

Tri-State Oversight Committee (TOC)



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Transportation

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Eloy Recio
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Rail Transit Special Safety Study – Roadway Worker Protection (RWP)

Washington Metropolitan Area Transit Authority Metrorail System

Conducted May & December 2009

Draft Final Report
December 31, 2009

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1. Introduction

The Tri-State Oversight Committee (TOC) serves as the designated State Safety Oversight (SSO) Agency (as required under 49 CFR §659) for the Washington Metropolitan Area Transit Authority (WMATA) Metrorail fixed guideway transit system. As part of its SSO responsibilities, TOC periodically conducts assessments of issues that affect the safe operation of WMATA's rail transit system. Personnel safety and operational safety are among the SSO Program's most critical review areas.

TOC intensified its focus of safety in the WMATA right-of-way (ROW) following three incidents in which a total of four WMATA employees were killed while working in the ROW in 2005 and 2006:

- October 1, 2005 at Braddock Road
- May 14, 2006 at Dupont Circle
- November 30, 2006 at Eisenhower Avenue (two employees killed)

During the 2007 Triennial Safety and Security Review at WMATA, TOC issued the following Findings related to WMATA's roadway worker protection (RWP) program:

Finding 10. It appears that the track worker protection rules set forth in Special Order 07-02 are being consistently violated and are not properly enforced.

Finding 14. The Right-of-Way Training program should be more structured and cover topics more specifically.

WMATA took corrective steps to address these two findings, issuing Special Order 07-06 to supersede 07-02 as well as parts of the current (2004) WMATA Metrorail Safety Rules and Procedures Handbook (MSRPH), and updating the syllabus for its Employee Right-of-Way Training program. TOC accepted these as appropriate corrective actions, and has since closed both of the Findings from the 2007 Triennial Review.

However, due to the safety-critical nature of RWP, and following discussions with WMATA managers after the issuance of the Findings, TOC sought to follow up on WMATA's RWP program to ensure that WMATA was successfully implementing its own enhanced policies and procedures.

During May and December 2009, TOC reviewed WMATA's RWP program. This follow up assessment was intended to verify the implementation and enforcement of improvements to WMATA's RWP program in the wake of the employee fatalities and the findings from the 2007 Triennial Safety and Security Review. The assessment consisted of the following components:

- A review of WMATA's RWP plans, policies, procedures, and training program.
- Interviews with WMATA managers involved in the implementation of the RWP program, including representatives from Safety, Quality Assurance (QA), Rail Operations/

Transportation, the Operations Control Center, and systems/maintenance departments whose employees perform work in the ROW, as well as front-line employees from those departments.

- A review of records of RWP audits and enforcement activities, including efficiency checks/ride checks/rule compliance checks, control center logs, etc.
- Field observations and verification activities.

TOC completed three of the four above-listed review components in May 2009, but was unable to complete field observation and verification activities until December 2009. In the interim period, WMATA experienced two more fatalities of employees in the ROW:

- August 9, 2009 at Dunn Loring
- September 10, 2009 at Braddock Road

The methodology and results of TOC's review are documented in the following report.

TOC provided a written summary of the review team's preliminary findings to WMATA on December 11, 2009. Additionally, TOC discussed its preliminary findings with WMATA managers during a December 11, 2009 conference call. This information was provided with the goal of giving WMATA time to develop an interim response to the identified issues.

This report and its Findings are submitted to WMATA's Safety Department, with the expectation that the department will analyze them, review them with appropriate WMATA personnel, and develop appropriate Corrective Action Plans (CAPs) to address each Finding. TOC respectfully requests that WMATA assemble a timely written response to this report, including details of its analysis and disposition of each Finding identified therein. **WMATA should submit the written response with the proposed CAPs to TOC for review and approval no later than January 31, 2010, and earlier, if practical. All CAPs must be developed in accordance with the requirements set forth in the TOC Program Standard and Procedures (February 2009).**

This review examines three major RWP areas for Metrorail:

- Implementation and operating practices
- Rules and procedures
- Training

TOC observed serious violations of WMATA's RWP rules and procedures, and as such believes that WMATA's RWP program is not effective as it is currently written, applied, and enforced. Additionally, TOC believes that the training received by WMATA employees and contractors for ROW safety is not adequate, and that the training requirements are inconsistently applied. WMATA should take immediate, short-term action to better ensure the safety of workers in the ROW. The adverse issues with the RWP program stem from the appropriateness of the rules and procedures themselves, their implementation, physical characteristics of the Metrorail system, training inadequacies, and apparent organizational and cultural issues. More detailed Findings are described below in support of this general assertion.

