



**WMSC Commissioner Brief: W-0069 – Person Struck by Train – Union Station – November 12, 2020**

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

**Safety event summary:**

A Metrorail customer placed themselves on the roadway at Union Station as a train approached the station, resulting in severe leg injuries.

The striking train was a non-revenue consist continuing through Union Station, so Metrorail rules required a maximum speed of 25 mph. However, the train was moving 31 mph when it entered the station, 125% of the speed required by rule. The Train Operator initiated emergency braking, and the person was struck when the train was going 28 mph.

Metrorail followed emergency response procedures during this event.

**Probable Cause:**

A customer placed themselves on the roadway as a train approached. Contributing to the event, Metrorail has not conducted adequate training or internal oversight of train speeds and other issues related to operator control of trains.

**Corrective Actions:**

Metrorail took no specific corrective action related to this event.

**WMSC staff observations:**

As part of a continuous safety improvement process, it is important to focus on ways to mitigate the risks of events or consequences occurring in the future, regardless of any direct way to have prevented this specific event from occurring given the situation at that time.

For example, this event shows that speed limits set by rule are not being followed in all cases, so Metrorail could consider increasing efficiency testing and similar ride check programs to provide opportunities for training, coaching and monitoring.

**Staff recommendation:** Adopt final report.



Washington Metro Area Transit Authority

Department of Safety and Environmental  
Management (SAFE)

**FINAL REPORT OF INVESTIGATION A&I E20436**

<b>Date of Event:</b>	11/12/2020
<b>Type of Event:</b>	Person Struck by Train
<b>Incident Time:</b>	22:39 hrs.
<b>Location:</b>	Union Station, Track 1
<b>Time and How received by SAFE:</b>	22:42 hrs. SAFE On-call Phone
<b>WMSC Notification Time:</b>	00:01 hrs.
<b>Responding Safety Officers:</b>	WMATA SAFE: Yes WMSC: No Other: N/A
<b>Rail Vehicle:</b>	Train ID 837 L 6176-77x6157-56x6083-82x6124-25T
<b>Injuries:</b>	Severe Leg Injuries
<b>Damage:</b>	None
<b>Emergency Responders:</b>	DCFD, RTRA, CMNT, MTPD, PWR, PLNT

Union Station – Person Struck by Train

November 12, 2020

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## Abbreviations and Acronyms

<b>AIMS</b>	Advanced Information Management System
<b>ARS</b>	Audio Recording Service
<b>CENV</b>	Vehicle Program Services
<b>CM</b>	Chain Marker
<b>DCFEMS</b>	District of Columbia Fire Emergency Management Support
<b>MOC</b>	Maintenance Operations Center
<b>MSRPH</b>	Metro rail Safety Rules and Procedures Handbook
<b>MTPD</b>	Metro Transit Police Department
<b>NOAA</b>	National Oceanic Atmospheric Administration
<b>OSC</b>	On Scene Commander
<b>ROCC</b>	Rail Operations Control Center
<b>RTC</b>	Rail Traffic Controller
<b>RTRA</b>	Office of Rail Transportation

**Executive Summary**

On Friday, November 12, 2020, at approximately 22:42 hrs., a non-revenue train [Train ID 837 consist [L 6176-77x6157-56x6083-82x6124-25T] on Track 1 traveling outbound in the direction of Glenmont Station, entered Union Station platform limits and made contact with a person on the roadway. The Train Operator of Train ID 837 notified the Rail Operations Control Center (ROCC) Radio Rail Traffic Controller (RTC) of the collision. The Radio RTC acknowledged the transmission, dispatched a Rail Transportation (RTRA) Supervisor and attempted to ascertain if the Train Operator was coherent. The Radio RTC asked the Train Operator were able to perform Metrorail Safety Rules and Procedures Handbook (MSRPH) Standard Operating Procedure (SOP) #26 Person Hit by Train processes to verify the location and status of the person. Note: During training sessions [TableTop discussions], ROCC management instructed personnel to check Train Operator's condition before assigning any task associated with an event.

The Train Operator notified the Radio RTC that they were not in distress and could proceed with SOP #26. An Office of Rail Transportation (RTRA) Supervisor notified the Radio RTC that they were on a revenue train at Union Station, Track 2. The Radio RTC instructed the RTRA Supervisor to exit the train to assist and appointed the RTRA Supervisor as the On-Scene Commander (OSC). Based on Advanced Information Management System (AIMS) Playback, at 22:41 hrs., the Buttons RTC de-energized third rail power on Track 1. At 22:42 hrs., the OSC positioned on the platform notified the Radio RTC that they located the person utilizing a flashlight under Car 6177 and reported signs of life.

