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WMSC Commissioner Brief: W-0146 – Train Passed Personnel at Excessive Speed – Red Line – November 17, 2021

Prepared for Washington Metrorail Safety Commission meeting on March 8, 2022

Safety event summary:

Track inspectors had to jump out of the way of an oncoming train on the Red Line between Fort Totten and Takoma stations when a Train Operator, with a Rail Supervisor in the operating cab, operated at full speed (up to 59 mph) despite having been informed face-to-face by an advanced mobile flagger (AMF) that there were personnel on the roadway. Due to the personnel on the roadway, the maximum allowed speed was half of the regulated speed until seeing the work crew, then 15 mph while passing the work crew.

The Train Operator, with the Rail Supervisor in the operating cab, activated emergency braking while travelling 59 mph, stopping the train beyond the two track inspectors who described seeing smoke coming from the rails. After the train stopped momentarily, the Train Operator recharged the brakes and continued to Fort Totten Station without either the Train Operator or Rail Supervisor reporting the near miss of a collision.

The track inspectors reported the event to a supervisor and the Rail Operations Control Center (ROCC). After the event was reported and ROCC directed another supervisor to remove the train operator from service farther down the line, the Rail Supervisor reported that they were on the train at the time of this event.

The Rail Supervisor and Train Operator denied that the Rail Supervisor was in the operating cab during this event; however, CCTV video at the preceding and following stations show the Rail Supervisor in the cab, and both track inspectors reported that there were two people in the operating cab at the time of this event. The Rail Supervisor had not gotten permission from the ROCC as required by Metrorail rules to be in the operating cab. The investigation determined that rail supervisors regularly enter operating cabs without contacting ROCC as required by Metrorail rule. Rail Supervisors are assigned tasks that include entering the cab with permission, such as verifying train operator uniform compliance.

Other documentation obtained during this investigation contradicted other statements from interviews with the Rail Supervisor and Train Operator, such as the train's operating speed and the use of the train's horn.

The track inspectors described the two individuals in the operating cab as waving to acknowledge them while speeding past.

The Train Operator described having seen a different crew on an adjacent track just prior to this work crew, which could have caused confusion due to the restricted view curve in the area. However, vehicle data shows that the train operator proceeded from Takoma Station as if there were no personnel on the roadway. The road horn was not sounded as required, and the train accelerated to 35 mph by the time the rear of the train left the station platform, then reached a top speed of 59 mph. Emergency braking was applied and the road horn was sounded when the train was moving 59 mph. The train stopped approximately 868 feet after emergency braking was applied.

In addition to the actions of the Train Operator and Rail Supervisor, the track inspection crew was not following Metrorail's roadway worker protection provisions related to watchman/lookout positioning and assignment. The track

inspection crew's prior segments of the day's inspection had included three people: two inspectors and a third inspector designated as Roadway Worker In Charge (RWIC). However, one of the inspectors had to use the bathroom at Fort Totten Station and believed that the break would need to be somewhat lengthy, so the RWIC and other inspector opted to continue walking on their own. Track inspections are regularly conducted at Metrorail with two individuals, however the track inspector who continued with the RWIC said that they are relatively new, with two years of experience, and therefore have questions or need to consult a co-worker during inspections. The RWIC stated that this was a reason that, even though the RWIC had designated themself as the dedicated watchman/lookout, the RWIC was performing other duties and assisting with the inspection. The RWIC remained within just a few feet of the inspector. Metrorail rules require the watchman/lookout to be focused solely on that task, and to be at least 50 feet ahead in order to provide ample time for workers to clear the tracks when a train is approaching. In this case, the RWIC identified the train coming and, as the track inspector described, they hurried to jump off the tracks. Due to the speed of the train, the track inspector described that they had to hold on tightly to the fence marking the edge of the roadway to avoid being swept up in the force of the wind and into the train's dynamic envelope. In an investigative interview, the Train Operator also described the track inspectors as being startled and having had to jump out of the way. Metrorail rules require personnel to be in a place of safety at least 15 seconds before a train passes. In this case, the inspector stated that they believed that if crew had been just one second slower to clear the tracks, they would have been hit. The inspection crew reported the near-miss, and described that they had to jump off the track because the train was flying around the curve.

In an investigative interview, the RWIC stated that they had experienced a near-miss in this area before. There was no documentation available to support or refute this statement.

The Rail Supervisor was not taken for post-event toxicology testing as required by Metrorail policy.

Probable Cause:

The probable cause of this event was Metrorail's ineffective supervisory oversight program, which includes distraction of train operators by rail supervisors during train operation. Contributing to this event was Metrorail's lack of consistent application of, compliance with, and supervisory oversight of its roadway worker protection procedures. Further contributing to the potential consequences of this event was the Rail Supervisor and Train Operator moving the train after stopping without reporting this safety event or checking on the condition of the roadway workers.

Corrective Actions:

Prior to this event, this segment of track was marked in Metrorail's Track Access Guide as a Restricted View: Curve, but was not marked as a hot spot requiring Foul Time protection. Based on the initial information gathered as part of the investigation, the WMSC directed Metrorail on November 30, 2021 to immediately require Foul Time in this area until Metrorail conducted an assessment to determine the proper long-term designation for this area in its roadway worker protection program. Metrorail's assessment, completed in December 2021, determined that this area is required to be a hot spot due to limited line of sight for a watchman/lookout. Metrorail has taken required action to make this change permanent.

Rail Transportation (RTRA) distributed revised guidance to Rail Supervisors on performing Train Operator compliance checks to minimize distraction.

Track and Structures (TRST) held safety briefings on the importance of the watchman/lookout role.

Metrorail repaired the ambient microphone at Glenmont Terminal.

WMSC staff observations:

The WMSC's Roadway Worker Protection (RWP) Audit identified that Metrorail employees were not consistently following watchman/lookout placement rules and required corrective action. In 2022, Metrorail's Safety Department has increased RWP compliance checks and reporting. Metrorail is now beginning work to revamp its RWP rules and training over the next two years.

The WMSC has transmitted a draft Rail Operations Audit to Metrorail for technical review.

Metrorail is revising its AMF script to require the train operator to repeat back the instructions. The main content of the script remains, with direction related to proceeding at half the regulated speed, blowing the train's horn, and reducing speed to 15 mph when passing work crews.

Staff recommendation: Adopt final report.

Washington Metro Area Transit Authority
Department of Safety and Environmental Management (SAFE)

FINAL REPORT OF INVESTIGATION A&I E21586

Date of Event:	11/17/2021
Type of Event:	Train Passed Personnel at Excessive Speed
Incident Time:	11:50 Hours
Location:	Between Takoma and Fort Totten Stations, Track 2 (CM B2 317+00)
Time and How received by SAFE:	12:02 Hours – SAFE/IMO
WMSC Notification Time:	12:49 Hours
Responding Safety Officers:	WMATA: N/A WMSC: N/A Other: N/A
Rail Vehicle:	L3131/30x3061/60x2018/18T
Injuries:	None
Damage:	None
Emergency Responders:	None
SMS I/A Incident Number:	20220112#97846

Between Takoma Station & Fort Totten Station, Track 2 – Train Passed Personnel at Excessive Speed

November 17, 2021
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Abbreviations and Acronyms

ARS	Audio Recording System
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CM	Chain Marker
CMNT	Office of Car Maintenance
CMOR	Office of Chief Mechanical Officer
ER	Event Recorder
IIT	Incident Investigation Team
MSRPH	Metrorail Safety Rules and Procedures Handbook
NOAA	National Oceanic and Atmospheric Administration
RTRA	Office of Rail Transportation
ROCC	Rail Operations Control Center
RSDAR	Rail Supervisor Daily Activity Report
RSSC	Rail Safety Standards Committee
RTC	Rail Traffic Controller
RWIC	Roadway Worker in Charge
SAFE	Department of Safety and Environmental Management
SMS	Safety Measurement System
TRST	Office of Track and Structures
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

FINAL REPORT OF INVESTIGATION A&I E21586

Executive Summary

On Wednesday, November 17, 2021, at approximately 11:50 hours, Train ID 101 (L3131/30x3061/60x2018/18T) passed a mobile work crew at speeds greater than one-half of their regulated speed between Takoma Station and Fort Totten Station, track 2 near Chain Marker (CM) B2 317+00. Preceding the event, at approximately 11:36 hours, the Rail Operations Control Center (ROCC) Rail Traffic Controller (RTC) granted the Office of Track and Structures (TRST) Roadway Worker in Charge (RWIC) and Mobile Work Crew (1-RWIC and 1-Track Inspector) permission to enter the roadway to perform a track inspection from Fort Totten to Takoma Station on track 2 under Advanced Mobile Flagger (AMF) protection. Before entering the roadway, the RWIC established positive radio communication with the AMF at the 8-car marker at Takoma Station and began AMF Operations. At approximately 11:59 hours, the TRST RWIC contacted ROCC and reported a near-miss between Fort Totten Station and Takoma Station, track 2 at CM B2 317+00. The RWIC said that the train was operating at high speed and failed to blow the train horn in approach to their location on track 2. There were no injuries or damage as a result of this event.

The Audio Recording System (ARS) playback [radio and landline] indicated that at approximately 11:35 hours, the TRST RWIC contacted the ROCC Radio RTC and reported they were located at Fort Totten Station, track 2. The TRST RWIC requested permission to continue their track inspection from Fort Totten Station to Takoma Station, track 2. The RWIC informed the Radio RTC that an AMF was located at the 8-car marker at Takoma Station, track 2, ready to flag. The Radio RTC instructed the RWIC to contact the AMF directly. The RWIC contacted the AMF via radio and requested their location. The AMF responded that they were in place at Takoma Station, track 2, ready to flag. The Radio RTC announced on the Ops 1 radio channel that TRST personnel was entering the roadway to perform a track inspection. At approximately 11:36 hours, the Radio RTC granted the RWIC permission and instructed them to continue their walk from Fort Totten Station to Takoma Station, track 2.

The Closed-Circuit Television (CCTV) revealed that at approximately 11:47 hours, Train ID 101 entered the platform at Takoma Station, track 2, with two personnel in the operating cab. The second person in the cab was identified as an Office of Rail Transportation (RTRA) Supervisor. The RTRA Supervisor remained in the operating cab as the train departed. After berthing on the platform and opening the train doors, the Train Operator and AMF were observed interacting, and the AMF appeared to read from their scripted card at the 8-car marker. After receiving the AMF Instructions, Train ID 101 departed Takoma Station at approximately 11:49 hours in Fort Totten Station's direction.

At approximately 11:59 hours, the RWIC contacted the ROCC Assistant Operations Manager (AOM) and reported a near-miss event. The RWIC reported that while conducting their track inspection, a train came around the curve in the direction of Fort Totten Station at an excessive speed, passing the work crew without sounding the horn, causing the work crew to jump from the roadway to a place of safety. The RWIC reported observing the train traveling fast, and when the Train Operator noticed the mobile crew, they activated their brakes, and smoke emitted from the

running rail. The Train Operator stopped their train momentarily and then continued without reporting the event.

At approximately 12:03 hours, the Radio RTC contacted the Train Operator of Train ID 101 and inquired if they contacted the AMF located at Takoma Station. The Train Operator confirmed that they contacted the AMF before departing Takoma Station. At approximately 12:07 hours, the ROCC Assistant Director was notified of the near-miss event and instructed the AOM to have the Train Operator relieved.

The probable cause of the Train Passing Personnel at an Excessive Speed event on November 17, 2021, was the distraction of the Train Operator, due in part to the Rail Supervisor being present in the cab during train operation. The distraction led to the Train Operator failing to comply with established procedures for AMF operations. The Train Operator acknowledged the AMF on the Takoma Station platform and was briefed that a mobile work crew was present and performing an inspection just ahead of the train's location.

An additional contributing factor to the Near Miss event was that the mobile work crew was performing the inspection with the Watchman/Lookout near the inspector, not the required fifty feet ahead. This was reportedly due to having an inexperienced Track Inspector, leading the RWIC to reduce the space between the RWIC and Track Inspector to assist as needed.

