AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

PEER REVIEW

FOR

WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Washington, DC

April 2016

A service of the American Public Transportation Association
performed by the
North American Transit Services Association,
a wholly owned subsidiary of APTA

DRAFT REPORT

OF THE

NORTH AMERICAN TRANSIT SERVICES ASSOCIATION

PEER REVIEW PANEL

ON THE

TRACK CONDITIONS, INSPECTION AND TRAINING

OF THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY

Table of Contents

I. INTRODUCTION

In February 2015, Mr. Paul J. Wiedefeld, General Manager and CEO of the Washington Metropolitan Area Transit Authority contacted the North American Transit Services Association (NATSA) to request a peer review of the agency's track conditions and training.

Through discussions between NATSA and Agency staff, it was determined the review would be conducted April 19 – 22, 2016.

A panel of industry peers was assembled that provided expertise in rail service reliability, track and structure maintenance and maintenance training. The peer review panel consisted of the following transit individuals.

ANTHONY FAZIO
Manager – Engineering, Track
SEPTA
Philadelphia, PA

GLEN JOHNSTONE
Senior Manager Operations, Subway Infrastructure
Toronto Transit Commission
Toronto, Canada

WILLIAM MOONEY, JR.
Vice President, Power & Way Maintenance
Chicago Transit Authority
Chicago, IL

PATRICK PORZILLO
Vice President
Parsons Transportation Group
Washington, DC

GREG HULL
Peer Review Facilitator
American Public Transportation Association

The panel convened in Washington, DC on April 18, 2016. Panel coordination and logistical support was provided by NATSA Staff Advisor Greg Hull. Mr. Hull also coordinated panel member input in the drafting of this peer review report. Mr. Michael Davis, Assistant General Superintendent, Office of Track & Structures Maintenance provided agency liaison support on behalf of WMATA.

Methodology

The NATSA Peer Review process is well established as a valuable resource to the public transport industry. Highly experienced and respected transit professionals, selected on the basis of their subject matter expertise, voluntarily provide their time and support to address the scope required.

The panel conducted this peer review through documentation review, field observations and a series of briefings, listening sessions and interviews with WMATA staff from all levels within the organization as well as contracted support. The panel concluded its review with a summary of observations and recommendations to Mr. Paul Wiedefeld, General Manager, and senior management staff of WMATA.

Scope of Report

The scope of this review focused WMATA's track maintenance program, track conditions, inspection and training. The observations and findings provided through this peer review are offered as an industry resource to be considered by WMATA in support of strengthening the organization's track maintenance and inspection program and strategies for maintaining its rail infrastructure in safe operating order.

The review addressed the following specific areas:

- Review the WMATA 1000 Track Maintenance & Inspection Manual. Determine compliance with industry best practices and standards.
- Review the WMATA 2000 Maintenance Control Policy Track & Structures manual. Determine compliance with industry best practices and standards.
- Review/ assess the WMATA Track Inspection Program, including training curriculum and track inspection performance through field observations.
- Review the WMATA track engineering organization to include roles, responsibilities, staffing, data management, prioritization, and support of maintenance efforts in the field.

I. OBSERVATIONS AND RECOMMENDATIONS

OPENING COMMENTS

The peer review panel found that all levels of staff encountered who are responsible for track maintenance are dedicated and committed. Although there has been recent extensive track work, it is apparent that further work is required. In the view of the panel, track inspection personnel must have a level of proficiency beyond what presently exists. There is an obvious gap between the intention of the track inspection training program and the actual performance of track inspectors in the field.

The current WMATA 1000 Track Maintenance & Inspection Manual needs to undergo extensive streamlining. The panel also found that the structure and interface of the Engineering, Track Maintenance and Inspection functions requires review and modification to maximize coordination and effectiveness of the overall track maintenance program.

1. WMATA 1000 TRACK INSPECTION MANUAL

The panel found that initiatives are currently underway to revise the manual as it presently exists. The manual is very difficult to navigate and has grown in content beyond its intended purpose. The color coding system for track defects indicated within the manual is inconsistent in how it correlates with specific speed restrictions related to the noted defects. The panel did find that a pocket version of the manual was developed and provides a practical tool for field use.

Recommendations:

- The panel encourages management to continue its efforts to review, update and revise WMATA 1000
- Ensure WMATA 1000 does not have conflicting sections and does not conflict with Manual of Design Criteria
- Ensure that color coding defects and related speed restrictions are properly aligned through the manual
- Revise the current pocket version to coordinate with revisions of WMATA 1000
- Remove those portions of the current Manual that are not relevant to track standards

2. WMATA 2000 TRACK & STRUCTURES MAINTENANCE CONTROL POLICY

The panel noted that this manual was recently updated to Revision 6 on February 20, 2016 and appears to conform to industry standards and best practices.