1.1 Roadway Worker Protection Review Criteria

Rules, training, and practices were:

- Objectively reviewed for consistency, compliance, and implementation.
- Compared to external standards including the American Public Transportation Association (APTA) draft *Standard for Roadway Worker Protection Requirements*.
- Compared with industry best practices.

1.2 Implementation and Operating Practices

The review team assessed control center communications, interviewed operations and maintenance personnel regarding RWP practices, examined completed job and safety briefing forms, and assessed field implementation of both fixed work areas and moving work areas (such as a crew of Track Walkers moving from point to point), from both the wayside and train operator's perspectives.

1.3 Rules and Procedures

The review examined documentation including the WMATA MSRPH, Special Order 07-06, and supplemental information from operating and maintenance departments. During this stage, the review team sought to establish that WMATA has appropriate RWP rules and procedures in place.

1.4 Training

All of the TOC members and their agents who comprised the review team successfully completed WMATA's Employee Right-of-Way Training class (generally referred to hereafter as the "ROW class"). The review team also discussed supplemental training regimes, such as safety briefings, job briefings, WMATA's "Safety Contacts," and "Safety Conversations."

2. Metrorail Roadway Worker Protection

2.1 Metrorail Roadway Worker Protection Implementation and Operating Practices

2.1.1 Control Center

The TOC review team interviewed the Director of Operations Central Control (OCC), as well as a Line Controller, to discuss how OCC administers WMATA's RWP program. The formal procedures for OCC's role in RWP are generally described by Special Order 07-06, and relate specifically to the communication with train operators and employees working in the ROW. Controllers appeared to keep track of personnel on the ROW using the "Maintenance Personnel Track Access" form, though there did not appear to be any formal procedure or requirement associated with tracking personnel on the ROW. This issue is also described in a Finding later in this report.

2.1.2 Inspection and maintenance along the ROW

The review team interviewed maintenance managers and front-line employees to discuss safety in the ROW and general implementation of RWP rules and procedures. The reviewers then accompanied WMATA employees performing work in the ROW to observe compliance with WMATA's RWP rules and procedures. The team split up to observe a representative sample of trains passing through areas with workers present, and a representative sample of locations throughout the Metrorail system. During field observations, the most time was spent observing walking track inspections during the mid-day off-peak period from approximately 10:00 am to 2:00 pm. However, the review team also observed other employees from the Track Structures/Systems Maintenance Department (TSSM), as well as the Office of Infrastructure Renewal Program (IRPG), during late evening "early outs," whereby work in a fixed location commences prior to the end of revenue service. In all instances, the review team attended safety briefings with the employees prior to beginning work in the field. The review team was able to observe RWP implementation by the employees, as well as trains passing through and radio communications. Note that the review team did not measure train speed, but did make general estimates based on visual observations.

2.1.3 Train operation in the vicinity of employees in the ROW

The review team interviewed managers and front-line employees from Rail Transportation (RTRA). The reviewers also conducted observations from on-board revenue trains passing through areas where employees were working in the ROW in order to observe RWP rule compliance by train operators. All observations were made out the front window of the train, from directly behind the operator's cab. The review team listened to OCC announcements in order to track the known location of employees in the ROW, and was able to directly observe the train speedometer to determine compliance with rule speeds associated with Special Order 07-06.

Findings

Finding 1. The review team observed several critical RWP rule violations by train operators in the vicinity of employees working in the ROW.

- One of the review teams experienced a near-miss situation when a train that appeared to be operating at full track speed passed the employees working along the ROW without appearing to slow down at all or acknowledge the employees' presence in any other way, in direct violation of Special Order 07-06 (3.87). Though there were no injuries, the employees and review team members were forced to quickly scramble out of the way to avoid being struck by the train in question due to the speed with which it appeared to approach. At the time of this report, this incident is still under investigation by WMATA.
- The review team observed multiple instances of trains speeding up to what appeared to be greater than 10 mph prior to fully clearing personnel on the ROW, in violation of Special Order 07-06 (3.87d).
- The review team observed general non-compliance with Special Order 07-06 (3.87b) which states:

“Upon being notified of personnel on the right-of-way, train operators approaching or in the affected area (2-stations prior to work crew or site) shall stop and switch to [manual mode] and operate the train at a speed no greater than 35 mph. Note: Affected area begins two (2) stations prior to a known work site or crew.”

