



all (b)(6)

Federal Transit Administration (FTA)  
Washington Metropolitan Area Transit Authority (WMATA)  
Safety Oversight Office (FWSO)

### INSPECTION REPORT

<b>FWSO Inspector in Charge</b>	Medenia Dashiell		
<b>FWSO Inspector in Charge Signature</b>	MEDENIA DASHIELL		<small>Digitally signed by MEDENIA DASHIELL DN: c=US, ou=U.S. Government, ou=DOT Headquarters, ou=FRAHQ, cn=MEDENIA DASHIELL Date: 2015.12.04 14:07:00 -0500</small>
<b>Subject</b>	Track Inspection and Maintenance		
<b>Report Number</b>	TRST-1		
<b>Date</b>	November 30, 2015		
<b>Type of Activity</b>	Briefing Presentations, Interviews and Records Reviews		
<b>Purpose of Inspection</b>	To meet with new TRST leadership team to review status of TRST action to address SMI findings and required actions; to kick-off formal records review and inspection activities for track		
<b>Relevant FTA Safety Findings / Required Actions</b>	SMI Required Action R-4-28-A SMI Required Action R-3-25-A SMI Required Action R-3-26-A SMI Required Actions R-2-16-A through -D SMI Required Actions R-8-44-A and -B		
<b>Issues or Concerns</b>	<ul style="list-style-type: none"> <li>Schedule for TRST re-organization; actions underway to respond to FTA's correspondence related to R-4-28-A (track inspection resources); TRST plans for development/enhancement of rail de-stressing program (R-8-44-A and -B); quality of track inspection and maintenance training and oversight</li> </ul>		
<b>References</b>	<ul style="list-style-type: none"> <li>WMATA Corrective Action Plan for FTA's Safety Management Inspection, approved on September 24, 2015</li> <li>TRST 1000 – Track Maintenance and Inspection Manual. Revision 6. January 1, 2015.</li> <li>TRST 2000 – Track and Structures Maintenance Control Policy. Revision 6. February 20, 2015.</li> <li>Metrorail Safety Rules and Procedures Handbook. April 9, 2015.</li> <li>Operations Administrative Procedure 208-01. Track Maintenance Management, Maintenance of Way. July 31, 2006.</li> <li>Roadway Worker Protection Manual. June 2014.</li> </ul>		
<b>Time of Review</b>	9:00am to 5:00pm	<b>WMATA Department</b>	Track and Structures (TRST)
<b>FTA Reviewers</b>	Medenia Dashiell [Redacted]	<b>WMATA Point of Contact</b>	[Redacted] General Superintendent, Office of Track and Structures [Redacted]
<b>Location</b>	Alexandria Rail Yard 3201 Eisenhower Avenue Alexandria, VA 22314	<b>WMATA Person(s) Contacted</b>	[Redacted]
<b>Radio Observations</b>	No	<b>Interviews</b>	Yes – See above persons
<b>Ride-alongs</b>	Follow-up Riding Track Inspection – Scheduled for 12/2	<b>Records Reviews</b>	Maximo Report, Updated TRST Documentation
<b>Field Observations</b>	No	<b>Field Inspection</b>	Follow-up Observations of Walking Track Inspections – Scheduled for 12/2 and 12/3