The ROCC Assistant Superintendent notified the District of Columbia Fire Department (DCFD), and the Maintenance Operation Control (MOC) Assistant Superintendent notified Metro Transit Police Department (MTPD) at approximately 22:43 hrs.

The Radio RTC instructed the OSC to perform a ground walk around utilizing Foul Time (FT) and verify that third rail power is de-energized. The Radio RTC then instructed the Train Operator to apply the hand brake on car 6176. An MTPD Officer arrived on the scene at 22:50 hrs. The Radio RTC appointed the MTPD officer as the OSC and appointed the RTRA Supervisor as the RTRA Forward Liaison. The DCFEMS arrived on the scene at approximately 22:51 hrs. At 22:54 hrs., the RTRA forward Liaison notified the Radio RTC that the third rail was confirmed de-energized at Chain Marker (CM) B1-067+00. An additional RTRA Supervisor arrived on the scene at approximately 22:57 hrs., and the Radio RTC appointed the RTRA Supervisor, the RTRA Incident Command Liaison (RTRA IC Liaison). The Radio RTC dispatched the RTRA IC Liaison to the Incident Command Post located outside Union Station at the Battalion Chief's vehicle.

The DCFEMS removed the injured person from the roadway at 23:12 hrs. The person was then transported to Medstar Washington Hospital Center with unidentified severe injuries to both legs and listed as in critical condition.

At approximately 23:29 hrs., DCFEMS cleared the scene and relinquished control to MTPD to perform their incident investigation. At 00:13 hrs. MTPD requested third rail power be re-energized to move Train ID 837 in Judiciary Square's direction and complete their investigation. Upon clearing Train ID 837 from Union Station platform limits, MTPD entered the roadway to continue investigating the incident.

At approximately 00:36 hrs., MTPD relinquished control of the incident scene to RTRA. Plant Maintenance Department (PLNT) personnel were standing by on the platform and permitted to enter the roadway under FT to disinfect the roadway in preparation for mainline restoration. At 02:24 hrs., third rail power was re-energized at Union Station, Track 1. At 02:30 hrs. RTRA transported Non-Revenue Train ID 837 to Brentwood Yard for post-incident inspection.

Based on the Vehicle Monitoring System (VMS) data, Train ID 837 entered the Union Station, Track 1, and initiated an emergency brake sequence after the Master Controller was placed in the Emergency Position, with a train speed of 30 MPH. The estimated speed at which the person was struck by the Train was 28 MPH. The Emergency Mushroom was activated with train speed at 19 MPH. The Train came to a complete stop approximately 191 feet after the Train Operator activated emergency braking. Based on Vehicle Program Services (CENV) analysis, there was no data to support any anomalies with the consist that may have contributed to this incident.

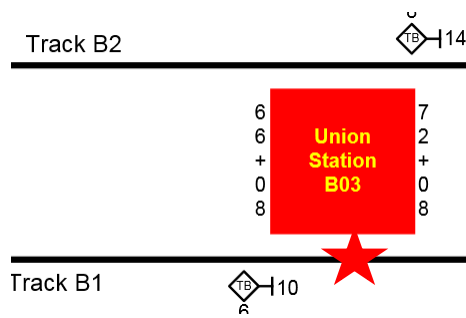
The probable cause of the Union Station Person Struck by Train event on November 12, 2020, was a person intentionally placing themselves in the train's dynamic envelope by jumping to the roadway as the train approached.

An analysis of data collected from systems of record, SAFE concludes, there were no safety deficiencies related to any WMATA station facility, vehicle, or human factor components that contributed to the Person being struck by the train.

**Incident Site**

Union Station, Track 1

**Field Sketch/Schematics**



**Purpose and Scope**

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

### **Investigation Process and Methods**

Upon receiving the Person Struck by Train notification at Union Station on November 12, 2020, notification SAFE launched a cross-functional investigation into this event. SAFE team members worked with relevant WMATA subject matter experts to review the incident's facts and data.