This portion of Special Order 07-06 does not appear to be applied or enforced, in general. These observations were made from on-board a train with a clear view of the speedometer, as well as from the ROW.

WMATA should take immediate short-term corrective action to address these safety-critical rule compliance issues. WMATA should also evaluate all of the rules and procedures governing RWP, including, but not limited to, procedures set forth in Special Order 07-06. WMATA should determine whether they effectively facilitate the safety of employees in the ROW as currently written, or if some modifications should be made to accommodate more practical considerations of WMATA's operating environment. WMATA should provide documentation of its actions to address these issues to TOC.

Finding 2. The review team observed several critical RWP implementation issues by employees working in the ROW.

- The reviewers observed multiple instances of more than one adjacent employee working in the ROW giving hand signals to trains simultaneously.
- Although MSRPH 3.148 states that “employees assigned to flagging duties shall not be assigned to perform any other duty,” this prohibition does not appear to be extended to “lookouts” or “watchpersons,” which is related to, but distinct from, flagging trains.
- The reviewers observed an employee working in the ROW use a Blackberry to contact OCC to report a safety rule violation by a train operator (rather than a radio). WMATA's Special

Order 08-05 states that “if job-related cellular communications are required, stop work activities and make or receive the call from a place of safety.” This language does not make clear what types of cellular communications may be permissible, nor does it connote what constitutes a “place of safety.”

- The reviewers observed multiple instances of employees working in the ROW using an improper “proceed” signal. This included a wrist-flick rather than a full vertical arm motion, as well as an instance of proceed signals given without a flashlight while in a dark environment.
- The reviewers observed an instance of employees working in the ROW who had their backs to a passing train. (This observation was made from on-board a train).

The review team is aware that the majority of employees observed working in the ROW generally did comply with WMATA’s RWP rules and procedures. However, it is the expectation of the TOC that given the criticality of these rules for safety, there should be full compliance with them. WMATA should take immediate short-term actions to address the issues described in this Finding, and provide documentary evidence of these actions to TOC by January 31, 2010.

Finding 3. WMATA front-line employees indicated to the review team that OCC generally does not announce the presence of workers often enough to be useful, and that the location information provided over the radio is not helpful for train operators in providing advanced warning of employees in the ROW.

Special Order 07-06 requires OCC to make periodic announcements (at least every 20 minutes) on the location of employees working in or near the ROW (4.180.1a). However, the limits of these locations are given between stations, which may be several miles in length, and this information is not necessarily helpful to a train operator if the employees are located in a restricted visibility area. Additionally, there is no communications process in place to ensure that train operators hear and understand OCC’s announcements of the location of employees in the ROW. WMATA should thoroughly evaluate its communications policies and procedures related to RWP and revise them to better ensure that train operators are aware of the locations of employees working in the ROW, whether through verbal acknowledgment over the radio by train operators, or some other means.

Additionally, due to the large volume of OCC announcements, particularly when workers are present in the ROW, combined with train operators’ duties to make station and other announcements, WMATA should evaluate the announcements duties of its train operators to determine whether they are adequately able to hear and understand critical OCC communications. Based on the results of such an evaluation, WMATA may want to consider various mitigation strategies. WMATA should provide documentation of this evaluation process to TOC.

Finding 4. The definition of “clear” is not explicit in the context of radio communications between OCC and employees working in the ROW.

The review team observed “clear” used to indicate both “clear of the ROW” (i.e., no longer fouling) and “clear of a specific fixed location,” but still fouling the ROW. WMATA should clarify the definition of this term and how it is to be used in radio communications, and provide evidence of this clarification to TOC.

Finding 5. The review team observed multiple instances of OCC making announcements regarding the presence of workers in the ROW, when those workers were not observed to be present.

Either the employees working in the ROW did not properly notify OCC that they had completed their work and had cleared the ROW, or else OCC failed to properly announce that the employees had cleared the ROW after they were contacted by some other means (e.g., wayside phones, cell phones, etc.). WMATA should evaluate its procedures for employees clearing the ROW to better ensure that OCC is able to effectively communicate whether workers are present in a given location, and provide evidence of this evaluation to TOC.

