



Customer Service, Operations and Security Committee

Information Item III-B

June 8, 2017

Rail Operations Control Center Improvements

Washington Metropolitan Area Transit Authority

Board Action/Information Summary

☐ Action ☒ Information

MEAD Number:
201877

Resolution:
☐ Yes ☒ No

TITLE:

Rail Operations Control Center (ROCC) Improvements

PRESENTATION SUMMARY:

Staff will present the program to improve the Rail Operations Control Center (ROCC). To strengthen the ROCC's safety culture, management, work flow, and make critical process changes, Safety and Rail executives united to restructure work, beef-up constant supervision, reduce distractions, enhance training and procedures, and address retention and turnover. Of the 40 NTSB, FTA and TOC ROCC corrective actions, 7 are closed, 13 are under review and 20 are in development review by the agencies.

PURPOSE:

To update the Board of Directors on the progress underway in implementing a ROCC improvement plan.

DESCRIPTION:

Key Highlights:

Among the actions completed or underway at the ROCC are:

- ROCC management has expanded to include supervision on all three shifts, with an increase of three superintendents and assistant superintendents.
- A new train control console has been established for the Silver Line, to enable improved line movement focus.
- "Situation Management" areas were designated away from controllers to allow team huddles during emergencies and service disruptions.
- Plans are being developed to move power operations control to an enclosed room to reduce distractions to train operating personnel.
- Half of all track inspections were moved to the night shift to reduce risk to roadway workers.

- QICO quality assurance assessments are underway to ensure compliance with new procedures.

Background and History:

As Metrorail has grown from its original 4.2 miles to today's 118 miles, 91 stations and nearly 200 million annual trips, the operations in the ROCC and work of the controllers has become much more complex. Since after the 2009 collision, the rail system has been manually managed. Controllers must essentially mimic the job previously done by computers through Automatic Train Control (ATC). Consequently, controllers manually manage headways and properly interleave trains at junctions to keep service on time. The opening of the Silver Line in 2014 created additional junctions to manage. In addition, controllers are also involved in the significantly increased corrective and preventive maintenance occurring on the system, leading to single tracking, speed restrictions and other special operating conditions.

As background, Metro was designed to use an ATC system, which comprises three sub-systems. Automatic Train Protection (ATP) separates trains to avoid collisions. Automatic Train Supervision (ATS) routes trains and assists in maintaining adherence to schedules. Together, these two sub-systems provide input to the train's cab signals and to a third sub-system, Automatic Train Operation (ATO), which can control the trains directly.

After the ATC malfunction in 2009, Metro began operating trains in manual mode and has not reverted back to using the ATC system, apart from a brief re-introduction on the Red Line in September 2014.

The ATC provides for a number of operational and customer benefits including headway management and proper interleaving of trains at junctions by speeding up or slowing down trains. The ATO system controls trains so that, between stations, they will move at the speed specified by the automatic train protection and automatic train supervision sub-systems. In ATC, Metro trains were manned by train operators who worked the doors, made station announcements, and supervised the train.

Compounding the complexity of managing the system manually is the experience levels of staff. Retirement waves over the past decade have resulted in the loss of experienced and seasoned staff, with 45% of controllers now having less than three years of service. Metro has had difficulty in attracting and retaining ROCC employees due to the stressful and demanding work environment and compensation equity and other issues.

Discussion:

The focus of ROCC improvements is in the following four areas.

Restructuring Work and Reducing Distractions

Actions are underway to restructure work to decrease controller workload and reduce distractions.

- Staff is being added to the Maintenance Operations Control (MOC) Plant Maintenance desk to assume responsibility for the preventive maintenance and inspection of tunnel fan operations from the ROCC supervisor's console.
- Five Power supervisors have been hired. Once training is completed, the transition of taking over power functionality for maintenance will begin. Power supervisors will also work closely with the Track Access Maintenance Construction group to plan and ensure that the day to day maintenance groups, as well as those requiring extended work locations are provided the necessary power outages to allow as many compatible work groups to share a location. A scope of work is being developed to construct a separate Power Room within the ROCC to create a more robust isolated environment.
- Upon completion of training for the 11 new ROCC supervisors (see below), Metro will have ample staff to open the OPS 4 radio channel console. (This alone will reduce the work load by redistributing 13 stations, 1 Rail Yard and 1 Junction to another console). The additional personnel will also provide ROCC with staff to implement breaks/relief.
- Metro is developing a scope of work to implement contractor recommended measures to reduce noise. Options include wrapping pillars with noise reducing materials, applying sound absorbing floor mats, and installing a glass apron for a situational area within ROCC.

Introducing New Training, Processes and Procedures

New training, processes and procedures will lead to improvement in the ROCC.

- Metro is finalizing a computer-based training program that will use video to increase situational awareness for operators of both Class I and Class II vehicles and to provide system familiarization for ROCC controllers.
- An outside contractor, Power Rail, recently completed an overhaul of the ROCC controller training program, which is now module based learning with exams for each section. If the exam for a module is not passed, the trainee does not move forward in the program. Re-certification has also been revised to include a practical exercise.

