

**Questions for Dr. David L. Mayer
Chief Executive Officer, Washington Metrorail Safety Commission**

Questions from Chairman Gerald E. Connolly

October 22, 2019, Hearing: “Metro: Report Card for America’s Subway”

RESPONSES OF DR. DAVID L. MAYER

- 1. At the hearing, you stated that the Safety Commission hosted a technical summit to evaluate ways to ensure operators do not move a train when under a “zero speed command.” What lessons learned and best practices emerged at this summit? How will you help ensure these best practices are implemented at WMATA?**

On October 17, 2019, WMSC staff met with WMATA Metrorail staff. This meeting was the “engineering summit” that I had called for at the WMSC’s public meeting on October 8. The summit was very informative and effective and provided my staff and me with a better understanding of ways to tackle the problem of unauthorized movement without a speed command.

Although the investigation of the October 7 collision is still underway, we understand that 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). This practice 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 what is known as Stop and Proceed (S&P) mode. This mode, or procedure, exists in order to provide train operators with a means of moving trains without speed commands for movements in the yard or for unusual operations such as coupling trains to stranded equipment or evacuating trains by transferring passengers from one train to another. MSRPH Rule 3.79, however, 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.

In August 2016, the FTA published a study of red signal overruns on Metrorail and included a finding that “WMATA has not fully implemented sufficient protections against the unauthorized movement of trains with zero speed commands.” Consequently, Metrorail was required to carry out a Corrective Action Plan (CAP) to address the issue. The CAP created in 2016 is known as FTA-Red-16-003B.

In response to the FTA’s findings, 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 it (2) records the use of S&P mode in the Vehicle Monitoring System (VMS).

At the October 17 engineering summit, WMSC staff learned that all 7000-series train have been retrofitted with the MAT and that 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 would have the MAT by spring 2020. (Please 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, and they 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. The WMSC has become 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, which Metrorail refers to as "mismatched" rail. Unrepaired, such frequent losses of speed commands in predictable locations could increase the likelihood of unauthorized train movement.

Based on these facts, on November 25 the WMSC issued findings to WMATA Metrorail concluding that Metrorail had not fully implemented sufficient protections against the unauthorized movement of trains with lost speed commands.

Accordingly, the WMSC directed Metrorail to propose a corrective action that would institute 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.

In addition, the WMSC directed Metrorail to propose a corrective action that would create a map or similar inventory of mainline locations in which train operators routinely lose speed commands, identify the reason for the loss of speed commands, and propose a work plan and timetable for correcting these defects.

The WMSC will remain vigilant in its oversight to ensure Metrorail is making thorough and deliberate progress in carrying out these CAPs, and we look forward to keeping you and your colleagues on the subcommittee informed of our efforts.

2. How many open corrective action plans relate in some way to the October 7th collision at Farragut West Metro station?

The WMSC continues to closely evaluate all CAPs and outstanding actions that relate to the October 7 collision. Of all outstanding CAPs, the one with the most significant relationship to the October 7 collision remains FTA-Red-16-003B, as noted in the previous question. We consider, however, several other CAPs to be related to preventing collisions and thus related to the October 7 event. Those CAPs concern recertification of train operators (CAP No. FTA-R-2-22-B), fatigue management and hours of service (CAP No. C0008), training of rail supervisors (CAP No. FTA-R-2-21-B), ensuring staffing levels at the ROCC are adequate (CAP Nos. C0006 & C0007), that personnel in the ROCC are familiar with and well-informed about the territory and areas of the system over which they direct rail traffic (CAP No. FTA-R-1-3-A), uniform radio communications discipline (CAP Nos. FTA-Red 16-004-A and TOC-Red-15-002-A), train operators experiencing undue pressure to rush through operations (CAP No. FTA-Red-15-007-A), and poor documentation and availability of training records, including that of train operators (CAP No. FTA-R-7-39-A).

In addition, the WMSC recently issued findings that relate in many respects to the collision, and those findings will result in new CAPs. Those recent findings, as noted above, require corrective action that would institute operational improvements to guard against the unauthorized movement of trains with lost speed commands and the creation of a map or similar inventory of mainline locations in which train operators routinely lose speed commands.

