Class: CMNT001	RAIL CAR	GL Account: WMATA-02-33350-50499160-041-*****0 PR**	Target Start:
Problem Code: 2424	N/A CODE (GENERAL SYMPTOM)	Supervisor: [REDACTED]	Target Comp:
Requested By:		Requestor Phone: [REDACTED]	Scheduled Start:
Chain Mark Start:		Chain Mark End:	
Create-Mileage: 2555806.0		Complete-Mileage: 2555806.0	

Task ID	Description	Reason	Status	Position	Warranty?
10	CHECKED CAR IN YARD. BRAKE PIPE DUMPS & CHARGES. MASTER CONTROLLER HAS GOOD DETENTS. YARD & AIR HORNS ARE GOOD. GOOD BRAKE RATES. BRAKE RATES ARE: FRONT B5 = 68 PSI, B4 = 54 PSI, B3 = 49 PSI, B2 = 42 PSI, B1 = 23 PSI, COAST = 0 PSI, EMER = 72 PSI. REAR B5 = 68 PSI, B4 = 55 PSI, B3 = 48 PSI, B2 = 42 PSI, B1 = 23 PSI, COAST = 0 PSI, EMERGENCY = 71 PSI.	NO TROUBLE FOUND	COMP		N
20	RE- ESTABLISHED FRICTION BRAKE SUB SYSTEM COMMUNICATION WITH VMS	FAILED	APPR		N

Task ID	Labor	Start Date	End Date	Start Time	End Time	Approved?	Regular Hours	Premium Hours	Line Cost
10	[REDACTED]	04/26/2023	04/26/2023	19:00	21:30	Y	02:30	00:00	\$123.39
20	[REDACTED]	04/26/2023	04/26/2023	22:00	22:30	Y	00:30	00:00	\$23.30
Total Actual Hour/Labor:							03:00	00:00	\$146.69

Ticket	Description	Class	Status	Relationship
8666946	TRST 6484 reported Train 451 passed personnel at excessive speed track one from C14 to C13.	SR	RESOLVED	ORIGINATOR

WT\_plust\_woprnt.rptdesign

04/27/2023 17:12

Document 8 – Maximo Work Order # 17832269, Page 1 of 2

Incident Date: 04/26/2023 Time: 12:21 hours  
Final Report – Improper RWP E23289

Drafted By: SAFE 709 – 03/14/2024  
Reviewed By: SAFE 707- 06/22/2023  
Approved By: SAFE 71 – 06/26/2023

Page 25



Washington Metropolitan Area Transit Authority  
Maintenance and Material Management System  
**Work Order Details**

Work Order #: 17832369  
Type: CM



Status: COMP  
04/26/2023 23:05

Work Description: TRST [REDACTED] reported Train 451 passed personnel at excessive speed track one from C14 to C13.

**Job Plan Description:**

Related Work Orders				
WO	Description	Class	Status	Relationship
17833426	Friction Brake subsystems NOT communicating with VMS	WORKORDER	COMP	FOLLOWUP

Failure Reporting					
Cause	Remedy	Supervisor	Remark	Date	
2477	NO DEFECT; OPERATOR ERROR	3192	TESTED / INSPECTED	[REDACTED]	04/26/2023

Remarks: INSPECTED BRAKE PIPE DUMPS & CHARGES FOR RWP VIOLATION. THIS TRAIN OPERATION CHECK GOOD FOR SVC.

# Appendix D – Why-Tree Analysis

