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W-0427- Collision – Columbia Heights Station – August 10, 2025

Document Purpose

This WMSC written report on WMATA Metrorail's safety event investigation and review of Metrorail's findings in accordance with the WMSC Program Standard, in conjunction with the attached Metrorail investigation report that has undergone WMSC staff review, feedback, and Metrorail revision, describes the investigation activities, identifies factors causing or contributing to the accident, and sets forth ongoing, additional, or upcoming corrective actions and further oversight work (such as inspections and audits) as necessary or appropriate. The WMSC's ongoing oversight during the investigative process, including safety event reporting and verification, participation in investigative interviews, data review, consistent communication with the Metrorail investigations team, and feedback on Metrorail's reports leads to further improvements prior to consideration of the reports by WMSC Commissioners for adoption. The WMSC's safety event investigation oversight assures the sufficiency and thoroughness of Metrorail's investigations. The WMSC Commissioners are considering these documents (the WMSC review and Metrorail's investigation report) as a unified item for adoption at the Washington Metrorail Safety Commission meeting on May 12, 2026.

WMSC staff recommend adoption of this investigation.

Safety event summary:

On Sunday, August 10, 2025, the Equipment Operator of Prime Mover 48 reported a collision with two Wee-Z bonds while pushing Flatcar F606. (A Wee-Z Bond is a specialized rail bond that supports both traction return current and multiple signaling functions without interference. It equalizes current between rails and tracks, provides a low-resistance return path to substations, defines track circuit boundaries, enables the transmission and reception of signaling frequencies, and filters out unwanted signals to ensure safe and reliable train control.) The Wee-Z bonds were within the platform limits at Columbia Heights Station, near Chain Marker E2-124+00. Closed-circuit television (CCTV) footage confirmed Flatcar F606 also was dragging the brake rod for the handbrake component, which emitted sparks and contributed to scattering debris in the area.

The Equipment Operator of Prime Mover 48 was granted foul time to inspect the track and confirmed that the damage had the potential to impede train movement. Further inspection by the Automatic Train Control Maintenance (ATCM) confirmed that both Wee-Z Bonds had been hit and dragged along the roadway causing damage to the roadway at multiple points, Single tracking continued through the area until Automatic Train Control Maintenance (ATCM) determined the track was safe for movement with couplers turned and speed restrictions.

The investigation also presented information that Flatcar F606 had been involved in a derailment on June 9, 2025, which raised concerns about the flatcar's mechanical condition before the collision on August 10. Post accident information also established that that recommended repairs to Flatcar 606 were completed in July 2025 and the Equipment Operator and Flagman performed pre-trip inspections of the Flatcar and Prime Mover before leaving the Rail Yard on August 10.

Both Prime Mover 48 and Flatcar F606 were removed from service for Investigation Team investigation procedures. Flatcar 606 required repairs and was returned to service in late August 2025.

No injuries were reported as a result of this event.

Probable cause and contributing factors:

The probable cause of this event was a mechanical failure of Prime Mover 48's Flatcar F606 which struck and dislodged two Wee-Z Bonds. Contributing factors included mechanical deficiencies, such as the brake rod falling off from underneath the Flatcar, and the Flatcar's involvement in a derailment on June 9 2025.

Investigation W-0427 led to specific recommended corrective actions (RCA), including:

A mechanical inspection of Flatcar F606, including brake rods, handbrake assemblies, and the undercarriage components before returning to service.

WMSC staff observations

Inspections conducted by the Equipment Operator of PM-48, the Primary Responder, and the TRST Mechanic confirmed that the Wee-Z Bonds were struck and dragged, causing damage at multiple points along the platform limits. A loose handbrake (brake rod) bar on Flatcar F606 also contributed to the collision.

Additionally, previous WMSC triennial audits have resulted in safety findings related to Rail Maintenance Machines such as the Prime Mover and Flatcar involved in this accident. These WMSC findings have led to the Metrorail undertaking the following corrective action plans that correspond to some of the contributing factors identified in this investigation. Namely:

- C-0090 – Supervisors or others have no way of confirming while in the field whether an operator is properly trained to operate a specific RMM. C-0090 Closed in March 2023.
- C-0096 – There is no clear way for field personnel to identify WMATA owned RMM's that have been inspected and deemed safe for use, and there is no way for field personnel to identify any safety restrictions that maybe required for non-WMATA owned RMM's that have been allowed into the Metrorail system. Closed in October 2021.

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

FINAL REPORT OF INVESTIGATION A&I

Date of Event:	August 10, 2025
Type of Event:	A-3: Collision
Incident Time:	02:24 Hours
Location:	Columbia Heights Station, Track 2
Time and How received by Safety:	02:29 hours by Safety Information Official (SIO)
Washington Metrorail Safety Commission (WMSC) Notification Time:	03:43 hours
Responding Safety Officers:	Office of Emergency Preparedness – Primary Responder
Rail Vehicle:	Prime Mover (PM) 48 and Flatcar F606
Injuries:	None
Damage:	Two (2) Wee-Z Bonds and the Handbrake on Flatcar F606
Emergency Responders:	None
Safety Universal Data System (SUDS I/A) Number	20250908#130070

Table of Contents

Abbreviations and Acronyms

AIMS	Advanced Information Management System
ARS	Audio Recording System
ATC	Automatic Train Control
CAP	Corrective Action Plan
CCTV	Closed-Circuit Television
CMOR	Office of the Chief Fleet Officer
ER	Event Recorder
FT	Foul Time
IIT	Incident Investigation Team
MICC	Metro Integrated Command and Communications Center
MOR	Metrorail Operating Rulebook
NOAA	National Oceanic and Atmospheric Administration
OSC	On-Scene Commander
OEP	Office of Emergency Preparedness
RTC	Rail Traffic Controller
RTRA	Office of Rail Transportation
SAFE	Department of Safety
SOGR	State of Good Repair
SUDS	Safety Universal Data System
VMDS	Vehicle Monitoring and Diagnostic System
WMATA	Washington Metropolitan Area Transit Authority
WMSC	Washington Metrorail Safety Commission

Executive Summary

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

On Sunday, August 10, 2025, at 02:24 hours, the Equipment Operator of Prime Mover (PM) 48, while pushing Flatcar F606 through Columbia Heights Station on Track 2, reported a collision to the Metro Integrated Command and Communication (MICC) Center. Closed-Circuit Television (CCTV) footage confirmed that Flatcar F606 was dragging an object, later identified as the brake rod for the handbrake component, which emitted sparks and struck two (2) Wee-Z Bonds within the platform limits near Chain Marker (CM) E2-124+00, causing significant damage. Debris was seen scattering across the platform area immediately after the incident.

The Equipment Operator of PM-48, which departed Greenbelt Rail Yard en route to the L-line Bridge after picking up personnel at Pentagon Station, was granted Foul Time (FT) by the Radio Rail Traffic Controller (RTC) to inspect the track and confirmed that the damage had the potential to impede train movement. Further inspection by the Equipment Operator of PM-48, the Primary Responder from the Office of Emergency Preparedness, and a Track and Structure (TRST) Mechanic revealed that both Wee-Z Bonds had been hit and dragged along the roadway, causing damage at multiple points. A loose brake rod on Flatcar F606 was also identified as a contributing factor to the collision.