Other findings issued last week would require corrective action that would reduce station overruns, including, but not limited to, requiring creation of 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.

A final set of findings issued last week would require corrective action that would help prevent the unauthorized use of personal electronic devices (PEDs) by train operators. These findings require corrective action by WMATA including, but not limited to, amending its Personal Electronic Device 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.

As all of these recent findings were just sent to WMATA last week, WMATA has not yet responded with proposed CAPs – which the WMSC will approve, reject or modify – and consequently we do not yet have CAP numbers for these items. But they will be reflected in our CAP Tracker in the coming days so the public can gauge progress, and we note that WMATA is within the prescribed timeframe to formulate CAPs in response to our recent findings.

Of course these issues by no means represent an exhaustive list of outstanding CAPs and safety matters over which we remain vigilant. But these CAPs and outstanding action most closely relate to the October 7 incident.

3. Are there any open corrective actions that, if addressed, could have prevented the October 7th collision?

As noted above, there are several open CAPs and other outstanding actions that relate to the October 7 collision. If these items are effectively carried out, and if progress is consistently maintained, then WMATA could significantly reduce the likelihood of a recurrence of an incident similar to the October 7 collision. There could be unforeseen events, but from what we know of engineering and operations practices at Metrorail, WMATA's action on open CAPs and other recent findings are critical toward mitigating to an acceptable level the risk of a collision in the future.

4. What will be the role of the WMSC in ensuring the ongoing safety of the Silver Line once WMATA takes ownership of Phase 2 of the new rail line?

The WMSC's role in relation to the ongoing construction of Phase 2 of the Silver Line concerns one of the WMSC's core functions: the safety certification of WMATA's major capital projects. This function means ensuring that WMATA introduces into operations only those projects that are designed, built and tested with industry-accepted engineering and project management approaches that minimize hazards to an acceptable level.

There are governing protocols on what constitutes a hazard, how to accurately assess its risk and how to assess the risk once the remedy is selected. This is not an arbitrary process, but one that undergoes scrutiny by engineers of the Airports Authority and Metrorail. The WMSC is working closely with these entities in evaluating and validating the project, and the WMSCs has been closely involved in project efforts since before the WMSC was certified by the FTA.

In sum, the WMSC has the authority to verify that Phase 2 – as with any major capital project – is ready to be introduced into operations. The WMSC will essentially act as a second, independent set of eyes ensuring that WMATA's decision is sound and based on proper safety protocols. If the WMSC disagrees with WMATA's decision, the WMSC will be in a position to block any opening until such time as proper measures are taken to mitigate hazards to an acceptable level. If such hazards are appropriately addressed, and Silver Line Phase 2 opens, the

WMSC will oversee the new rail line in the same manner and with the same vigilance that it oversees every other line and element of Metrorail.

5. WMSC inherited 48 safety investigations from FTA and completed 13 of them. Can you provide highlights of the remaining 35 investigations?

Upon certification, the WMSC essentially inherited 48 open safety investigations that the FTA had been overseeing in its temporary oversight role. As the new state safety oversight agency (SSOA), the WMSC brought its unique expertise and perspective to bear on these matters and thoroughly considered what future steps ought to be taken with respect to each investigative matter. After extensive review, the WMSC directed WMATA to take certain action with respect to each investigative matter.

Some of these investigations were likely to provide little useful and timely information. Some of these investigations focused on matters that were no longer relevant, as corrective measures had already been taken in the aftermath of the safety event that were in response to matters raised by the event. And some of these investigations contained fact patterns that very closely resembled fact patterns present in subsequent safety events that were also under investigation and for which relevant and helpful data and material were fresher and more likely to be instructive.

Accordingly, the WMSC chose to direct WMATA to close the investigations that it concluded were unlikely to provide findings that could be used to advance timely and relevant safety priorities and to focus on the investigations that could be helpful and instructive.

In total, the WMSC directed WMATA to close thirteen such investigations.

After this process, 35 open investigations remained. Since then, the WMSC has adopted 16 investigations (one additional investigation was adopted but relates to an event that happened after the WMSC was certified.), and now 19 remain open and are on track to be considered soon at a public meeting of the WMSC.

In addition, since certification, the WMSC has directed or required WMATA's launching of new investigations pertaining to unintended decoupling of a train, misrouting of trains, violations of roadway worker protection safety rules (aside from investigations required per the WMSC Program Standard). While there is a matrix of required levels of investigations for various categories of safety events, consistent with its regulatory mandate, the WMSC can require investigations into any safety event necessitating further scrutiny. These new investigations concern matters about which WMATA is required to conduct investigations or which the WMSC believes require special focus, such as matters involving station overruns, distraction, fatigue, and, most recently, flooding in stations.

6. Have you had any difficulty accessing information, locations, or employees needed to conduct your investigations? For example, have you completed an

MOU with WMATA to govern such access? If not, what is the status of that process?

The Compact establishing the WMSC (P.L. 115-54) and the law governing the state safety oversight program afford the WMSC with extensive powers. The Compact, specifically, affords the WMSC with the right to:

- (a) Conduct, or cause to be conducted, inspections, investigations, examinations, and testing of WMATA personnel and contractors, property, equipment, facilities, rolling stock, and operations of the WMATA Rail System, including, without limitation, electronic information and databases through reasonable means, which may include issuance of subpoenas;
- (b) Enter upon the WMATA Rail System and, upon reasonable notice and a finding by the chief executive officer that a need exists, upon any lands, waters, and premises adjacent to the WMATA Rail System, including, without limitation, property owned or occupied by the federal government, for the purpose of making inspections, investigations, examinations, and testing as the Commission may deem necessary to carry out the purposes of this MSC Compact, and such entry shall not be deemed a trespass. The Commission shall make reasonable reimbursement for any actual damage resulting to any such adjacent lands, waters, and premises because of such activities[.]

The WMSC has relied on this language in enforcing its rights to access the Metrorail system as necessary for the WMSC to carry out its mission. Thus far, the WMSC has not encountered any significant obstacles in gaining access to elements of the rail system. One issue the WMSC did encounter, however, concerned access to personnel for post-event interviews as part of the investigation process. The WMSC recognized some confusion existed and simply amended its Program Standard – as the law prescribes – and the issue since then has seemingly been resolved.

As you note, the WMSC is also pursuing an agreement with WMATA. That agreement is designed to govern access to some elements of the rail system. The WMSC is pursuing a limited, narrow agreement that governs such issues as access to electronic records and data and other matters that require specific, well-defined controls that may require greater articulation than what is already afforded by law. For access writ large, however, it is sounder legal and oversight practice for the WMSC to continue to rely on the powers afforded by the Compact instead of possibly risking negotiating away such rights in a global MOU process.

Should the WMSC encounter resistance to its access rights, the WMSC would point to the Compact and take appropriate action to enforce its rights under the law.

The WMSC looks forward to keeping you apprised of this matter and appreciates the Subcommittee's interest and willingness in ensuring that the WMSC has all necessary access to the Metrorail system.

- 7. A fundamental goal of the Safety Commission has been to provide the public clear reporting and information on ongoing WMATA safety investigations and efforts to address safety problems, yet your website is particularly difficult to navigate and often has little or no information available. For example, your website's sections on corrective action plans, enforcement actions, media advisories, and official actions are blank. The press release page contains two press releases: one from 2018 and one announcing your certification in March. How is the Safety Commission meeting its mission to keep the public informed?**

The WMSC appreciates the Subcommittee's focus on the WMSC's website. We are proud of the website and have taken great efforts to provide a platform to keep the public aware of the WMSC's mission and efforts. For an organization that is only eight months old with about a dozen employees and handles a voluminous number of tasks, we are pleased that we have been able to provide the public with a platform as extensive and thorough as our website in such a short period of time.

Many members of the public may be unfamiliar with us, so our website provides a solid background on the need for the WMSC and the region's hard work to establish it. The WMSC's website provides a background and biographies of commissioners and key staff, a calendar of meetings past and future, including very thorough minutes or actions taken at each public meeting. (Please note, the calendar for calendar year 2020 should be up very soon.)

The WMSC's website provides a "Report Safety Concerns" portal, which has proved to be a critically helpful tool in allowing members of the public to report concerns. As WMSC staff has discussed at a recent public meeting, we have acted on the information submitted to us and ensured WMATA took corrective action on a number of safety matters.

The WMSC's website provides our Program Standard, which outlines in extensive detail how we oversee WMATA on a day-to-day basis.

The WMSC's website provides our investigative reports, which, as of this writing, includes 17 extensive reports about all manner of recent safety incidents. We are proud of the transparency these reports provide.

The WMSC's website provides links to job opportunities and procurement opportunities, provided such opportunities are available and timely. These are critical as we build our staff with experienced experts and seek the best services to advance our mission.

The WMSC's website provides every key document that governs the WMSC's management and day-to-day affairs, including all resolutions, manuals, policies. Likewise, we are proud of the transparency reflected in these documents.

You note several areas of the website where information appears to be forthcoming or not-yet-available.

First, open CAPs are indeed mentioned on the website. We posted the CAPs Tracker shortly before the October 22 hearing and we are pleased the public can use it to follow along with our work on these important safety matters.

Second, the WMSC has a place on the website regarding enforcement actions. In our initial eight months, we have found success ensuring compliance without having to take any official enforcement action; however, taking enforcement action is indeed something we will do whenever necessary. Similarly, the WMSC has a place on the website regarding official actions. This link may very well be redundant with other matters, so we may remove the tab, as many of our efforts considered official actions are reflected in the WMSC's resolutions elsewhere on the website.

Third, you note our press-related area of the website. Indeed, the WMSC has issued a small number of releases or advisories in recent months, as we have found Twitter to be a more effective and timely way to engage our public stakeholders. Since certification, the WMSC has posted almost 40 Tweets, which reflect pertinent information about our inspections, oversight of Phase 2 of the Silver Line, station flooding events, investigations, and so forth. We worked hard on October 7 and the days after to use Twitter to keep the public informed about breaking developments regarding the collision. We found the public to be quite appreciative of our engagement during the week of October 7 and since certification and we continue to strongly encourage anyone interested in our work to follow us @MetrorailSafety.

Of course, if you are experiencing difficulties navigating the WMSC's website, please let us know about any specific hurdles. We find it rather user-friendly, but we're always looking to improve it and make it better.

8. What steps will the Safety Commission take to improve its public engagement?

We are proud of our public engagement and will continue, among many actions, to host monthly meetings, keep our website helpful, Tweet regularly and engage with press and the public with regard to key WMSC actions and other items that arise that the public should know about and are of concern to your constituents. We especially welcome anyone interested in our work to attend one of our public meetings to see first-hand our transparency and efforts overseeing the Metrorail system.

RESPONSES OF DR. DAVID L. MAYER

Questions for Dr. Mayer

- 1. WMATA has spent millions of dollars trying to improve safety through initiatives like SafeTrack, capital investments, and preventative track maintenance. Given how much has been spent, do you think that these investments are producing the needed results to reduce safety incidents?**

There are areas where the WMSC believes WMATA has made progress in recent years, such as track inspections and preventive track maintenance. It is imperative that this success continue, and in this area and in others, the WMSC is focused on ensuring that advancements sustain themselves and the WMATA does not regress on improvements.

In the eight months since certification, the WMSC has yet to see anywhere in which WMATA is mispending money in such a way that compromises safety. Of course, if the WMSC does find that financial resources are being misdirected, the WMSC will avail itself of the powers in the WMSC Compact and will order WMATA to redirect spending on proper activities.

- 2. As a newly founded safety commission, what authorities do you foresee WMSC needing from Congress?**

The WMSC has found that it has extensive authorities under the WMSC Compact, and, at this time, does not foresee needing additional authorities. Of course the WMSC is a new entity and has not yet needed to fully test and flex all of its authorities. Accordingly, should the WMSC find any authorities are lacking or that any of its powers fail to provide the WMSC with proper ability to compel corrective action at Metrorail, then the WMSC will apprise Congress and the jurisdictions of any need to amend the Compact or other law.