Recommendation:

- Ensure that the manual is reviewed and updated at a minimum of every two years

3. TRACK INSPECTION PROGRAM – PERSONNEL

WMATA refers to personnel carrying out track inspection as "Track Walkers". Track inspection functions require a level of competency beyond what currently exists in WMATA's track inspection program. There appears to be no minimum aptitude or practical testing aligned to the track inspection functions for hiring. Track Walkers are allowed to be hired directly off the street without prior track knowledge and experience. There is no incentive for existing WMATA employees to become a Track Walker which is, in fact, a vital safety function. The panel noted that there is no variation in skill or responsibility that correlates to the current paygrades or classifications of this function despite the current classifications that include; Track Walker AA, A, B, C, D.

TRACK INSPECTION PROGRAM – TRAINING

An 18 week training program is in place for the Track Walkers. In the view of the panel, the current training program is not adequately structured to the track inspection functions needed. The current training program is based on hiring employees from the street, without prior track knowledge and experience. The training does not provide a formal mentoring program for Track Walkers nor does it provide on-going training, specialized modules or workshops. Re-certification and re-qualification appears to be limited to a one hour activity that centers largely on validating an employee's measurement skills. Additionally, there does not appear to be a training or on-going training program for supervisors who oversee the Track Walkers.

TRACK INSPECTION PROGRAM – FIELD PERFORMANCE

Track Walkers encountered by the panel were all safety-conscious and committed to their functions, however, there is a gap between intended inspection processes and what actually transpires in the field. Beyond the issue of competencies for the function, ad hoc such as checking fire extinguishers, lighting, handrails, and tunnel leaks have been added but detract from concentrating on the actual track inspection function. There does not appear to be any formal quality control program to monitor Track Walker functions carried out on line, and there does not appear to be any formal process in place for supervisors to walk and inspect track.

There are areas of safety risk that limit track inspection capability. Lighting conditions in tunnels restrict the ability to observe all track conditions. The panel also noted that Track Walkers do not use any method for immediately recording track observations or checking against recorded conditions and defects. While accompanying Track Walker crews carrying out their inspections, the panel found that personnel were limited in their track inspection knowledge and that they do not carry the tools customarily used with track inspection functions.

Recommendations

- The panel strongly recommends that Track Walkers be hired from within the existing WMATA track maintenance program or from external candidates with comparable knowledge and skills
- Review opportunities to provide incentives that encourage internal candidates to apply for the position

- Consider consolidation of the current classification levels of the Track Walkers
- Develop appropriate pre-testing requirements for the position of Track Walker
- Continue efforts to update the training program as well as efforts to develop appropriate refresher training, workshops and improvements in the re-certification requirements
- Implement a formal mentoring program that is linked to the training program
- Develop a formal on-going training program for supervisors to include periodic workshops
- Implement quality control measures for field monitoring of Track Walker performance
- Review the impact of assigning unrelated ad hoc tasks that detract from effective track inspection requirements
- Formalize and monitor expectations for supervisors and managers to walk track
- Continue current efforts to improve lighting conditions in tunnels
- Consider the use of foul time as a tool for inspecting track in limited access areas
- Develop a process whereby personnel can immediately note observations and check against existing known conditions
- Review appropriate tools needed by personnel to carry out track inspection functions

3. ENGINEERING ORGANIZATION

Track Engineering is comprised of an enthusiastic group committed to on-going improvements to the track infrastructure. The Track Engineering group is aware of the need for the integration and close relationship with the track maintenance/ inspection functions, however there does not appear to be any formalized process that delineates how Track Engineering, Track Maintenance and Track Inspection should interact. It appeared to the panel that the number of layers within the Track Engineering group can create barriers to information flow, both within that group and with Track Maintenance and Inspection.