The investigative methodologies included the following:

- Physical Site Assessment
- Formal Interviews – SAFE will interview two (2) Individuals as part of this investigation. Interviews will include persons present during and/or after the incident and those directly involved in the response process.. SAFE interviewed the following individuals:
  - Train Operator
- 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
  - Certifications
  - 30-Day work history review
  - MSRPH
  - National Oceanic Atmospheric Administration (NOAA) data review
  - Maximo
- System Data Recording Review – A collection of information contained in Metro Data Recording Systems. This data includes:
  - ARS playback [Radio and Phone Communications]
  - AIMS playback Review
  - CCTV Review

### **Investigation**

On Thursday, November 12, 2020, at approximately 22:39 hrs., Train ID 837 Train Operator [non-revenue] notified the ROCC Radio RTC their train made contact with a person on the roadway Union Station, Track 1. The Radio RTC acknowledged the transmission and tried to ascertain if the operator was coherent and able to perform their duties regarding SOP #26 Person Hit by Train operations and procedures. The Train Operator reported they were able to conduct the functions associated with SOP #26 and that their lead car was 6176. An RTRA Supervisor notified ROCC that they were aboard a revenue train towards Gallery Place Station, Track 2. The Radio RTC instructed the RTRA Supervisor to exit the train at Union Station to assist the Train Operator and appointed the RTRA Supervisor as the OSC.

The AIMS playback determined the Button RTC de-energized Union Station third rail power at 22:41 hrs. At 22:44 hrs., the MOC Assistant Superintendent notified the Automatic Train Control (ATC) specialist desk to dispatch ATC to the adjacent interlockings to support single track operations. The MOC Assistant Superintendent requested Power and Plant personnel to provide additional assistance and clean-up efforts.

The ROCC Assistant Superintendent notified the DCFEMS, and the Assistant Superintendent contacted the MTPD. At approximately 22:44 hrs. ROCC implemented single track operations between Union Station and NOMA Gallaudet Station via Track 2. The OSC reported that they located the person under Car 6177 and displayed signs of life. The Radio RTC instructed the OSC to perform a ground walk around and verify that third rail power was de-energized utilizing FT RWP.

MTPD arrived on the scene at approximately 22:50 hrs. the Radio RTC appointed the MTPD officer as the OSC and appointed the RTRA Supervisor as the RTRA Forward Liaison. DCFD arrived on the scene at approximately 22:51 hrs.

At 22:54 hrs., the RTRA forward Liaison notified the Radio RTC that the third rail was confirmed de-energized at CM B1-067+00. At approximately 22:57 hrs., an additional RTRA Supervisor arrived on the scene, was appointed the RTRA Incident Command Liaison, and dispatched to the Incident Command Post located outside Union Station in the Battalion Chiefs vehicle.

The unidentified person sustained severe injuries to both legs. DCFD removed the injured Person from the roadway at 23:12 hrs. The person was then transported to Medstar Washington Hospital Center and listed as in critical condition.

At approximately 23:29 hrs., DCFD cleared the scene and relinquished control to MTPD to conduct their incident investigation. At 00:13 hrs. MTPD requested third rail power be re-energized to move Train ID 837 in the direction of Brentwood Yard and complete their investigation. Upon clearing Train ID 837 from the platform limits, MTPD entered the roadway to continue investigating the incident.

At approximately 00:36 hrs., MTPD relinquished control of the incident scene to RTRA. PLNT personnel were standing by on the platform and permitted to enter the roadway under FT protection to disinfect the roadway in preparation for mainline restoration. At 02:24 hrs., third rail power was re-energized at Union Station, Track 1. Subsequently, RTRA transported the Train Operator for post-incident toxicology testing.

### **Chronological Event Timeline**

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

Time	Description
22:39:35 hrs.	Non-Revenue Train ID 837 reported an EMERGENCY, EMERGENCY, EMERGENCY a person jumped in front of their train. [Radio]
22:41:01 hrs.	Third rail power was de-energized Union Station, Track 1. [AIMS]
22:42:17 hrs.	OSC reported that the person is located beneath car 6177, displaying signs of life. [Radio]