PM-61 passed through Columbia Heights Station earlier and was inspected, but it was not involved in the incident.

The investigation also noted that Flatcar F606 had previously been involved in a derailment at Mt. Vernon Square Station on June 9, 2025, raising concerns about its mechanical condition before the collision.

In accordance with the Office of the Chief Fleet Officer – Rail, Standard Operating Procedure 102.04, and Operations Administrative Policy 102.06, the Metro Integrated Command and Communications Center initiated the removal of Roadway Maintenance Machine PM-48 and Flatcar F606 from service for Incident Investigations Team investigation procedures.

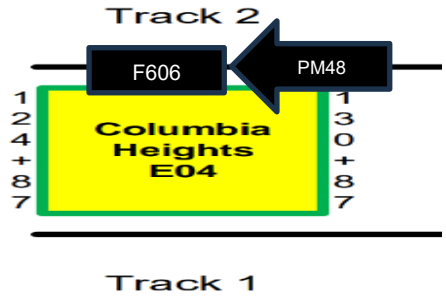
There were no injuries reported as a result of this event; however, there was damage to two (2) Wee-Z Bonds within the platform limit of Columbia Heights Station on Track 2 near CM E2-124+00.

The probable cause of the Collision at Columbia Heights Station event on August 10, 2025, was a mechanical failure of PM-48's Flatcar F606 that struck and dislodged two (2) Wee-Z Bonds. The impact caused the components of the Wee-Z Bonds to be dragged, resulting in additional damage to the track and surrounding infrastructure. Contributing factors include mechanical deficiencies, such as the brake rod underneath the flatcar that fell off during movement, reported on Flatcar F606, which was involved in a derailment on June 9, 2025.

Incident Site

Columbia Heights Station is an indoor station with a center platform and direct fixation tracks. The collision occurred on track 2 as the train approached the station. Damage was discovered between Chain Markers (CM) E2 133+00 and E2 124+00.

Field Sketch/Schematics



**The above depiction is not to scale.*

Purpose and Scope

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

Investigative Methods

Upon receiving notification of the Collision at the Columbia Heights Station on August 10, 2025, Safety dispatched a cross-functional team to assess the scene and conduct the subsequent investigation. Safety team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Physical site Assessment through SAFE On-Call response, video, and document review.
- Formal Interviews – Safety interviewed two individuals as part of this investigation. The interviews included persons present at, during, and after the incident, those directly involved in the response process, and representatives from the Washington Metrorail Safety Commission (WMSC). Safety interviewed the following individuals:
    - Equipment Operator
    - Flagman
- Informal Interviews – Collected through conversations with individuals during the investigation to provide background and supporting information. Written statements were reviewed from personnel present during the event.

- Documentation Review – Collection of relevant work history information and process documentation contained in WMATA systems of record. These records include:

    - Metrorail Operating Rulebook (MOR)
    - National Oceanic and Atmospheric Administration (NOAA)
    - Equipment Operator Employee Records
    - Flagman Employee Records
    - Equipment Operator 30-Day Work History
    - Flagman 30-Day Work History
    - Communications and Signaling – Investigation Data
    - Maximo Data

- System Data Recording Review – Collection of information contained in Metro Data Recording Systems. This data includes:

    - Audio Recording System (ARS) playback
    - Closed-Circuit Television (CCTV)
    - Advanced Information Management System (AIMS)
    - General Order and Track Rights System (GOTRS)
    - Oracle Report

Investigation

On Sunday, August 10, 2025, at 02:24 hours, a Collision was reported to the MICC by the Equipment Operator of PM-48 that was pushing Flatcar F606 at Columbia Heights Station on Track 2, which caused damage to the two (2) Wee-Z Bonds that were on the roadway within platform limits near CM E2-124+00.

CCTV revealed that at 02:24 hours, PM-48 led by Flatcar F606, entered the platform at Columbia Heights Station on Track 2 with an object dragging from the front of Flatcar F606 that was sparking and that struck the Wee-Z Bonds at both ends of the platform limits. The video footage also showed debris blowing around the platform limits as PM-48 and Flatcar F606 as they passed through the area.

Figure 1 - This image shows sparks under the Flatcar F606 as it exits Columbia Heights Station Track 2.

PM-48 departed Greenbelt Rail Yard, pushing Flatcar F606 en route to their work location at the L-line Bridge after picking up personnel at Pentagon Station via Track 2. While operating through Columbia Heights Station, the Equipment Operator of PM-48 reported to the Radio RTC that they needed to stop their unit and requested permission to return to the platform due to a track issue. At 02:24 hours, permission was granted, and the Equipment Operator of PM-48 reported that a Wee-Z Bond appeared to have dislodged from the track infrastructure.

The Radio RTC granted FT to the Equipment Operator of PM-48 to perform a track inspection and was informed that the bond was located on the downtown end of the platform limits, but there were no Chain Markers (CM) present at that location. The Equipment Operator of PM-48 confirmed that the damage could impede train movement with the Radio RTC at 02:27 hours.

The Audio Recording System (ARS) playback indicated that at 02:27 hours, the Equipment Operator of PM-48 requested that the Radio RTC contact someone from Automatic Train Control (ATC) to have them come to inspect the Wee-Z Bonds at Columbia Heights Station on Track 2.

The investigation revealed that Flatcar F606, being pushed by PM-48, struck, dislodged, and damaged two (2) Wee-Z Bonds, a critical component of the track's signal system at Columbia Heights Station Track 2.

Based on the Signal Engineering Investigation data, PM-48 potentially collided with Wee-Z Bonds WZ-4 at CM E2-130+87 and WZ-5 at E2-124+87, on Track 2 of the platform. Track Circuits E2-131, E2-125, and E2-118 remained down after the unit had left the area. Inspections conducted by the Equipment Operator of PM-48, the Primary Responder, and the TRST Mechanic confirmed that the Wee-Z Bonds had been struck and dragged, resulting in additional damage at multiple points along the platform limits of the roadway. It was also discovered that a handbrake (brake rod) bar on Flatcar F606 had come loose, contributing to the collision.

Another unit in the area, PM-61, was also inspected and found not to be involved. Due to the extent of the damage, concerns arose about operational delays, and single tracking was considered a contingency. The collision was first reported as a minor collision, but after learning the extent of the damage, it was updated to an A-3 per the Federal Transit Administration (FTA) guidelines.

At 04:27 hours, a TRST Mechanic arrived at Columbia Heights Station to perform an inspection on PM-48 and Flatcar F606. PM-48 and Flatcar F606 were towed to Greenbelt Yard at 06:16 hours by PM-59. The TRST Mechanic remained aboard. Green and yellow line trains were single tracking until 06:26 hours. ATC determined Track 2 was safe for train movement with couplers turned, and a slow speed restriction was set.