Recommendations

- The panel encourages WMATA to review the current Track Engineering organizational structure for effectiveness
- Review current lines of interface to ensure that needed interface between Track & Structure, Track Maintenance and Track Inspection is developed, formalized, and regularly reviewed for effectiveness
- Ensure that lines of communication between the groups are in place and that feedback mechanisms are also in place (example: that front line input is recognized and resulting actions are communicated)

OTHER OBSERVATIONS/ RECOMMENDATIONS

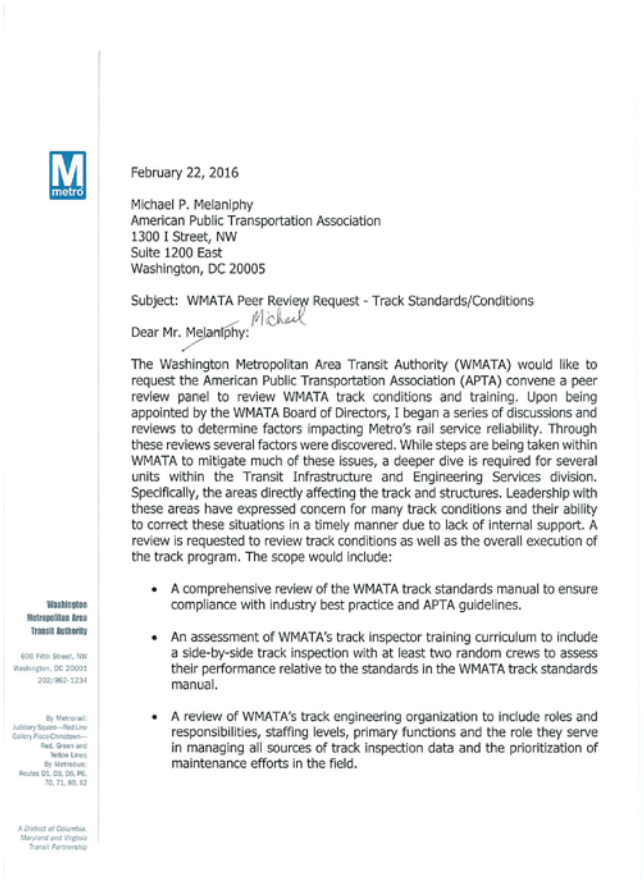
- During field observations it was noted by the panel that track buckle counter-measures are needed, on the Yellow Line bridge crossing the Potomac.
- Track crews did not appear to understand the significance of freshly severed track fastening bolts or fresh markings on the side of rail caused by the movement of Pandrol clips.
- Tight rail was evident at several locations. WMATA should ensure track stability requirements are enforced and rail neutral temperatures are within required limits.
- Consideration should be given to a program to eliminate rail joints. Develop and inventory and focus on high risk areas such as bridges and other aerial structures.
- Attention needs to be given to general right-of-way housekeeping conditions. The prevalence of materials strewn around the right-of-way creates a negative impression for the public and sends a message to employees that poor housekeeping is tolerated.
- Consider the merits of organizing personnel to be accountable for specific sections of track to increase accountability and sense of ownership.

III. CONCLUDING REMARKS

The findings of this review are intended to assist WMATA in strengthening the safety and effectiveness of its track maintenance and inspection programs and strategies. The panel sincerely appreciates the support and assistance extended throughout the entire peer review process by all WMATA personnel as well as their contracted support. The panel stands available to assist with any clarification or subsequent support that may be needed.

APPENDIX

APPENDIX A



February 22, 2016

Michael P. Melaniphy
American Public Transportation Association
1300 I Street, NW
Suite 1200 East
Washington, DC 20005

Subject: WMATA Peer Review Request - Track Standards/Conditions

Dear Mr. Melaniphy: Michael

The Washington Metropolitan Area Transit Authority (WMATA) would like to request the American Public Transportation Association (APTA) convene a peer review panel to review WMATA track conditions and training. Upon being appointed by the WMATA Board of Directors, I began a series of discussions and reviews to determine factors impacting Metro's rail service reliability. Through these reviews several factors were discovered. While steps are being taken within WMATA to mitigate much of these issues, a deeper dive is required for several units within the Transit Infrastructure and Engineering Services division. Specifically, the areas directly affecting the track and structures. Leadership with these areas have expressed concern for many track conditions and their ability to correct these situations in a timely manner due to lack of internal support. A review is requested to review track conditions as well as the overall execution of the track program. The scope would include:

- A comprehensive review of the WMATA track standards manual to ensure compliance with industry best practice and APTA guidelines.
- An assessment of WMATA's track inspector training curriculum to include a side-by-side track inspection with at least two random crews to assess their performance relative to the standards in the WMATA track standards manual.
- A review of WMATA's track engineering organization to include roles and responsibilities, staffing levels, primary functions and the role they serve in managing all sources of track inspection data and the prioritization of maintenance efforts in the field.