22:50:22 hrs.	ROCC Assistant Superintendent notified DCFD to report the incident. MOC Assistant Superintendent notified MTPD to report the incident and request assistance. [Phone]
22:50:48 hrs.	MTPD arrived at Union Station; ROCC appointed the RTRA Supervisor, the RTRA Forward Liaison. [Radio]
22:51:00 hrs.	DCFD Arrived at Union Station. [Radio]
22:57:05 hrs.	An additional RTRA Supervisor arrived at Union Station; ROCC instructed the Supervisor to respond to the Incident Command post located outside Union Station in the Battalion Chief's vehicle. [Radio]
22:54:10 hrs.	RTRA Supervisor confirmed third rail power de-energized track 1 Union Station CM B1-067+00. [Radio]
23:13: 03 hrs.	The person was removed from the roadway and transported to Medstar Washington Hospital Center. [Radio]
23:29:42 hrs.	RTRA Forward Liaison reported that DCFD personnel and equipment were clear of the roadway. DCFD cleared the scene and relinquished the incident scene to MTPD. [Radio]
00:19:27 hrs.	The Incident train moved in the direction of Judiciary Square for further investigation.
00:36:22 hrs.	MTPD cleared the scene and relinquished the incident scene to RTRA. [Radio]
02:24:14 hrs.	Normal service resumed at Union Station, Track 1. [AIMS]
02:30:48 hrs.	Non-Revenue Train ID 837 moving to Brentwood Yard. [AIMS]

### **Metro Transit Police Department**

Initial Digital Video Evidence Unit (DVEU) review advised the individual appeared to intentionally place themselves in the train's dynamic envelope by jumping into the roadway as the train approached.

At approximately 22:39 hrs., MTPD Crime Investigation Division (CID) received a call for service reporting a person had been struck by a train at Union Station. MTPD units and DCFD responded to the scene; DCFD removed the person from the roadway and transported to MedStar Hospital. The person sustained significant injuries to their legs. The person was conscious, breathing, and speaking to emergency personnel when transported to the hospital. CID units responded to the scene and the hospital.

A review of the video revealed the person used a SmarTrip card to enter the station on the station's Massachusetts Avenue side. The person sat on a platform bench for several moments, using a cell phone. The person then paced back and forth on the platform for a short time before jumping on the roadway and intentionally placing themselves in the path of an oncoming train. RTRA personnel transported the incident car to Brentwood Yard

### **Vehicles Program Services (CENV)**

#### ER Data Graph/Sequence of Events

Based on CENV analysis of the downloaded VMDS and ER. Details from the data analysis are as follows:

Date: 11/12/2020 Time: 22:39 hrs.  
Final Report Rev. 1 – Person Struck by Train  
E20436

Drafted By: SAFE 703 – 03/31/2021  
Reviewed By: SAFE 704 – 03/31/2021  
Approved By: SAFE 2 – 03/21/2021

Time	Description
22:31:27 hrs.	Non- Revenue Train ID 837 entered Union Station Platform Lead car 6176 Master Controller in a coast position. Train speed 31 MPH.
22:31:33 hrs.	Before entering the platform, the Master Controller is placed in the EMERGENCY POSITON. Train Speed 30 MPH. Train initial emergency sequence.
22:31:34 hrs.	Estimated time person was struck by a train at a speed of 28 MPH.
22:31:37 hrs.	Emergency Mushroom is activated train speed 19 MPH no-slip correction at this time.
22:31:42 hrs.	The train came to a complete stop. The train traveled 191 feet after Train Operator activated emergency braking.
22:31:27 hrs.	Non- Revenue Train ID 837 entered Union Station Platform Lead car 6176 Master Controller in a coast position. Train speed 31 MPH.