- In addition to Office of Emergency Management quarterly regional exercises, the ROCC is working with OEM to develop drills and exercises that are specific to controller standard operating procedures.
- Checklists are being created and implemented, serving as guidelines to ensure that the proper steps are taken to adhere to Standard Operating Procedures. Audits are being performed and a repository for data has been created which will assist in analysis and proactive identification of training requirements.

Addressing Turnover and Retention

Actions are underway to support full staffing levels in the ROCC. These include recruitment of controllers, supervisors, and management-level staff to reduce the span of control. Metro has identified an immediate need for 33 additional positions. A compensation review at all levels is aimed at attracting and retaining staff in these positions.

- To date Metro has hired 11 ROCC supervisors (aka controllers). Two training classes are now underway. These classes last 25 weeks. A third training class will begin in November 2017 and recruitment activity for the third class is ongoing. Upon completion of the training classes for the 11 new supervisors, Metro will have ample personnel to implement the opening of the Ops 4 radio channel console as well as additional personnel to provide breaks.
- Metro has contracted for temporary administrative support in ROCC. These resources will be used for Maximo data entry and administrative duties to further reduce duties of ROCC supervisors.
- Additionally, Metro has recruited seven MOC supervisors for various disciplines within the Maintenance Operations Control Center. This will provide ample personnel in MOC to assume the duties of exercising fans for preventive maintenance inspections, relieving controllers of this duty.
- ROCC is in the recruitment process for three additional superintendent positions, with three more required to reduce the span of control and allow 24/7 coverage over three shifts.
- A compensation review being conducted for all levels will include evaluation of strategies such as retention bonuses and premium pay. Benefits include enhancing the candidate pool, attracting more qualified candidates, creating

a competitive advantage, recognizing scarce skills, and addressing internal pay competitiveness.

Internal Review Assessment

The Office of Quality Assurance, Internal Compliance and Oversight (QICO) is currently conducting a scheduled assessment of the ROCC, approved by the General Manager in January this year as part of the 2017 QICO assessments plan. This assessment began in April 2017 and will continue through the end of June 2017. QICO's internal review of the ROCC will assess the effectiveness of the methods and practices used to monitor and control traffic on the Roadway and verify compliance with established procedures associated with Rail Traffic Controller (RTC) duties. The overall results of the ROCC internal review assessment will be presented to management in June 2017.

QICO will provide immediate feedback to WMATA management on the results of these reviews to ensure prompt action can be taken to address any concerns identified. Further, based upon the results of these reviews, QICO will establish a scope for performing periodic, on-going reviews.

FUNDING IMPACT:

The actions to improve mentioned in this information are included in the current year's budget.	
Project Manager:	Lisa Woodruff
Project Department/Office:	Rail Operations Control Center (ROCC)

TIMELINE:

Previous Actions	April 2017 – QICO conducted assessment of the ROCC
Anticipated actions after presentation	Ongoing – QICO will perform regular reviews of ROCC



Washington Metropolitan Area Transit Authority

Improving Rail Operations Control Center (ROCC)

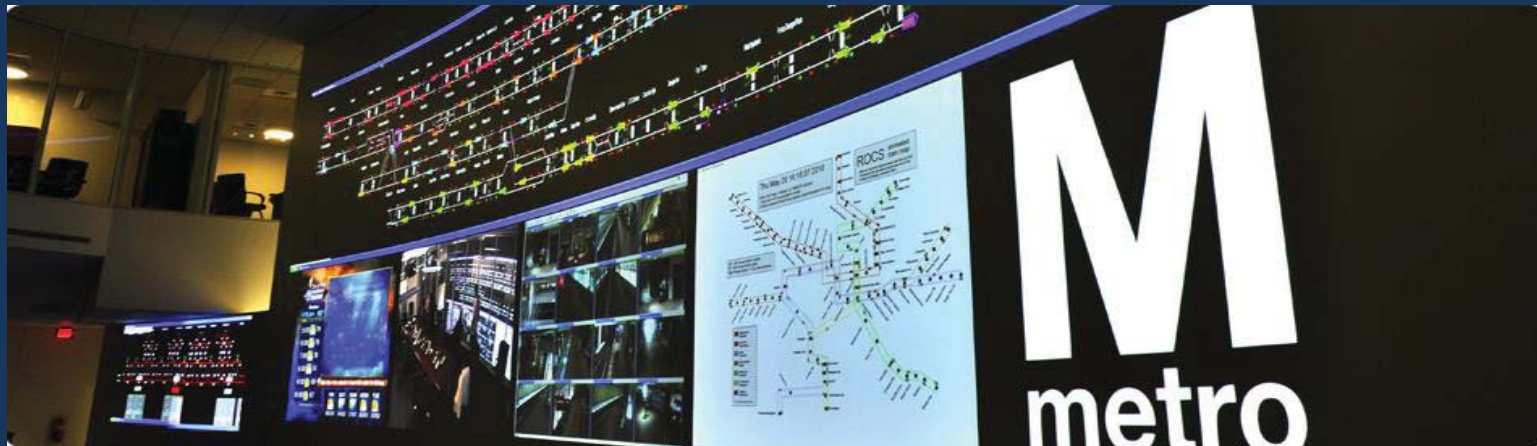
Customer Service, Operations and Security Committee
June 8, 2017



Purpose

Program to improve the Rail Operations Control Center (ROCC)

- Restructuring ROCC assignments
- Reducing distractions
- Introducing new training, processes and procedures
- Addressing turnover and retention





ROCC Environment

- Metrorail growth and major incidents increased controllers' workload, complexity and stress:
 - Manual operation
 - Silver Line
 - More capital + corrective maintenance with single tracking, shutdowns
- Staff turnover; 45% of controllers have <3 years of service





Restructuring Work

Decrease territory

- 4th console, split responsibilities, Silver Line
- Maintenance Operations Control handles “working under train approach warning” flagging scenarios
- Power Operations Control perform all power operation for planned track work (GOTRS)
- FY19/20: add maintenance control desk resources, Dulles Phase II

Increase management

- 3 new assistant superintendents
- 3 new superintendents





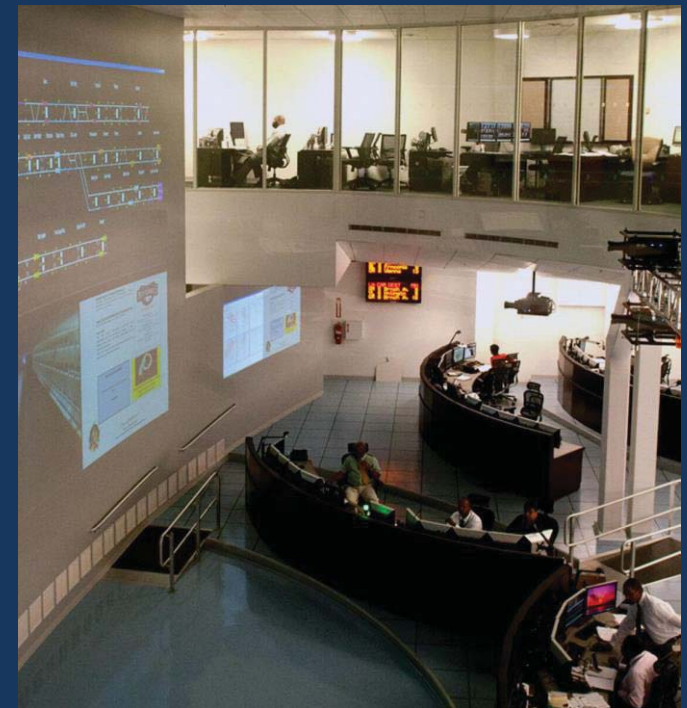
Reducing Distractions

Lower noise levels

- Situation area to strategize during emergencies
- Move Power Operations Control to enclosed room
- Install new sound-management materials: glass partitions, rubber mats, wrapped pillars

Even workloads

- Half of track inspections to night shift (completed)





Introducing New Training, Processes and Procedures

Enhanced training

- Computer-based training; situational awareness, system familiarization videos
- Controller training overhauled by consultant
- Module-based learning with exams
- Re-certification with practical exercises



Practice with exercises, drills

- Office of Emergency Mgmt quarterly exercises
- Red letter drills



Streamlined processes & procedures



Addressing Turnover and Retention

Recruit new staff

- Management span of control, 24/7 and 3-shifts coverage
- Controller workload, new desks (track flagging, Ops 4)
- Meal reliefs

Compensation review

- Compression, retention, premiums

Position	Current	Immediate Need
ROC Traffic controllers	41	+18 (and 2 temps)
MOC/Track supervisors	0	+9
Assistant Superintendents	6	+3
Superintendents	3	+3
Additional staff		+33



Internal Review Assessment

- Office of Quality Assurance, Internal Compliance and Oversight (QICO) conducting a scheduled assessment of the ROCC (April – June 2017)
 1. Assess effectiveness of methods and practices used to monitor and control traffic on Roadway
 2. Verify compliance with established procedures for Controller duties
- Establish scope and frequency of on-going reviews



Appendix

- Federal Transit Administration
- Tri-State Oversight Committee
- National Transportation Safety Board

CAP Category	Total	Closed	Under Review	In Development
FTA/TOC				
Staffing	1	-	-	1
Workload & Distractions	2	1	-	1
Training, Processes & Procedures	23	4	10	9
All Other	6	2	3	1
Subtotals	32	7	13	12
NTSB				
Training, Processes & Procedures	8	-	-	8
Totals	40	7	13	20