Washington Metropolitan Area Transit Authority

600 Fifth Street, NW
Washington, DC 20001
202/962-1234

By Metrorail:
Judiciary Square—Red Line
Gallery Place-Chinatown—
Red, Green and
Yellow Lines
By Metrobus:
Routes D1, D3, D6, P6,
70, 71, 80, X2

A District of Columbia, Maryland and Virginia Transit Partnership

APPENDIX A

Michael P. Melaniphy
February 22, 2016
Page 2

I'd like to include the following industry professionals to be included in the panel: David Knights and Antonio Cabrera of MTA-NYCT and Michael Torrillo with PATH.

The point of contact for the review is Andrew Off our Assistant General Manager for Transit Infrastructure and Engineer Services. Andy can be reached at (202) 962-2585.

Please feel free to contact me at (202) 962-1000 should you require any additional information.

Paul J. Wiedefeld
General Manager and
Chief Executive Officer

APTA Peer Review Agenda

APPENDIX B

3101 Eisenhower Avenue
Alexandria, VA 22314
Track & Structures Building
2nd Floor Conference Room # TA-39

1. *Monday April 18* *Arrival*
   - Peer review panel members arrive
   - 6:00PM: Meet and greet dinner for APTA
     - Location and Time to be determined

2. *Tuesday, April 19* *Day 1*

   a. 7:15 – Hotel Pickup

   b. 8:00 – 9:00
      - Coffee/muffins
      - Introductions: WMATA senior staff (Wiedefeld/?)/ Peer review panel members
      - Scope Review
      - Peer review process review

   c. 9:00 – 10:15 Ravi Amin/Thomas Robinson
      - Review of track engineering's role in TRST to include: -
        - Responsibilities
        - Staffing levels
        - Overview of Track Maintenance Program
        - Role in managing track inspection data, component failures, work-plan review processes and prioritization of maintenance efforts, in the field

   d. 10:15 – 10:30
      - Break

   e. 10:30 – 12:00 Michael Thomas / Brian Poston / E. Hardy
      - Track Inspection Training Review

   12:00 – 1:00
      - Working Lunch (Review Panel & WMATA staff)

   f. 1:00 – 2:00 Robin Richards
      - Review of WMATA 1000 (Washington Metropolitan Transit Authority's track standards book)

   g. 2:00 – 2:15
      - Break

   h. 2:15 – 4:15 TBD
      - RWP Training Class

APPENDIX B

3. *Wednesday, April 20 Day 2*
   a. 7:15 – Hotel Pickup
   b. 8:00 – 9:00
      (Review panel members to bring safety boots today for field **observations**)
      - Breakfast
      - Track Access Briefings

   c. 9:00 – 10:00 TBD
      - Travel to inspection areas

   d. 10:00 – 3:00 TBD
      - Side by side track inspections with random crews to access their performance

   e. 4:00 – 5:00 Peer Review Panel convenes for discussion (location TBD)

4. *Thursday, April 21 Day 3*
   a. 7:15 – Hotel Pickup
   b. 8:00 – 12:00
      - Coffee/ muffins
      - Open Discussion- Q & A: Review Panel with WMATA staff and any additional briefings, documentation review that WMATA or Review Panel might require

   c. 12:00 – 1:00 TBD
      - Working Lunch (Review Panel & WMATA staff)

   d. 11:00 – 3:00 TBD
      - The remainder of the day is used for preparation of the out brief on April 22

5. *Friday, April 22 Day 4*
   a. 7:30 – Hotel Pickup
   b. 8:00 – 8:30
      - Coffee/ muffins

   c. 8:30 – 11:00 APTA Peer Review Panel Members
      - Peer Review Panel exit briefing and Q & A with WMATA management (WMATA management to determine WMATA staff they want to be present)

DOCUMENT LIST

APPENDIX C

1. WMATA Position Descriptions for Track Engineering, Track Maintenance, and Track Inspection
2. WMATA Organization Charts; Full Organization; Charts for Track Centric Groups
3. WMATA Rail System Map
4. WMATA 1000 Track Maintenance & Inspection Procedures- Maintenance & Inspection Manual (rev 6) (January 1, 2015)
5. WMATA 1000 Track Maintenance & Inspection Procedures (Pocket Version)
6. WMATA Safety Requirements for Contract Workers (September 13, 2011)
7. WMATA Power Point Presentation Summary of Peer Review Tasks and Purpose
8. WMATA Track Walker Training Program Lesson Plans
9. WMATA Entry Level Track Walker's Course- Week One Syllabus
10. WMATA Track Walker Week One Course: Summary of Trainer's Daily Requirements
11. WMATA 2000- TRST Maintenance Control Policy (rev 6) (March, 2015)
12. MAXIMO Data Entry Printouts: April 20, 2016 Track Inspection Division Daily Locator Sheet/ Entries By Green Line and Yellow Line Track Walker Crews