Finding 6. Based on conversations with front line employees, there appears to be some degree of antagonism between employees working in the ROW and Train Operators.

It was reported to the TOC review team that employees working in the ROW who contact OCC to report rule speed or other violations by train operators may be subject to “retaliation” by other train operators (e.g., through excessive and unnecessary horn use, beyond that which is required for safe operation). It was also reported that some train operators believe they are unfairly targeted for the reporting of rule violations by employees in the ROW to OCC. WMATA should take immediate corrective actions necessary to remedy this situation, and provide documentation of this process to TOC.

Finding 7. There is no clear nexus between the rule compliance checks performed by line supervisors and Quality Assurance (QA) personnel, and the general rail system safety activities ostensibly under the purview of the Safety Department (SAFE).

The QA Department is tasked with performing audits of rail operating rule compliance, including compliance with RWP rules and procedures. Additionally, line supervisors are required to perform rule compliance checks. However, beyond the discipline of individual employees for specific instances of a rule violation, WMATA does not appear to have a formal process in place for the analysis of the results of such audits and checks in a manner that guides system safety activities. Specifically, SAFE has no role in the compliance check program, nor is SAFE provided with the results of the checks. As such, SAFE remains unaware of trends in overall rule compliance, and therefore is unable to work with the rail departments to develop appropriate corrective actions in response to problems with overall rule compliance. SAFE is ostensibly responsible for system safety activities such as facilitating internal safety audits and developing appropriate corrective action plans to address the findings from such audits. WMATA should develop appropriate formal written policies and procedures that link the rule compliance and enforcement activities of QA and line supervisors with SAFE in such a way that allows SAFE to

effectively monitor and address system safety issues, including trends in overall rule compliance. WMATA should submit documentation of the development of these policies and procedures to TOC.

Finding 8. The review team observed a string of Emergency Trip Stations (ETS) whose “blue lights” (the visual marker of their location) were non-functional.

Although WMATA noted these blue lights for repair on 12/2, these same lights remained non-functional during a subsequent visit to the same area by the TOC review team on 12/10. It is important to ensure that ETS boxes remain highly visible to employees in the ROW who may be required to use them in exigent circumstances. WMATA should take appropriate action to repair these blue lights and submit documentation of this process to TOC.

Finding 9. The review team observed housekeeping issues along the ROW that pose potential slip/trip/fall hazards to employees.

MSRPH rules 4.55, 4.57, and 4.60 did not appear to be generally applied in the ROW. The reviewers noted numerous nuts, bolts, tie plates, pandrol clips, and wood ties littering the ROW. WMATA TSSM employees indicated to the reviewers that maintenance and inspection crews are not responsible for the removal of the debris. Additionally, the reviewers observed several clogged/block drain inlets. The blocked drains resulted in pools of standing water, which may pose a hazard to employees. WMATA employees indicated to the reviewers that Structures Maintenance is responsible for clearing drains. WMATA should work to improve compliance with all housekeeping-related rules and procedures, and provide documentation of this process to TOC.

2.2 Metrorail Rules and Procedures

Metrorail roadway worker protection is dictated by rules, training materials, standard operating procedures, and special orders. Metrorail rules and procedures are not directly regulated for content, as is the case on commuter rail and some light rail systems (dictated by Federal Railroad Administration). Metrorail is, however, regularly reviewed as part of the TOC SSO program. WMATA also is a participant in the American Public Transportation Association (APTA) rail transit standards and guidelines development process. WMATA has, therefore, agreed to ensure its rules at least meet the minimum APTA standards and guidelines, including the forthcoming roadway worker protection and safety standard.

The review team received and assessed a number of WMATA’s RWP-related rules and procedures, including the aforementioned Special Order 07-06. Overall, WMATA seems to follow the same model that many transit systems use, wherein ‘rules’ generally dictate requirements and prohibitions, and procedures (including standard operating procedures or SOPs) describe the methodology for accomplishing tasks. The MSRPH covers a number of RWP-related topics, though much of that is superseded by Special Order 07-06. These topics covered in Special Order 07-06 include duties and responsibilities for employees working in the ROW, for personnel in OCC, and for rail vehicle operators. WMATA is currently in the process

of updating its rules and procedures. Currently, Special Orders such as 07-06 supersede already-existing sections of the MSRPH. WMATA has indicated to TOC that the new MSRPH will be issued as a ring binder whose sections may be replaced with updated rules or procedures, negating the need to issue separate Special Orders. The ring binder approach will require strict configuration management procedures for its maintenance and update. In addition to the MSRPH and Special Order 07-06, TOC also reviewed several other Special Orders, memoranda, and other documentation dictating rules and procedures regarding such topics as:

- Track access in station areas
- The use of cranes, booms, and other equipment that could encroach on the dynamic outline of a train
- New procedures for increased safety of track walkers
- A hard hat safety policy

As stated above, not all of these safety-critical rules or procedures were issued in the form of Special Orders, designed to supersede or replace sections of the existing MSRPH. Rather, some were issued as memoranda to pertinent employees, apparently without going through the formal process for the review and update of rules and procedures.

Findings

Finding 10. WMATA has been using Special Order 07-06 as a de-facto ROW safety manual. It is not adequate for this purpose.

The structure of WMATA's MSRPH dictates that revisions to existing rules and procedures must be made through the "Special Order" or "Permanent Order" process. That is, when a new rule or procedure that supersedes one already in the MSRPH is issued, WMATA issues such an order without waiting for an all-new rulebook to be published. Special Order 07-06 is one such order, superseding the following existing provisions in the MSRPH: 4.165, 4.180, 4.180.1, and 3.87. However, there are additional rules and procedures in the MSRPH pertaining to RWP and general ROW safety that are not superseded by Special Order 07-06 (including, but not limited to, 4.180.2 through 4.199). WMATA has been distributing Special Order 07-06 to employees, particularly during ROW safety training, as though it contained all of the rules and procedures for ROW safety, which it does not. As such, employees are not given appropriate training on all rules and procedures related to RWP and general ROW safety. WMATA should develop a formal written procedure to ensure that all employees who may be required to enter the ROW (not just maintenance employees) are trained and recertified on *all* rules and procedures related to RWP and general ROW safety, and to ensure that all such rules and procedures are distributed to pertinent employees (whether through a separate safety manual or some other means).

Finding 11. The Brentwood Yard tracks are directly adjacent to the mainline tracks. Along most areas of the mainline, employees would be required to receive permission from OCC to be in such proximity to live mainline tracks. This is not the case with Brentwood Yard and other locations that are adjacent to the mainline but technically within yard limits.

As such, the reviewers observed a team of QA inspectors observing operations from the Brentwood Yard track adjacent to the mainline, but had not received permission to be in that location from OCC because no rule or procedure requires such permission. This is a unique situation that is not addressed by any formal rule or procedure, such as a fouling/distance rule, but should be. WMATA should develop formal written procedures that address employee conduct in such locations that are exposed to the main line ROW but technically within yard limits, and provide these procedures to TOC.

Finding 12. There are many locations along Metrorail with unique physical characteristics that may require special rules or procedures, but are not addressed formally in any WMATA rules or procedures.

There are many locations along Metrorail with short-radius horizontal and/or vertical curves in tunnels, on aerial structures, and in ballasted sections where it is difficult for employees working in the ROW to detect the presence of trains in advance of their approach, or, conversely, for train operators to detect the presence of workers in advance of their approach. This may be due to background noise or visibility issues. WMATA should conduct a system-wide survey to identify ROW areas that have visual or other impediments to roadway worker safety. WMATA should identify steps such as speed restrictions, horn sounding, or other appropriate mitigations to address safety issues in these locations.

WMATA also has several segments of ROW that are adjacent to other railroads falling under the jurisdiction of the Federal Railroad Administration (FRA). These include, but are not limited to, the Amtrak Northeast Corridor and the CSX Metropolitan Branch. WMATA should have formal written rules and procedures in place that govern the interaction between WMATA's ROW and the adjacent railroads, as well as proper procedures and phone numbers for contacting the adjacent railroads in the event WMATA employees discover a hazard on adjacent tracks that requires immediate reporting and action.

WMATA should submit evidence of the ROW survey and development of such rules and procedures to TOC.

Finding 13. The Metrorail system does not employ “whistle boards” (“W” signs in the track bed or wayside indicating a required horn blast).

These may be useful in limited visibility areas. WMATA should evaluate the installation of such signs, and provide TOC with documentary evidence of the evaluation process.