Incident Site

Fort Totten Station to Takoma Station, Track 2 at CM B2 317+00

Field Sketch/Schematics

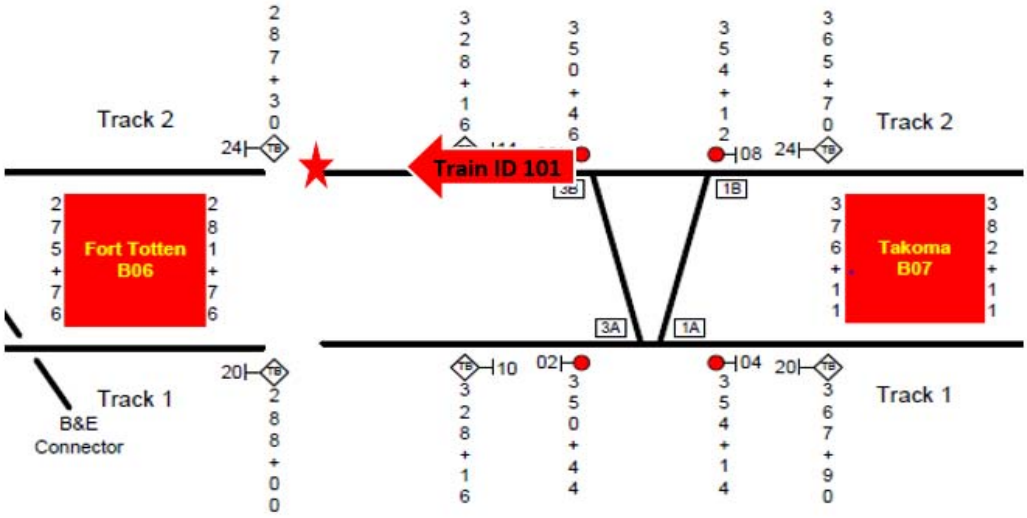


**Image Not to Scale*

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.

Investigative Process and Methods

Upon receiving notification of the Near Miss event between Fort Totten Station and Takoma Station, track 2 on November 17, 2021, SAFE dispatched a cross-functional team to assess the scene and conduct a subsequent investigation. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The preliminary investigative methodologies included the following:

- Site Assessment through video and document review
- Field assessment by the SAFE Operating Practices group

- Formal Interviews – SAFE interviewed four (4) individuals as part of this investigation, including:
    - RWIC
    - Track Inspector
    - Train Operator
    - Rail Supervisor

- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information.

- Documentation Review – A collection of relevant work history information and process documentation contained in Metro systems of record. These records include:
    - Employee Training Procedures & Records
    - Metro Safety Rules and Procedures handbook (MSRPH)
    - National Oceanic and Atmospheric Administration (NOAA) data
    - Training and Certification Records
    - 30-Day work history
    - Office of Chief Mechanical Officer (CMOR) / Incident Investigation Team (IIT) post-incident analysis data
    - Office of Car Maintenance (CMNT) post-incident inspection data
    - Maximo

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

Investigation

On Wednesday, November 17, 2021, at approximately 11:36 hours, the Radio RTC granted the TRST RWIC and Mobile Work Crew permission to enter the roadway to perform a track inspection from Fort Totten to Takoma Station on track 2 under AMF protection. Before entering the roadway, the RWIC established positive radio communication with the AMF at the 8-car marker at Takoma Station and began AMF Operations. At approximately 11:50 hours, Train ID 101 (L3131/30x3061/60x2018/18T) passed a mobile work crew at speeds greater than one-half of their regulated speed between Fort Totten Station and Takoma Station, track 2 near Chain Marker (CM) B2 317+00. The maximum speed in this area is 75 MPH, the regulated speed allowed in this area is 59 MPH; the investigation found that the Train Operator was operating at a speed of 59 MPH as the train approached the mobile work crew, 29.5 MPH greater than the required one-half of the regulated speed. At approximately 11:59 hours, the TRST RWIC contacted ROCC via cellular phone from a place of safety and reported a near-miss between Fort Totten Station and Takoma Station, track 2 at CM B2 317+00. The RWIC reported that the train was operating at high speed and failed to blow the train horn in approach to their location on track 2. There were no injuries or damage as a result of this event.

At approximately 10:12 hours, the RWIC contacted ROCC, requested, and received permission to perform a track inspection between Rhode Island Avenue Station and Silver Spring Station, track 2, with two Track Inspectors. At approximately 11:35 hours, the RWIC notified ROCC that the mobile work crew had completed their track inspection between Brookland Station and Fort Totten Station, track 2. One Track Inspector took a personal break upon arrival at Fort Totten Station. The RWIC requested and received permission from ROCC after making positive radio communication with the AMF to continue the track inspection between Fort Totten Station and Takoma Station, track 2, with one Track Inspector.

At approximately 11:45 hours, a Rail Supervisor boarded Train ID 101 at Silver Spring Station, track 2. The Rail Supervisor entered the Train Operator's Cab to conduct a Train Operator Performance Inspection for reporting to the Rail Supervisor Daily Activity Report (RSDAR). The Rail Supervisor did not contact ROCC and request to enter the Train Operator's Cab per MSRPH GR 1.49 - *Only those employees authorized by ROCC are permitted to ride in the Operator's Cab with the person operating the train*. Based on interviews and discussions with personnel, RTRA Supervisors regularly enter the operating cab to perform oversight duties without contacting ROCC.

As observed on CCTV, at approximately 11:47 hours, Train ID 101 entered the platform at Takoma Station, track 2, with two personnel in the operating cab, the Train Operator and Rail Supervisor.

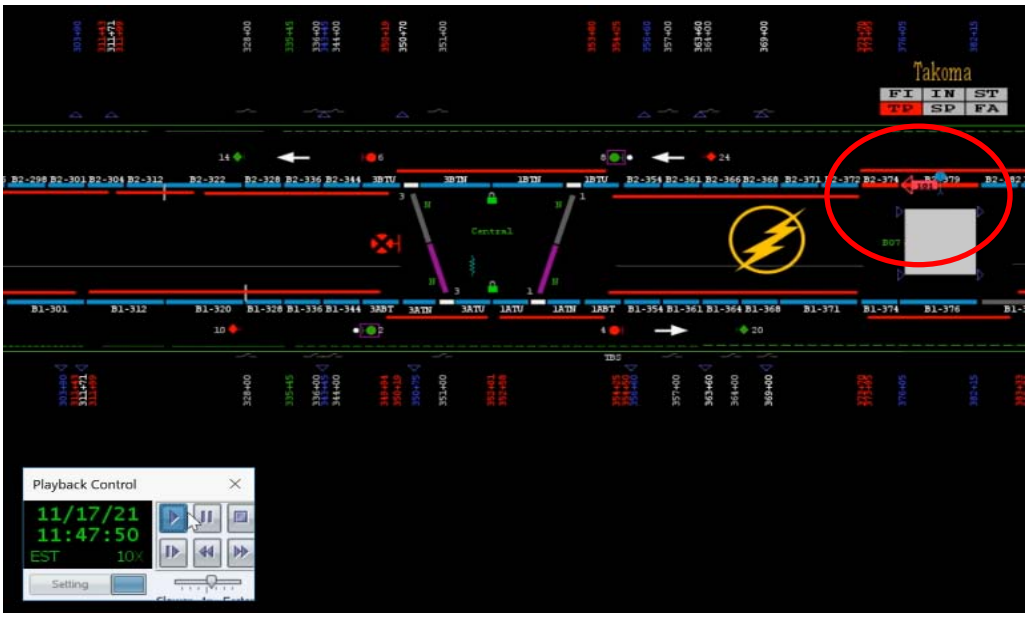


Figure 1 - Train ID 101 entering Takoma Station, track 2 at approximately 11:47 hours.

After receiving the AMF instructions, Train ID 101 departed Takoma Station at approximately 11:49 hours in Fort Totten Station's direction. The RTRA Supervisor remained in the operating cab as the train departed.

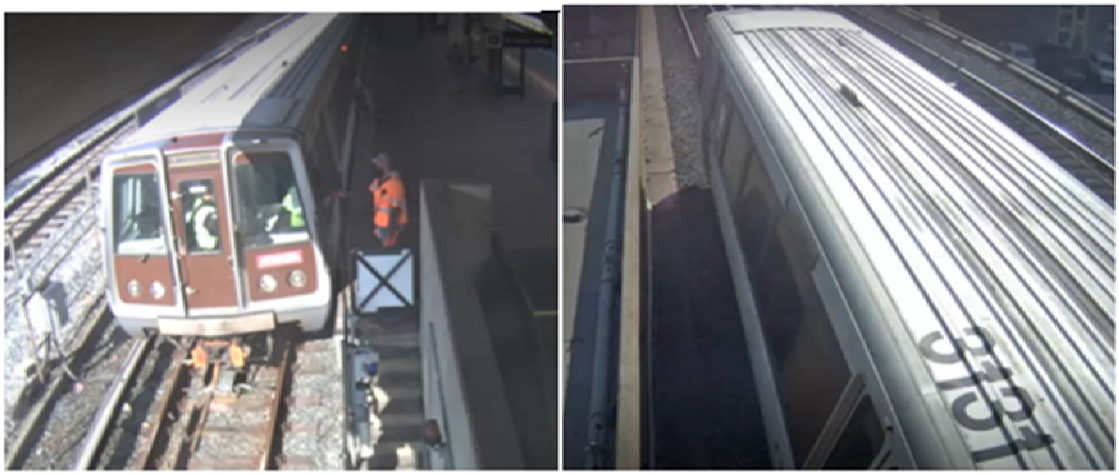


Figure 2 - Train Operator receiving instructions from the AMF at Takoma Station and Train ID 101 departing Takoma Station.

The RWIC and Track Inspector were inspecting the track between CM B2 302+00 to 320+00 labeled as a Restricted View: Curve in the Track Access Guide. During this inspection, the RWIC was performing the duty of Watchman/Lookout and assisting the inspector in the absence of the additional Track Inspector and the inexperience of the remaining Track Inspector. The reduction in personnel caused the Mobile Work Crew to reduce their separation to not more than 10 feet, violating the MSRPH Sec. 5 RWP, 5.13.6 – *A Watchman/Lookout must be a minimum of 50 feet in advance of the Mobile Work Crew*. The Mobile Work Crew was stopped, inspecting a potential

rail defect when Train ID 101 entered the Restricted View: Curve, where the Mobile Work Crew was located.

At approximately 11:49 hours, Train ID 101 entered the Restricted View: Curve and encountered the Mobile Work Crew at CM B2 317+00. The Train Operator and Rail Supervisor were engaged in discussions relating to train operation and non-work-related conversations. This action led the Train Operator to become distracted from performing their duties after receiving instructions from the AMF minutes prior.

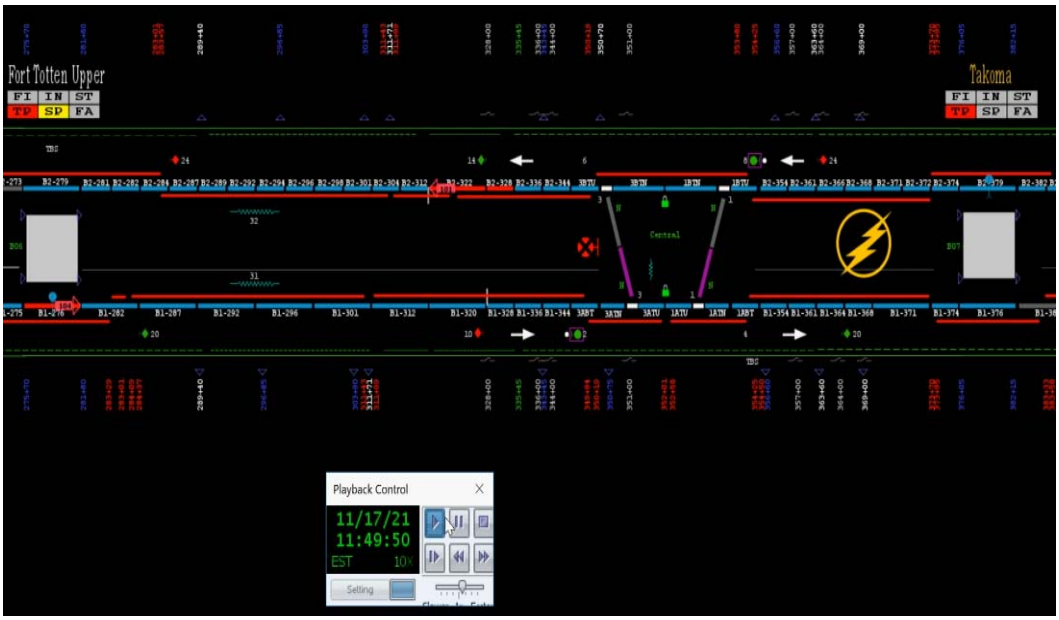


Figure 3 - Train ID 101 at CM B2 317+00, the approximate location of the Mobile Work at approximately 11:49 hours.

