

**Washington Metrorail Safety Commission (WMSC)**  
**Findings that require WMATA Metrorail to propose Corrective Action Plans (CAPs)**  
**November 25, 2019**

The WMSC is issuing new findings to address safety issues that have been recently identified. The WMSC Program Standard requires WMATA Metrorail to propose corresponding CAPs and submit them to the WMSC for approval within 30 days of receipt of this notice.

**Station Overruns**

When a train enters a station with intent to service the platform, but either stops past the platform end gate, or travels through the station without stopping, a station overrun has occurred.

In calendar year 2018, WMATA's Safety Department (SAFE) provided safety event notifications of 34 station overruns. As of today, November 25, there have been 48 such notifications in 2019, and there are still five weeks remaining in the year.

WMATA's Rail Transportation Department (RTRA) may tally overruns differently, and we look forward to reconciling how we identify and count overruns. Regardless of how they are measured, each overrun represents an instance in which a train was not being controlled as it should have been. Such a lack of train control could lead to a collision with a train or workers on the track ahead or could lead to a train exceeding track speed and/or passing a red signal, any of which could cause a derailment or other safety event.

The WMSC is concerned that the uptick in reports of station overruns suggests that WMATA needs to be more aggressive about properly quantifying the number of overrun incidents and reducing them.

**Finding:** Metrorail lacks adequate controls to reduce station overruns.

**Metrorail must propose a corrective action that addresses the following:** Instituting improvements to reduce station overruns, including, but not limited to, creating an official definition of what constitutes a station overrun, establishing a rule that governs train speeds on approach to stations, creating a non-punitive labor/management incident review board, and undertaking any other appropriate strategies.

**Note:** The WMSC will convene a Station Overruns Summit in the coming weeks as a collaborative forum for WMATA and WMSC experts to discuss strategies and solutions that should be pursued as CAPs. Although the WMSC welcomes any CAP submission before the summit, we do not plan to start the 30-day CAP submission clock until the summit has been held.

## **Unauthorized Movement After Losing Speed Commands**

At approximately 0048 hours, on October 7, 2019, inbound six-car non-revenue Train No. 700 collided with stationary six-car non-revenue Train No. 755 at Chain Marker C1 052+00, approximately 600 feet west of the Farragut West station limits. At the time of the incident, Train No. 755 was stationary and awaiting a clear signal (i.e., a speed command) due to another train ahead and within the Farragut West station limits.

The collision occurred after the operator of Train No. 700 moved his train without receiving a speed command and without obtaining permission from the Rail Operations Control Center (ROCC), which is contrary to the requirements of Metrorail Safety Rules and Procedures Handbook (MSRPH) Rule 3.79.

Metrorail trains can be moved in the absence of speed commands at less than 15 mph using Stop and Proceed (S&P) mode. Trains must have a means such as S&P mode for moving without speed commands because this is necessary for yard moves, and it permits intentional and careful movement of trains in close proximity to one another when unusual operations are necessary, such as coupling to stranded equipment or evacuating passengers from trains by transferring them from one train to another.

MSRPH Rule 3.79 permits use of S&P mode only after a train operator has requested and received permission from the ROCC, and it requires that the ROCC only grant such permission after establishing a “block” for the move.

The FTA published a study of Metrorail red signal overruns in August 2016. That study included a finding that “WMATA has not fully implemented sufficient protections against the unauthorized movement of trains with zero speed commands,” and a CAP was required to address the issue (FTA-Red-16-003B).

In response to this FTA CAP, Metrorail committed to retrofitting all 6000- and 7000-series railcars with a software change known as the Mode Awareness Tool (MAT). The MAT: (1) ensures that the train operator is aware that he or she is using S&P mode, and (2) records the use of S&P mode in the Vehicle Monitoring System (VMS).

At an Engineering Summit held on October 17, 2019, involving Metrorail and WMSC participants, WMSC staff learned that all 7000-series train have been retrofitted with the MAT, and work is underway to provide the retrofit to the 6000-series fleet. At a follow-up meeting on November 4, 2019, Metrorail committed to retrofitting the 2000- and 3000-series railcars with the MAT, and Metrorail indicated that the entire revenue fleet will have the MAT by spring 2020. (Note that there are no longer any 1000-, 4000-, or 5000-series cars in revenue service.)

The WMSC is pleased that Metrorail has committed to providing the MAT to its entire revenue fleet, but the WMSC is concerned that more effort is required to prevent the unauthorized

movement of trains without speed commands. For example, on October 20, 2019, at 1607 hours, Train No. 908 operated past red signal D13-08 at the New Carrollton station platform. Also, on November 17, 2019, at 0756 hours Train No. 607 operated past red signal G98-32 at Largo station Tail Track 2. Both of these incidents involved 7000-series trains with the MAT modification. These incidents suggest that the MAT is not sufficient to ensure compliance with Rule 3.79.

On mainline tracks, trains receive speed commands from the wayside, and this regulated speed is displayed on the train operator's console. However, the WMSC is aware that there are several mainline locations in which train operators routinely "lose" these speed commands (i.e., the regulated speed readout displays zero). This is often due to rail that has different metallurgical properties. Unrepaired, such frequent losses of speed commands in predictable locations could increase the likelihood of unauthorized train movement.

**Finding:** Metrorail has not fully implemented sufficient protections against the unauthorized movement of trains with lost speed commands.

**Metrorail must propose a corrective action that addresses the following:** Instituting operational improvements such as monitoring and measuring compliance of its rail controllers and train operators with Rule 3.79, raising awareness through training, stand downs, and similar activities, and, conducting non-punitive incident review boards consisting of train operators and controllers involved in Rule 3.79 incidents to better understand opportunities for improvement.

**Metrorail must propose a corrective action that addresses the following:** Creating a map or similar inventory of mainline locations in which train operators routinely lose speed commands, identifying the reason for the loss of speed commands, and proposing a work plan and timetable for correcting these defects.

### **Use of Personal Electronic Devices**

One of the issues in the investigation of the October 7 collision (described above) is whether the use of Personal Electronic Devices (PEDs) may have played a role in distracting the operator of the striking train. PEDs have long been recognized as a source of operator distraction, and Metrorail has had a PED policy in place for several years. That policy establishes zero tolerance for PEDs that are powered on and in the operating compartment of a Metrorail train.

Regardless of whether the use of PEDs played a role in the October 7 collision, investigative activities so far reveal opportunities for Metrorail to strengthen its efforts to prevent unauthorized use of PEDs.

**Finding:** Metrorail must do more to prevent unauthorized use of PEDs.

**Metrorail must propose a corrective action that addresses the following:** Amending its PED policy to require employees to turn over (or cause to be turned over) devices and records upon request, developing a program to actively detect unauthorized presence and use of electronic devices through video review, inspection, and efficiency testing, and raising awareness of the PED policy and inspection activities through training, stand downs, and similar activities.