The findings raised concerns about the condition of the Flatcar before the incident and potential mechanical issues on Flatcar F606, which was involved in a derailment at Mt Vernon Square Station on June 9, 2025. It was reported in the CENV report that the post-incident inspection of Flatcar F606 by CTEM revealed damage to the rear truck center pivot bowl caused by the vertical separation of the chassis from the truck and subsequent misalignment upon return. The investigation revealed that the cause of the incident was the B-end of Flatcar F606 traversing automatic derailer 13, resulting in minor damage to the flatcar and the infrastructure. Repair to the rear truck bowl of Flatcar F606 was recommended and completed on July 15, 2025, per WPS AAR-CPL-S308.

A pre-trip inspection was performed on PM-48 and Flatcar F606 by the Equipment Operator and Flagman before the unit left Greenbelt Rail Yard. Flatcar F606 was removed from service for further investigation and to make repairs. Flatcar F606 returned to service on August 27, 2025.

COSI personnel removed the debris of both bonds and cables. Normal traffic continued on both tracks per COSI management, and speed restrictions were in effect. On August 11, 2025, COSI replaced the Wee-Z Bonds and performed verifications. On August 27, 2025, COSI replaced a damaged cable, and upon installing the replacement, a cut was found in the new cable insulation, resulting in Wee-Z Bond 5 needing to be redone. Final repairs were completed on September 23, 2025.

Figure 2 - Circumferential damage to the center, pivot bowl.

Chronological Event Timeline

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

Time	Description
01:46:00 hours	PM48 departed Greenbelt Rail Yard, pushing Flat F606, destination Pentagon Station, Track 2.
02:24:19 hours	PM48: Reported to the Radio RTC that they were stopping their unit and needed permission to return to the platform at Columbia Heights Station, Track 2, because of an issue. Radio RTC: Acknowledged PM48's request, permitted them, and asked for more information about the issue. PM48: Informed the Radio RTC that they were "not sure, but it appeared that a Wee-Z Bond had decided to no longer be a part of the track". [Radio OPS 3]
02:27:18 hours	PM48: Advised the Radio RTC to contact someone from ATC to come to Columbia Heights Station because the Wee-Z Bond was no longer a part of the track. [Radio OPS 3]
02:27:44 hours	Radio RTC: Requested a Chain Marker (CM). PM48: Advised the Radio RTC that there were no CMs at that location, but the Wee-Z Bond was located on the downtown end of the platform limits. Radio RTC: Acknowledged the message and requested photos. PM48: Acknowledged the message and requested permission to go to the roadway to perform an inspection. Radio RTC: Granted Foul Time (FT) to the Operator of PM48. PM48: Acknowledged the message. Radio RTC: Asked if the damage would impede train movement. PM48: Confirmed that it would.
02:29:44 hours	OM: Reported that PM48 came into contact with a Wee-Z Bond at Columbia Heights Station on Track 2 and informed the SIO that the Operator was on the roadway taking pictures. SIO: Acknowledged the message and informed the OM that they would make some phone calls to the on-call safety to respond to a collision and instructed the OM not to move the Unit. [Emergency MGMT]
02:30:11 hours	PM48: Relinquished their FT. Radio RTC: Acknowledged the message. [Radio OPS 3]
02:30:50 hours	Radio RTC: Contacted PM61 to ask if anything was dragging from their unit. PM61: Requested permission to step off to look underneath their unit. Radio RTC: Granted the Operator of PM61 FT. [Radio OPS 3]
02:31:27 hours	Radio RTC: Contacted PM61 to grant FT and asked them to check their unit to see if anything was dragging. PM61: Acknowledged the message. [Radio OPS 3]
02:34:25 hours	PM61: Reported that they had a good inspection, and nothing was hanging from their unit or their flat, and relinquished their FT. Radio RTC: Acknowledged the message. [Radio OPS 3]
02:35:01 hours	Radio RTC: Granted PM61 permission to continue to their work location. [Radio OPS 3]
02:39:19 hours	PM48: Requested FT permission to inspect their unit a second time to make sure nothing was tangled underneath. Radio RTC: Acknowledged the message. [Radio OPS 3]
02:40:07 hours	Radio RTC: Granted PM48 FT. PM48: Acknowledged the message. [Radio OPS 3]

Time	Description
02:40:45 hours	SIO: Informed the OM that the Primary Responder was heading to the scene and asked the OM if they knew what happened. OM: Stated that they did not know, but the Operator of PM48 was granted FT to make sure nothing was dragging. SIO: Asked if they hit a Wee-Z Bond. OM: Stated that that was what they reported. [Radio OPS 3]
02:44:32 hours	PM48: Relinquished FT and requested a mechanic to come to their location. Radio RTC: Acknowledged the message and asked why the mechanic was needed. PM48: Informed the Radio RTC that the bar for the handbrake on the flats came loose. Radio RTC: Acknowledged the message. [Radio OPS 3]
02:55:56 hours	Radio RTC: Requested the CM closest to the damage. PM48: Informed the Radio RTC that the closest CM was E2 124+00, and the damage was at around E2 124+50. [Radio OPS 3]
03:03:40 hours	SIO: Asked the OM if this incident would impact the system opening. OM: Informed the SIO that they would most likely have to single track.
03:13:56 hours	EP26: Requested FT to perform an inspection. Radio RTC: Acknowledged the message and instructed EP26 to stand by. [Radio OPS 3]
03:14:40 hours	Radio RTC: Granted FT to EP26. EP26: Acknowledged the message. [Radio OPS 3]
03:21:22 hours	EP26: Requested an extended FT location to E2 132+00. Radio RTC: Acknowledged and granted permission. [Radio OPS 3]
03:23:33 hours	SIO: Informed the OM that the Wee-Z Bonds were damaged on both ends of the platform as reported by EP26, and other damage from “stuff being drug around”. OM: Acknowledged the message. [Emergency MGMT]
03:26:04 hours	EP26: Relinquished their FT. Radio RTC: Acknowledged the message. [Radio OPS 3]
03:26:12 hours	SIO: Confirmed that this was an A3 emergency with the WMSC. [Emergency MGMT]
03:27:26 hours	Radio RTC: Asked a Mobile Work Crew if they noticed any damaged Wee-Z Bonds during their walk between College Park and Greenbelt Stations. MWC: Informed the Radio RTC that they just received a call about that, and they did not notice anything, but they would keep them posted. Radio RTC: Acknowledged the message. [Radio OPS 3]
03:38:04 hours	PM48: Informed the Radio RTC that their home division was Branch Avenue. [Radio OPS 3]
04:11:25 hours	EP26: Requested FT again for the platform limits at Columbia Heights Station. Radio RTC: Granted EP26 FT. EP26: Acknowledged the message. [Radio OPS 3]
04:17:07 hours	EP26: Relinquished FT Radio RTC: Acknowledged the message. [Radio OPS 3]
04:27:22 hours	TRST Mechanic: Reported that they were at Columbia Heights Station to inspect PM48. Radio RTC: Acknowledged and granted permission to the roadway [Radio OPS 3].

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

Closed-Circuit Television (CCTV)

Figure 3 - Image of sparks coming from the undercarriage of Flatcar F606.

Digital Images and Photographs

Figure 4 - Flatcar F606 hanging brake rod.

Figure 5 - Actual image of Flatcar F606.

Figure 6 - Actual image of PM-48.