Item #	Topic or SMI Finding	Location				
1	TRST Organization	Alexandria Rail Yard				
<p><b>Description:</b> MEETING SUMMARY TRACK AND STRUCTURES ORGANIZATION AND MAINTENANCE INFORMATION MANAGEMENT: FTA WSO met with WMATA’s new leadership team for the Office of Track and Structures (TRST) for Track Inspection, Track Maintenance, Capital Programs, and Structural Inspections. TRST is primarily divided into three functional areas: inspection, maintenance, and production. Inspection covers track walks and TGV runs to inspect track conditions and identify defects in track infrastructure. Maintenance covers corrective maintenance, to correct defects in track infrastructure; and Production covers preventive maintenance, to improve existing track infrastructure for better performance and ride quality. The FTA learned that TRST will be re-organizing into a Line Management structure (by Metrorail line), and that resources assessments will be conducted for all major TRST inspection and maintenance functions. TRST also reported that responsibility for running the Track Geometry Vehicle (TGV) will be moving from TRST to Engineering in January 2016. TRST has an overall annual budget of \$45,000,000 and 618 total personnel. TRST reviewed WMATA’s track assets, including: almost 3 million feet of running rail, roughly 350,000 cross ties, 658 mainline and yard switches, almost 600,000 direct fixation fasteners, 170,000 third rail insulators, 765,000 linear feet of ballasted track, 1.5 million feet of third rail, 700,000 tie plates, and 2.8 million spikes.</p> <p>TRST uses Maximo to open, close, and track work orders. TRST also employs Optram, which is a software that visually depicts all revenue tracks in the entire Metrorail system. A user can click on any segment of track in Optram, and Optram will cross-reference any work orders associated with that segment of track. Track Inspectors will open work orders in Maximo for defects found in the field. Maintenance Managers then assign additional work orders for the associated tasks to be completed to resolve the defect. TRST employs a “parent-child” work order hierarchy. The “parent” work order represents the segment of track for which Track Inspectors report defects; the “child” work orders represent the individual tasks performed to resolve the defect. TRST employs the parent-child work order hierarchy to avoid duplication of work orders and to systematically track work to be performed by track segment. TRST management reports that while this work order system generally works, the quality of data entry into Maximo and the number of items reported make it difficult to assess true priorities. TRST is evaluating options for cleaning unnecessary information from the system.</p>						
Deficiency Recommended?		Yes	X	No		N/A
Action Required (List Action):		Yes	X	No		N/A
<p><i>If Action Required, WMATA will respond to the FTA within _____ days demonstrating the action(s) taken to address the deficiencies noted in this inspection report. WMATA will provide the FTA with a signed statement of completed action, accompanied by photographic evidence or reports from information management systems, or other evidence of completion as appropriate.</i></p>						



Item #	Topic or SMI Finding	Location				
2	TRST Staffing and Resources, Action on R-4-28-A	Alexandria Rail Yard				
<p><b>Description:</b> MEETING SUMMARY TRACK INSPECTION: TRST is using its re-organization to review track inspection resources as requested in SMI Required Action R-4-28-A. TRST has 64 track inspector positions to cover 21 segments of track, covering the entire territory of the Metrorail system and including inspections of running rails, third rails, track switches, and supporting components, including clips, fasteners, and other related components. TRST also has a Special Inspections Group (SIG). The length of each segment of track to be inspected is pre-determined. Track Inspectors typically work in crews of two: one performs inspection while the other serves as Roadway Worker in Charge (RWIC) for oncoming rail traffic. Track Inspection crews typically walk twice a week, between the hours of 10:00 am and 2:00 pm. Track Inspectors typically perform work in possession of a printout of the track defects database, along with a pocket version of WMATA-1000, WMATA’s track inspection manual, and track inspection forms with pre-filled fields. While track inspectors use carpenters’ rulers, they do not typically use other tools, such as track gauges or rail wear gauges.</p> <p>Upon completion of the assigned field inspections, Track Inspectors return to their bases and enter new defects found into the track defects database, at which time Inspectors may also enter comments. Paper inspection records are retained for cross-reference. Track Inspectors also assign color-coded priorities: “Black,” “Red,” “Yellow,” and “Green.” “Black” and “Red” defects require immediate removal of the segment of track in question from service and immediate repair, and “Black,” “Red,” and “Yellow” defects also require notification of Track Maintenance and the corresponding Supervisor of Track and Way. Inspectors have the authority to react to Black, Red and Yellow defects in the field immediately, i.e. order immediate repairs and/or place speed restrictions. Inspectors will note defects and open work orders in Maximo.</p> <p>TRST is looking at potentially reducing track inspection territory in certain locations, and increasing the number of inspections in other locations based on an overlay of the measure of million gross tons (MGTs) of traffic. FTA urged consideration of track age and condition, in addition to MGT, in completing this assessment. FTA also reinforced its position regarding the benefits of two-person inspection teams, supported by a designed lookout, particularly in direct fixation tunnel locations and where on-the-job training is being provided. TRST leadership detailed their concerns with two-person track inspection and with splitting coverage of the rails between two people. FTA will receive TRST’s initial proposal and timeline for the R-4-28-A resource assessment on December 8, 2015. TRST is also re-starting joint switch inspection with ATC. The switch inspection process is in place and training will be started very soon. These joint inspections will be monthly as part of joint maintenance operations. The FTA recommended that the new joint inspection process include a Quality inspection form that ensures that tools used to perform these functions have current calibration dates.</p>						
Deficiency Recommended?			Yes	X	No	N/A
Action Required (List Action):			Yes	X	No	N/A
<p><i>If Action Required, WMATA will respond to the FTA within _____ days demonstrating the action(s) taken to address the deficiencies noted in this inspection report. WMATA will provide the FTA with a signed statement of completed action, accompanied by photographic evidence or reports from information management systems, or other evidence of completion as appropriate.</i></p>						