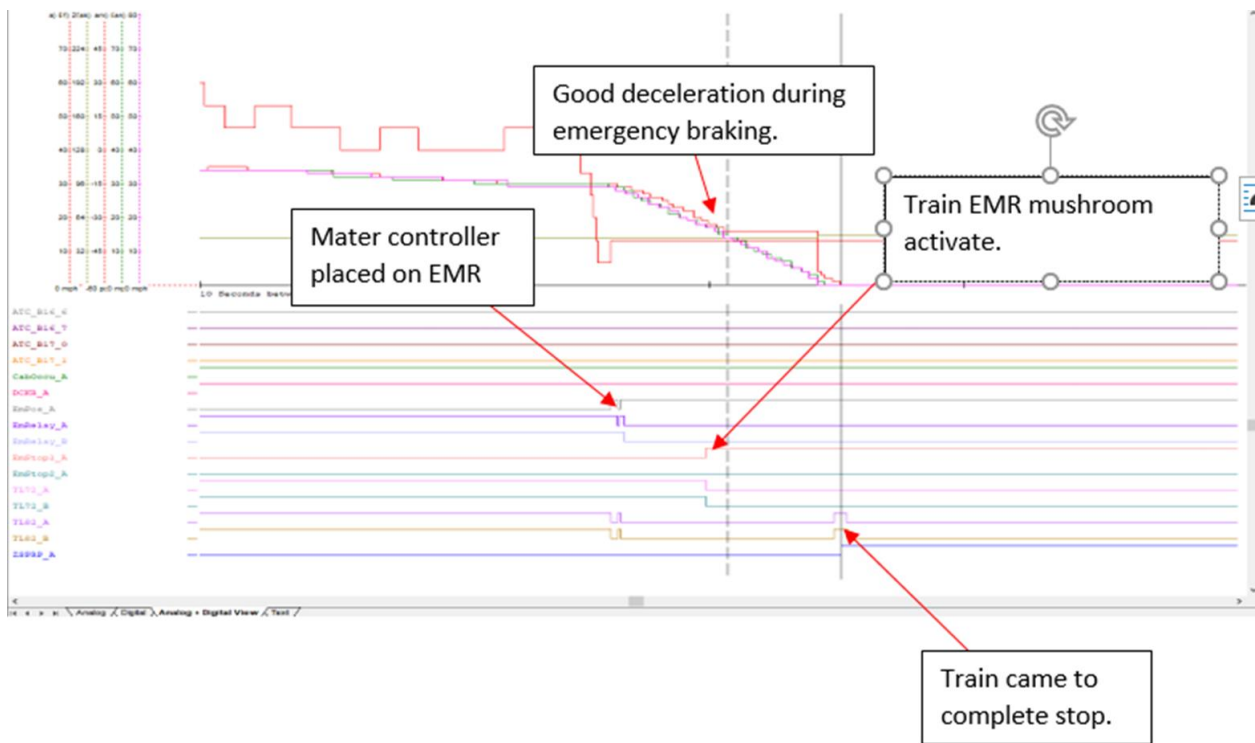


Diagram 1- ER Graphical Analysis

### **Station Site Assessment**

SAFE conducted a site assessment and determined no slip or trip hazards present to contribute to this event. All platform emergency notification equipment was working as designed.

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

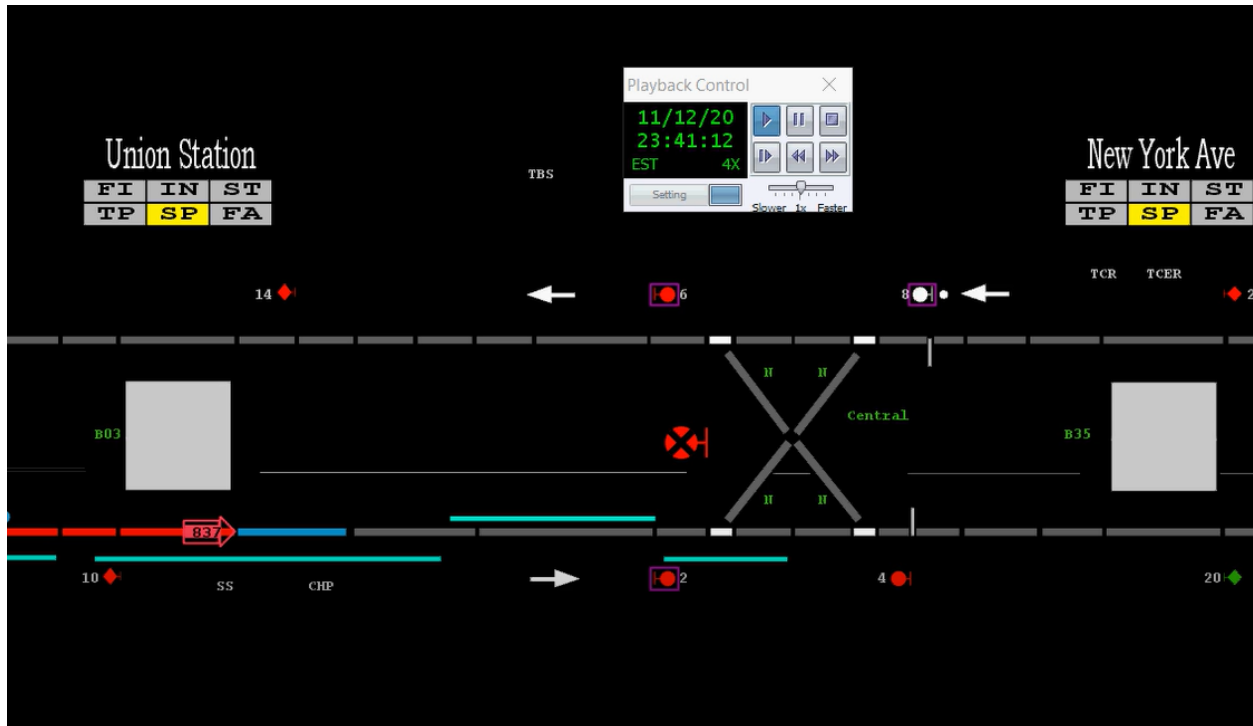


Diagram 1- ER Third Rail Power De-energized at Union Station.