Infrastructure

Communications and Signaling

Communications and Signal Engineering reported that the Train to Wayside Communication (TWC) was not in effect because the moving unit was not a train. There was no information about the Unit number and the destination.

At 2:23:03 hours, the unit crossed the Impedance Bond WZ-2 located at the Chain Marker E2-138+00 with 14 MPH on Track 2 and occupied track circuit E2-138. At 2:23:29 hours, the unit crossed the Impedance Bond WZ-3 located at the Chain Marker E2-133+00 and vacant track circuit E2-138. At 2:23:41 hours, the unit potentially collides with Impedance Bond WZ-4 at Chain Marker E2-130+87 on Track 2.

At 2:23:49 hours, the unit potentially collides with Impedance Bonds WZ-5 at the Chain Marker E2-124+87 on Track 2. At 2:24:37 hours, the unit crossed the Impedance Bond WZ-11 located at the Chain Marker E2-118+45 with 9 MPH on Track 2 and occupied track circuit E2-116. At 2:25:21 hours, the unit crossed the Impedance Bond WZ-10 located at the Chain Marker E2-116+40 on Track 2 and vacant track circuit E2-116. Track Circuits E2-131 and E2-125 remain down even after the unit has left the area. (Appendix D)

Interview Findings and Written Statements

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

Equipment Operator

- The Equipment Operator reported taking PM-48 mainline to the work location.
- The Equipment Operator reported that they heard a bang and felt the unit jolt.
- The Equipment Operator reported they looked forward and saw the bond “messed up” (damaged) and contacted the MICC.

Flagman

- The Flagman reported traveling from E99 on Flatcar F606.
- The Flagman reported that they felt a rough bump in the flagman’s booth.
- The Flagman reported that they stopped the unit to investigate.

Weather

On August 10, 2025, at the time of the incident, NOAA recorded the temperature as 68°F, with fair skies, winds of 0 mph, and 73% humidity. [Washington, DC]. Weather was not a contributing factor in this incident (Weather source: NOAA) – Location: Washington, DC.

Related Rules and Procedures

Metrorail Operating Rulebook

7.1.5 Equipment operators removing Roadway Maintenance Machines from storage or preparing Roadway Maintenance Machines for movement shall perform an interior and exterior inspection (walk-around) and perform a standing and rolling brake test prior to initiating general operation of the consist.

11.1 Responsibilities

Operator or employee-in-charge of a Roadway Maintenance Machine shall be responsible for its safe movement and proper operation. Operators shall maintain a constant lookout in the direction of travel.

11.3 Equipment Inspection

11.3.2 Before Roadway Maintenance Machines are placed in service, pre-trip inspection must be made for loose bolts, missing cotter keys, fuel leaks, improper brake adjustment, improper wheel gauge, worn wheels, brake dump valves, and other items as instructed.

11.9 Operating with Caution

Roadway Maintenance Machines shall be operated with caution when moving over switches and frogs, through tunnels, over bridges, through curves with restraining rails, and while passing anyone on or near the track. Before reversing direction, the operator shall give a warning signal and ensure the way is clear.

11.10 Vigilant Lookout; Conduct

Each employee shall assist the operator in keeping vigilant lookout for trains, other equipment, and obstructions, on or off the track, including people, vehicles, animals, contractors' equipment, or anything that could affect safe movement. While in motion, operators and occupants of equipment shall remain vigilant, not engage in unnecessary conversation or in boisterous conduct while equipment is in motion.

Human Factors

Fatigue

Signs and Symptoms of Fatigue

PM-48 Equipment Operator

SAFE examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved personnel was available to ascertain whether signs of fatigue were present. The employee reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Flatcar F606 Flagman

SAFE examined signs and symptoms of fatigue that may have been present at the time of the incident. No video of the involved personnel was available to ascertain whether signs of fatigue were present. The employee reported feeling fully alert at the time of the incident. The employee reported experiencing no symptoms of fatigue in the time leading up to the incident.

Fatigue Risk

PM-48 Equipment Operator

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident occurred at a time of low circadian alertness. Employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the overnight shift in the days leading up to the incident. The employee was awake for 10.4 hours at the time of the incident. The employee reported 7 hours of sleep in the 24 hours preceding the incident. The off-duty period was 11 hours, which provides an opportunity for 7-9 hours of sleep. This was a comparable amount of the employee's usual workday sleep durations. The employee reported no issues with sleep.

Flatcar F606 Flagman

SAFE evaluated incident data for fatigue risk factors. Risk factors for fatigue were present. The incident occurred at a time of low circadian alertness. Employee reported keeping a regular sleep schedule in the days leading up to the incident. The employee worked the overnight shift in the days leading up to the incident. The employee was awake for 5.9 hours at the time of the incident. The employee reported 10.5 hours of sleep in the 24 hours preceding the incident. The off-duty period was 16 hours, which provides an opportunity for 7-9 hours of sleep. This was more than the amount of the employee's usual workday sleep durations. The employee reported no issues with sleep.

Post-Incident Toxicology Testing

WMATA's Drug and Alcohol Program determined that the Equipment Operator and Flagman complied with the Drug and Alcohol Policy and Testing Program Policy 7.7.3/7.

Findings

- The Equipment Operator reported taking PM-48 mainline to the work location.
- Flat car was involved in a derailment at Mt. Vernon Square Station on June 9, 2025.
- During the Pre-trip inspection, it was documented that Flat car F606 had a broken floorboard and a missing chunk that was a tripping hazard.
- The brake rod underneath the Flatcar F606 that PM48 was pushing fell out.
- The brake rod caused damage to two WeeZ Bonds between CM E2 133+00 and E2 124+00.
- Communications and Signaling (COSI) reported the unit potentially collided with Impedance Bonds WZ-4 at CM E2-130+87 at 2:23:41 hours and WZ-5 at CM -124+87 at 2:23:49 hours on Track 2.
- COSI reported that Track Circuits E2-131 and E2-125 remained down even after the unit left the area.

Immediate Mitigation to Prevent Recurrence

- The EO and Flagman were removed from service.
- Flatcar F606 was removed from service, and the brake rod was temporarily secured.

Probable Cause Statement

The probable cause of the Collision at Columbia Heights Station event on August 10, 2025, was a mechanical failure of PM-48's Flatcar F606 that struck and dislodged two (2) Wee-Z Bonds. The impact caused the components of the Wee-Z Bonds to be dragged, resulting in additional damage to the track and surrounding infrastructure. Contributing factors include mechanical deficiencies, such as the brake rod underneath the flatcar that fell off during movement, reported on Flatcar F606, which was involved in a derailment on June 9, 2025.

Recommended Corrective Actions

Corrective Action Code	Description	Responsible Party	Estimated Completion Date
130070_SAFECAPS_CTEM_001	Conduct a mechanical inspection of Flatcar F606, including brake rods, handbrake assemblies, and the undercarriage components, before returning to service.	CTEM SRC	Completed

Appendices

Appendix A – Interview Summaries

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

Department

Equipment Operator

The Equipment Operator is a Metro employee with 1 ½ years of service and 1 ½ years of experience as an Equipment Operator. The Equipment Operator holds a Roadway Worker Protection (RWP) Level 2 certification that expires in May 2026.