The train was traveling at a speed of 59 MPH as the consist approached the Mobile Work Crew, well above the required one-half of regulated speed. The Mobile Work Crew noticed the train traveling at a high rate of speed and immediately jumped from the track bed to a place of safety and leaned against the fence to avoid being swept in the wind caused by the dynamic envelope of the train passing their location. The Train Operator placed the Master Controller in the emergency position, activated the horn, and the train came to a stop after the entire consist passed the Mobile Work Crew. The Train Operator recharged the train brake pipe pressure, and approximately 18 seconds after stopping, the Train Operator continued towards Fort Totten Station without reporting the incident.

At approximately 11:59 hours, the RWIC contacted ROCC via cellular phone from a place of safety and reported that a train had passed their location at an excessive speed.[1]

[1] During formal interviews the RWIC and Track Inspector reported observing two WMATA personnel in the cab area of the train as the consist passed their location.

Following the train passing the mobile work crew at excessive speed, the Rail Supervisor was observed onboard the consist in the Operator's Cab when the train arrived at Fort Totten, Brookland, and Rhode Island Avenue Stations.

Figure 4 - Train ID 101 entering Fort Totton Station. (Rail Supervisor observed in the cab area)

The Rail Supervisor alighted the train at Rhode Island Avenue Station at approximately 11:59 hours and reported off duty to ROCC at approximately 12:01 hours without reporting the incident.

At approximately 12:03 hours, ROCC contacted Train ID 101, located at Union Station and inquired if the Train Operator had made contact with the AMF located at Takoma Station. The Train Operator confirmed that they received the AMF instructions before departing Takoma Station. At approximately 12:16 hours, ROCC notified Glenmont Division Management of the Train Operator incident.

The Rail Supervisor reported that they contacted the Terminal Supervisor at Glenmont Station via cellular telephone, inquiring about resources to report a Near Miss to the Close Call Hotline. Audio of this conversation was not available due to the ambient microphone in Glenmont Terminal being inoperable at the time of the incident. The ambient microphone has since been restored. At approximately 12:37 hours, the Rail Supervisor contacted the ROCC AOM via landline telephone. The Rail Supervisor was advised that the incident had already been reported and was instructed to complete a Supervisor's Report. Approximately 36 minutes after, they called off-duty to inquire on how to report a Near Miss and advised that they were aboard the incident train.

Upon documentation review of the Rail Supervisor's Written Report, the Rail Supervisor reported that they were not present in the Operator's Cab area when the incident occurred; they reported departing the Operator's Cab prior to the train passing the Mobile Work Crew. Additionally, formal interviews were conducted with the Train Operator and Rail Supervisor; both reported that the Rail Supervisor was not present in the Operator's Cab when the incident occurred. However, CCTV and formal interviews with the RWIC and Track Inspector indicate a high likelihood that the Supervisor was in the Operating Cab at the time of the event. The Rail Supervisor is observed in the Operator's Cab leaving Takoma Station. The RWIC and Track Inspector reported observing

a second person in the Operator's Cab area as the train passed their location. CCTV also depicts the Rail Supervisor in the Operator's Cab when the train arrives at Fort Totten Station, Brookland Station and when the Rail Supervisor alights the train at Rhode Island Avenue Station to call off-duty.

Chronological Event Timeline

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

Time	Description
10:11:45 hours	TRST RWIC: ROCC, RWIC. ROCC Radio RTC: Acknowledges RWIC. [Ops 1]
10:12:14 hours	TRST RWIC: RWIC and two Track Inspectors would like to perform a track inspection from Rhode Island Avenue to Silver Spring Station, track 2. AMF's standing by at Brookland Station and Fort Totten Station. ROCC Radio RTC: Acknowledges and repeated. [Ops 1]
10:13:59 hours	ROCC Radio RTC: RWIC, you have permission to perform a track inspection between Rhode Island Avenue Station to Brookland Station, track 2. TRST RWIC: Acknowledges and repeated. [Ops 1]
11:35:34 hours	ROCC Radio RTC: RWIC, go with your request. TRST RWIC: All personnel are clear from the roadway on the platform at Fort Totten Station, track 2. Ready to continue the track inspection from Fort Totten Station to Takoma Station, track 2. I have an AMF at the 8-car marker at Takoma Station, track 2 ready to flag. ROCC Radio RTC: Acknowledged and instructed the RWIC to go direct with the AMF. TRST RWIC: AMF, how do you copy? AMF: Good copy; I am in place at Takoma Station, track 2 ready to flag. TRST RWIC: Good copy. How do you copy Central? [Ops 1]
11:36:19 hours	ROCC Radio RTC: Good copy. We have personnel walking from Fort Totten Station to Takoma Station, track 2. Upon seeing personnel on the roadway, dim your lights, sound your horn and do not exceed 15 mph. RWIC, you have permission to continue your walk from Fort Totten Station to Takoma Station, Track 2. TRST RWIC: Acknowledges and repeated permission to enter the roadway. [Ops 1]

Time	Description
11:55:25 hours	TRST RWIC: Central, we just had a near-miss with that train that left Takoma Station. They came around the corner and didn't honk the horn, flying. We had to jump off the track. Then he tried to stop, hit the brakes, and nothing but smoke was coming from the wheels. ROCC Radio RTC: You said the train that left Rhode Island Avenue Station? TRST RWIC: No, Takoma to Fort Totten, he's probably at Brookland Station. The train was going so fast; we jumped away from the train. ROCC Radio RTC: You're saying 101 was going full speed? TRST RWIC: He was going full speed, no horn, and hit the brakes; there was nothing but smoke from the rails. ROCC Radio RTC: Is everyone okay? TRST RWIC: Yeah. ROCC Radio RTC: Good, I'm going to let everyone know. [Phone]
11:57:58 hours	ROCC Radio RTC: RWIC, can you landline [AOM Phone]? [Ops1]
11:59:09 hours	TRST RWIC: Contacted the ROCC AOM and stated that they just had a near miss. The RWIC stated that while conducting their track inspection from Fort Totten Station to Takoma Station, track 2, a train came around the curve in the direction of Fort Totten Station and operated at an excessive speed past them without sounding its horn. The RWIC reported that the Train Operator was going so fast that when they noticed the mobile work crew, they activated the brakes, and smoke emitted from the running rail. The Train Operator stopped their train and then continued. ROCC AOM: Responded, are you okay? TRST RWIC: Responded that they were a little shaken up but will finish the walk and stated that the track inspector was a little shaken up as well. ROCC AOM: Responded; you can continue your walk if you feel safe to do so. I will contact you after investigating your reported near-miss. [Phone]
12:01:24 hours	ROCC AOM: Get a Supervisor to interview Train ID 101 Operator and find out if there is an AMF at Takoma Station and did the Train Operator talk to the AMF. ROCC Radio RTC: Okay, I will. [Phone]
12:01:39 hours	Rail Supervisor Unit 16 (the Supervisor aboard Train ID 101): Off duty. ROCC Radio RTC: Unit 4, come into Central. Rail Supervisor Unit 4: Aboard 107 track 1 Farragut North. ROCC Radio RTC: Copy, 16 off duty. [Ops 1]
12:02:38 hours	ROCC Radio RTC: Exit the train, stand by track 2 for ID 101. Give Central a landline. Rail Supervisor Unit 4: Acknowledges and repeated. [Ops 1]
12:03:10 hours	Rail Supervisor Unit 16: Off duty. ROCC Radio RTC: Copy, 16 off duty. [Ops 1]

Time	Description
12:03:47 hours	ROCC Radio RTC: Train ID 101, what's your lead car? Train ID 101 Train Operator: Lead Car 3131. ROCC Radio RTC: Acknowledged. Did you speak with the AMF at Takoma Station, Track 2? Train ID 101 Train Operator: Yes, I spoke with the AMF. ROCC Radio RTC: Acknowledged. [Ops 1]
12:07:00 hours	ROCC AOM: Contacted the ROCC Assistant Director and reported the near-miss event between Fort Totten Station and Takoma Station, Track 2. ROCC Assistant Director: What was the incident time, and did you notify the IMO? ROCC AOM: The incident time was 11:58 hours, and yes, we notified the IMO. ROCC Assistant Director: Contact the Supervisor, and get the Train Operator relieved ASAP. [Phone]
12:10:12 hours	Radio RTC: Contacted the ROCC AOM and reported the Train Operator's name, and they are a Glenmont Division Train Operator. [Phone]
12:16:00 hours	ROCC AOM: Contacted the Glenmont Division Superintendent to inform them of the reported event and involved Train Operator. [Phone]
12:37:00 hours	RTRA Supervisor: Contacted the ROCC AOM and requested information on how to report a Near Miss event. ROCC AOM: Asked the caller to identify themselves and advised them that the event was already reported and under investigation. RTRA Supervisor: Acknowledged the information and provided general details about the event. ROCC AOM: Requested the RTRA Supervisor to complete a report/written statement.

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

Office of Chief Mechanical Officer (CMOR) / Vehicle Monitoring and Diagnostic System (VMDS) Timeline / Incident Investigation Team (IIT)

Event Recorder (ER) Data Graph/Sequence of Events

Based on IIT CMOR analysis of the downloaded VMS and ER, details from the data analysis are as follows:

Adopted from CMOR IIT Report:
"After servicing the station at Takoma Station, track #2, the Master Controller was placed in a power mode, and the train began to move in the direction of Fort Totten Station at speeds up to 59 MPH. After traveling 6,452 feet, Emergency Braking was initiated, the road horn was activated at 6,522 feet, bringing the train to a stop, 7,320 feet beyond Takoma Station's 8-Car marker.

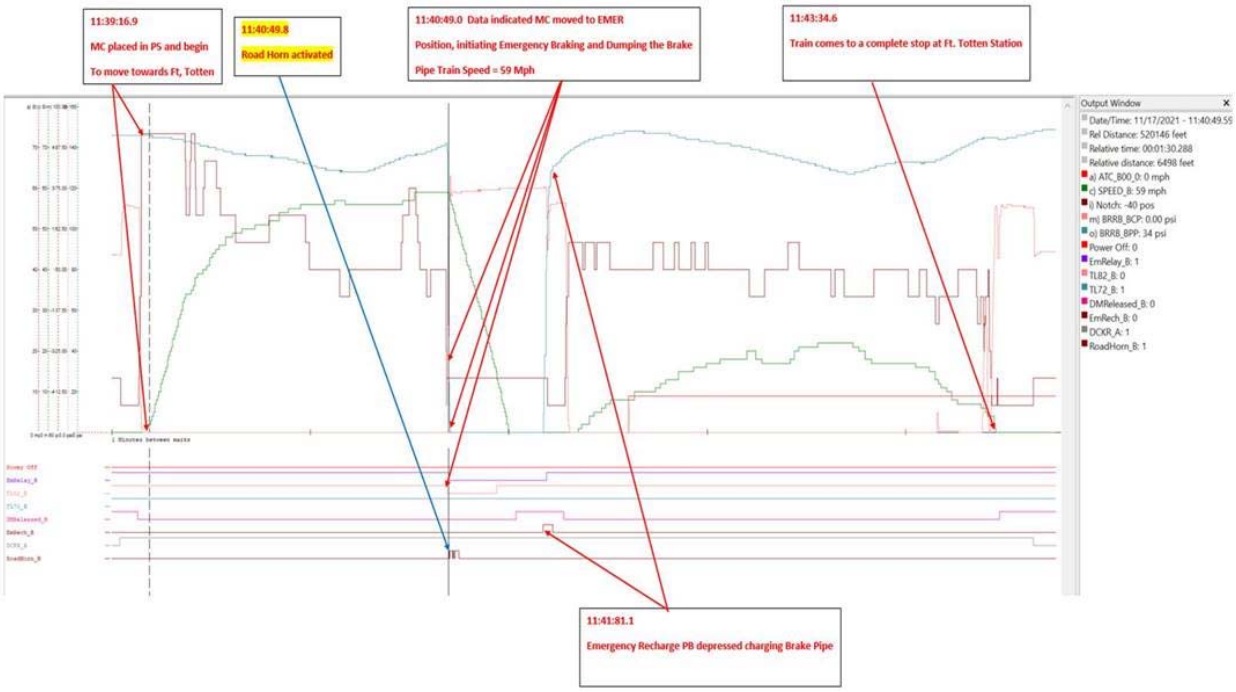
The data indicates that the Master Controller was placed in the Emergency position. The Emergency position is not currently monitored on the 2K/3K fleets, and therefore you are unable to see the Master Controller's emergency position signal status reflected in the VMS data. In this case, the [braking rate] data is consistent with the master controller being moved to emergency position.