Item #	Topic or SMI Finding	Location				
3	Track Maintenance and SMI Required Actions R-3-25-A and R-3-26-A	Alexandria Rail Yard				
<p><b>Description:</b> MEETING SUMMARY TRACK MAINTENANCE: For Track Maintenance, FTA and TRST reviewed basic roles and responsibilities, resources, budget and staffing levels. TRST Track Maintenance will install and maintain fasteners, crossties, spikes, and 78 feet lengths of rail or less while Capital installs larger strings of rail. The Maintenance Groups (one for the North territory, one for the South) are responsible for performing corrective maintenance on defects to tracks and other supporting infrastructure. Maintenance Managers review the work orders opened by Track Inspectors, assign labor codes to each work order, and set priorities for corrective maintenance work for the next 24 hours. Work is typically assigned based on descending order of priority. TRST reported having difficulty completing all of the open work orders in the track time allotted to its maintenance crews. Maximo records indicate that the number of defects for structures and track is 36,600 with some minor items open since 2008. Most of these items are lower level priorities. TRST reported, and a record review confirmed, that approximately 4,000 open Priority 2 ("Yellow") track and structures defects are in Maximo. Track Maintenance also confirmed that 324 gauge rods were in the system, but the number is now down to 245, with the locations maintained in a tracking sheet.</p>						
<p>TRST personnel discussed needed improvements in quality assurance and quality control activities, including sampling audits of completed work to assure conformance with required processes and procedures. TRST acknowledged that sufficient time is not always available to complete this sampling prior to the placement of track into revenue service. FTA confirmed that quality assurance in the form of the 8 ton unrestrained stud/insert pull out tests is not generally being conducted to minimize the possibility of hidden defects. FTA and TRST also discussed lessons learned from new construction that could be applied to track maintenance to better manage hidden defects. Topics included drilling and pressure washing holes for anchor bolts, use of epoxy installation of threaded studs, epoxy mixes, management of rebar while drilling, and rubber vulcanization separation as part of fastener failure. TRST is also working to streamline the process for managing engineering changes and issues in the field. Currently, both maintenance forms and problems statements are used. Also, TRST is looking to establish a program for handling field discoveries, such as the recent lesson learned regarding using a grinder to remove rail bonds instead of a hammer, since the heat from the thermite welding process can degrade the rail and increase the likelihood of rail breaks with the hammer. TRST also reported running an insulator cleaning train and, working to modify a train to perform tunnel washing. Since January, all underground tunnels (91.3 miles) have had all insulators cleaned. There currently are 145,000 insulators on the main line and approximately 54,000 underground.</p>						
Deficiency Recommended?			Yes	X	No	N/A
Action Required (List Action):			Yes	X	No	N/A
<p><i>If Action Required, WMATA will respond to the FTA within _____ days demonstrating the action(s) taken to address the deficiencies noted in this inspection report. WMATA will provide the FTA with a signed statement of completed action, accompanied by photographic evidence or reports from information management systems, or other evidence of completion as appropriate.</i></p>						



Item #	Topic or SMI Finding	Location				
4	TRST Training and SMI R-2-16-A through -D	Alexandria Rail Yard				
<p><b>Notes:</b> MEETING SUMMARY TRST TRAINING: FTA and TRST personnel discussed technical training requirements for track inspectors, track laborers and repairers, welders, structural repairers, structural technicians, Class 2 vehicle operators, and supervisors. TRST noted deficiencies in training that will be addressed as part of the technical training assessment being conducted for SMI Required Actions R-2-16-A through -D. TRST has identified Supervisory Training as a particular area of focus. Supervisors currently receive 1-week of MSRPH training and a 5-day course taught by Safety. However they have no technical training for Supervisors. No resources or skillsets are available to teach rules and standards. They also do not receive any Track standards training. Supervisors only require 5-years of track experience and no testing is required to become a supervisor.</p>						
Deficiency Recommended?			Yes	X	No	N/A
Action Required (List Action):			Yes	X	No	N/A
<p><i>If Action Required, WMATA will respond to the FTA within _____ days demonstrating the action(s) taken to address the deficiencies noted in this inspection report. WMATA will provide the FTA with a signed statement of completed action, accompanied by photographic evidence or reports from information management systems, or other evidence of completion as appropriate.</i></p>						