During the formal interview, the Equipment Operator stated that their day began at Branch Avenue, where they initially prepared a unit for work in the shutdown area. After completing setup tasks by attaching the units and performing a pre-trip inspection, loading the flatcar, and attending a brief meeting, they were reassigned to take PM-48 out of Greenbelt. They were transported to Greenbelt by another individual, where they prepared PM-48 along with Flatcar F606 for operations. During travel, poor radio communications were noted, especially when leaving Greenbelt.

The Equipment Operator recalled feeling the slack in the couplers tighten, causing a noticeable jolt, followed by the unit "bunny hopping" over the TWC coils between the running rails. This caught their attention. They explained that such slack action can occur depending on throttle or braking input, making it possible that others may not have immediately recognized the impact.

When asked about the Flagman's reaction, the Equipment Operator stated that once they applied the brakes and began slowing down, they observed the Flagman standing on the Flatcar and looking back toward them. The Equipment Operator agreed to share the photos with SAFE of the hanging brake rod.

Flagman

The Flagman is a Metro employee with 2 years of service and 2 years of experience as a Flagman. The Flagman holds a Roadway Worker Protection (RWP) Level 2 certification that expires in August 2026.

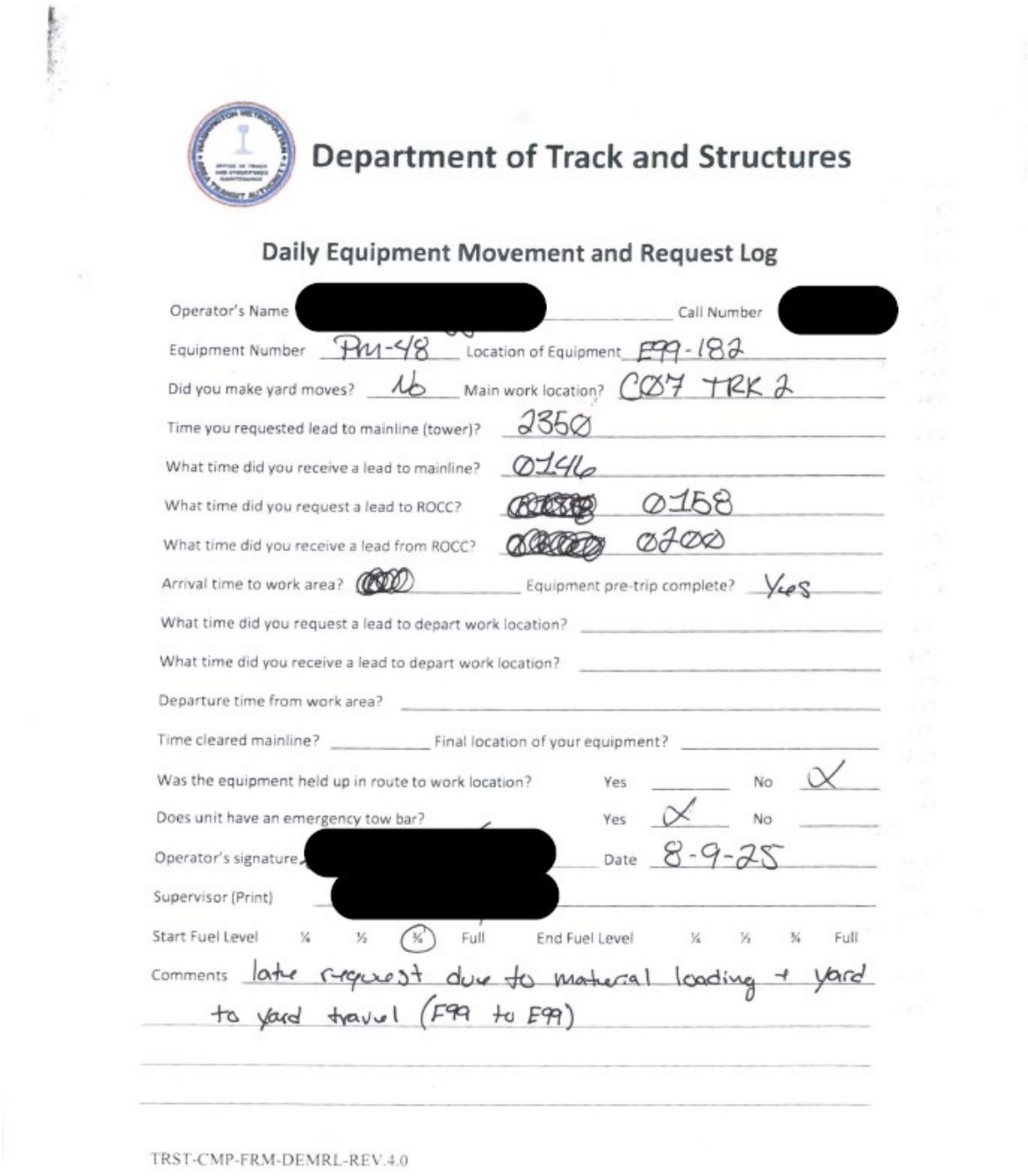
During the formal interview, the Equipment Operator stated that after receiving permission to leave Greenbelt Yard, the crew departed with the equipment, and he turned on his light to ensure the track was clear of obstructions. While approaching Columbia Heights Station, they were traveling through a curved, guarded section of track when the Flatcar experienced a jolt and noise.

The Flagman noted that the Equipment Operator performed an inspection around the unit with permission under FT, but they were unsure of who performed the inspection of the track. They could not say whether anything was recovered from the track bed.

Serving as the Flagman, they were positioned in the booth at the lead end of the Flatcar while being pushed by PM-48. They recalled hearing and feeling a jolt but could not clearly remember

if they left the booth at that time, explaining that the area they were in has rough spots, and it may not have seemed unusual enough to require action. The Flagman added that the crew had secured all equipment beforehand, so they knew nothing had fallen off.

The Flagman also described standard practices for flagging, stating that while flagmen may use a flashlight from outside the booth, remaining inside allows immediate access to the brake if a stop is needed. The Flagman stated that either method is acceptable as long as visibility remains clear.



Department of Track and Structures

Daily Equipment Movement and Request Log

Operator's Name [redacted] Call Number [redacted]

Equipment Number PM-48 Location of Equipment F99-182

Did you make yard moves? No Main work location? C07 TRK 2

Time you requested lead to mainline (tower)? 2350

What time did you receive a lead to mainline? 0146

What time did you request a lead to ROCC? [redacted] 0158

What time did you receive a lead from ROCC? [redacted] 0200

Arrival time to work area? [redacted] Equipment pre-trip complete? Yes

What time did you request a lead to depart work location?

What time did you receive a lead to depart work location?

Departure time from work area?

Time cleared mainline? Final location of your equipment?