Soon after coming to a complete stop, the Emergency recharge switch was activated, and the brake pipe was recharged. After recharging, the train continued to the next station."

Time	Description
11:48:30 hours	Train ID 101 Stops at 8-Car Marker at Takoma Station
11:48:42 hours	Left Side Open Door Pushbutton Depressed and DCKR goes Low (Doors Open)
11:49:02 hours	Left Side Open Close Pushbutton Depressed
11:49:10 hours	DCKR signal goes High (All Doors Closed and Locked)
11:49:16 hours	Master Controller placed in P5 Power Mode
11:49:19 hours	The train begins to move in Fort Totten Station's direction
11:49:30 hours	As train speed gradually increases, Master Controller moved from P5 to P2 Power Modes, at a speed of 34 MPH, 300 ft. beyond the 8-Car Marker at Takoma Station
11:49:31 hours	Master Controller placed back in P5 Power Mode, Train speed 35 MPH, 381 ft. beyond the 8-Car Marker at Takoma Station
11:49:33 to 11:50:44 hours	Master Controller cycled multiple times between P3 and Coast, traveling at speeds up to 59 MPH.
11:50:49 hours	Master Controller was placed in EMER position (the data implies), at a speed of 59 MPH, T/L 82 De-Energizes, initiating Emergency Braking, 6,452 ft. beyond the 8-Car Marker at Takoma Station
11:50:49 hours	The Road Horn activated, 6522 ft. after the 8-Car Marker at Takoma Station. At a speed of 59 MPH, and Master Controller was placed at B4 Braking Mode.
11:51:07 hours	Train ID 101 came to a complete stop 7,320 ft. beyond the 8-Car Marker at Takoma Station

Time	Description
11:51:18 hours	The Emergency Recharge Push Button was activated, charging the Brake Pipe
11:51:25 hours	Master Controller moved to P1 Power Mode
11:51:28 hours	The train began to move in Fort Totten Station's directions at speeds up to 22 MPH.
11:53:33 hours	Master Controller Placed in B5 Braking Mode
11:53:34 hours	The train comes to a complete stop at Fort Totten 8-Car Marker
11:53:46 hours	Left Open Door Pushbutton depressed, and DCKR signal goes Low, indicating Doors opened
11:54:08 hours	Left Door Closed Pushbutton Depressed
11:54:16 hours	DCKR signal goes High (All Doors Closed and Locked)
11:54:25 hours	Master Controller moved to P5 Power Mode

VMS Data Visualization R3131



The brake logs were downloaded from the entire consist, and there were no faults logged with the friction brake system during the time in question. The train performed as designed.

Interview Findings

As part of the investigation launched into the Takoma Station Train Passed Personnel at Excessive Speed event, SAFE conducted four interviews via Microsoft Teams, including the Investigations Team and the WMSC. The interview was conducted two days after the event and identified the following key findings associated with this event. Findings detailed below include reported information from interviews and may conflict with other data sources contained in the report.

Train Operator

The Train Operator stated that they arrived at Silver Spring Station, serviced the platform, and saw the Supervisor. The Supervisor boarded the train, closed the doors, and proceeded toward Takoma Station. The Supervisor entered the cab and started talking about work which is usually a part of their workday. The Train Operator stated that they arrived at Takoma Station and spoke with the AMF; they were informed that there was a party of two on the roadway and needed to operate the train at half of the regulated speed, tapping the horn and upon seeing the crew and after receiving the proceed signal operate no greater than 15 MPH. They acknowledged what the AMF said, closed the doors, and proceeded towards Fort Totten Station.

The Train Operator stated that the Supervisor was still in the cab, and they were talking while they were tapping the horn and taking a point of power. They ensured that they did not operate more than half of the regulated speed, staying between P1-P3. They had a clear view of the roadway ahead and did not see anyone on the roadway. The Train Operator stated that at some point, they lost focus on what the speed was, and they realized they were traveling faster than the required speed. The Train Operator stated that as they approached Fort Totten, there was a curve, and when they came around the curve, they noticed the track walkers, three on track one.

The Train Operator stated that they were confused after thinking about what the AMF said that the track walkers would be on track two. When they noticed the track walkers on track one, they continued around the curve and saw two track walkers on track two. The Train Operator stated that the track walkers were standing nearly side by side, in close proximity of each other, bending down with their backs turned. The Train Operator stated that they sounded the horn and entered emergency braking, dumping the train. They kept their hand on the horn, and they noticed the track walkers had a startled look on their faces when they turned around and moved out the way of the train, jumping off the roadway. The Train Operator stated that they were in shock for two reasons; they went around the curve and did not expect to see the track walkers, and the track walkers were standing directly between the running rails. They thought that the curve or blind spot would have a lookout

The Train Operator stated that they could not remember the regulated speed when departing Takoma Station. They think they were operating at between 25-27 MPH. The Train Operator stated that they were not able to receive a proper hand signal because the track walkers were trying to get out of the way of the train. They accepted responsibility because they should have been aware of the train speed. The Train Operator stated that they did not report that the master controller was placed in emergency and did not report the incident to ROCC. The Train Operator stated that the Supervisor was in the cab for a while and stepped out just before the train went

around the curve; the door closed, and seconds later, they vocalized an expletive and depressed the horn.

The Train Operator stated that the Supervisor was right back in the cab and asked what was up, as they shouted an expletive while one hand was on the master controller, and the other hand was on the horn; they're not sure what the Supervisor saw. The Train Operator stated that they were distracted between the time they left the platform at Takoma Station and when they saw the track walkers, which caused them to stop depressing the horn in short blasts.

RTRA Supervisor

The Rail Supervisor stated that their supervisor checks begin with the Station Manager at Rhode Island Avenue after 09:00 hours. They boarded the next train because they parked their car at Rhode Island Avenue Station; that's when they came in contact with Train ID 101. Train ID 101 would have been their last entry in RSDAR. The initial inspection contact was to check the train operator's ID, verify the correct uniform and enter the information in RSDAR. They continued to Takoma Station, the Train Operator spoke with the AMF, and the train proceeded on towards Fort Totten Station.

The Rail Supervisor stated that they got their information shortly after leaving Takoma Station and stepped out of the cab. The Rail Supervisor stated that as soon as they stepped out, they could hear the horn going off, and they jumped back inside the cab, the train was coming to a stop, and they asked if everything was all right. The Train Operator said there were people on the roadway. The Rail Supervisor stated that they looked over, and four people were on track 1 waiving us on. They asked whether there were other people, and the Train Operator said yes on the other side of the train.

At Brookland Station, the Train Operator said that the track walkers had their back turned. The Rail Supervisor stated that they called ROCC and reported that they were aboard the train and inquired if there was a near miss. They were told that the incident was being investigated, and since they were on the train, they should complete a Supervisor's Report. The Rail Supervisor stated that they called their Superintendent and reported that they were aboard the train, and they would be completing a Supervisor's Report. The Rail Supervisor stated that they clocked out and went home.

TRST Inspector

The TRST Inspector reported there were three people total in the work crew. They began walking at Rhode Island Avenue Station; they got to Brookland Station and kept receiving permission to walk. The Track Inspector stated that they had permission to leave Fort Totten platform walking towards Takoma Station; they were the only inspector. The Track Inspector stated that the RWIC was trying to stay close because they're new and have questions. The Track Inspector stated that they were looking down and in front while inspecting. Suddenly, the RWIC says a train, train coming. The Track Inspector stated that the train was coming so fast around the corner, they didn't hear the horn. They had to hurry up and jump off the tracks. The Track Inspector stated the air from the force of the train was pushing them, and they had to hold on to the fence.

The Track Inspector stated that they saw two people in the front of the cab. They tried to see the train number and couldn't because the train was moving so fast. The Track Inspector stated that

as the train passed, they put on the brakes, and they could see smoke coming from the rails. The Track Inspector stated that they would have been hit if it had been one more second. The Track Inspector stated that there were three people in the work crew, and there were only two at the time of the incident. The Track Inspector stated they wanted to keep walking, so the RWIC left the second inspector at Fort Totten to use the restroom. The Track Inspector stated that the distance between the RWIC was a few feet apart because the RWIC cannot walk backward in case they find something during inspections. The Track Inspector stated that the horn sounded once the train was almost to Fort Totten Station. The Track Inspector stated that they were able to see two people, the safety vests in the front of the train on one sitting and one standing. The Track Inspector stated that the whole train was past them when it stopped. They could see the whole back of the train with the smoke coming from the rails. The RWIC reported the incident immediately, just a few minutes before 12:00 hours. The Track Inspector stated that they called the Supervisor, and the Supervisor told them to call it in; they reported that they were almost hit.

TRST RWIC

The Roadway Worker in Charge stated that they received permission from ROCC, spoke with the AMF, and then entered the roadway. The Roadway Worker in Charge stated that this is the second time this type of event has happened within a year, and nothing has been done about it. The Inspector was looking, and they were a couple of feet in front. When they looked up, the train was coming around the corner, and they both got out of the way. The Roadway Worker in Charge noticed the Train Operator and someone else was in front of the train, and as they passed, the two people in the operating cab waved and then applied the brakes, they could see the train slide, and the tracks started smoking.

The Mobile Work Crew reported that they were all right and continued the inspection. The Roadway Worker in Charge stated that there were three people in the work crew, and at that time of the incident, two people were walking the other Inspector was taking a personal break. The Roadway Worker in Charge stated that they usually walk the track with one inspector, and they were approximately five feet ahead of the inspector before the incident occurred.

At the time of the incident, they were stopped to inspect chips on the railhead to determine if they were significant enough to warrant a defect report. The Roadway Worker in Charge stated that they were positioned between the running rails inspecting, and their back was not to the train. The Roadway Worker in Charge stated that they noticed the train and they did not hear the horn at all. The Roadway Worker in Charge stated that they could usually hear the horn miles away, and the train was speeding because they noticed the smoke coming from the wheels and the rails. The Roadway Worker in Charge stated that they experienced the same thing before in the same area, and they reported that the area should be a red-hot spot for foul time, and they do not remember when they made the report.

Weather

On November 17, 2021, at the time of the incident, NOAA recorded the temperature as 62° F, with passing clouds. SAFE has concluded that weather was not a contributing factor in this incident. (Weather source: NOAA – Location: Washington, DC)

Human Factors

Fatigue

Evidence of Fatigue – Rail Supervisor

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. Video of the incident was reviewed for behaviors suggesting fatigue. No indications of fatigue were evident from the video. The Rail Supervisor reported feeling drowsy at the time of the incident and reported experiencing symptoms of fatigue, specifically difficulty concentrating, in the time leading up to the incident.

Evidence of Fatigue - Train Operator

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

Evidence of Fatigue - Track Inspector

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

Evidence of Fatigue - Roadway Worker in Charge (RWIC)

Conditions at the time of the incident were evaluated to distinguish whether evidence of fatigue was present. Video of the involved person was not available to ascertain whether evidence of fatigue was present. The RWIC reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk - Rail Supervisor

Incident data was evaluated for fatigue risk factors. Risk factors for fatigue were identified. The incident time of day (11:50 hours) does not suggest an increased risk of fatigue-related impairment. With the exception of one (1) mid-day shift, the employee worked mornings/day shifts in the days leading up to the incident. Based on the employee's reported bed and wake times the day before the incident, the employee slept a total of 3.5 hours in the sleep period preceding the incident and was awake for 9.33 hours at the time of the incident. The off-duty period preceding the incident was 16 hours long, which provides the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 8 hours and no issues with sleep.