Finding 14. WMATA does not have a clear written procedure for lookout/watchperson duties for walking track inspections.

Although Special Order 07-06 4.180(1) does specify that one person should be designated as the lookout, this only applies to stationary locations. The review team observed inconsistent work assignments whereby some teams of walking track inspectors consisted of one inspector and one lookout, while others had both employees sharing both duties. WMATA should formalize its

procedures for lookout/watchperson duties for walking track inspections, and provide such procedures to TOC.

Finding 15. There is no formal procedure for OCC controllers to track information on personnel in the ROW.

Although OCC does employ the “Maintenance Personnel Track Access” form, there is no formal written procedure associated with it that governs when and how such information should be updated, or how such information is relayed to relieving controllers for the subsequent shift. WMATA should develop such a policy that formally dictates how OCC tracks workers in the ROW, and provide that policy to TOC.

2.3 Metrorail RWP Training

WMATA’s training program for Metrorail RWP appears to be compartmentalized into the following categorizations:

- First, the “ROW Safety Training” for WMATA employees. This is the class in which TOC members participated. The class is currently taught at the Carmen Turner training facility, and consists of video presentations and discussions of basic, high level topics of ROW safety, such as how to contact OCC, how to test whether third rail power is energized using a ‘hot stick,’ proper personal protective equipment (PPE), etc. Class participants are taken to a mock-up of a Metrorail tunnel and track area to practice stepping over the third rail. Some participants (though not all who took the class at different times) are given a copy of Special Order 07-06; however, its contents are not discussed specifically. Additionally, although WMATA appears to have developed the ROW Safety Training syllabus, it was not provided to class participants, and not all of the topics contained therein were consistently covered across all class participants who took the class at various times.
- Second, the ROW safety class for WMATA contractors. There was initially some confusion as to whether the TOC review team should take this class instead of the employee ROW class described above. However, it was revealed by WMATA personnel involved in administering the class that, since WMATA contractors do not generally perform basic maintenance, testing, and inspection functions in the ROW, and since contractors are not permitted in the ROW unless third-rail power has been removed, that the class itself was less rigorous than the ROW class for employees.
- Third, ROW safety class for WMATA employees who routinely perform duties in the ROW under live conditions, such as track walkers, ATC technicians, structures personnel, etc. (generally TSSM employees). This training was not audited by the TOC review team, and is administered separately from the employee and contractor classes directly through the TSSM Department. Ostensibly, such a class should be rigorous in its presentation of all of the relevant rules and procedures for working safely in the ROW, both through classroom and field instruction.

In general, the TOC is concerned about the level of compartmentalization of ROW safety training, as well as the overall strength of the curriculum. Several of WMATA's peer rail transit agencies incorporate exposure of training participants to live train operations in both subway and elevated environments.

Findings

(Please note Finding 9 above, which is contained within the section on Rules and Procedures, but which also relates to training.)

Finding 16. WMATA does not appear to have an agency-wide policy governing ROW safety training and recertification for all of its employees.

WMATA's training program for RWP and general ROW safety is not coordinated. WMATA offers only minimal training to most employees and contractors through the Safety department (the adequacy of this training is discussed in the Finding below). TSSM employees, who routinely perform job duties in the ROW, are offered separate and ostensibly more in-depth training that is administered through their own department. As of this report, TOC was unable to audit the TSSM training because it had not been made aware of its existence. In fact, it appeared that some WMATA managers outside of TSSM were unaware of the existence of TSSM's training program. TOC believes that it is appropriate that some employees, particularly those who will be assigned duties as a flagger, watchperson/lookout, or escort, should receive more in-depth training than other employees. However, TOC believes there is too wide a gap in the level of training (and, ultimately, knowledge and skills) between TSSM employees and other WMATA employees and contractors regarding RWP. The review team also believes that, due to the lack of agency-wide coordination of the training programs, there is a risk that different groups of employees may be taught inconsistent or even conflicting information that could potentially decrease the level of protection and safety for employees working in the ROW. WMATA should, therefore, evaluate its disparate training programs for RWP and general ROW safety, and determine how to better coordinate such training agency-wide, whether through the Training Department, or by some other means. WMATA should provide documentation of this process to TOC.

Finding 17. WMATA's employee ROW safety class curriculum fails to teach WMATA's own rules and procedures.