Was the equipment held up in route to work location? Yes No X

Does unit have an emergency tow bar? Yes X No

Operator's signature [redacted] Date 8-9-25

Supervisor (Print) [redacted]

Start Fuel Level ¼ ½ (¾) Full End Fuel Level ¼ ½ ¾ Full

Comments late request due to material loading + yard to yard travel (F99 to F99)

TRST-CMP-FRM-DEMRL-REV.4.0

Figure 7 - TRST Daily Equipment Movement and Request Log

WMATA CLASS 2 RAIL VEHICLE PRIOR TO USE INSPECTION

Initials (Operator /Flag Person)

1. Check for wheel chocks and that the required quantity for unit(s) in consist are present.
2. Check angle cocks, train line seals, air tool and drain valves. (Open or close as required).
3. Check main engine for proper oil level.
4. Check for any loose, broken, torn, cracked, or leaking components as you make your walk around inspection.
5. If using auxiliary components, such as cranes, generators and compressors, check all controls, movements, fluid levels, and safety devices.
6. Start machine and check all switches, gauges, and warning indicators.
7. Check for sufficient air pressure and if equipped with A-9, make sure it is at 90 psi in the release position.
8. Check transmission for correct oil level and any abnormal sounds or functions.
9. Ensure all equipment, tools, supplies or loose debris are secured on decks and not posing any safety hazards.
10. If equipped and scheduled for use, inspect work head assemblies for wear, out of adjustment and damage. Check oil fill reservoirs and grease all fittings.
11. If equipped, inspect E-couplers, tow bars, and revenue train couplers. Make sure all tools are properly stored and secured while maintaining proper housekeeping of materials and equipment.
12. Gas cylinders should be secured and in their proper location.
13. Ensure all work heads and components such as crane booms, outriggers, measuring buggies, clamp frames, plows, turn tables and extension arms are pinned and locked with safety devices prior to travel.
14. Check fuel and hydraulic tanks for proper level.
15. Check all wheels, brakes, visible linkage, and suspension on all rolling stock vehicles.
16. Check for cracked, broken, missing windows and side boards. Make sure there are no bent or loose railings, steps, or cabinet enclosures that are missing safety chains, locks or latches.
17. Turn on and inspect all lighting on unit(s) in consist for any defects or problems.
18. Check that back up alarms and horns sound.
19. Fire extinguishers should be charged and secured. Sign the monthly inspection log (if not already signed).
20. Verify the radio(s) is/are able to transmit and receive clearly.
21. Inspect all items in flagman's booth for proper operation and functionality.
22. Ensure loads are secure, evenly distributed and are not hanging over the side or ends of flat car.
23. Check all Flat Car emergency dump valves and hand brakes.
24. Inspect hi-rail components for thin flanges, leaking cylinders, safety pins, tires, shunts, and proper tuck when on hi-rail.
25. Perform a stretch test. ☒ Successful Test ☐ N/A
26. Perform a rolling brake test (all class 2 vehicles).
27. Perform standing brake test (all flatcars, PM26-PM53 only).
28. Verify the intercom headsets are able to transmit and receive clearly (if applicable).
29. Operators and Pilots have reviewed, and have in their possession, mainline and yard maps showing their intended routing, curves and interlockings and restrictions and other vital information.
30. Ensure Automated External Defibrillator (AED) is present.

CAUTION: When transporting units for PMI, ensure cabs, decks, platforms and operating stations are clear and free of trash, debris, tools, materials and supplies.

Notes/Comments:

Print Nam[redacted] ID# [redacted]

Signatu[redacted] Equipment#: PM-48 - F606

Yard or [redacted]

Date: 8-9-25 Time of Inspection: 2320

TRST-CMP-FRM-C2RVPUIC-REV.6.0 | 11072024 AFTER COMPLETED, RETAIN THIS FORM FOR SIX (6) MONTHS

Figure 8 - TRST WMATA Class 2 Rail Vehicle Pre-Trip Inspection.

Department of Rail Services
Office of Track and Structures

Flat Car Walk-Around Inspection Checklist

No.	Items to Check	Defective	OK	Comment
1.	Check air angle valve position.		✓	
2.	Journal boxes (if so equipped).			
	A. Check the journal box trough for the lubricator pad and oil. (No water or debris)			
	B. Is there a sufficient amount of clean oil to saturate the pad?			
3.	Are wheel chocks correctly in place?		✓	
4.	Check flat car hand break.		✓	
5.	Check draw bar coupling, if disconnected from Prime Mover.		✓	
6.	Check all lights for proper operation and damage.		✓	
7.	Check all break shoes for excessive wear.		✓	
8.	Check train line hose fitting for gasket.		✓	
9.	Check load. Make sure it is evenly distributed and properly secured.		✓	
10.	Check flat car for material or tools that may be hanging over the dynamic envelope.		✓	
11.	Check all air connections for damage or air leaks (i.e., "O" ring).		✓	
12.	Check fire extinguisher for charge and proper mounting.		✓	
13.	Check horn.		✓	

Comments: Floor Board Broken / Missing Chunk / Tripping Hazard

Flag-person Name: [redacted] Date: 8/9/25 Flatcar # FGOC

Operator's Name: [redacted] Date: 8/9/25

Supervisor's Na[redacted] Date: 8/9/25

TRST-FCWAC 3.0-August 19, 2019

Figure 9 - TRST Flatcar Walk-Around Inspection Checklist.

Appendix C – Car Track Equipment Maintenance (CTEM) Status Report

Car Track Equipment Maintenance, Rail Fleet
STATUS REPORT

Scan this QR code to email Equipment Deficiencies to: CTEMReporting@wmata.com
If you are viewing this Electronically, click here to access the Deficiency Report

WARNING!!! SINGLE AXLE RMMs AND HI-RAIL VEHICLES ARE RESTRICTED TO 15 MPH

8/11/2025 **PHONE: 301-955-2300**

OUT OF SERVICE - HEAVY EQUIPMENT

EQUIPMENT	NUM	OOS	YARD	FAILURE / REMARKS	STATUS	EDC
PRIME MOVER	PM36	08/07	ALX	PM / REPAIRS	IN WORK	08/12
BALLAST REGULATOR	BR01	08/11	ALX	PM / REPAIRS	IN WORK	08/14
PRIME MOVER	PM39	07/23	BA	DIFFERENTIAL ISSUE	IN WORK	TBD
TELEHANDLER	TH01	08/08	BA	PM / REPAIRS	IN WORK	08/14
TIE SHEAR	NTS01	08/07	BA	PM / REPAIRS	IN WORK	08/15
BALLAST VAC	BV01	02/24	NC	MAJOR REPAIRS	IN WORK	08/27
JET RODDER	JR03	08/07	NC	2 YR PM / REPAIRS	IN WORK	08/13
PRIME MOVER	PM35	08/11	NC	PM / REPAIRS	IN WORK	08/15
PRIME MOVER	PM40	08/05	GBT	2 YR PM / REPAIRS	IN WORK	08/13
PETTIBONE	PB15	08/06	GBT	2 YR PM / REPAIRS	IN WORK	08/15
GEOMETRY VEHICLE	TGV01	07/28	DU	GEOMETRY SYSTEM UPGRADES	IN WORK	08/30
PLATE INSTALLER	PI01	07/07	DU	RIGHT SIDE WORK HEAD REPAIRS (MODULE)	AWAITING PARTS	09/16

Prime Movers Out of Service	4	Prime Movers (34) in Service	30

OUT OF SERVICE - FLATCARS

EQUIPMENT	NUM	OOS	YARD	FAILURE / REMARKS	STATUS	EDC
FLATCAR	**F606**	**08/11**	**GBT**	**BRAKE LINKAGE FAILURE**	**IN WORK**	**08/15**

Figure 10 - CTEM Report.