A biomathematical fatigue modeling application (SAFTE-FAST WebSFC) was used to evaluate further fatigue risk factors that may have been present in the Rail Supervisor's schedule. The analysis was based on the Rail Supervisor's work schedule, bed and wake times from the day before the incident and reported habitual sleep durations. Specifically, the analysis identified short

sleep in the 24 hours preceding the incident as a factor contributing to an increased risk of fatigue at the time of the incident. The estimated performance effectiveness at the time of the incident was 81.4%.

Modeling analysis output shows estimated performance effectiveness during the incident work shift and for the week leading up to the work shift, based on the employee work and reported sleep schedule. Estimates were based on the Rail Supervisor's work schedule, bed and wake times from the day before the incident, and reported habitual sleep durations (8 hours a day). Bold portions of the modeled curve show work (in black) and sleep times (in blue). Effectiveness is shown on the vertical axis, with colored fields in the chart background signifying ranges of effectiveness scores, including high effectiveness (>90%) in green and low effectiveness (<65%) in red. Time is shown on the horizontal axis. Markers for work and sleep times are shown in the lanes above the time of day on the horizontal axis.

Train Operator

Incident data was evaluated for fatigue risk factors. No major risk factors for fatigue were identified. The incident time of day (11:50 hours) does not suggest an increased risk of fatigue-related impairment. The employee worked day shifts in the days leading up to the incident. Based on the employee's reported bed and wake times the day before the incident, the employee slept a total of 6.6 hours in the sleep period preceding the incident and was awake for 8.6 hours at the time of the incident. The off-duty period preceding the incident was 14.4 hours long, which provides the opportunity for 7-9 hours of sleep. The employee reported usual workday sleep durations of 6.5 hours. The employee also reported recent issues with staying asleep.

A biomathematical fatigue modeling application (SAFTE-FAST WebSFC) was used to evaluate further any possible fatigue risk associated with the employee's reported issues with sleep. The analysis was based on the Train Operator's work schedule, bed and wake times from the day before the incident, and reported habitual sleep durations. The estimated performance effectiveness at the time of the incident was 82.3%. No significant fatigue factors were identified for this incident.

Roadway Worker in Charge (RWIC)
Incident data was evaluated for fatigue risk factors. Although the employee worked day (approximately 08:00 – 16:00) and overnight shifts (approximately 00:00 – 02:00), no major risk factors for fatigue were identified. The incident time of day (11:50 hours) does not suggest an increased risk of fatigue-related impairment. Based on the employee's reported bed and wake times the day before the incident, the employee slept a total of 8 hours in the sleep period preceding the incident and was awake for 6.33 hours at the time of the incident. The off-duty period preceding the incident was 15.9 hours long, which provides 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 was not in violation of the Drug and Alcohol Policy and Testing Program 7.7.3/6.

Findings

- Train ID 101 Train Operator was involved in a near-miss event and did not report the incident to ROCC. This action is a violation of Metrorail Safety Rules and Procedures Handbook (MSRPH), General Rule 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.* The Train Operator was operating Train ID 101 at speeds higher than one-half of the regulated speed after having contact with the AMF. The action is a violation of MSRPH Section 5 – 5.13.6 Advanced Mobile Flagging – Rail Vehicle Operator Procedures; The *Rail Vehicle Operator will depart the station at half the regulated speed until the operator reaches the next station.*
- Train Operator did not use the horn in accordance with rail vehicle operator responsibilities as listed in the MSRPH Section 5 – 5.13.6 Advanced Mobile Flagging – Rail Vehicle Operator Procedures, *The Rail Vehicle Operator must blow the train horn continuously, in short blasts, until they encounter the mobile work crew.*
- RTRA Supervisor was observed in the operating cab leaving Takoma Station platform and arriving at Fort Totten Station on track 2.
- Track Inspectors requested and received permission to perform their inspection between Fort Totten and Takoma Stations on track 2.
- RWIC was performing the duties of the Watchman/Lookout but failed to maintain a minimum spacing of 50 feet in advance of the inspector.
- AMF performed duties as assigned and advised the Train Operator of ID 101 of personnel on the roadway ahead.
- Prior to TRST personnel entering the roadway at Fort Totten Station, ROCC RTC made announcements over Ops 1, advising Train Operators of personnel on the roadway in the incident area.

Immediate Mitigation to Prevent Recurrence

- The Office of Rail Transportation (RTRA) removed the Train Operator from service for post-incident toxicology testing.

- RTRA distributed an excerpt from the MSRPH Section 5 – RWP requiring Rail Supervisors to have documented discussions with Train Operators regarding the near-miss event.
- RTRA distributed a memorandum to Rail Supervisors with revised guidance on performing Train Operator compliance checks to minimize distraction.
- Rail Safety Standards Committee (RSSC) issued a Temporary Order designating the incident area as a Hot Spot location while the investigation is ongoing.
    - Further review of the Roadway Worker Protection Quick Access Guide was completed and codified in a Permanent Order to reclassify sections of the area between Takoma and Fort Totten stations as Hot Spot(s) in the Track Access Guide.
- TRST organized a targeted discussion for roll call briefings related to the importance of the Watchman/Lookout role and best practices.

Probable Cause Statement

The probable cause of the Train Passing Personnel at an Excessive Speed event on November 17, 2021, was a distraction of the Train Operator, due in part to the Rail Supervisor being present in the cab during train operation. The distraction led to the Train Operator failing to comply with established procedures for AMF operations. The Train Operator acknowledged the AMF on the Takoma Station platform and was briefed that a mobile work crew was present and performing an inspection just ahead of the train's location. The Train Operator involved in this incident failed to operate their train in accordance with the rules established in the MSRPH Section 5 – RWP 5.13.6, *Rail Vehicle Operator Procedures during AMF*.

An additional contributing factor to the Near Miss event was that the mobile work crew was performing the inspection with the Watchman/Lookout in close proximity to the inspector, not the required fifty feet ahead. This was reportedly due to having an inexperienced Track Inspector, leading the RWIC to reduce the space between the RWIC and Track Inspector to assist as needed.

SAFE Recommendations/Corrective Actions

Corrective Action Code	Description	Responsible Party	Due Date
97846_SAFE CAPS_RTRA _001	Temporary Order Rule Modification T-21-59, changing the area between CM B2 302+00 to B2 320+00 and B2 334+00 to B2 340+00.	RTRA	Completed
97846_SAFE CAPS_RTRA _002	Notice to Rail Supervisors revising Train Operator Compliance -Check procedures.	RTRA	Completed
97846_SAFE CAPS_RTRA _003	Notice Requiring Documented Discussions with Train Operators requirements when passing Mobile Work Crews.	RTRA	Completed
97846_SAFE CAPS_RTRA _004	Disciplinary Action of employees associated with the incident.	RTRA	Completed
97846_SAFE CAPS_TRST_ 001	Distribute Lessons Learned with an emphasis on the position and importance of the Watchman/Lookout.	TRST	Completed

Corrective Action Code	Description	Responsible Party	Due Date
97846_SAFE CAPS_SAFE_001	Update to the Track Access Guide establishing the areas between CM *B2 302+00 to B2 320+00 and B2 334+00 to B2 340+00* as permanent Red-Hot Spots.	RSSC	Completed
97846_SAFE CAPS_COMR_001	Documentation depicting the ambient microphone at Glenmont Terminal is in good working condition (email received and verified via NICE audit).	COMR	Completed

Appendices

Appendix A – Interview Summary

The below narratives summarize the interviews with SAFE 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 and procedural documents.

TRST

Roadway Worker in Charge

The Roadway Worker in Charge is a WMATA employee with five years of service and experience as a Roadway Worker in Charge. The Roadway Worker in Charge holds a Roadway Worker Protection (RWP) Level 4 certification that expires in July 2022.

The Roadway Worker in Charge stated that they got their assignments and attended the safety briefing during the virtual interview. The Roadway Worker in Charge stated that they went to Rhode Island Avenue Station and performed a safety briefing, then everyone signed RJSB. The Roadway Worker in Charge stated that the AMFs dispersed, and they started walking. Everything was all right until they got between Fort Totten and Takoma Stations. The Roadway Worker in Charge stated that that's where the near-miss happened. Since they've been at Shady Grove, this is not the first time they have had this kind of incident. The Roadway Worker in Charge stated that this is the second time this has happened within a year, and nothing has been done about it. This one has been the worst.

The Roadway Worker in Charge stated that they received permission from ROCC, spoke with the AMF. The spot where they were is "really" a hot spot because of the curve. The Roadway Worker in Charge stated that the inspector was looking, and they were a couple of feet in front. The Roadway Worker in Charge stated that they looked up and the train was around the corner, they got out of the way. The Roadway Worker in Charge stated that the Train Operator and someone else was in front of the train and as they passed, they waved and then put on the brakes, the train slid, and the tracks started smoking. The Roadway Worker in Charge stated that they were standing on the side getting themselves together, and the inspector called the Supervisor and the RWIC called ROCC from their cellular phones. The Roadway Worker in Charge stated that as the RWIC, ROCC wanted to speak to me and asked what happened. They asked if we were all right and if we were all right to walk.

The Roadway Worker in Charge stated that they reported that they were all right, and the inspector said they weren't but later changed their mind. We continued the inspection. The

Roadway Worker in Charge stated that there were three people in the work crew, and at that time of the incident, two people were walking; the other person was taking a personal break. The Roadway Worker in Charge stated that they find out who is in the work crew on the day the work is assigned. On that day, they had an extra inspector. The Roadway Worker in Charge stated that they usually walk the track with one inspector. The Roadway Worker in Charge stated that they were approximately 5 feet ahead of the inspector. At the time of the incident, they were stopped to inspect chips on the railhead to determine if they were significant enough to warrant a defect report. The Roadway Worker in Charge stated that they were positioned between the running rails inspecting, and their back was not to the train. The Roadway Worker in Charge stated that we both noticed the train. They did not hear the horn at all. They were able to see the train operator and the person with the train operator. The Roadway Worker in Charge stated that they waved at me when they passed. The wave was in a wave to acknowledge them; they did not have to give them a proceed or anything; they did not hear the train. The Roadway Worker in Charge stated that they could usually hear the horn miles away, and the train was speeding because of the smoke coming from the wheels and the rails.

The Roadway Worker in Charge stated that the inspector reported the incident via cell phone to ROCC. The inspector called everyone faster than they did. The Roadway Worker in Charge stated that they experienced the same thing before in the same area, and they reported that the area should be a red-hot spot for foul time. The Roadway Worker in Charge stated that they do not remember when they made the report. The Roadway Worker in Charge stated that they do not have a schedule and they can't rush because ROCC has control of everything; they must get approval from a supervisor now due to another incident. The Roadway Worker in Charge stated that some days are longer than others. The Roadway Worker in Charge stated that they were able to see one person sitting down and the other person standing up waving at me in the front of the train. The Roadway Worker in Charge stated that the areas between Fort Totten and Takoma on track 1 CM 320+00 TO 305+00 are two foul times; on track 2 there are none. The Roadway Worker in Charge asked why on one side and not on the other. The Roadway Worker in Charge stated that at CM B2 339+00 to 350+00, you would not need the foul time because you're around the corner, and you can see everything ahead of you. The Roadway Worker in Charge stated that they are not aware of the EAP program.

Track Inspector

The Track Inspector is a WMATA employee with two years of service and experience as a Track Inspector. The Track Inspector holds a Roadway Worker Protection (RWP) Level 2 certification that expires in January 2022.