### **Closed Circuit Television**

Based on a review of the CCTV playback of the Union Station platform, it revealed the following information related to the person who was reported being struck by the Train:

- The person was traveling alone.
- The person appeared to sit on a platform bench for several moments, using a cell phone.
- The person then paced back and forth on the platform for a short time before jumping on the track bed and intentionally placing themselves in the path of an oncoming train.

### **Interview Findings**

Based on the investigation launched into the Union Station Person Struck by Train, SAFE conducted one (1) virtual interview, including the investigation team and relevant Metro management. These interviews were conducted over one week after the event and identified the following key findings associated with this event, as follows:

Before the incident, the customer used a SmarTrip Card to enter the Station and placed themselves in the dynamic envelope of the train on track one.

### **Findings**

- WMATA personnel complied with SOP 1A and SOP #26 procedures when responding to this event.
- Before the incident, the person used a SmarTrip Card to enter the station and placed

- themselves in the dynamic envelope of the train on track one.
- Based on CCTV playback, the person intentionally placed themselves on the roadway in front of the oncoming Train ID 837.
- Based on a post-incident Station inspection, SAFE did not identify any slip or trip hazards that may have contributed to this event.

### **Weather**

At the time of the incident, NOAA recorded the temperature at 53° F, with no visibility restrictions. SAFE has concluded that weather was not a contributing factor in this incident (Weather source: NOAA – Location: Washington, DC.)

### **Human Factors**

#### Fatigue

Based on SAFE interview question related to Fatigue Factors and a review of all employees' 30-day work history, SAFE determined, the employees' hours of service were in accordance with WMATA's *Fatigue Risk Management Policy 10.6*

#### Post-Incident Toxicology Testing

After reviewing all employee post-incident testing results, SAFE determined that the employees involved were not violating the Drug and Alcohol Policy and Testing Program 7.7. 3/5

### **Probable Cause Statement**

The probable cause of the Union Station Person Struck by Train event on November 12, 2020, was a person intentionally placing themselves in the train's dynamic envelope by jumping in front of the oncoming train as it approached.

As a result of the analysis of data collected from systems of record and CCTV review, SAFE concludes there were no safety deficiencies related to any WMATA Station facility, vehicle, or human factor components that contributed to the person being struck by the Train.

### **SAFE Recommendations**

No recommendations as mitigation for this event due to the person intentionally placed themselves onto the roadway fouling the dynamic envelope of the train.

### **Appendix A - Interview Summaries**

Interview Details

## Office of Rail Transportation (RTRA)

### Train Operator

The Train Operator is a WMATA employee with two (2) years of experience as a Train Operator and (19) years of service in various positions as Bus Operator, Train Operator, RTRA Supervisor and Rail Traffic Controller.

Based on the SAFE interview, the Train Operator stated that they were operating non-revenue Train 837 departing Farragut North center track to Brentwood Yard for storage. The Train Operator reported that while they were in approach to Union Station, while they were halfway to the 8- car marker they observed a male customer approaching their train from the platform and then jump in front of their train. The Train Operator reported that they depressed the Emergency Brake [Mushroom] feature on the train and immediately notified ROCC. The Train Operator reported that they were instructed by the Radio RTC to place a handbrake on their lead car and attempted to ascertain the state of the Train Operator. The Train Operator stated that they reported they were fine and awaited assistance from an RTRA Supervisor. The Train Operator reported that when the RTRA Supervisor arrived they performed a ground walk around to check for any signs of life, the Train Operator stated that the RTRA Supervisor also ascertained if the Train Operator was able to perform any duties. The Train Operator stated that upon the completion of the ground walk around the RTRA Supervisor located the customer under car 6177. The Train Operator stated that they were sounding their horn in approach to Union Station to notify customers that the train was not in service and bypassing the station. The Train Operator felt that they did not have enough time to bring their train to a complete stop and that the customer's momentum from the platform had the customer jump toward their train when they entered the roadway. the Train Operator reported that upon clearing the customer from the roadway they were interviewed by MTPD for a statement of events.