	Washington Metropolitan Area Transit Authority	
metro	**INVESTIGATION REPORT**	FORM: INFR-COSI-ATCE-TEMP-01-00

Incident Title: PM48 Collusion with Wayside Equipment

Incident Date/Time: 2025 Aug 10 02.23.41

Incident Location: E04 Columbia Heights

EXECUTIVE SUMMARY:

See the attached Book of Plans pages E04-G-07 and E04-G-08 to indicate the location wayside equipment and track circuits in relation to the Platform.

Note that the Train to Wayside Communication (TWC) is not in effect because the moving unit is not a train. There is no information about the Unit number and the destination.

At 2.23.03 Hrs, the unit crossed the Impedance Bond WZ-2 located at the Chain Marker E2-138 +00 with 14mph on track 2 and occupied track circuit E2-138.

At 2.23.29Hrs, the unit crossed the Impedance Bond WZ-3 located at the Chain Marker E2-133 + 00 and vacant track circuit E2-138.

At 2.23.41, the unit potentially collides with Impedance bond WZ-4 at the Chain Marker E2- 130 + 87 on track 2.

At 2.23.49 the unit potentially collides with Impedance bond WZ-5 at the Chain Marker E2- 124 + 87 on track 2.

At 2.24.37, the unit crossed the Impedance Bond WZ-11 located at the Chain Marker E2-118 +45 with 9mph on track 2 and occupied track circuit E2-116.

At 2.25.21, the unit crossed the Impedance Bond WZ-10 located at the Chain Marker E2-116 +40 on track 2 and vacant track circuit E2-116.

Track Circuits E2-131 and E2-125 remain down even after the unit has left the area.

Figure 11 - Signal Engineering Investigation Report Page 1 of 3.

	Washington Metropolitan Area Transit Authority	
metro	INVESTIGATION REPORT	FORM: INFR-COSI-ATCE-TEMP-01-00

COSI-SIGNAL ENGINEERING	Washington Metropolitan Area Transit Authority	Detailed Incident Analysis	
		Report Num:	[IR -----]
		Requestor:	[redacted]
		Date:	2025 Aug 10
		From:	[redacted]
		To:	

Reported Data:		Time:	02.00-04.00	Train ID	
Description:	E04/ PM48 Collision with Wayside Equipment		Interlocking Control: No interlocking		

Requested Analysis: Investigate Incident

INITIAL STATE AS OF: [2:00:00 to 2:00:]

Name	STATE	AUTO	NAME	STATE	AUTO	NAME	STATE	AUTO
E2-138	Vacant		E2-118	Vacant	-	E2-100	Vacant	-
E2-134	Vacant		E2-116	Vacant	-	E2-97	Vacant	-
E2-131	Vacant		E2-110	Vacant	-	E2-92	Vacant	-
E2-125	Vacant		E2-105					

RECORDED EVENT DATA

TIME	LOCATION	STATUS/ CONTROL	AIMS DESCRIPTION	COMMENTS
2:11:07	E04	STATUS	Track Circuit E2-138 Occupied	The previous unit was occupied and had vacant track circuits while traveling on track 2. All Wee-Zee bonds were functional.
2:11:21	E04	STATUS	Track Circuit E2-134 Occupied	
2.11.28	E04	STATUS	Track Circuit E2-138 Vacant	
2.11.39	E04	STATUS	Track Circuit E2-131 Occupied	
2.11.48	E04	STATUS	Track Circuit E2-134 Vacant	
2.11.48	E04	STATUS	Track Circuit E2-125 Occupied	
2.11.58	E04	STATUS	Track Circuit E2-131 Vacant	
2:12:12	E04	STATUS	Track Circuit E2-118 Occupied	

Revised
Approved: 05/09/2024

INFR-COSI-ATC-TEMP-01-00 Signal Engineering Incident Analysis Template 1.0
Page 3 of 5
Incident Analysis Report-E04

Figure 12 - Signal Engineering Investigation Report Page 2 of 3.

2:12:16	E04	STATUS	Track Circuit E2-125 Vacant	
2:12:28	E04	STATUS	Track Circuit E2-116 Occupied	
2:12:32	E04	STATUS	Track Circuit E2-118 Vacant	
2:12:32	E04	STATUS	Track Circuit E2-110 Occupied	
2:12:37	E04	STATUS	Track Circuit E2-116 Vacant	
2:12:45	E04	STATUS	Track Circuit E2-105 Occupied	The previous unit was occupied and had vacant track circuits while traveling on track 2. All Wee-Zee bonds were functional.
2:12:49	E04	STATUS	Track Circuit E2-110 Vacant	
2:12:53	E04	STATUS	Track Circuit E2-100 Occupied	
2:12:56	E04	STATUS	Track Circuit E2-105 Vacant	
2:13:03	E04	STATUS	Track Circuit E2-97 Occupied	
2:13:07	E04	STATUS	Track Circuit E2-100 Vacant	
2:13:10	E04	STATUS	Track Circuit E2-92 Occupied	
2:13:16	E04	STATUS	Track Circuit E2-97 Vacant	
2:13:27	E04	STATUS	Track Circuit E2-92 Vacant	
2:23:03	E04	STATUS	Track Circuit E2-138 Occupied	Before the incident, the Unit that was involved in the incident was travelling approximately at 14mph on track circuit E2-138
2:23:20	E04	STATUS	Track Circuit E2-134 Occupied	
2:23:29	E04	STATUS	Track Circuit E2-138 Vacant	
2:23:41	E04	STATUS	Track Circuit E2-131 Occupied	The unit potentially collided with wayside equipment, Wee-Zee bonds (WZ-4) and (WZ-5), on track 2 of the Platform. Track Circuits E2-131, E2-125 and E2-118 remain down even after the unit has left the area.
2:23:49	E04	STATUS	Track Circuit E2-125 Occupied	
2:23:50	E04	STATUS	Track Circuit E2-134 Vacant	
2:24:13	E04	STATUS	Track Circuit E2-118 Occupied	
2:24:37	E04	STATUS	Track Circuit E2-116 Occupied	After the incident, the unit was traveling approximately at 9mph on track circuit E2-116
2:25:21	E04	STATUS	Track Circuit E2-116 Vacant	

Circuit Power Failure: Yes ☐ No ☑ Processor Failure: Yes ☐ No ☑ Power Transfer: Yes ☐ No ☑

Revised
Approved: 05/09/2024

INFR-COSI-ATC-TEMP-01-00 Signal Engineering Incident Analysis Template 1.0
Page 4 of 5
Incident Analysis Report-E04

Figure 13 - Signal Engineering Investigation Report Page 3 of 3.