During the virtual interview, the Track Inspector stated that they drove to work and clocked in; the day was going pretty good until the near-miss, they were upset about that. The Track Inspector stated that they had a safety briefing the morning of the incident. They discussed where they would be walking. The Track Inspector stated that they drove a WMATA vehicle to Silver Spring Station and caught the train to Rhode Island Avenue Station. There were three people total in the work crew. At Rhode Island Avenue, they began walking, received foul time. The Track Inspector stated that they got to Brookland and kept receiving permission to walk. They were able to hear the communication with the AMF before walking. The Track Inspector stated that they had permission to leave Fort Totten platform walking towards Takoma Station, which they were inspecting. The Track Inspector stated that the RWIC was trying to stay close because they're new and have questions. The Track Inspector stated that they were looking down and in

front. The next thing they remember is the RWIC saying train, train coming. The Track Inspector stated that the train was coming so fast around the corner, they didn't hear the horn or anything. They had to hurry up and jump off the tracks. The Track Inspector stated that the air from the force of the train was pushing them, and they had to hold on to the fence; that's how fast the train was moving. The Track Inspector stated that they saw two people in the front of the cab. They tried to see the train number, but they couldn't see it because it was moving so fast. The Track Inspector stated that when the train passed, they put on the brakes, and I could see smoke coming from the rails. The Track Inspector stated that the other track walkers on track one said that the train blew the horn when they passed them, and they wondered why the train was blowing the horn at them. The Track Inspector stated that there was no horn at all (train horn or yard horn), and sometimes the train operators were blowing only the yard horn coming around the curve, and with the CSX trains nearby, they couldn't hear the trains yard horn and only the train horn should be used. On that day, there was no train on either track; they did not blow either horn. The Track Inspector stated that we would have been hit if it had been one more second. They think about what if they had tripped trying to get off the roadway. If the train had just left Takoma Station, why was the train going so fast? The Track Inspector stated that there were three people in the work crew, and at the time of the incident, there were only two. The Track Inspector stated that they wanted to keep walking, so the RWIC left the second inspector at Fort Totten to use the restroom, and we would meet them at Takoma Station. The Track Inspector stated that they knew that they would be there for a while, so we continued walking. The Track Inspector stated that it is not "really customary" to continue without another inspector; they know that the inspector had stomach issues. The Track Inspector stated that they decided to continue and meet them at Takoma Station. They reported not being behind schedule; we were taking our time. The Track Inspector stated that the distance between the RWIC was a few feet apart because the RWIC cannot walk backward in case they find something during inspections. We both saw the train approaching, and they put their hands out to gesture, really. There was no horn, no noise. The Track Inspector stated that the horn sounded once the train got to Fort Totten. The horn was after the train passed us. The Track Inspector stated that they were able to see two people, the safety vests in the front of the train on one sitting and one standing. They were not able to see where the Train Operator was looking because the train went by us so fast. The Track Inspector stated that the whole train was past us when it stopped. They could see the whole back of the train with the smoke coming from the rails. The RWIC reported the incident immediately, just a few minutes before 12:00 hours. The Track Inspector stated that they called the Supervisor and the Supervisor told them to call it into ROCC; they reported that they were almost hit. The Track Inspector stated that they were between the running rails when they saw the train and could see the safety vest from a distance. The Track Inspector stated that they are not aware of the EAP program. The Track Inspector stated that the Train Operators should know that we cannot hear the yard horns, use the regular horns.

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 November 2022.

During the virtual interview, the Train Operator stated that they arrived 15-20 minutes early, sat, and ate breakfast. Performed a ground walkaround of the train, called the Tower, did a radio check, and started their day. Everything was normal. The incident occurred during the last trip

of the day, and they were done with most of the day. The Train Operator stated that they performed a full round trip, had a minute break, performed another round trip, and was performing the days' final trip. The Train Operator stated that they arrived at Silver Spring Station, serviced the platform, and saw the Supervisor. The Supervisor boarded the train, and they closed the doors and proceeded toward Takoma Station. The Supervisor entered the cab, and they started talking work stuff which is usually a part of their workday.

The Train Operator stated that they arrived at Takoma Station and spoke with the AMF. They said there was a party of 2 on the roadway, and they needed to operate at half of the regulated speed, tapping the horn and upon seeing the crew and receiving the proceed signal, operating no greater than 15 MPH. They acknowledged what the AMF said, closed the doors, and proceeded towards Fort Totten Station. The Train Operator stated that the Supervisor was still in the cab, and they were talking while they were tapping the horn and taking a point of power. They ensured that they did not operate more than half of the regulated speed, staying between P1-P3. They had a clear view of the roadway ahead and did not see anyone on the roadway. The Train Operator stated that at some point, they lost focus on what the speed was, and they realized that they were traveling faster than the required speed.

The Train Operator stated that as they approached Fort Totten, there was a curve, and once they came around the curve, they noticed the Track Walkers, three on track one. The Train Operator stated that they were confused after thinking about what the AMF said that the track walkers would be on track two. When they noticed the track walkers on track one, they continued around the curve and saw two track walkers on track two. The Train Operator stated that they were standing nearly side by side, in close proximity of each other, maybe 2-3 feet apart, bending down with their backs turned. The Train Operator stated that they sounded the horn and entered emergency braking, dumping the train. They kept their hand on the horn, and they noticed the track walkers had a startled look on their faces when they turned around and moved out the way of the train, jumping off the roadway. The Train Operator stated that they were in shock for two reasons; they went around the curve and did not expect to see the track walkers, and the track walkers were standing directly between the running rails. They thought that the curve or blind spot would have a lookout. They were in shock. The Train Operator stated that the train was dumped and came to a stop. They sat in place to regain their composure. They recharged the train and said a prayer, thankful that the train did not hit the track walkers and that they were able to move out of the way of the train.

The Train Operator stated that the Supervisor asked if they were okay, and they responded yes and no. They were okay because they did not hit the track walkers; the incident was too close for comfort. The Train Operator stated that they sat at the Fort Totten platform to regain composure. They were thinking of the areas of the roadway that needed foul time. The Train Operator stated that since this is a curve and they could not see the track walkers and the track walkers did not hear the train or see the train until the train was around the curve, why not ask for foul time or a watchman. The Train Operator stated that they are still emotionally dealing with what happened during the incident. The Train Operator stated that they were unable to remember the regulated speed when departing Takoma Station. They think they were operating at between 25-27 MPH. They were tapping the horn every 100-200 feet, with a short blast. They explained the procedures when seeing the mobile work crew on the roadway. The Train Operator stated that they were not able to receive a proper hand signal because the track walkers were trying to get out of the way of the train. They accepted responsibility because they should have been aware of the train speed.

The Train Operator stated that they did not report that the master controller was placed in emergency and did not report the incident to ROCC. They were in shock and unable to speak and should have checked to see the track walkers were okay. The Train Operator stated that the Supervisor entered the cab 1-2 minutes after the train departed Silver Spring Station. They were discussing station overruns and general work rules. The Train Operator stated the Supervisor was in the cab for a while and stepped out just before the train went around the curve to check their phone; the door closed, and seconds later, they vocalized an expletive and depressed the horn. The Train Operator stated that the Supervisor was right back in the cab and asked what was up, as they shouted an expletive while one hand was on the master controller, and the other hand was on the horn; they're not sure what the Supervisor saw.

The Train Operator stated that the Supervisor was able to observe their demeanor and realized what had happened. The Train Operator stated that they were distracted between the time they left the platform and when they saw the track walkers, which caused them to stop depressing the horn. They reported a recent death in their family. The Train Operator stated that they recently returned to Glenmont Division from the training department. The Train Operator stated that they had known the Supervisor for approximately 2-3 years. It is common for the Supervisors to enter the cab and talk to the train operators; some Supervisors are different. The Train Operator stated that the conversations with the Supervisor were all work-related. They were still discussing safety procedures as the Supervisor was exiting the cab. They were both close to getting off duty. The Train Operator stated that the encounters with the AMF were not the first time they had discussions with an AMF on that day.

The Train Operator stated that they experienced station overruns on the blue line in 2016 and 2014. The Train Operator stated that they were not aware of an incident with the Supervisor that occurred in the past. The Supervisor asked if they would be okay, and they responded they didn't have any choice. They are not sure when the Supervisor exited the train. ROCC contacted the Train Operator at Union Station regarding the event, and the Supervisor was not on the train at that time. The Union Representative expressed confusion with the language in the Roadway Quick Guide as to when foul time is needed between Takoma and Fort Totten tracks one and two and the procedures with Supervisors entering the cab.

Rail Supervisor

The Rail Supervisor is a WMATA employee with 18 years of service and four years of experience as a Rail Supervisor. The Rail Supervisor holds a Roadway Worker Protection (RWP) Level 2 certification that expires in October 2022.

During the virtual interview, the Rail Supervisor stated that they arrived at 04:00 hours; the opening supervisor opened the bottom half of Glenmont from Takoma to Rhode Island Ave, making sure those stations get open. They drive to Takoma, and when the Station Manager arrives, they make their way to Rhode Island Avenue. The Rail Supervisor stated that once the station is open, they conduct schedule adherence during rush hour from 05:15 hours to 09:00 hours. They make their way to the other stations: Rhode Island Avenue, Brookland, Takoma, and end at Silver Spring. The Rail Supervisor stated that's where their Supervisor checks begin, with the Station Manager at Rhode Island Avenue.

After 09:00 hours, they begin to do Train Operator checks, sometimes on the lead car and sometimes on the trailing end. The Rail Supervisor stated that they talk to the Train Operators until the next station, back and forth. Once they get to Silver Spring Station, they have likely spoken with three Train Operators. The Rail Supervisor stated that they talk to the Station Managers, look at the logbooks, make sure they have materials, and see how the job is going. The morning crew is "pretty straight" with no red flags. The Rail Supervisor stated that they spoke with the Station Managers on both ends when they got to Silver Spring. They took the next train because they parked at Rhode Island Avenue Station; that's when they came in contact with Train ID 101 at approximately 11:30 hours heading to their car. They clock out at Rhode Island Avenue Station at the kiosk. Train ID 101 would have been my last entry in RSDAR. The initial contact was to check the ID, the correct uniform and enter the information in the phone. We headed to Takoma Station, the Train Operator spoke with the AMF, and the train proceeded.

The Rail Supervisor stated that a little way after leaving Takoma Station, they got their information, and they don't like being on their phone in the cab, so they stepped out of the cab. The Rail Supervisor stated that as soon as they stepped out, all they could hear was the horn going off, and they jumped back inside the cab; the train was coming to a stop, and they asked if everything was all right. The Rail Supervisor stated that they were sitting there for a while, and they asked the Train Operator if everything was all right, and the Train Operator said there were people on the roadway. The Rail Supervisor stated that they looked over, and four people were on track 1 waiving us on. They asked whether there were other people, and the Train Operator said yes on the other side of the train. They sat for a little while, and they asked if the Train Operator was okay, and they said yes. The train continued, and they stayed in the cab observing the Train Operator.

The Rail Supervisor stated that they discussed the Train Operator retiring and that the track walkers had their back turned to them; they thought that the track walkers didn't give the proper hand signal, and that's why the train came to a stop since it happens all the time. The Rail Supervisor stated that they continued to ask if the Train Operator was okay, and they responded that they were good. At Brookland, the Train Operator said that the track walkers had their back turned and it was crazy. At Rhode Island Avenue, they asked if the Train Operator was okay, and they said they were good, smiled, and continued. The Rail Supervisor stated that while sitting on the platform, they heard ROCC call Train ID 101 and ask for the lead car; that's when they thought something more had gone on. The Rail Supervisor stated that they called ROCC and reported that they were aboard the train and inquired if there was a near miss. They were told that the incident was being investigated, and since they were on the train, they should complete a Supervisor's Report.

The Rail Supervisor stated that they called their Superintendent and reported that they were aboard the train and would be completing a Supervisor's Report; The Rail Supervisor stated that they clocked out and went home. The Rail Supervisor stated that they were not in a WMATA vehicle when they went to Takoma. The Rail Supervisor stated that there was only one vehicle at the division; they didn't go to the division on that day: they went straight to Takoma Station. The Rail Supervisor stated that the procedure is to come to the division and check your box. They asked another Supervisor to check their box, and they went straight to their sector.

The Rail Supervisor stated that they clocked in at Rhode Island Avenue at 04:00 hours and went to Takoma Station and worked their way down. When boarding train ID 101, they knocked on the door to enter the cab. The Rail Supervisor stated that they were getting ready to be off, and the

Train Operator was at the window, and then they sat down and entered the cab. They were in the cab for approximately 5 minutes and exited the cab as soon as they left Takoma Station approximately two minutes later. The Rail Supervisor stated that they went to sit in the seats next to the cab, and they heard the horn and came back in the cab, and the train was coming to a stop. The Train Operator followed the procedures after talking to the AMF in the beginning. They sounded the horn and proceeded on. They had discussions about slippery rail conditions and leaves on the rails and other conversations. That's when they decided to leave the cab to complete the RSDAR.