The ROW training for contractors and for WMATA employees who do not routinely perform duties along the ROW fails to thoroughly cover WMATA's own safety rules and procedures. Although the instructors handed out copies of Special Order 07-06, its contents were not reviewed or discussed specifically. Nor were any other specific WMATA rules or procedures formally reviewed or discussed. Additionally, the training class lacked a live field component, which is standard practice in virtually all other heavy-rail transit systems in North America. In contrast, the WMATA ROW class for employees uses only a mock-up of a tunnel, which cannot substitute for real-world conditions. The TOC believes that the importance of a training component which includes experiencing "live conditions" cannot be emphasized enough.

TOC strongly believes that the level of training for all employees and contractors must be strengthened to be more in line with a baseline that covers specific rules and procedures in a structured way. While some employees clearly require a higher level of training for performing such duties as watchperson/lookout, flagging, or escort, (i.e., TSSM employees) these employees should not be the only ones receiving training on the specific rules and procedures associated with protecting employees in the ROW. As WMATA conducts its evaluation of how to better coordinate ROW training programs agency-wide (pursuant to the Finding above), it should also evaluate its curriculum to determine how to provide more in-depth training on all of the rules and procedures associated with safety in the ROW to all employees who may be required to enter the track area, or who operate trains in the vicinity of employees in the ROW (i.e., not just TSSM employees). As part of this evaluation process, WMATA should consult the forthcoming APTA Standard for Roadway Worker Protection, as well as the successful training programs offered by other heavy rail transit systems (e.g., New York City Transit, Chicago Transit Authority, Southeastern Pennsylvania Transportation Authority, etc.). WMATA should provide documentation of this evaluation process to TOC.

Finding 18. The Employee Right-of-Way Safety Training class did not consistently adhere to its own syllabus.

Members of the TOC review team completed this course at various times during 2009, and generally did not receive a copy of the syllabus (November 2007 version). Some topics contained in the syllabus, such as stepping over the third rail properly and specific discussion of Special Order 07-06, were omitted in some of the classes. WMATA should ensure that all syllabus topics are covered consistently in every class.

The TOC will work with WMATA to monitor proposed enhancements to its ROW safety training that address each of the above Findings. TOC personnel will audit future training classes to verify implementation of these enhancements.

3. Appendix

3.1 Summary of Findings

WMATA should propose a plan for corrective action to address each of the Findings below for TOC's review and approval no later than January 31, 2010, and earlier, if practical.

- Finding 1.** The review team observed several critical RWP rule violations by train operators in the vicinity of employees working in the ROW.
- Finding 2.** The review team observed several critical RWP implementation issues by employees working in the ROW.
- Finding 3.** WMATA front-line employees indicated to the review team that OCC generally does not announce the presence of workers often enough to be useful, and that the location information provided over the radio is not helpful for train operators in providing advanced warning of employees in the ROW.
- Finding 4.** The definition of "clear" is not explicit in the context of radio communications between OCC and employees working in the ROW.
- Finding 5.** The review team observed multiple instances of OCC making announcements regarding the presence of workers in the ROW, when those workers were not observed to be present.
- Finding 6.** Based on conversations with front line employees, there appears to be some degree of antagonism between employees working in the ROW and Train Operators.
- Finding 7.** There is no clear nexus between the rule compliance checks performed by line supervisors and Quality Assurance (QA) personnel, and the general rail system safety activities ostensibly under the purview of the Safety department (SAFE).
- Finding 8.** The review team observed a string of Emergency Trip Stations (ETS) whose "blue lights" (the visual marker of their location) were non-functional.
- Finding 9.** The review team observed housekeeping issues along the ROW that pose potential slip/trip/fall hazards to employees.
- Finding 10.** WMATA has been using Special Order 07-06 as a de-facto ROW safety manual. It is not adequate for this purpose.
- Finding 11.** The Brentwood Yard tracks are directly adjacent to the mainline tracks. Along other areas of the mainline, employees would be required to receive permission from OCC to be in such proximity to live mainline tracks. This is not the case

with Brentwood Yard and other locations that are adjacent to the mainline, but technically within yard limits.

- Finding 12.** There are many locations along Metrorail with unique physical characteristics that may require special rules or procedures, but are not addressed formally in any WMATA rules or procedures.
- Finding 13.** The Metrorail system does not employ “whistle boards” (“W” signs in the track bed or wayside indicating a required horn blast).
- Finding 14.** WMATA does not have a clear written procedure for lookout/watchperson duties for walking track inspections.
- Finding 15.** There is no formal procedure for OCC controllers to track information on personnel in the ROW.
- Finding 16.** WMATA does not appear to have an agency-wide policy governing ROW safety training and recertification for all of its employees.
- Finding 17.** WMATA’s employee ROW safety class curriculum fails to teach WMATA’s own rules and procedures.
- Finding 18.** The Employee Right-of-Way Safety Training class did not consistently adhere to its own syllabus.

3.2 Documents Reviewed

- Alpha-Numeric Codes for All of Metrorail System
- August 16, 2007 Memorandum from TSSM – Louis C. Testa to TSSM – Track Walkers re: Increased Safety of Track Inspections
- Blackberry Reports (rule compliance checks) – sample
- Chart of Single Tracking & Shut Down Operations November 2009 to January 2010, Office of Track & Structures, System Maintenance
- Daily Track Walker’s Work Assignment – Brentwood, Alexandria, New Carrollton regions (samples)
- Division Overview reports – sample
- Employee rule compliance checks – sample
- Memoranda from QA to Line Service and Rail Transportation Managers re: audit results – sample
- November 26, 2007 Memorandum from OCCO – Hercules Ballard to OCCO Staff re: Track Access for Station Area
- Rail Quality Checks – Blackberry Version –sample of raw data
- Right of Way Safety Training for WMATA Employees (syllabus)
- Roadway Worker Protection at WMATA; Overview Prepared April 27, 2009 for TOC Review
- ROW Audits Log – sample

- Supervisor Observations – sample
- WMATA Administrative Procedure 508.17-1 – Track and Structures Personnel Management Job Safety
- WMATA Hard Hat Safety Policy
- WMATA Metrorail Safety Rules and Procedures Handbook (January 2004)
- WMATA OCC Announcement Log
- WMATA OCC Maintenance Personnel Track Access Log (samples)
- WMATA Office of Quality Assurance and Warranty Quality Assessment Reports – sample
- WMATA Permanent Order T-09-05
- WMATA Rail Operations Delivery Corrective Action Request Office QAAW (Quality Assurance and Warranty) - sample
- WMATA RTRA Supervisor Performance Expectations and Standards
- WMATA Special Order 03-06
- WMATA Special Order 07-03
- WMATA Special Order 08-05 rev 1
- WMATA Special Order 07-06

3.3 Persons Interviewed

- Alexa Dupigny-Samuels, Chief Safety Officer, Department of System Safety & Environmental Management
- Charles Biro, Fire/Life Safety Liaison Officer, Metro Transit Police Department
- Charles Dzdulich, Director, Blue/Orange Line Service, Office of Rail Transportation
- Clay Bunting, Assistant General Superintendent Track Inspection/Structure Maintenance, Office of Rail Track Structure Systems Maintenance
- Daniel Epps, Assistant General Manager, Office of Rail Transportation
- Darley Scott, Safety Officer
- Darvin L. Kelly, General Superintendent, Office of Rail Track Structure Systems Maintenance
- Dave Kubicek, Acting Deputy General Manager
- Dorsey Adams, Safety Officer, Department of System Safety & Environmental Management
- Eric Petersen, Manager, Technical Training & Document Control
- Front line employees, Office of Rail Track Structure System Maintenance (sample)
- Front line employees, Office of Rail Transportation (sample)
- Gaetano Brooks, Superintendant, Track Inspection, Office of Rail Track Structure Systems Maintenance
- Gerald Francis, Deputy General Manager
- Hercules Ballard, Director, Operations Central Control, Office of Rail Transportation
- James Amey, Safety Officer, Department of System Safety & Environmental Management
- Larry Lee, Superintendent, Structures, Office of Rail Track Structures Systems Maintenance
- Michael Taborn, Chief, Metro Transit Police Department
- Ronald Edwards, Rail Safety Manager, Department of System Safety & Environmental Management
- Scott Kelley, Safety Officer, Department of System Safety & Environmental Management
- Troy Lloyd, Safety Officer, Department of System Safety & Environmental Management

3.4 Facilities/Locations Visited

- Jackson Graham Building
- New Carrollton Yard
- Brentwood Yard
- Shady Grove Yard
- Alexandria Yard
- Branch Avenue Yard
- WMATA ROW – various locations conducting field observations