Appendix E – Maximo Work Order

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

Work Order #: 19731304
Type: CM

19731304

Status: CLOSE
09/24/2025 04:37

Work Description: E04, Two damaged WZ-BOND'S on track #2 platform.
Job Plan Description:

Work Information

Asset:	926130 ATCS, E04, TWO CONDUCTOR CABLES	**Owning Office:**	ATCS-TSSM	**Parent:**	
Asset Tag:		**Maintenance Office:**	ATCS-TSSM-ERFO	**Create Date:**	08/10/2025 02:33
Asset S/N:		**Labor Group:**	ATCSD2E99	**Actual Start:**	08/10/2025 08:48
Location:	7187 E04, COLUMBIA HEIGHTS, STATION, PLATFORM, ROOM 109, TRAIN CONTROL ROOM (E04 OB BT)	**Crew:**		**Actual Comp:**	09/23/2025 22:47
Work Location:		**Lead:**		**Item:**	ATCSV9987
Failure Class:	ATCS026 CABLES	**GL Account:**	WMATA-02-33530-50499270-042-**********-*****-OPR**		
Problem Code:	2671 PHYSICAL DAMAGE	**Supervisor:**		**Target Start:**	
Requested By:	[redacted]	**Requestor Phone:**		**Target Comp:**	
Chain Mark Start:		**Chain Mark End:**		**Scheduled Start:**	
Create-Mileage:	0.0	**Complete-Mileage:**	0.0		

Task IDs

Task ID						
10	8/10/25 E99/D99 MID: WZ-4&5 removed =>WZ-4 and WZ-5 platform#2 bonds were completely damage by a PM while passing by. => After SAFETY investigation was completed, ATC personnel removed the debris of both bonds and cables. =>WZ-5: Alstom High current bond (8R/2X) with cross-bond (one cut off/damaged and to be replaced) the other is good but needs to be meggered. TK2 end protected and secured. => Spider WZ-5 lead's connections cables are needed. =>Connon plug/pigtail-4pins is needed. =>WZ-4 a regular Alstom bond (4X/4X) to be replaced, all hardware and side lead cables are needed. => E2-125/P2, E2-118 and E2-131 circuits turned off and blue-tagged. => Normal traffic in effect at this time on both tracks but per ATC management speed restriction was installed on TK2(see WO#19731440). WO INPGR.					
Component:		**Work Accomp:**	**Reason:**	**Status:** CLOSE	**Position:**	**Warranty?:** N
20	8/11/25 E99/D99 MID Replaced Wz-5 and Wz-4. Performed detection adjustments and 3pts verifications on E2-131,E2-127R, E2-125 and E2-118 track circuits. Cab and spill over tests remain and scheduled to be performed tonight.					
Component:		**Work Accomp:**	**Reason:**	**Status:** CLOSE	**Position:**	**Warranty?:** N

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

Work Order #: 19731304
Type: CM

19731304

Status: CLOSE
09/24/2025 04:37

Work Description: E04, Two damaged WZ-BOND'S on track #2 platform.

Job Plan Description:

Related Work Orders

WO	Description	Class	Status	Relationship
19731440	E04 speed slow restriction installed from track #2 109+60 to 118+45 due to weezy bond damage	WORKORDER	CLOSE	RELATED
19744293	E04, ATCE reported track circuit E2-118 bob 16x	WORKORDER	CLOSE	RELATED
19791899	E04, ATCE reported track circuit E2-125 bob 15x	WORKORDER	CAN	RELATED

Failure Reporting

Cause		Remedy		Supervisor	Remark Date
0037	HIT BY TRAIN/ TRACK EQUIPMENT	4426	REMOVED, REPLACED & RETESTED		09/23/2025
Remarks:	Crossbond cable replaced due to damage from PM om 124				

WT_plust_woprint.rptdesign 03/10/2026 06:47

Appendix F – Why-Tree Analysis

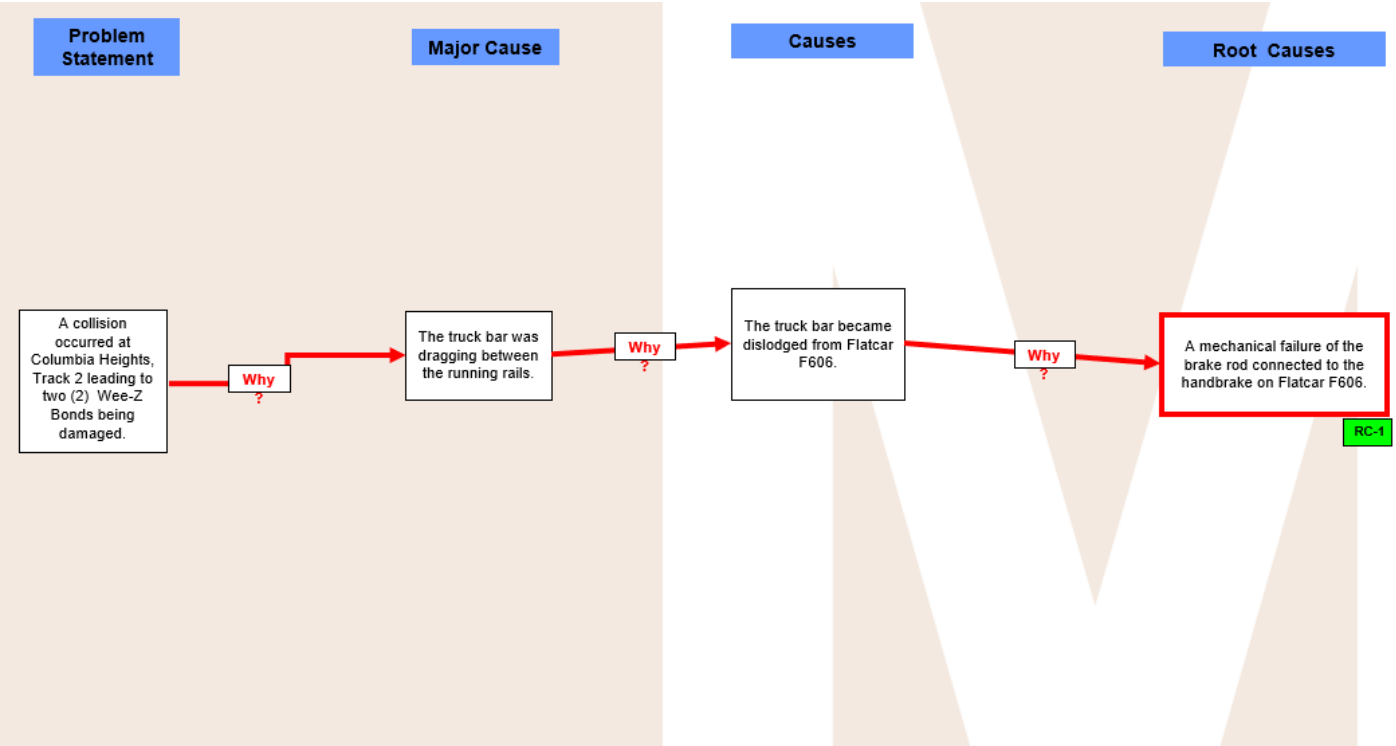


Figure 14 - Why Tree analysis for the collision at Columbia Heights.