The Rail Supervisor stated that the Train Operator was following the AMF procedures at that point. They were fully out of the cab area, and the cab door was closed when the horn sounded; they jumped right back up and had to use the key to get back into the cab. The Rail Supervisor stated that they didn't see the master controller, but the train was coming to an abrupt stop; it was a real fast stop. They did not hear the train dump and did not notice if the train needed to be recharged. The Rail Supervisor stated that they had come across people on the roadway, it scared them, and they had to sit there for a little while. That's why they asked if the Train Operator was okay; they said yes and then pulled off. The Rail Supervisor stated that with the various conditions observed, once at Rhode Island Avenue Station, they decided that they should report the incident to ROCC and reported they were aboard the train and did not report the incident in the RSDAR. The Rail Supervisor stated that contacting ROCC and writing the Supervisor's Report was of more importance at the time. They thought afterward about what they should have done, but they didn't do all of that at that time. After they re-entered the cab, the Train Operator's demeanor was that they were staring straight and looked startled.

The Rail Supervisor stated that they didn't realize the speed, and the train just came to a stop. As they asked questions, that's when they found out there was something different. The Rail Supervisor stated that although the Train Operator's demeanor was different and knowing certain Train Operator's, all they could do was ask questions. The Train Operator said that they were okay. The Rail Supervisor stated that maybe it was my fault for not taking over the train; they thought they were doing the right thing by asking questions and observing.

The Rail Supervisor stated that they were not rushing to be off duty, they had time before their off-duty time when they arrived at Rhode Island Station, and they took the time to contact ROCC. The Rail Supervisor stated that they feel comfortable with reporting incidents to ROCC. The Rail Supervisor added that to prevent re-occurrence, the Supervisors should not enter the cab unless it is absolutely necessary; they should talk to them from the window. They did not hear or notice that the train was in emergency braking. The Rail Supervisor stated that if the train is in emergency breaking, it should be reported to ROCC. The Rail Supervisor stated that they contacted the Terminal Supervisor via cell phone at approximately 11:50 hours to get the phone number to report a near miss. The Rail Supervisor stated that when they called, the person that answered did not know what they were talking about, so they contacted ROCC. The Rail Supervisor stated that they have a WMATA phone and do not wear a smartwatch. The Rail Supervisor stated that this is my second stint as a supervisor.

In a past incident, they were on board a train that overran the platform by one door leaf; they were troubleshooting the train in the cab near the circuit breakers. The train came to a complete stop, and when they were a Train Operator, they were taught that when you put the window on the gate, that's how you know you're on the platform. The Rail Supervisor stated that they never thought the train was off the platform by one door leaf; the Train Operator never said anything.

They were new to the Red Line, and the Train Operators operated differently. They were troubleshooting; then the Train Operator tapped me to say that they were ready to go. They stayed in the cab at the request of the Train Operator; they met car equipment at Silver Spring Station and notified them of the PA problem.

Later, they were notified that the train had an overrun. The Rail Supervisor stated that they had permission to be in the cab area since the Train Operator was having a problem with the train. They did not request to enter the cab from ROCC in the current event because we are told to do this daily. They had conversations with the Train Operator regarding sliding conditions and leaves. When ROCC contacted Train ID 101, I was at Rhode Island Avenue Station the train was at Noma; that's when I called the Terminal Supervisor.

The Rail Supervisor stated that they love being a road Supervisor, which is starting to become a headache. Their RSDAR entries include the conversations that were conducted with the Train Operators. They were instructed to enter the cab and have these conversations that caused distractions. The Rail Supervisor stated that they never offered to take over train operations from the Train Operator because they said he was okay. They acknowledged the mistake of not noticing that the Train Operator was not following the AMF procedures.

Appendix B – RTRA Notice Requiring Documented Discussions

RTRA Supervisors,

On Wednesday, a near miss occurred on the Red Line…

It has been reported that a train was observed traveling at an excessive speed while passing roadway workers. There were no reported injuries or damages to equipment following this occurrence. While this incident is still under investigation, please familiarize yourselves with the following excerpt taken from Section 5 of the MSRPH:

1. *As the Rail Vehicle Operator approaches an AMF, all Rail Vehicle Operators MUST come to a COMPLETE STOP at the end of the station platform (eight (8) car marker or end gate area)When departing from a terminal station Class 1 Rail Vehicle Operators are required to stop at the end of the platform to receive instructions from the AMF regardless of the number of cars in a consist.*
2. *The Rail Vehicle Operator will be given face-to-face verbal instructions regarding working crews on the tracks. Important: It is the Rail Vehicle Operator's responsibility to ensure they receive all necessary instructions before proceeding.*
3. *The Rail Vehicle Operator will depart the station at half the regulated speed until the operator reaches the next station, staying alert for multiple work crews. • The Rail Vehicle Operator MUST REMAIN VIGILANT and on the lookout for all work crews. • The Rail Vehicle Operator must blow the train horn continuously, in short blasts, until they encounter the mobile work crew. • Upon observing a work crew, the Rail Vehicle Operator MUST reduce speed to 15 mph, change to low beam headlights, and be prepared to stop.*
4. *As the Rail Vehicle Operator approaches the location of the Watchman/Lookout, and receives the approved Hand Signal to proceed, the Operator will sound the Mainline horn, using two (2) short blasts to acknowledge the Hand Signal being given by the Watchman/Lookout, then operate at a speed no greater than 15 mph past the entire work crew.*
5. *If the Rail Vehicle Operator DOES NOT receive the proper approved Hand Signal to proceed from the Watchman/Lookout, the Rail Vehicle Operator MUST IMMEDIATELY STOP one car length away from the Watchman/Lookout and contact ROCC for further instructions.*
6. *Once the rear of the Rail Vehicle has passed the entire work crew, the Rail Vehicle Operator shall continue at half the regulated speed until they reach the next station*

Please use this information to conduct documented discussions with train operators on the proper procedures to follow during AMF protection. Additional information regarding this incident will be shared as it becomes available.

Thank you for all you do and please be safe.

Appendix C – RTRA Train Operator Compliance Checks (Revised)

RTRA Supervisors:

As the investigation into the November 17, 2021 'Near Miss' event involving a Train Operator and mobile work crew near Takoma station continues, RTRA Supervisors and all personnel are reminded that even momentary lapses in concentration or distractions can have severe consequences. As a general practice, supervisors are instructed to:

- Only enter or exit the operator's cab area while the train is stopped.
- Keep conversations to a minimum while the Train Operator is engaged with the operation of the train. Avoid any non-work-related conversations.
- Perform targeted safety or rule compliance discussions while the train is stopped at a station or otherwise secured.
- After encountering an AMF on the platform, focus on the Train Operator's adherence to AMF Procedures of operating at half the regulated speed and blowing the horn, followed by reducing speed to 15 mph when observing the mobile work crew. If possible, make observations of the mobile work crew's adherence to proper hand signals and use of watchman/lookout(s).
- Report any non-compliance observed by mobile work crews or the Train Operator immediately. Assume operation of the train if necessary.

If you have any questions or concerns, please contact your Division Management Team.

Thank you and please be safe.

Appendix D – TRST Lessons Learned 20211208 – Watchman/Lookouts

Lessons Learned

LL 20211208—Watchman/Lookouts

Summary

There have been a number of incidents recently in RAIL that point to the effectiveness and criticality of the Watchman Lookout position when working trackside. These incidents – Near Miss Events, and Foul Time Errors made by ROCC – all were prevented from becoming tragedies through the work of the Watchman/Lookout. Unfortunately, there have also been a rise in incidents where the Watchman/Lookout was found to not be complying with the standard procedures. These two trends make it a good idea to reinforce the Watchman/Lookout rules.

Lessons Learned

Watchman/Lookout roles, duties, and procedures are contained within the MSRPH Section 5 (RWP Rules) and the RWP Quick Reference Guide. The following are a few of the important points that Watchman/Lookouts and RWICs should be aware of. Watchman/Lookouts must:

- Walk in a place of safety (e.g., a safety walk)
- Carry the air horn in their hand so it is ready for use
- Maintain spacing – at least 50-feet ahead of an inspector during an inspection
- Review Foul Time areas for each segment before entering the roadway.

RWICs should also be aware that they must:

- Always call for Foul Time before entering a Hot Spot area
- Call for Foul Time or additional forms of protection should safety conditions deteriorate
- Make sure the signals provided for Foul Time are correct for your area (the RWP Quick Reference Guide should be used)
- Report any non-compliance to ROCC (particularly trains failing to sound horn, trains operating above 15 mph, or trains accelerating before clearing crew)

Fortunately, the use of these safety measures has been successful so far. The key lesson here is that the position of Watchman/Lookout and RWIC are effective at protecting team members on the roadway, but only if their procedures are properly followed.

LL# 20211208 **December 8th, 2021**

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Appendix E – Permanent Order T-21-60 Update to TAG Red Hot Spots

Washington Metropolitan Area Transit Authority

METRORAIL SAFETY RULES AND PROCEDURES HANDBOOK

PERMANENT ORDER

NO. T-21-60 Update to TAG RED HOT SPOTS	**Approved Date:** Wednesday, January 5th, 2022
Affected Rule/SOP: Track Access Guide	**Effective Date:** Wednesday, January 5th, 2022

TO: All personnel

Scope:

Permanent Order (PO) T-21-60 provides track workers with Roadway Worker Protection information on the B-line, Track two (2) at Chain Marker (CM) B2 302+00 to B2 320+00. These areas will be indicated as a "**RED HOT SPOTS**".

Purpose:

The purpose of PO T-21-60 is to change B-line, track two (2), starting at Chain Marker (CM) B2 302+00 to B2 320+00 from a "Restricted View: Curve" to "**Restricted View: Curve" RED HOT SPOT**, requiring additional Roadway Worker Protection (e.g., Foul Time, Exclusive Track Occupancy, or Inaccessible Track).

Permanent Order Details:

Additions to rules and procedures are shown in **Bold** and Underline text; deletions are struck-through (e.g. ~~Rule Deletion~~).

During the investigation of a near miss incident near Takoma Station by the Department of Safety, Environmental Management, and Emergency Preparedness (SAFE), track inspectors who were a part of the Mobile Work Crew reported a poor line of sight and a noisy environment, as this section of track parallels the CSX tracks.

A team from SAFE, Automatic Train Control Maintenance (ATCM), and Track and Structures (TRST) evaluated two (2) areas on the B-line to determine if they should be reclassified as **RED HOTSPOTS**.

PERMANENT ORDER Page 1 of 4

Permanent Order # T-21-60

As a result of the investigation the B-line, track two (2), starting at Chain Marker (CM) B2 302+00 to B2 320+00 in the Track Access Guide (TAG) will be changed from a "Restricted View: Curve" to **"Restricted View: Curve" RED HOT SPOT**.

The following table shows new Track Access Guide for the B Line Track two (2).

B Line					
Fort Totten Station	B-06	B-06	276+00	282+00	
Restricted View: Curve	B-06	B-07	282+00	290+00	
Clear View	B-06	B-07	290+00	302+00	
Restricted View: Curve	B-06	B-07	302+00	320+00	
~~Restricted View: Curve~~	~~B-06~~	~~B-07~~	~~302+00~~	~~320+00~~	
Clear View	B-06	B-07	320+00	334+00	
Restricted View: Curve	B-06	B-07	334+00	340+00	
Clear View: Interlocking	B-06	B-07	340+00	355+00	
Clear View	B-06	B-07	355+00	376+00	
Takoma Station	B-07	B-07	376+00	382+00	
Clear View	B-07	B-08	382+00	404+00	

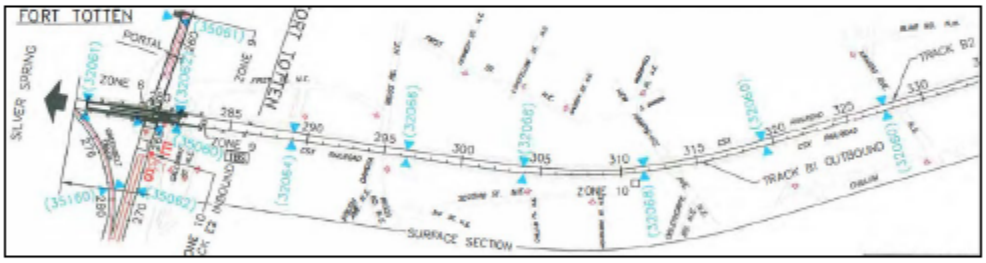


Figure 1, B2 302+00 to B2 320+00

A full SAFE Investigation Report can be found in Attachment A of this Permanent Order

Approval of Permanent Order T-21-60

Silas J Fielder
Silas J Fielder (Jan 5, 2022 08:49 EST)

Recommended:
Silas Fielder
RSSC Chair,
Director, Office of Operating Practices
SAFE

Edward B Donaldson
Edward B Donaldson (Jan 5, 2022 09:19 EST)

Approve:
Edward Donaldson
Director
Rail Operations Control Center

Michael J Hass
Michael J Hass (Jan 5, 2022 09:20 EST)

Approve:
Michael Hass
Senior Vice President
Department of Rail Services

Lisa D Woodruff
Lisa D Woodruff (Jan 5, 2022 10:25 EST)

Approve:
Lisa Woodruff
Senior Vice President
Department of Business Process Development

Theresa Impastato
Theresa Impastato (Jan 5, 2022 10:50 EST)

Approve:
Theresa Impastato
Executive Vice President & Chief Safety Officer
SAFE

SAFE INVESTIGATION REPORT

SIR #22-XX **Thursday, December 23, 2021**

Evaluation of Red Hot Spots on B-Line Fort Totten to Takoma

Background

On November 17th, 2021, at 21:02 on the B-Line Track 2 near Takoma Station Chain Marker (CM) 317+00, an inbound train (ID No. 101) was involved in a near-miss situation with a Mobile Work Crew. After stopping at Takoma Station and receiving instructions from the Advanced Mobile Flagger, Train No. 101 departed Takoma Station at normal operating speed. The train continued to operate at that speed and failed to sound the equipment horn, even when encountering the mobile work crew. During the investigation by SAFE track inspectors who were a part of the Mobile Work Crew reported a poor line of sight and a noisy environment, as this section of track parallels the CSX tracks.

SAFE Actions

A team from SAFE, ATC, and TRST evaluated two areas on the B-line to determine if they should remain hot spots or not.

Investigation Details

RED HOT SPOT Evaluation Criteria

Red Hot Spots are locations where the Watchman/Lookout cannot provide ample time warning, or the physical characteristics may make it difficult or impossible for personnel to clear the dynamic envelope of a moving rail vehicle safely. The criteria used to evaluate Hot Spots are from the Metrorail Safety Rules and Procedures Handbook (MSRPH) and Occupational Safety and Health Administration (OSHA).

- Is this a "No Clearance Zone"?
- Close Clearance – The clearance is closer than four feet from the field side of the nearest running rail without an engineered place of safety, i.e., catwalk, safety walk, etc.
- Is there an engineered place of safety between adjacent tracks?
- Are the track centers equal to or greater than 20 feet apart?
- Is there an engineered place of safety behind the third rail?
- Is there a minimum of six feet from the third rail's field side (back) and a place of safety?
- Does the Watchman/Lookout have clear visibility (Need vs. Speed) and it's not limited or obstructed?
- Is there a potential for noise of more than 95 decibels?

Are there special track conditions that limit the crew's ability to access a place of safety?

Evaluation of location B2 at Chain Marker 302+00 to 320+00

The physical characteristics of chain makers B2 302+00 to 320+00 are ballasted tangent tracks with tack centers of 14 feet. The third rail is back-to-back. The distance from the field side of the running rail to the fence is approximately eight to ten feet—the track 2 curves to the left when walking outbound to the North on track 2, and the curve radius is 4563.75 feet. A chain-link fence borders the WMATA right-of-way on both sides. CSX tracks run adjacent to WMATA's right-of-way on track 1 and 2 sides. The civil track speed is 75 mph, and the required sight distance is 1650 feet. The regulated speed in this section of the track is 65 mph. The distance of sight needed for a vehicle moving at 65 mph is 1430 feet.

The Watchman/Lookout standing in a place of safety at CM B2 302+00 can only see to CM B2 312+00 or 1000 feet. The fence, trees, the curve in track alignment, and the bridge block the Watchman/Lookout's view. The Watchman/Lookout's line of sight does not improve until they pass CM B2 319+00. However, there is ample space for the wok crew to stand of the dynamic envelope of the train.

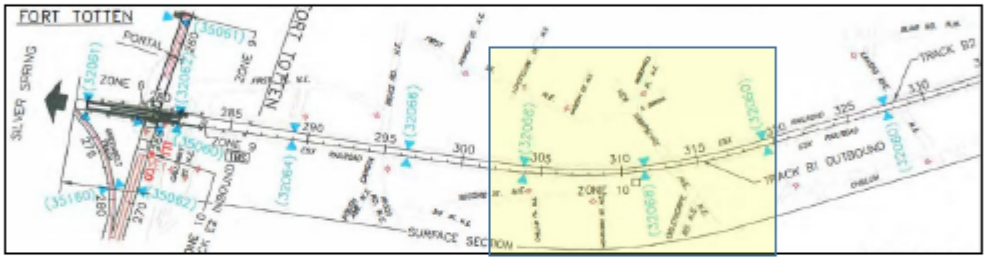


Figure 1, Section B2 302+00 to B2 320+00

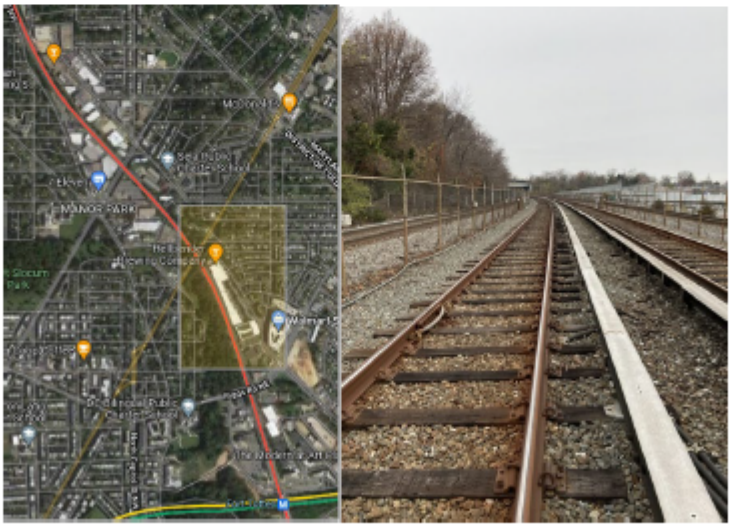


Figure 2, Track alignment from 302+00 to 320+00 looking North

If you have any questions regarding this OPA, please contact Operating Practices at SAFE_OperatingPractices@wmata.com or call the Safety Hotline at 202-249-SAFE (7233).

Evaluation of location B2 at Chain Marker 334+00 to 340+00

The physical characteristics of the roadway starting at chain makers B2 334+00 to 340+00 are ballasted tangent tracks with tack centers of 14 feet. The third rail is back-to-back. The distance from the field side of the rail to the fence is ten feet—the track curves to the right when you walk outbound to the North on Track 2, and the curve radius is 3839.83 feet. A chain-link fence borders the WMATA right-of-way on both sides. CSX tracks run adjacent to WMATA right-of-way on track 1 and 2 sides. The civil track speed is 55 mph, and the required sight distance is 1210 feet. The regulated speed in this section of the track is 50 mph. The range of sight needed for a vehicle moving at 50 mph is 1100 feet. The Watchman/Lookout standing in a place of safety at CM B2 334+00 can see to CM B2 346+00. A distance of 1200 feet. The fence, trees, and curve in track alignment can restrict the Watchman/Lookout's ability to warn the mobile work crew with ample time. Proper placement of the Watchman/lookout will eliminate any view restrictions.

Figure 3, Section B2 334+00 to 340+00

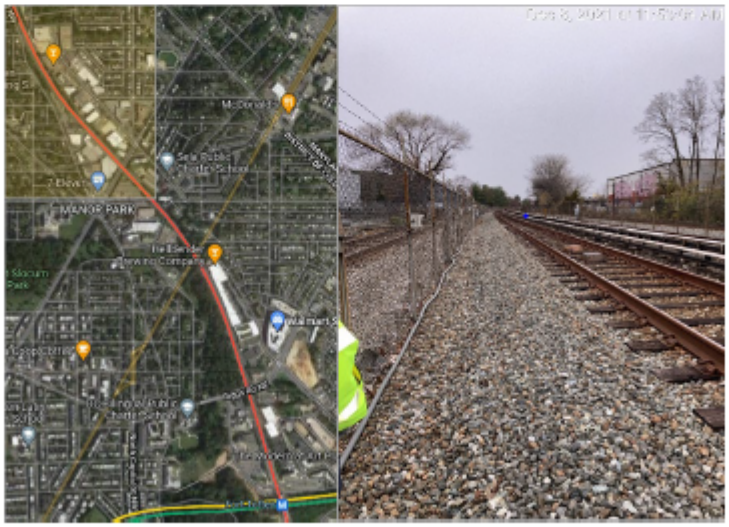


Figure 4, Picture looking North from CM B2 334+00

If you have any questions regarding this OPA, please contact Operating Practices at SAFE_OperatingPractices@wmata.com or call the Safety Hotline at 202-249-SAFE (7233).

Actions

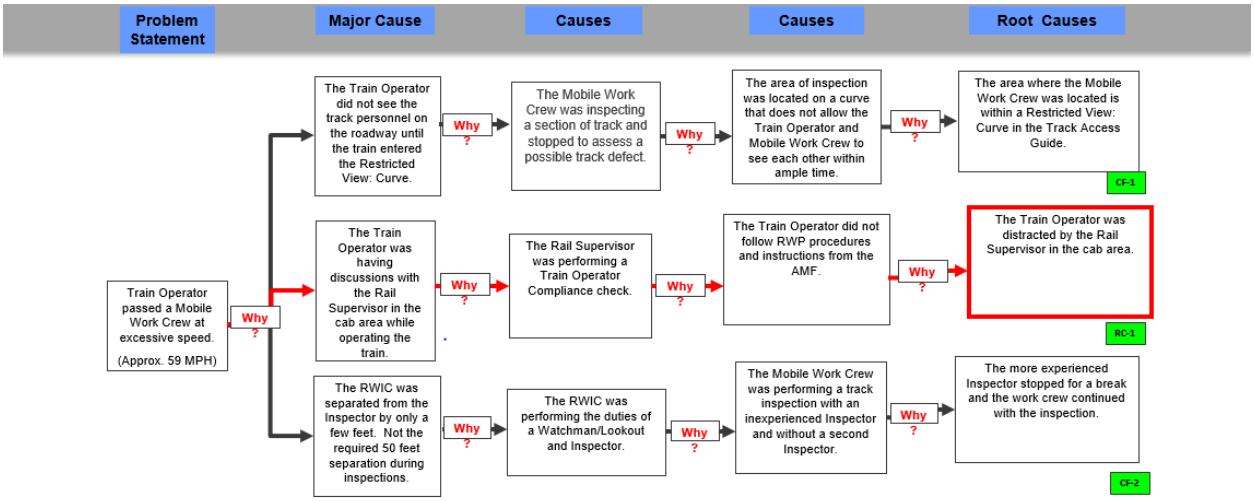
Recommendations for B2 at CM 302+00 to 320+00

The recommendation from this SAFE investigation is to make B2 302+00 to 320+00 a permanent RED HOT SPOT in the Track Access Guide. Even though there is ample space to reach a place of safety, the visual sight distance for the Watchman/lookout does not allow them to ample time warning.

Recommendations for B2 at CM 334+00 to 340+00

The recommendation from this SAFE investigation is to maintain B2 334+00 to 340+00 at its current condition (Restricted View Curve) in the Track Access Guide. With proper placement of the Watchman/lookout able to provide ample time warning. The physical characteristics of the roadway allow the work crew to easily clear to a place of safety. A possible hazard for this location is the CSX tracks. When there are no trains noise levels, allow the mobile crew to hear the Watchman/Lookout's warning. A CSX train was not present during the evaluation, and noise levels were not measured.

Appendix E - Root Cause Analysis



3 **Root Cause Analysis** WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY