



May 22, 2020



**Engineering &  
Maintenance**



**Safety**



# QICO 2020

## CYQ1 REVIEWS

Washington Metropolitan Area Transit Authority  
WMATA

- 1. Office of Automatic Train Control Maintenance (ATCM)**
- 2. Office of Shops and Material Support (SAMS)**
  
- 3. Office of Emergency Management (OEM)**
- 4. Department of Information Technology (IT)**

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**WHAT WE DO****What is QICO?**

The Office of Quality Assurance, Internal Compliance & Oversight (QICO) is an internal management function that partners with other departments to provide an objective review. QICO and the internal review process are authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

**Why QICO Performed These Reviews?**

These internal reviews are intended to provide Metro senior management with an assessment of the following areas:

- Automatic Train Control Maintenance, Reliability and Engineering
- Shops and Materials Support
- Office of Emergency Management
- Information Technology

**QICO's Methodology:**

- Develop relevant review activities by identifying and assessing any risks to align with the QMSP 15 Core Standards.
- Review documentation, observe processes, and interview key personnel.
- Findings and required actions are based on risk rating, which ranges on a scale from "Insignificant" to "High".

**Note:** An itemized internal Corrective and Preventive Action (iCAPA) is developed for each required action to achieve effective and measurable resolution of identified concerns. To check the status of iCAPA implementation go to: [wmata.com/initiatives/transparency/](http://wmata.com/initiatives/transparency/).

**Engineering & Maintenance****WHAT WE FOUND | CYQ1 INTERNAL QUALITY & SAFETY REVIEWS**

May 2020

**1. Office of Automatic Train Control Maintenance (ATCM)****Wins:**

- ✓ ATCM has listed the ATC-1000, 2000, 3000 and 4000 controlled procedure and policy manuals as governing documents in its revised Maintenance Policy, which are currently under revision update.
- ✓ ATCM simplified execution of Engineering Modification Instructions (EMI) and ATC 1000 procedures using mobile devices per Metro Electronic Device Policy, eliminating the need to carry and track cumbersome paperwork.

**Action Areas Identified During Review:**

- Maintaining an up-to-date ATC Maintenance Control Policy inclusive of interdepartmental processes with SAMS and warranty claims promotes an effective maintenance process.

**2. Office of Shops and Material Support (SAMS)****Wins:**

- ✓ SAMS execution of work processes for disposal of batteries curtails risks associated with hazardous waste disposal and operations.

**Action Areas Identified During Review:**

- Documenting and issuing detailed and accurate standards and work instructions for routine functions improves efficiency and consistency within SAMS' operations.
- Implementing a documented and comprehensive training program streamlines performance and keep technicians well-informed of best practices.
- Certifying equipment calibration ensures equipment performance and continuity.

**3. Office of Emergency Management (OEM)****Wins:**

- ✓ OEM created a Computer-Based Training (CBT) in order to educate thousands of local first responders who cannot be trained in person in a given year.

**Items Resolved During the Review:**

- ★ During the OEM ISR, the Severe Weather Plan was updated. The previous plan was past the review due date.

**Action Areas Identified During Review:**

- Developing comprehensive governing documentation for internal functions and external training would encourage standardization, thoroughness and efficiency.
- Reviewing and updating official documentation within the required periodicity optimizes applicability and incorporates changes in a timely manner.
- Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of OEM field activities.

**4. Department of Information Technology (IT)****Wins:**

- ✓ IT comprehensively supports other departments 24/7 and adheres to established policies and procedures.
- ✓ Maintaining ISO 9001:2015 certification requires a high level of documentation control, including safety related policies and procedures.

**Action Areas Identified During Review:**

- Consistent participation in routine Departmental Safety Committee meetings is essential to continuously improve safety program throughout the IT department.
- Establishment of a formal compliance check program related to safety rule book management contributes to the safe execution of IT field activities.
- Maintaining a training and certification matrix for employees and contractors promotes proper skills management and safety certifications.

**WHAT WMATA WILL DO MOVING FORWARD****Key Takeaways**

1. Regular review and updates of governing documentation promotes inter-departmental coordination and warranty claims management.
  - Update and implement the Automatic Train Control Branch Maintenance Control Policy, inclusive of interdepartmental and warranty claims processes.
  - For details on committed actions, see the following iCAPA: QICO-ATCM-20-01.
2. Collaboration with Engineering to establish and implement maintenance processes is critical to effective testing, calibration and repair standards.
  - Establish a communication process with Engineering, documented work instructions for calibration and certification, and a training program.
  - For details on committed action plans see the following iCAPAs: QICO-SAMS-20-01, and QICO-SAMS-20-02.

**Key Takeaways**

3. Developing core procedures for internal functions and updating existing emergency plans will promote enhanced preparedness.
  - Develop comprehensive procedures and training curricula, review and update applicable emergency response plans, and create a formal compliance check program.
  - For details on committed actions, see the following iCAPAs: QICO-OEM-20-01, QICO-OEM-20-02, and QICO-OEM-20-03.
4. Participation in a Departmental Safety Committee, maintaining a training matrix by position, and implementing a safety rulebook compliance check program are essential to establishing a safety-first culture.
  - Develop or participate in a Departmental Safety Committee, create a formal compliance check program, and develop and maintain a training and certification matrix.
  - For details on committed actions, see the following iCAPAs: QICO-IT-20-01, QICO-IT-20-02, and QICO-IT-20-03.



Washington Metropolitan Area Transit Authority  
**INTERNAL REVIEW 2020**

## **Internal Review: Engineering & Maintenance**

### **(1) Office of Automatic Train Control Maintenance (ATCM)**

March 31, 2020



**Quality Assurance, Internal Compliance & Oversight (QICO)**  
*Promoting Transparency, Accountability, & Public Confidence*



ENGINEERING &  
MAINTENANCE



SERVICE  
DELIVERY



CAPITAL PROGRAM –  
MANAGEMENT  
& EXECUTION



INTERNAL SAFETY  
REVIEW



## What is QICO?

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## Why QICO Performed This Review:

- This Internal Review (IR) is intended to provide Metro senior management with an assessment of the state of Automatic Train Control Maintenance (ATCM) process and promote the actions needed to address any concerns.

## QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to align with the QMSP 15 Core Standards.
- Review documentation, observe processes, and interview key personnel.
- Findings and required actions are based on risk rating, which ranges on a scale from "Insignificant" to "High".

# INTERNAL REVIEW SUMMARY

March 2020

## (1) Office of Automatic Train Control Maintenance (ATCM)



### Key Takeaway:

*Regular review and updates of governing documentation promotes interdepartmental coordination and warranty claims management.*

### Wins:

- ✓ ATCM has listed the ATC-1000, 2000, 3000 and 4000 controlled procedure and policy manuals as governing documents in its revised Maintenance Policy, which are currently under revision update.
- ✓ ATCM simplified execution of Engineering Modification Instructions (EMI) and ATC 1000 procedures using mobile devices per Metro Electronic Device Policy, eliminating the need to carry and track cumbersome paperwork.

### Areas for Improvement:

- Maintaining an up-to-date ATC Maintenance Control Policy inclusive of interdepartmental processes with SAMS and warranty claims promotes an effective maintenance process.

### Required Actions:

- **QICO-ATCM-20-01:** Update and implement the Automatic Train Control Branch Maintenance Control Policy, inclusive of departmental warranty claim processes.

### Previous External Corrective Action Plans (CAPs) and Internal Corrective Action and Preventive Actions (iCAPAs) Status:

- 2015 Federal Transportation Administration (FTA) – Three CAPs, three closed
- 2015 Tri-state Oversight Committee (TOC) Review – 10 CAPs, six closed, two open, two past due
- 2017 Internal Review – Four iCAPAs, one closed, three past due
- 2019 Internal Review – Two iCAPAs, two open

**Note:** An itemized internal Corrective and Preventive Action (iCAPA) is developed for each required action to achieve effective and measurable resolution of identified concerns. To check the status of iCAPA implementation go to <https://www.wmata.com/initiatives/transparency>

## 1.1. FUNCTIONAL OVERVIEW AND STRUCTURE

### Office of Automatic Train Control Maintenance (ATCM)

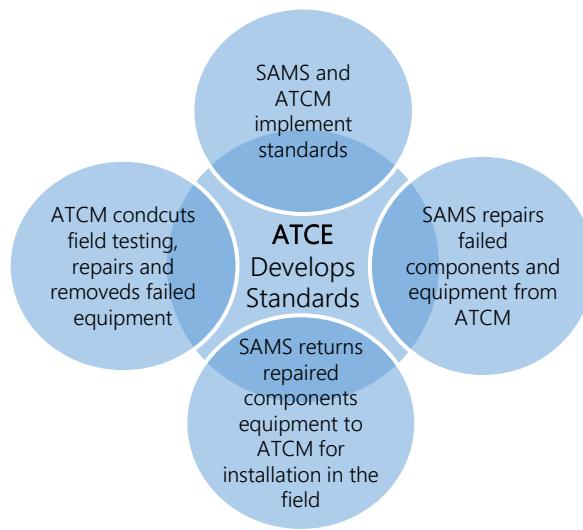
The Office of Automatic Train Control Maintenance (ATCM) is responsible for the maintenance, repair, replacement, and installation of wayside equipment. Automatic Train Control (ATC) equipment provides train position, rudimentary communication between the train and wayside, and automatic control of train speed and spacing of the trains.

This ATCM Internal Review (IR) focused on the execution and effectiveness of the activities outlined within ATCM governing documentation, the "Automatic Train Control Branch Maintenance Control Policy" as it relates to ATC-1000 through ATC-4000 documents and the Maintenance Control Plan document.

ATCM's primary mission is the installation, test, maintenance and repair of all guideway signaling systems and assets. These guideway systems and assets periodically experience functional failures which is handled as follows:

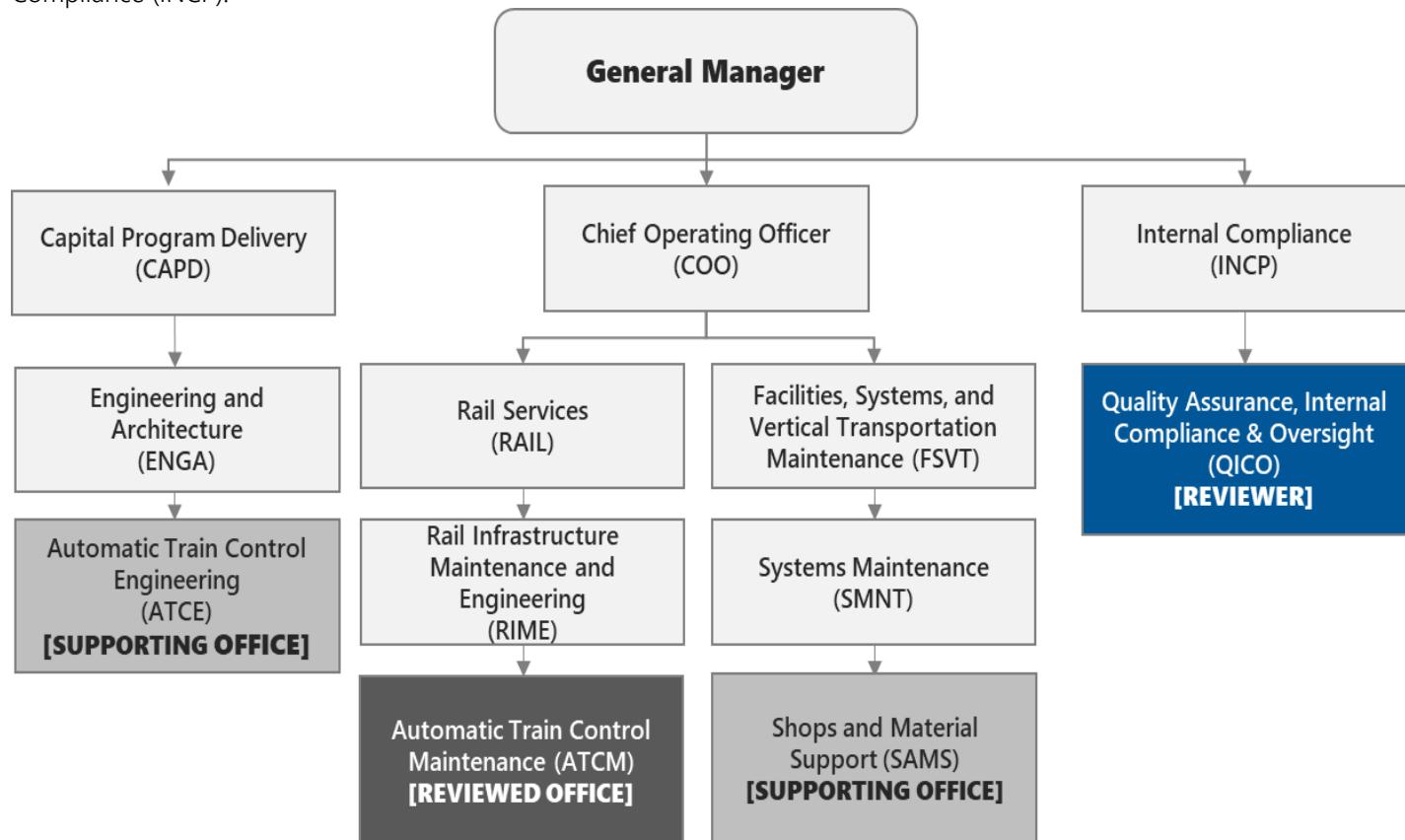
- As a functional failure occurs, the ATCM team troubleshoots the issue, at times with the support of ATCE, and often corrects such failures.
- In other instances, despite all efforts, the functional failure is beyond the capability of the ATCM group. When such an instance occurs, the ATCM team removes the failed assembly, or component, and replaces it with a repaired item.
- The failed assembly, or component, is sent to the SAMS shop where it is tested to identify the component level failure.
- Once the component level failure is identified, the assembly is sent for bench level repair. While this process seems to occur organically, it is not defined by any formal process or service level agreement.

During the assessment, QICO noted ATCM is dependent on Shops and Materials Support (SAMS), for the maintenance and repair of track bonds, circuit cards and similar components. QICO conducted a parallel Internal Review of SAMS activities related to ATCM components to verify the efficacy of SAMS processes and controls for the repair of components used in ATCM maintenance and repair. Below is a diagram that shows the relationships between ATCM, ATCE, and SAMS:



## Organizational Structure and Background

The Organization chart below depicts Automatic Train Control Maintenance reporting to the Chief Operating Officer (COO) through the departments of Rail Infrastructure Maintenance and Engineering (RIME) and Rail Services (RAIL). As shown in the organizational structure chart, QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP).



ATCM, a sub-group of Rail Infrastructure Maintenance and Engineering (RIME), is responsible for the control, maintenance, inspection, modification, overhaul, test and repair of Infrastructure systems. ATCM verifies the availability of wayside equipment and personnel in order to guarantee continuous safe, effective and economic rail operation.

ATCM mission statement is:

Automatic Train Control Maintenance provides for the safe and efficient movement of trains through a series of track circuits and integrated logic for routing and speed controls. To that end, ATCM endeavors to ensure that the Authority's business and mission critical automatic train control systems are maintained according to established standards and procedures.

The accomplishment of ATCM mission relies upon maintenance, repair and calibration support from the Shops and Material Support (SAMS) section of the Office of Systems Maintenance (SMNT). Furthermore, SAMS is identified as a supporting department within the ATCM maintenance control policy.

In addition to SAMS, ATCM is dependent on ATCE to provide policies and procedures for testing, inspection, and maintenance. Although ATCE was restructured under Capital Program Delivery (CAPD), ATCM has improved its relationship with ATCE through improved and consistent communications as well as cross functional and regularly scheduled meetings.

Despite improvements in codifying interactions between ATCM and ATCE, ATCM faces similar challenges with respect to interfacing with repair functions performed by SAMS. Although the interface between ATCM MCP addresses coordination between ATCM and SAMS, similar prescriptions for interfacing with ATCM do not appear in the SMNT MCP, which is SAMS' governing document.

## Corrective Action Plans (CAPs) and iCAPAs

This Internal review focused on a specific scope to avoid reviewing elements from the previous years' assessments conducted in both 2017 and 2019. QICO carefully reviewed scope elements in this Q1/2020 assessment to avoid overlapping existing open iCAPA's, as well as existing open regulatory Corrective Action Plans (CAPs) imposed by regulators such as the Federal Transit Authority (FTA), Tristate Oversight Committee (TOC) and others as represented in the summary tables below (figures 1 & 2).

QICO has been working with ATCM to ensure functions are performed in accordance with standards and documented processes. The number of new iCAPAs has diminished from previous years as increased collaboration and communication stabilized work processes between ATCM and ATCE.

This ATCM Internal Review (IR) is the third in a series of assessments that began in 2017. The progression of ATCM Internal Reviews and results occurred as follows:



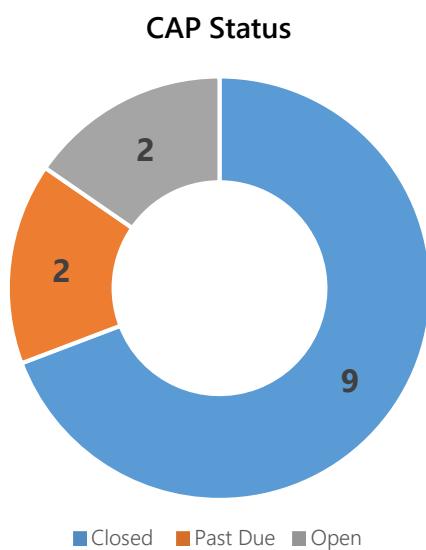
The iCAPAs resulting from the 2017 assessment exposed the need for design and process controls coupled with provisions for the adequate training of ATCM staff. There was no ATCM Internal Review conducted in 2018. The 2019 assessment focused on the ATC System Configuration Plan and the results re-emphasized the need for ATCM training. In addition, the need to maintain design controls was identified.

As a response to the 2019 Internal Review, the ATCM group kicked off a weekly series of "ATCM Procedure Review Workshops," utilizing a cross-functional team, including Automatic Train Control Engineering (ATCE) as a design control element, to review, evaluate, and update ATC-1000 and ATC-3000 procedures in compliance with ATC-4000 engineering controls.

Based on the previous years' Internal Reviews and the iCAPAs issued, QICO limited the scope of the 2020 Internal Review to focus on Process Compliance to ATC-1000 through ATC-4000 documents and the Maintenance Control Plan document. Due to this limited scope, the output yielded only one (1) finding and one (1) iCAPA as compared to previous assessments' output.

The following section illustrates the breakdown of 4 open, 10 closed, and 5 under review iCAPAs and CAPs. the number of iCAPAs and CAPs that are open, closed, and pending. Additionally, a description of the findings and open deliverables are captured.

## External (Regulatory) Corrective Action Plans (CAPs)



### Open Items

**TOC-ATC-15-002:** The ATC Branch and SAMS must conduct a full inventory of ATC tools in order to scrub Maximo and its tracking list of all tools no longer being used. The ATC Branch or SAMS must provide a revised Maximo inventory list with obsolete tools removed and regained calibration compliance. Also, the ATC Branch and SAMS must develop a documented tool distribution control method so that new equipment/tools are not issued until old ones are returned, and the person receiving the old equipment removes it from the inventory and maintenance cycle in Maximo. (Scheduled due date 6/26/2020)

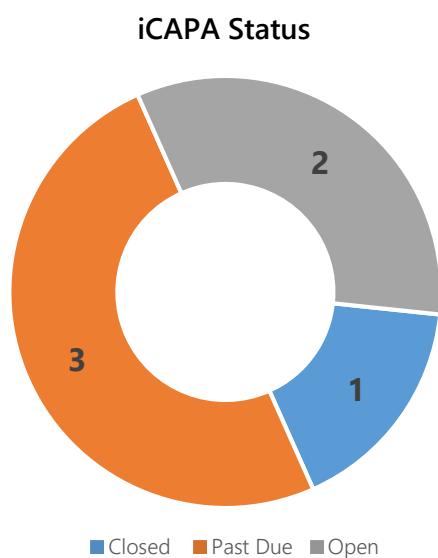
**TOC-ATC-15-011:** WMATA's ATC Branch must add pictures to part numbers in Maximo, consistently provide training it has developed regarding part numbers, and take other steps to ensure part numbers are easily accessible for maintainers and technicians. (Scheduled due date 11/27/2020)

### Past Due

**TOC-ATC-15-005:** WMATA's ATC Branch must enforce a clear method to ensure that personnel turn in copies of their Data Sheets to both Train Control Rooms and Field Offices. The ATC Branch must work with WMATA's Safety and Quality functions to schedule routine audits of Field Office paperwork and Corrective Maintenance work orders. (Scheduled due date 2/28/2020)

**TOC-ATC-15-006:** WMATA's ATC Management must develop a procedure and conduct quality control spot checks of Supervisors' work to ensure they are fully completing their duties (such as reviewing Data Sheets and adding defects to new work orders). (Scheduled due date 2/28/2020)

## Internal Corrective and Preventive Actions (iCAPA)



### Open Items

**QICO-ASCM-19-01:** Develop and implement a training plan of ATC-4000 manual, inclusive of front-line supervisors, TSMT/ATC training instructors, and middle and upper management, to streamline safety and design principles. (Scheduled due date 2/5/2021)

- Deliverable 1: ATC-4000 Training Curriculum
- Deliverable 2: ATC-4000 Manual Training Plan
- Deliver ATC-4000 Training

**QICO-ASCM-19-02:** Update ATC-4000 manual to further define technical content permitted in documentation issued by ATCM management to ATCM personnel. (Scheduled due date 5/29/2020)

- Deliverable 1: Update ATC-4000 Manual
- Deliverable 2: Utilize approved data sheets

### Past Due

**QICO-ATC-17-01:** Establish clear training requirements for each mechanic grade including periodicity and develop methods of capturing on-the job training

- Deliverable 3: Policy and Instruction (Change in schedule date from 10/31/17 to 3/20/20)

**QICO-ATC-17-02:** Review and perform necessary revision to maintenance documentation including the Maintenance Control Policy (MCP)

- Deliverable 4: Implementation of new quality control/compliance spot check procedure in Maintenance Control Policy (Change in schedule date from 7/31/17 to 3/20/20)
- Deliverable 5: Completed Preventative Maintenance's (PMs) (A change in schedule date from 9/28/17 to 3/20/20)
- Deliverable 9: Final ATC-40000 (Change in schedule from 1/15/18 to 3/20/20)

**QICO-stp-17-03:** Improve the quality and execution of future maintenance initiatives, establish formal quality control measures for use in corrective maintenance and rehabilitation activities that ensure identification and remediation of deficiencies prior to returning assets to passenger service

- Deliverable 1: ATCM Maintenance Control Policy (Change in schedule date from 12/27/17 to 3/20/20)
- Deliverable 2: TRST Maintenance Control Policy Update (Change in schedule date from 12/27/17 to 3/20/20)
- Deliverable 3: TRPM Maintenance Control Policy Update (Change in schedule from 12/27/17 to 3/20/20)

## 1.2. REVIEW SCOPE

### Documentation Review

- Automatic Train Control Branch Maintenance Control Policy (Rev 4, dated February 2017)
- All applicable Operations Administrative Policies (OAP) as listed in the control policy
  - o OAP 200-02 – Maintenance Operations Center (Rev 2, dated 2/1/2001)
  - o OAP 200-03 – Preventive Maintenance on Revenue Vehicles and Wayside Equipment (Rev 3, dated 10/23/2000)
  - o OAP 200-05 – Corrective Maintenance (Rev 4, dated 10/23/2000)
  - o OAP 105-01 – Engineering Documentation (Rev 0, dated 9/10/2016) supersedes OAP 200-06 and OAP 200-25
  - o OAP 200-30 – Escort Procedures, no revision number or date
  - o OAP 200-33 – Site Specific Work Plan, (Rev 0, dated 6/2/2006)

### Personnel Discussions

- Interviews with ATCM General and Assistant Superintendents
- Interviews with SAMS Technicians

### Additional Documentation

- Prince George's Plaza E08 Track circuit E2-429 Loss of Shunt Incident Report dated 11/4/19
- Engineering Action Bulletin EAB-19-002-SYS (Rev 0, dated 9/5/19)

## 1.3. WHAT WORKED WELL (WINS)

Wins are categorized by the [15 Core QMS Standards](#) and rated by the [Risk Assessment](#)

### W-ATCM-20-01 Process Control

Reduces Service Delivery Risk      Owner – ATCM

- ✓ ATCM has listed the ATC-1000, 2000, 3000 and 4000 controlled procedure and policy manuals as governing documents in its revised Maintenance Policy, which are currently under revision update.

#### Discussion

- The ATC-1000, 2000, 3000 and 4000 policy and procedure manuals are controlled by a design control board that comprises Automatic Train Control Engineering (ENGA), Automatic Train Control Maintenance (ATCM) and SAFE departments. The ATCM Maintenance Policy under revision update states that these are the main policies that are followed and identifies the function of each policy and procedure manual.
- In 2019, communication channels between ATCM and ATCE were not well established and Configuration documents were not in compliance within the system configuration management plan. ATCM adhering to these controlled procedures and policy manuals as governing documents supports the proper course of configuration control and asset management.

### W-ATCM-20-02 Document Control

Reduces Service Delivery Risk      Owner – ATCM

- ✓ ATCM simplified execution of Engineering Modification Instructions (EMI) and ATC 1000 procedures using mobile devices per Metro Electronic Device Policy, eliminating the need to carry and track cumbersome paperwork.

#### Discussion

- QICO observed ATCM personnel using an electronic device to reference and manage job specific procedures and to electronically sign off work. A tablet was used in compliance with the Metro Electronic Device Policy/Instruction #10.3/5, which greatly simplified the handling of multiple procedures (EMI 210391-E01 and ATC 1000 procedures) and sign off sheets during track switch replacement at Mt. Vernon Square (reference FA-ATCM\_IR\_20200202).
- Using electronic devices allows saving files as they are being edited and document preservation preventing damage from worksite stains such as grease. Misconceptions regarding any control documentation explaining the work (EMI 210391 and ATC 1000) can be quickly referenced and searched.

## 1.4. AREAS FOR IMPROVEMENT

Findings are categorized by the [15 Core QMS Standards](#) and rated by the [Risk Assessment](#)

### F-ATCM-20-01 Document Control

Service Delivery - Low (IMP 2, PROB 4)  Owner – ATCM

- Maintaining an up-to-date ATC Maintenance Control Policy inclusive of interdepartmental processes with SAMS and warranty claims promotes an effective maintenance process.

#### Discussion

- Page 1 of the ATCM maintenance control policy requires an annual review of the policy. ATCM is using a maintenance control policy that is 2 years out of date, dated February 2017.
- An updated version of the ATCM maintenance control policy (dated 2019) is currently under revision update. Emphasizing the importance of compliance with the ATC-1000, ATC-2000, ATC-3000, and ATC-4000 manuals in the ATCM maintenance policy will ensure compliance with the requirements of the design control board.
- Shops and Material Support Section (SAMS) performs bench level test and repair work for ATCM daily, as referenced in the ATCM Maintenance Control Policy. However, ATCM's Maintenance Control Policy does not have guidelines for conducting business or coordinating ATCM's effort with SAMS.
- Clarifying guidelines for interdepartmental coordination with the SAMS in the ATCM maintenance policy would streamline work practices.
- During a review of ATCS work orders, 52 were found open with a warranty "CLAIM" status of greater than 60 days. These work orders had labor charged, all required documented worked performed, and "FINISHED" in Maximo in 2015.
- The current ATCM maintenance control policy does not include instructions for tracking and reviewing of work orders with warranty "CLAIM" status. Tracking warranty claim work orders allows for follow-up before the warranty expires, allowing the Authority to realize those cost savings.

## 1.5. SUMMARY OF REQUIRED ACTIONS

QICO-ATCM-20-01

Action Owner – ATCM

Overall Risk – Low (IMP 2, PROB 4)



Required Action: Update and implement the Automatic Train Control Branch Maintenance Control Policy, inclusive of departmental warranty claims processes.

### Applicable Findings

- F-ATCM-20-01: Maintaining an up-to-date ATC Maintenance Control Policy inclusive of interdepartmental processes with SAMS and warranty claims promotes an effective maintenance process.
  - o Standard: Document Control Risk: Service Delivery – Low (2, 4)

[Internal Corrective and Preventive Actions \(iCAPAs\)](#) are designated to address each Required Action listed above.



Washington Metropolitan Area Transit Authority  
**INTERNAL REVIEW 2020**

**Internal Review: Engineering & Maintenance**  
**(2) Office of Shops and Material Support (SAMS)**

March 31, 2020



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INTERNAL SAFETY  
REVIEW



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- Review documentation, observe processes, and interview key personnel.
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## INTERNAL REVIEW SUMMARY

March 2020

### (2) Office of Shops and Materials Support (SAMS)



#### **Key Takeaway:**

*Collaboration with engineering to establish and implement maintenance processes is critical to effective testing, calibration and repair standards.*

#### **Wins:**

- ✓ SAMS execution of work processes for disposal of batteries curtails risks associated with hazardous waste disposal and operations.

#### **Areas for Improvement:**

- Documenting and issuing detailed and accurate standards and work instructions for routine functions improves efficiency and consistency within SAMS' operations.
- Implementing a documented and comprehensive training program streamlines performance and keeps technicians well-informed of best practices.
- Certifying equipment calibration ensures equipment performance and continuity.

#### **Required Actions:**

- **QICO-SAMS-20-01:** Establish communication loop with engineering to ensure current and accurate repair and maintenance standards are implemented in the Systems Maintenance (SMNT) Maintenance Control Policy (MCP). Develop documented work instructions for radio certification, precision measurement equipment calibration, and verification of externally calibrated equipment.
- **QICO-SAMS-20-02:** Establish and implement a training program that encompasses all training requirements for SAMS' personnel.

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## 2.1. FUNCTIONAL OVERVIEW AND STRUCTURE

### Office of Shops and Material Support (SAMS)

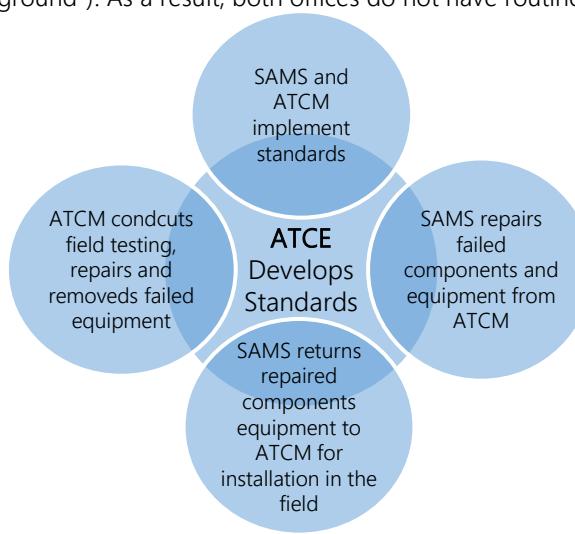
Under the purview of the Office of System Maintenance's (SMNT), the Office of Shops and Material Support (SAMS) is responsible for providing safety and reliability related services such as handheld device certifications, test equipment calibration, and component level repairs. Additionally, the Material Control division of SAMS is responsible for asset creation in Maximo, equipment pickup/delivery, assuring equipment is properly updated in Maximo, contract/warranty maintenance, and partial decommissioning of parts and materials (classification as Beyond Economical Repair). SAMS technical support covers diverse areas of service including:

- Supporting the following departments
  - o Automatic Train Control Maintenance (ATCM) Equipment
  - o Automatic Fare Collect Section (AFCS) Equipment
  - o Communication Equipment (PA, Camera, Fire/Intrusion, DVR, Monitor, Base Station, etc.)
  - o Low Voltage and High Voltage power equipment (limited number of items)
- Executing the following tasks
  - o Acceptance testing (primarily for Automatic Train Control Engineering)
  - o Engineering Support
  - o Equipment Calibration
  - o Locksmith services for SMNT and Revenue
  - o Bench level repair
  - o Radio equipment

The SAMS group is a maintenance, repair and calibration back shop that relies heavily upon engineering specifications and Original Equipment Manufacturer (OEM) standards to support component level services. As a functional failure occurs, the following steps are taken:

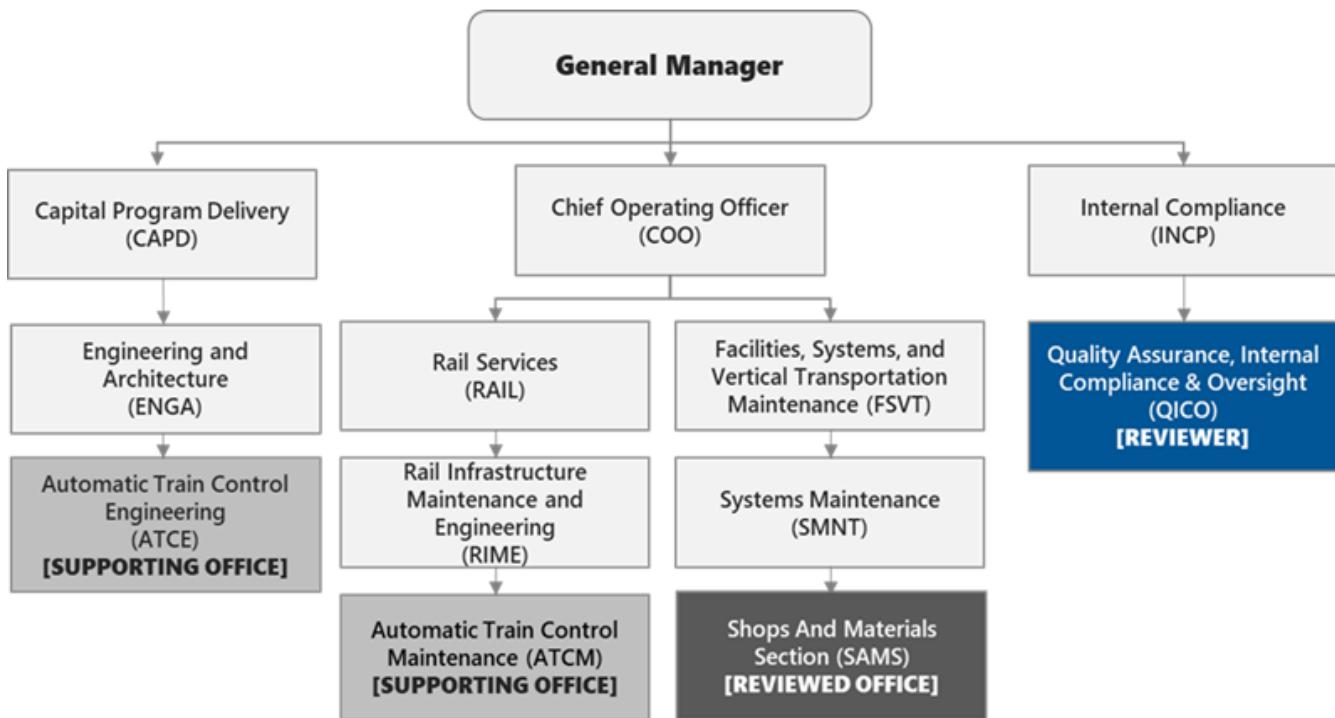
- The ATCM team troubleshoots the issue, at times with the support of ATCE, and often corrects such failures.
- In other instances, despite all efforts, the functional failure is beyond the capability of the ATCM group. When such an instance occurs, the ATCM team removes the failed assembly, or component, and replaces it with a repaired item.
- The failed assembly, or component, is sent to the SAMS shop where it is tested to identify the component level failure.
- Once the component level failure is identified, the assembly is sent for bench level repair.
- While this process seems to occur organically, it is not defined by any formal process or service level agreement.

As illustrated below, ATCM relies on SAMS for quality repairs of both vital and non-vital equipment. SAMS performs bench level repairs for ATCM but depends on the Office of Automatic Train Control Engineering (ATCE) standards to detail the work required to maintain design control (reference control and equipment exchange flow chart below). However, based on the Authority wide organizational structure there is no straightforward relationship between ATCE and SAMS (reference organizational chart under "Organizational Structure and Background"). As a result, both offices do not have routine interactions which creates limited engineering oversight of SAMS.



## Organizational Structure and Background

The Office of Quality Assurance, Internal Compliance and Oversight (QICO) conducted an internal review of SAMS during the first quarter of 2020 (January 16 - March 31, 2020). Within WMATA, the Office of Facilities, Systems, and Vertical Transportation Maintenance (FSVT), reports to the Chief Operating Officer (COO). Under FSVT, SMNT oversees the functions of SAMS. SAMS is responsible for providing authority-wide safety and reliability services such as handheld device certification, precision measurement/test equipment calibration, and component level repair. As shown in the organization chart, QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP).



During this internal review QICO noted that the General Superintendent of SMNT, and the Superintendent of SAMS have been serving in acting capacities for almost 12 months. The General Superintendent of SMNT is a significant role having authority over several functional groups inclusive of the following:

- Shops and Materials Support (SAMS)
- Radio Communications (COMR)
- Project Management and Coordination (PMCO)
- Low Voltage Power Section (LVEM)
- Communications Section (COMM)
- Automatic Fare Collection Section (AFCS)

Additionally, the superintendent of SAMS reports to the General Superintendent of SMNT. This function is critical in providing maintenance, repair and calibration services to mission critical activities such as the following:

- Automatic Train Control Equipment
- Automatic Fare Collection Equipment
- Radio Equipment
- Power (Low Voltage) Equipment
- Communication Equipment
  - o Public Address Systems
  - o Fire/Intrusion Systems
  - o Cameras and DVR's

The Office of SAMS is divided into two (2) sub-groups. The Material Control group is responsible for managing receipt/delivery of repair/repaired items as well as management of repair material inventory. The System Maintenance Shops are responsible for equipment certification and bench level component repairs. A breakdown of SAMS personnel distribution is as follows:

Material Control (9 Total, 2 Supervisory)	System Maintenance Shops (39 Total, 3 Supervisory)
<ul style="list-style-type: none"> <li>o 1 Assistant Superintendent</li> <li>o 1 Material Control Supervisor</li> <li>o 5 Material Control Clerks</li> <li>o 1 Parts Runner</li> <li>o 1 Material Handler</li> </ul>	<ul style="list-style-type: none"> <li>o 3 Shop Supervisors (1 per shop, Calibration, Certification, and Repair)</li> <li>o 30 Mechanics/Technicians</li> <li>o 6 Mechanic Helpers</li> </ul>

## 2.2. REVIEW SCOPE

### Documentation Review

- SAMS Organizational Chart
- SMNT/SAMS Governing Documents Standard Operating Procedures (SOP) and Operations Administrative Policies (OAP)
  - o SOP 204-03 Handheld Radio Certification Process, (Rev 0, dated 7/30/2019)
  - o OAP 204-01 Test Equipment Calibration, (Rev 1, dated 01/24/2020)
  - o Office of Support Services (SSRV) OAP 100-01 Supervisory Inspections of Work Performed in Support Services (Rev 3, dated 09/18/2018)
  - o Warning Strobe Alarm Device (WSAD) Testing and Certification Procedure (Rev 0, dated 06/20/2018)
- SMNT Maintenance Control Policy (MCP), Version 3.1
- SAMS Technicians Training Records
- SAMS Business Process Workflows
- List of Calibrated Equipment
  - SAMS QA/QC Inspections (October – December 2019)

### Key Personnel Interviewed

- Acting General Superintendent, SMNT
- Acting Superintendent, SAMS

### Field Assessments and Desk Interviews

- Field Activities Observed during Internal Review:
  - o Certification of handheld radios
  - o Testing and recertification of WSADs
  - o Certification of precision measurement/ test equipment
  - o Bench level repair of ATC related components (bonds and circuit boards)
  - o Material control functions including creation of asset in Maximo and decommissioning of equipment
- Interviews and Discussions:
  - o SAMS Shift Supervisor
  - o Asst. Superintendent, SAMS
  - o Technicians conducting certification, testing and repair functions during field assessments

## 2.3. WHAT WORKED WELL (WINS)

Wins are categorized by the [15 Core QMS Standards](#) and rated by the [Risk Assessment](#)

### W-SAMS-20-01 Process Control

Reduces Legal & Compliance Risk Owner – SAMS

- ✓ SAMS' execution of work processes for disposal of batteries curtails risks associated with hazardous waste disposal and operations.

#### Discussion

- SAMS' adherence to Environmental Standard Operating Procedure (ESOP) 5-3: Battery Recycling mitigates safety, legal, and financial risks associated with hazardous waste operations. QICO observed collection and storage of used batteries consistent with protocols prescribed in ESOP 5-3.

## 2.4. AREAS FOR IMPROVEMENT

Findings are categorized by the [15 Core QMS Standards](#) and rated by the [Risk Assessment](#)

### F-SAMS-20-01 Process Control

### Service Delivery – Elevated (IMP 3, PROB 4) █ Owner – SAMS

- Documenting and issuing detailed and accurate standards and work instructions for routine functions improves efficiency and consistency within SAMS' operations.

#### Discussion

- SOP 204-03 and OAP 204-01 outline requirements for radio certification and test equipment calibration, but technicians were unaware of the existence of documented work instruction to perform their functions.
  - o Radio certification is performed using Original Equipment Manufacturer (OEM) software which prompts technicians through the calibration process.
  - o There are no process controls within the software nor is there detailed, documented work instruction.
  - o The software does not limit technician selections of types of tests to perform on equipment. The lack of process control and written work instruction allow for inconsistencies in approach.
  - o Inconsistencies can be eliminated with a documented work instruction.
  - o QICO observed two technicians performing radio certification but lack of process limiting controls in the Original Equipment Manufacturer (OEM) software used for certification allowed the technicians to use different approaches for certification. This variance in certification methods yielded two different results. The radio with the technician performing the certification without selecting the "Oscillator Reference" function failed certification. But when the failed radio was processed with the selection of the "Oscillator Reference" function, the radio achieved certification. Any work instruction created must be inclusive of function/asset specific standards and specifications, as approved by Engineering, and made available to asset owners. Therefore, SAMS is reliant on consistent intra-departmental collaboration for creation/revision of work instruction.
- In 80% of the cases QICO observed, SAMS technicians were unaware of the existence of current repair standards/specifications. Technicians refer to vendor provided manufacturer specific manuals to complete troubleshooting and repair.
  - o SAMS is not aware of the existence of maintenance standards developed by Engineering. SAMS contends there are no recognized standards implemented for soldering and repair of ATC circuit boards. However, documents indicate that SAMS conducted and completed 2 separate trainings on circuit board repairs in 2012 and 2014.
  - o QICO reached out to ATCE and confirmed the existence of approved standards for soldering (IPC-A-610D: Acceptability of Electronics Assemblies or equivalent standard) and anti-static work station protection. However, QICO did not observe compliance with implementation of these standards during field assessments.
- SAMS' operations are at the intersection of asset operator requirements, engineering information, and industry standards. The SMNT MCP serves as a guideline for not only internal maintenance practices, but also as a guideline for interdepartmental coordination. Review of the MCP reveals processes and policies that are described, but lack details and/or are inconsistent.
  - o The Beyond Economical Repair (BER) process descriptions in the MCP are inconsistent.
    - The written description of BER in section 14.1 of the MCP contradicts the workflow graphics in the MCP appendix.
    - Per BER workflow appearing in Figure 19 of SMNT MCP, SAMS Material Control is responsible for "Physical Disposal" of equipment; however, the process is lacking details and consistency. In one of the field assessments conducted by QICO, we observed decommissioned equipment stockpiled at SAMS' location awaiting asset operator retrieval for disposal. However, Figure 19 on page 406 of the MCP informs SAMS to physically dispose of equipment and then move equipment to SAMS' shipping and receiving area.
  - o A descriptive, documented process allows SAMS the opportunity to enforce asset owner/operator disposal of decommissioned equipment classified at BER.
  - o Detail is also lacking in the description of decommissioned systems under Section 14.2 of the MCP. A more articulate description of decommissioning of systems provides SAMS the opportunity to enforce physical, off-site disposal of decommissioned equipment and eliminates stockpiling of decommissioned equipment at SAMS' location.

**F-SAMS-20-02 Training****Service Delivery – High (IMP 4, PROB 5)****Owner – SAMS**

- **Implementing a documented and comprehensive training program streamlines performance and keeps technicians well-informed of best practices.**

**Discussion**

- The training matrix provided by SAMS showed 40% of technicians were lacking one or more trainings deemed as required under Section 28.2 of the MCP.
- SAMS relies on On-the-Job-Training (OJT) as their main training mechanism, but SAMS has no documented curriculum or performance documentation regarding OJT.
  - o Maintaining OJT records in a controlled repository will provide SAMS with a central location for accessing and assessing personnel skillsets for efficient alignment of assignments with corresponding employee skill level.
- Having a detailed, discipline specific training curriculum will promote consistency in SAMS' execution.
- Having vendor contracts inclusive of field and bench level maintenance requirements will promote efficiency of WMATA maintenance departments.
  - o Requirements of contractor/vendor training improve the quality of work processes and repair output.
  - o Contract-required training does not include the depth of training required to facilitate future component level maintenance and repair work in an efficient manner.
  - o Insufficient Operations & Maintenance (O&M) documents and minimal contractor/vendor-provided-trainings increase difficulty of troubleshooting and repairs.
  - o Detailed O&M documentation and in-depth training are critical to efficient maintenance and repair throughout asset life cycles.

**F-SAMS-20-03 Inspection, Measuring & Test Equipment****Technology – Low (IMP 3, PROB 2)****Owner – SAMS**

- **Certifying equipment calibration ensures equipment performance and continuity.**

**Discussion**

- SAMS maintains shipping logs and calibration certification documents for most equipment calibrated externally, but SAMS has noted that occasionally a specific vendor (████████) occasionally does not provide calibration certification for equipment which SAMS owns.
- Upon request of QICO during field assessments, SAMS was able to provide calibration certifications from other vendors, but not from █████.
- Without certification from vendors, SAMS cannot ensure the validity of calibration performed.
  - o When externally calibrated precision measurement equipment is returned to WMATA, SAMS affixes WMATA calibration stickers to these machines. QICO observed no defined process on how these labels are applied.
  - o QICO did not observe any tags on retagged devices in consistent locations on devices nor was the information entered on the tag consistent across retagged devices observed.
  - o Improved consistency within retagging process would afford better identification and traceability of assets calibrated externally.
  - o A documented standard for retagging of externally calibrated equipment leads to improved identification, traceability and efficiency.

## 2.5. SUMMARY OF REQUIRED ACTIONS

QICO-SAMS-20-01	Action Owner – SAMS	Overall Risk – Elevated (4,3) 
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**Required Action:** Establish communication loop with engineering to ensure current and accurate repair and maintenance standards are implemented in the Systems Maintenance (SMNT) Maintenance Control Policy (MCP). Develop documented work instructions for radio certification, precision measurement equipment calibration, and verification of externally calibrated equipment.

### Applicable Findings

- F-SAMS-20-01: Documenting and issuing detailed, accurate standards and work instructions for routine functions improves efficiency and consistency within SAMS' operations.
  - o **Standard:** Process Control      **Risk:** Service Delivery/Safety – Elevated (3, 4)
- F-SAMS-20-03: Equipment calibration certification ensures equipment performance and continuity.
  - o **Standard:** Inspection, Measuring & Test Equipment      **Risk:** Technology – Low (3, 2)

QICO-SAMS-20-02	Action Owner – SAMS	Overall Risk – High (4,5) 
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**Required Action:** Establish and implement a training program that encompasses all training requirements of SAMS personnel.

### Applicable Findings

- F-SAMS-20-02: Implementing a documented, comprehensive training program streamlines performance and keep technicians well-informed of best practices.
  - o **Standard:** Training      **Risk:** Service Delivery – High (4, 5)

[Internal Corrective and Preventive Actions \(iCAPAs\)](#) are designated to address each Required Action listed above.



Washington Metropolitan Area Transit Authority  
**INTERNAL SAFETY REVIEW 2020**

**Internal Review: Internal Safety Review**  
**(3) Office of Emergency Management (OEM)**

March 31, 2020



Quality Assurance, Internal Compliance & Oversight (QICO)  
*Promoting Transparency, Accountability, & Public Confidence*



ENGINEERING &  
MAINTENANCE



SERVICE  
DELIVERY



CAPITAL PROGRAM –  
MANAGEMENT  
& EXECUTION



INTERNAL SAFETY  
REVIEW



## What is QICO?

- The Office of Quality Assurance, Internal Compliance & Oversight (QICO) is an internal management function that partners with other departments to provide an objective review. QICO and the internal review process are authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

## Why QICO Performed This Review:

- This Internal Safety Review (ISR) is intended to provide Metro senior management with an assessment of the Office of Emergency Management's compliance with federal regulations and WMATA's System Safety Program Plan (SSPP), and promote the actions needed to address any concerns.

## QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to align with Policies, Procedures & Standards; Training, Certification & Compliance; Hazard Management; and Safety.
- Review documentation, observe processes, and interview key personnel.
- Findings and required actions are based on risk rating, which ranges on a scale from "Insignificant" to "High".

# INTERNAL SAFETY REVIEW SUMMARY

March 2020

## (3) Office of Emergency Management (OEM)

### **Key Takeaway:**

*Developing core procedures for internal functions and updating existing emergency plans will promote enhanced preparedness.*

### **Wins:**

- ✓ OEM created a Computer-Based Training (CBT) in order to educate thousands of local first responders who cannot be trained in person in a given year.

### **Items Resolved During the Review:**

- ★ During the OEM ISR, the Severe Weather Plan was updated. The previous plan was past the review due date.

### **Areas for Improvement:**

- Developing comprehensive governing documentation for internal functions and external training would encourage standardization, thoroughness and efficiency.
- Reviewing and updating official documentation within the required periodicity optimizes applicability and incorporates changes in a timely manner.
- Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of OEM field activities.

### **Required Actions:**

- Develop comprehensive procedures and training curricula that fully describe work performed and training goals.
- Review and update applicable emergency response plans per the direction within each document or the Emergency Preparedness Plan, whichever occurs soonest.
- Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.

**Note:** An itemized Internal Corrective and Preventive Action (iCAPA) is developed for each required action to achieve effective and measurable resolution of identified concerns. To check the status of iCAPA implementation go to <https://www.wmata.com/initiatives/transparency>

## 3.1. FUNCTIONAL OVERVIEW AND STRUCTURE

### Office of Emergency Management (OEM)

OEM supports the overall mission of Washington Metropolitan Area Transit Authority (WMATA) to provide safe, reliable, and efficient transportation options throughout the DC Metro area by providing emergency preparedness through prevention, protection, mitigation, response and recovery. OEM provides comprehensive emergency preparation through planning, training, exercises and outreach. In addition, public safety officials, agencies and jurisdictions work with OEM to provide response plans for a wide array of natural or man-made disasters that could affect not only Metro but also the community. OEM responds to incidents/emergencies and coordinates with emergency personnel and Metro officials for the entire 1,550-mile Transit Zone.

OEM is comprised of two divisions: 1) Planning and Technical Services and 2) Operations. Planning and Technical Services develops and maintains plans that relate to the manner in which Metro will prepare, mitigate, respond and recover from incidents/emergencies. Operations maintains the Emergency Response Training Facility and is responsible for training internal and external emergency responders who may need to interact with the Metro system in an emergency.

The objective of the OEM Internal Safety Review (ISR) is to internally validate that routine operations, new projects, systems, and training under the purview of the Office of Emergency Management are as safe as reasonably possible per WMATA's System Safety Program Plan (SSPP). The SSPP is an authority-wide safety plan created by the Department of Safety & Environmental Management (SAFE) in accordance with Federal Transit Administration (FTA) guidelines (49 CFR 659), and details WMATA's approach to satisfying the 21 required elements for system safety.

Out of the 21 elements, the following seven elements were found applicable to OEM:

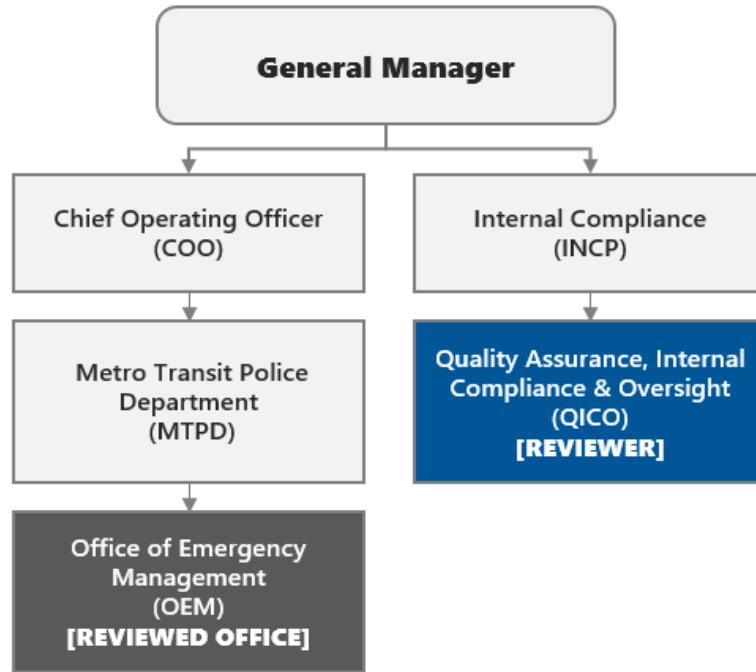
- Management Structure (Element 3)
- Safety Data Acquisition (Element 9)
- Emergency Management (Element 11)
- Rules Compliance (Element 13)
- Maintenance Audits and Inspections (Element 15)
- Training Certification (Element 16)
- Local, State and Federal Regulations (Element 18)

It must be noted that prior to the inception of this Internal Safety Review, QICO launched Quality Management System (QMS) implementation activities on August 15, 2019. The QMS is intended to establish a formalized system that documents processes, procedures and responsibilities for achieving quality policies and objectives. The QMS helps coordinate and direct OEM's activities to meet customer and regulatory requirements and improve its effectiveness and efficiency on a continuous basis. The below diagram shows OEM's timeline for the QMS implementation:



## Organizational Structure and Background

Within WMATA, the Office of Emergency Management reports to the Chief Operating Officer (COO) through Metro Transit Police Department (MTPD). As shown in the organization chart, QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP).



## 3.2. REVIEW SCOPE

### Documentation Review

- WMATA System Safety Program Plan (SSPP), 2018
- WMATA Emergency Operations Plan, January 2017
- WMATA P/I 1.2/2 Organization Chart Management
- WMATA P/I 1.11/2 Inter-Departmental Notification of Incidents
- WMATA P/I 1.15/0 Rule Book Management
- WMATA P/I 11.7/1 Emergency Response Personnel Accountability
- WMATA Continuity of Operations Plan (COOP), February 2014
- HR-TA-P02-00 Competitive Recruitment Procedure
- OEM Org chart
- MTPD-OEM-SOP-001-00 After-Action Report Resolution (Rev 0, dated 9/25/2019)
- Station Emergency Response and Evacuation Plan, October 2016
- WMATA Pandemic Flu Plan
- Office of Emergency Management Emergency Preparedness Plans
- JGB Evacuation Plan
- WMATA Fire Protection System Inspection, Testing and Maintenance Program Manual
- WMATA Safety and Security Certification Plan
- WMATA Severe Weather Wind and Flood Preparedness Checklist
- WMATA Severe Weather Plan 2020
- WMATA Flood Emergency Response Plan
- WMATA Automated External Defibrillator Program Management Plan
- CTF Evacuation Plan
- WMATA Emergency Operations Center Manual, January 2018
- WMATA Family Assistance Plan, January 2018
- Daily conference call documentation
- OEM staff meeting notes
- OEM staff training records
- Local Safety Committee (LSC) documentation (meeting minutes and agendas)
- Job Description 0260, Emergency Operations Manager
- Job Description 0265, Office of Emergency Management Director
- Job Description 0274, Emergency Management Coordinator
- Job Description 7465, Fire/Life Safety Liaison
- Job Description 7469, Fire/Life Safety Coordinator
- Job Description 7470, Senior Fire/Life Safety Officer
- Washington Metropolitan Area Transit Authority and the Metropolitan Washington Council of Governments, Metrorail Transit-Fire/Rescue Emergency Procedures Policy Agreement 2015
- APTA RT-OP-S-007-04 (Rev 2, dated January 2018)
- FTA Response and Recovery for Declared Emergencies and Disasters
- FTA The Public Transportation System Security and Emergency Preparedness Planning Guide

### Personnel Discussions

- OEM Director
- OEM Operations Manager
- OEM Senior Fire/Life Safety Liaison
- OEM Fire/Life Safety Liaison Officer

### Field Assessments

- District of Columbia Fire Department (DCFD) scenario training and system familiarization at Carmen Turner Facility (CTF)
- Fairfax County Fire and Rescue Department (FCFRD) railcar lifting training at West Falls Church Yard (WFCY)

### 3.3. WHAT WORKED WELL (WINS)

Wins are categorized by the [System Safety Measures](#) and rated by the [Risk Assessment](#)

#### W-OEM-20-01 Application & Fulfillment

Reduces Safety Risk    Owner – OEM

- ✓ OEM created a CBT in order to educate thousands of local first responders who cannot be trained in person in a given year.

##### Discussion

- OEM conducts in-person training for local first responders at CTF, WMATA rail yards, and local fire stations. However, OEM cannot train every local first responder in person each year.
- In total, OEM supplies in-person and CBT to approximately 11,000 first responders in Maryland, Virginia and the District of Columbia.
- These training sessions prepare local agencies to respond efficiently to different emergencies within the WMATA system.

### 3.4. ITEMS RESOLVED DURING REVIEW

Items resolved are categorized by [System Safety Measures](#)

#### R-OEM-20-01 Safe Work Standards

Reduces Safety Risk    Owner – OEM

- ⊕ During the OEM ISR the Severe Weather Plan was updated. The previous plan was past the review due date.

##### Discussion

- In February 2020, an updated Severe Weather Plan was released. The Severe Weather Plan provides detailed processes followed during a weather event such as a hurricane or blizzard.
- The previous Severe Weather Plan was last updated in October 2015 and was past the due date for revision.
- Emergency plans are to be updated every two years.

## 3.5. AREAS FOR IMPROVEMENT

Findings are categorized by [System Safety Measures](#) and rated by the [Risk Assessment](#)

### F-OEM-20-01 Safe Work Standards

Safety – Low (IMP 2, PROB 3)   Owner – OEM

- Developing comprehensive governing documentation for internal functions and external training would encourage standardization, thoroughness and efficiency.

#### Discussion

- During the interview process, QICO learned that OEM performs safety critical tasks for which there are no Standard Operating Procedures (SOPs)/work instructions, including:
  - o Weather monitoring and reporting
  - o On-call officer duties and requirements
  - o Equipment inspection/certification
- OEM supplied QICO with only one SOP (MTPD-OEM-SOP-001-00) that specifies After Action Report resolution.
- QICO observed two training exercises with local fire departments. Prior to the first exercise (DCFD training at CTF), a one-page syllabus was provided to QICO outlining the modules covered in the training session. QICO is not aware of training aids provided to attendees for future use. Prior to the second exercise (FCFRD training at WFCY), a draft instructor guide was provided to QICO, but use of said guide was not observed during the exercise. Again, QICO is not aware of training aids given to attendees for future use.
- Even though most OEM personnel have decades of emergency response experience that is a valuable asset in training local agencies, more and better-defined work instructions, procedures, and training manuals would standardize job functions performed by OEM personnel and maximize training benefit to first responders.

### F-OEM-20-02 Application & Fulfillment

Service Delivery – Low (IMP 2, PROB 3)   Owner – OEM

- Reviewing and updating official documentation within the required periodicity optimizes applicability and incorporates changes in a timely manner.

#### Discussion

- QICO reviewed plans and manuals that OEM is responsible for maintaining. Each of these documents contains a review and revision due date, and page one of the Emergency Preparedness Plan requires each plan to be reviewed and revised every two years.
- QICO observed the documents listed below are past the due date:
  - o Continuity of Operations Plan (COOP) [due for review and revision on 02/2016]
  - o Emergency Operations Center Manual [due for review and revision 01/2020]
  - o Emergency Operations Plan [due for review and revision 01/2019]
  - o Family Assistance Plan [due for review and revision 01/2020]
  - o Station Emergency Response and Evacuation Plan [due for review and revision 10/2018]
- Given the importance of these plans, adherence to review and revision dates optimizes response to a variety of emergencies.

## F-OEM-20-03 Job Safety

Safety – Low (IMP 2, PROB 4)  

Owner – OEM

- Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of OEM field activities.

**Discussion**

- Through review of OEM records and discussions with key OEM personnel, QICO learned there is no independent compliance check program in place to oversee compliance to safety rules and procedures.
- Per the Policy/Instruction 1.15/0 Rule Book Management and SSPP 13.3, all offices with employees subject to the Metrorail Safety Rules and Procedures Handbook (MSRPH) and other applicable operating, maintenance, and administrative rule books and SOPs are required to develop a documented Quality Control Program to ensure compliance to rules and procedures. This program must include rule prioritization, roles and responsibilities and compliance checks.
- OEM personnel operate in a number of dangerous environments (tunnels, roadway, and rail yards, etc.) and are therefore subject to safety rules from multiple governing documents.
- Implementation of a compliance check program for applicable OEM groups is vital to promote a culture of safety and would provide feedback to help assure rules and procedures are thoroughly implemented and followed.

## 3.6. SUMMARY OF REQUIRED ACTIONS

QICO-OEM-20-01

Action Owner – OEM

Overall Risk – Low (IMP 2, PROB 3) 

Required Action: Develop comprehensive procedures and training curricula that fully describe work performed and training goals.

### Applicable Findings

- F-OEM-20-01: Developing comprehensive governing documentation for internal functions and external training would encourage standardization, thoroughness and efficiency.
  - o **Measure:** Safe Work Standards      **Risk:** Safety – Risk Rating (2,3)

QICO-OEM-20-02

Action Owner – OEM

Overall Risk – Low (IMP 2, PROB 3) 

Required Action: Review and update applicable emergency response plans per the direction within each document or the Emergency Preparedness Plan, whichever occurs soonest.

### Applicable Findings

- F-OEM-20-02: Reviewing and updating official documentation within the required periodicity optimizes applicability and incorporates changes in a timely manner.
  - o **Measure:** Application & Fulfillment      **Risk:** Service Delivery– Risk Rating (2,3)

QICO-OEM-20-03

Action Owner – OEM

Overall Risk – Low (IMP 2, PROB 4) 

Required Action: Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.

### Applicable Findings

- F-OEM-20-03: Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of OEM field activities.
  - o **Measure:** Job Safety      **Risk:** Safety – Risk Rating (2,4)

[Internal Corrective and Preventive Actions \(iCAPAs\)](#) are designated to address each Required Action listed above.



Washington Metropolitan Area Transit Authority  
**INTERNAL SAFETY REVIEW 2020**

**Internal Review: Internal Safety Review**  
**(4) Department of Information Technology (IT)**

March 31, 2020



**Quality Assurance, Internal Compliance & Oversight (QICO)**  
*Promoting Transparency, Accountability, & Public Confidence*



ENGINEERING &  
MAINTENANCE



SERVICE  
DELIVERY



CAPITAL PROGRAM –  
MANAGEMENT  
& EXECUTION



INTERNAL SAFETY  
REVIEW



## What is QICO?

- The Office of Quality Assurance, Internal Compliance & Oversight (QICO) is an internal management function that partners with other departments to provide an objective review. QICO and the internal review process are authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

## Why QICO Performed This Review:

- This Internal Safety Review (ISR) is intended to provide Metro senior management with an assessment of the Department of Information Technology's compliance with federal regulations and WMATA's System Safety Program Plan (SSPP), and promote the actions needed to address any concerns.

## QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to align with Policies, Procedures & Standards; Training, Certification & Compliance; Hazard Management; and Safety.
- Review documentation, observe processes, and interview key personnel.
- Findings and required actions are based on risk rating, which ranges on a scale from "Insignificant" to "High".

# INTERNAL SAFETY REVIEW SUMMARY

March 2020

## (4) Department of Information Technology (IT)



### **Key Takeaway:**

*Participation in a Departmental Safety Committee, maintaining a training matrix by position, and implementing a safety rulebook compliance check program are essential to establishing a safety-first culture.*

### **Wins:**

- ✓ IT comprehensively supports other departments 24/7 and adheres to established policies and procedures
- ✓ Maintaining ISO 9001:2015 certification requires a high level of documentation control, including safety related policies and procedures

### **Areas for Improvement:**

- Consistent participation in routine Departmental Safety Committee (DSC) meetings is essential to continuously improve safety program throughout the IT department.
- Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of IT field activities.
- Maintaining a training and certification matrix for employees and contractors promotes proper skills management and safety certifications.

### **Required Actions:**

- Develop a Departmental Safety Committee within IT per P/I 10.2/4. Alternatively, participate in the IBOP Departmental Safety Committee if such committee exists.
- Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.
- Develop and maintain a training and certification matrix per SSPP Section 16 that details required training and certification (including safety related items) for all IT positions.

**Note:** An itemized Internal Corrective and Preventive Action (iCAPA) is developed for each required action to achieve effective and measurable resolution of identified concerns. To check the status of iCAPA implementation go to <https://www.wmata.com/initiatives/transparency>

## 4.1. FUNCTIONAL OVERVIEW AND STRUCTURE

### Department of Information Technology (IT)

IT supports the overall mission of Washington Metropolitan Area Transit Authority (WMATA) to provide safe, reliable, and efficient transportation options throughout the DC Metro area by providing information technology and telecommunication services including safety, customer service, transparency and decision support. IT promotes compatibility, integration and interoperability and develops and enforces information technology policy and standards throughout the Authority.

The objective of the IT Internal Safety Review (ISR) is to internally validate that routine operations, new projects, systems, and training under the purview of the Department of Information Technology are as safe as reasonably possible per WMATA's System Safety Program Plan (SSPP). The SSPP is an authority-wide safety plan created by the Department of Safety & Environmental Management (SAFE) in accordance with Federal Transit Administration (FTA) guidelines (49 CFR 659), and details WMATA's approach to satisfying the 21 required elements for system safety.

Out of the 21 elements, the following 11 elements were found applicable to IT:

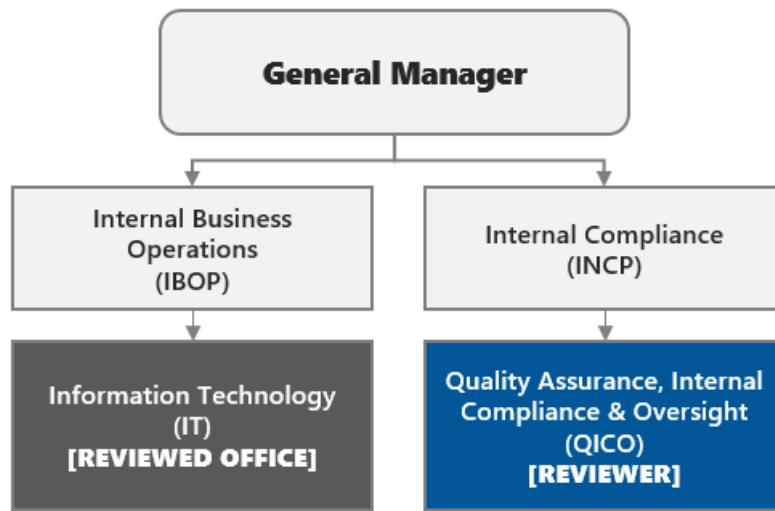
- Management Structure (Element 3)
- Task and Activities (Element 5)
- Hazard Management (Element 6)
- System Modification (Element 7)
- Safety Data Acquisition (Element 9)
- Accident/Incident Investigation (Element 10)
- Emergency Management Program (Element 11)
- Rules Compliance (Element 13)
- Training and Certification Program (Element 16)
- Local, state and federal requirements (Element 18)
- Procurement Process (Element 21)

## Organizational Structure and Background

Within WMATA, the Department of Information Technology reports to the Office of Internal Business Operations (IBOP). As shown in the organization chart, QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP).

IT is comprised of the following five offices:

- Office of Infrastructure and Operations (ITIO)
- Office of System and Software (ITSS)
- Office of Cybersecurity (ITCS)
- Office of IT Finance (ITOF)
- Office of IT Management (ITOM)



## 4.2. REVIEW SCOPE

### Documentation Review

- WMATA System Safety Program Plan (SSPP), 2018
- IT Organization Chart
- IT Emergency contact list
- CIBO COOP plan
- ITIO-NCS-SOP-SVR-001-Security Vulnerability Response (Ver 2.0, dated 7/19/2019)
- IT-MITS-IAM-SOP-IAM Access Provisioning (Rev 1.0, dated 9/19/2018)
- IT-ITCS-SOP-013-Internal Policy Compliance (Rev 1.4, dated 09/19/2019)
- IT-ITCS -SOP-004-IT Security Awareness Training (Rev 1.5, dated 09/19/2019)
- IT-ITCS -SOP-005-Remote Access Provisioning (Rev 1.3, dated 09/19/2019)
- IT-ITCS -SOP-012-Security Incident Management (Rev 1.4, dated 09/19/2019)
- IT-MITSSOP-007-System and Database Remediation (Rev 1.3, dated 09/18/2018)
- IT-ITCS-SOP-001-System and Database Vulnerability Scanning (Rev 1.5, dated 09/19/2019)
- IT-ITCS-SOP-008-Threat Analysis (Rev 1.5, dated 09/18/2019)
- ITIO-NCS-OPM-001-Emergency Trip Station (ETS) Phone Maintenance (Ver 1.0, dated 01/16/2020)
- Safety/Security Verification Review Committee Meeting Minutes 2019
- Training records October- December 2019
- ETS Phone Status Report
- Radio Calibration Tracker
- Warning Strobe and Alarm Device (WSAD) calibration tracker
- IT NCS Telephone Service Request Status Reports Tracker
- WMATA-CIRT-20191126-001
- WMATA-CIRT-20191212-001
- WMATA-CIRT-20191217-001
- JGAPP1DOCUPV\_vuln\_1222019
- SBFT\_Vul\_Report\_10212019
- ROCS Daily Situation Shift Report - MIDS - 02-20-20
- Safety Inspection Reports for A01 B35 and FF9 (10-11-19)
- Safety Inspection Reports for A05 A04 and B07
- Safety Inspection Reports for AFC and C07
- Job description library (20 samples)
- 260 ITNCS Maximo Work orders (created between 11/1/2019 and 1/31/2020)

### Personnel Discussions

- Business Process Re-engineering (BPR) Functional Requirements Manager
- Director of ITSS Business Systems
- Deputy Chief of ITIO Network & Communication (NCS)
- Director of ITCS Governance
- Director of ITSS Transit Systems
- Data Center Engineer of ITIO

## Field Assessments

- Three field assessments of JGB Data Center
- One field assessment of ETS testing, repair and installation

## 4.3. WHAT WORKED WELL (WINS)

Wins are categorized by the [System Safety Measures](#) and rated by the [Risk Assessment](#)

W-IT-20-01	Safe Work Standards	Reduces Service Delivery Risk	Owner – IT
------------	---------------------	-------------------------------	------------

- ✓ **IT comprehensively supports other departments 24/7 and adheres to established policies and procedures.**

### Discussion

- QICO reviewed IT's inventory log of PCs, network equipment and phones, calibration tracker of Radio and WSAD, status report of ETS box, and Vulnerability scanning and tracking records. QICO learned that IT promotes safe and reliable technology services throughout the Authority. ITSS and ITIO personnel are working 24/7 for emergency preparedness to enhance the safety and security of the Authority.
- QICO personnel shadowed 3 field assessments of JGB Data Center, covering two shifts and shift turnover and document reviews. This included monitoring DCI analyst adherence to established procedures such as Data Center Access SOP, properly monitoring the status of the server storage room in the Data Center (including temperature of the coolers, humidity of the dehumidifiers and the security of server cabinets).
- QICO personnel observed one field activity of ETS repair and installation at A14 (Rockville station), A15 (Shady Grove station) and the track between these two stations. QICO noted that IT technicians were in compliance with RWP rules and ITIO-NCS-OPM-001 Emergency Trip Station (ETS) Phone Maintenance SOP, including safety briefing, checking proper PPE and badges, getting permission from Rail Operation Control Center (ROCC) before going onto the track, following placement of working limits, and confirmation of third rail power de-energized. After the work was completed, labor and work order related information were entered into Maximo (WO# 15572319) timely and accurately.
- IT adherence to policies and procedures, and timely entering information into varies databases, is in compliance with applicable rules and regulations.

W-IT-20-02	Safe Work Standards	Reduces Safety Risk	Owner – IT
------------	---------------------	---------------------	------------

- ✓ **Maintaining ISO 9001:2015 certification requires a high level of documentation control, including safety related policies and procedures**

### Discussion

- As the only ISO certified department in the Authority, IT developed a Quality Management System (QMS) to improve customer service quality, safety and define strong standards. Figure 1 summarizes IT's current progress and upcoming activities as WMATA IT enhances the QMS to achieve ISO 9001:2015 recertification.



*Figure 1: QMS Activities and Milestones*

- Recertifying ISO 9001 certification improves documentation control of policies, procedures and all safety related manuals.

## 4.4. AREAS FOR IMPROVEMENT

Findings are categorized by [System Safety Measures](#) and rated by the [Risk Assessment](#)

F-IT-20-01	Safety Management	Safety – Elevated (IMP 3, PROB 5)		Owner – IT
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- Consistent participation in routine Departmental Safety Committee meetings is essential to continuously improve safety program throughout the IT department.

### Discussion

- Through lack of Departmental Safety Committee meeting records and discussions with IT key personnel, QICO learned there is no DSC.
- Per P/I 10.2/4, Departments and Offices are responsible for having an established DSC to represent their work force.
- Per SSPP 5.7, the Departmental Safety Committees (DSCs) are established to serve as the intermediary between the respective Local Safety Committees and Executive Safety Committee. There is typically one DSC at every department. The DSC establishes and fosters a close working relationship with employees, unions, and management regarding safety issues.
- Consistent attendance at all mandatory safety committee meetings is essential to promote a culture of safety.

F-IT-20-02	Job Safety	Safety – Low (IMP 2, PROB 4)		Owner – IT
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- Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of IT field activities.

### Discussion

- Through review of IT records and discussions with key IT personnel, QICO learned there is no independent compliance check program in place to oversee compliance to safety rules and procedures.
- An exception to the previous statement is the ITIO NCS team, which has a Quality Control (QC) team that verifies not only quality of the work, but also adherence to the applicable safety rules.
- Per P/I 1.15/0 Rule Book Management and SSPP 13.3, all offices with employees subject to the Metrorail Safety Rules and Procedures Handbook (MSRPH) and other applicable operating, maintenance, and administrative rule books and SOPs are required to develop a documented Quality Control Program to ensure compliance to rules and procedures. This program must include rule prioritization, roles and responsibilities and compliance checks.
- IT personnel may be subject to safety hazards (electricity, rail vehicles, trip hazards, etc.) while conducting field work and therefore must follow established safety rules.
- Implementation of a compliance check program for applicable IT groups is vital to promote a culture of safety and would provide feedback to help assure rules and procedures are thoroughly implemented and followed.

F-IT-20-03	Safety Training & Certification	Safety – Moderate (IMP 2, PROB 5)		Owner – IT
------------	---------------------------------	-----------------------------------	--	------------

- Maintaining a training and certification matrix for employees and contractors promotes proper skills management and safety certifications.

### Discussion

- QICO found no evidence supporting each IT office maintaining a training and certification matrix for their personnel; discussions with IT management indicated that none of the IT offices maintain a training matrix for each position or employee within their department or perform periodic reviews of training records.
- Per SSPP 16.1, it is the responsibility of each department head or their designee to develop and maintain a required training matrix for each position and employee within their department and to verify that the matrix is kept current. According to SSPP 16.5, training requirements for each position and employee must be included in the training database.

**F-IT-20-03****Safety Training & Certification****Safety – Moderate (IMP 2, PROB 5)****Owner – IT**

- Supervisors and employees are required to periodically review training records to verify that the required training and certifications are being completed by employees. Each department is responsible for establishing safety-training requirements in conjunction with SAFE.
  - As a resource, SAFE has created a Job Safety Training Profile by Job Title training matrix located on their SharePoint website highlighting recommended training courses for specific job titles in various departments.
  - A training and certification matrix will improve confirmation that each IT employee is current in all applicable safety training.
-

## 4.5. SUMMARY OF REQUIRED ACTIONS

QICO-IT-20-01

Action Owner – IT

Overall Risk – Elevated (IMP 3, PROB 5)



**Required Action:** Develop a Departmental Safety Committee within IT per P/I 10.2/4. Alternatively, participate in the IBOP departmental safety committee if such committee exists.

### Applicable Findings

- **F-IT-20-01:** Consistent participation in routine Departmental Safety Committee meetings is essential to continuously improve safety program throughout the IT department.
  - o **Measure:** Safety Management      **Risk:** Safety – Elevated (3,5)

QICO-IT-20-02

Action Owner – IT

Overall Risk – Low (IMP 2, PROB 4)



**Required Action:** Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.

### Applicable Findings

- **F-IT-20-02:** Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of IT field activities.
  - o **Measure:** Job Safety      **Risk:** Safety – Low (2,4)

QICO-IT-20-03

Action Owner – IT

Overall Risk – Moderate (IMP 2, PROB 5)



**Required Action:** Develop and maintain a training and certification matrix per SSPP Section 16 that details required training and certification (including safety related items) for all IT positions.

### Applicable Findings

- **F-IT-20-03:** Maintaining a training and certification matrix for employees and contractors promotes proper skills management and safety certifications.
  - o **Measure:** Safety Training & Certification      **Risk:** Safety – Moderate (2,5)

[Internal Corrective and Preventive Actions \(iCAPAs\)](#) are designated to address each Required Action listed above.

## **INTERNAL CORRECTIVE AND PREVENTATIVE ACTIONS (iCAPAs)**

## **Office of Automatic Train Control Maintenance iCAPAs**

Return to [Summary of Required Actions](#)

**INTERNAL REVIEW****Engineering & Maintenance**

In response to the internal review report regarding the Office of Automatic Train Control Maintenance (ATCM), the Office of Quality Assurance Internal Compliance & Oversight (QICO) has coordinated the development of one (1) iCAPA. The iCAPA has been developed to address the associated finding and the required action.

**EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES****Internal Corrective and Preventive Action (iCAPA) Commitment****Joseph Leader***Executive Vice President & Chief Operating Officer**Date***WMATA INTERNAL OVERSIGHT****Internal Corrective and Preventive Action (iCAPA) Commitment****Hakim Davis***Vice President, Quality Assurance, Internal Compliance & Oversight (QICO)**Date***Eric Christensen***Executive Vice President, Internal Compliance (INCP)**Date***May 18, 2020****Paul J. Wiedefeld***General Manager & Chief Executive Officer (GM/CEO)**Date*

PURPOSE  
AND  
SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an Internal Review report for the office of Automatic Train Control Maintenance (ATCM). This internal Corrective and Preventive Action (iCAPA) is developed to address associated finding and required action for QICO-ATCM-20-01.

## FINDING(S)

F-ATCM-20-01 Maintaining an up-to-date ATC Maintenance Control Policy inclusive of interdepartmental processes with SAMS and warranty claims promotes an effective maintenance process.

REQUIRED ACTION	QICO-ATCM-20-01	Office of Automatic Train Control Maintenance (ATCM) Office of Shops and Material Support (SAMS)	Risk: Low <span style="background-color: green; width: 15px; height: 15px; display: inline-block;"></span>
		<p>Update the Automatic Train Control Branch Maintenance Control Policy, inclusive of departmental warranty claim processes.</p> <p><i>Measure: Document Control      Risk Category: Service Delivery (2,4)</i></p>	

## ACTION PLAN OVERVIEW

ATCM and Office of Reliability Engineering Asset Management (REAM) will coordinate to develop a documented process for managing warranty claims for assets maintained by ATCM. The process will include the use of Maximo, or any other enterprise system management) functionality, where it applies to warranty.

ATCM and SAMS will coordinate to update the Automatic Train Control Branch Maintenance Control Policy (MCP) to catalogue the warranty claims process and transfer of assets between the departments.

**Business Impact – Budget/Cost Estimate: Operating**

Process Improvement – A current process/procedure needs to be optimized to address the Required Action(s). This type of initiative does not need additional resources because current manpower will be used to improve the process.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Warranty Process Development	ATCM and REAM will develop and submit a documented process for managing warranty claims for assets maintained by ATCM	Jameel Rogers (ATCM) Supporting Office <sup>4</sup> : Francesco Palmeri (REAM)	05/04/20	01/27/21
2. Update ATCM MCP	ATCM will update and submit the Automatic Train Control Branch Maintenance Control Policy.	Jameel Rogers (ATCM) Supporting Office <sup>4</sup> : Kenneth Qualls (SAMS)	01/28/21	04/28/21
3. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	04/29/21	05/28/21

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

ATCM

Jameel Rogers

(Signature/Date)

Enter any content that you want to repeat, including other content controls. You can also insert this control around table rows in order to repeat parts of a table.

## SUPPORTING ROLE ACKNOWLEDGEMENT

REAM

Francesco Palmeri

(Signature/Date)

SAMS

Kenneth Qualls

(Signature/Date)

## SECOND-LEVEL RESPONSIBILITY

RIME

Mike Hass

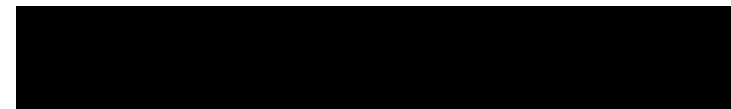
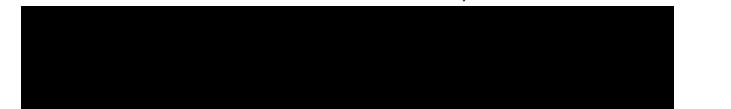
(Signature/Date)

## **Office of Shops and Material Support iCAPAs**

Return to [Summary of Required Actions](#)

**INTERNAL REVIEW****Engineering & Maintenance**

In response to the internal review report regarding the Office of Shops and Material Support (SAMS), the Office of Quality Assurance Internal Compliance & Oversight (QICO) has coordinated the development of two (2) iCAPAs. The iCAPAs have been developed to address the associated findings and required actions.

**EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES****Internal Corrective and Preventive Action (iCAPA) Commitment****Joseph Leader***Executive Vice President & Chief Operating Officer**Date***Laura Mason***Executive Vice President, Capital Delivery**Date***WMATA INTERNAL OVERSIGHT****Internal Corrective and Preventive Action (iCAPA) Commitment****Hakim Davis***Vice President, Quality Assurance, Internal Compliance & Oversight (QICO)**Date***Eric Christensen***Executive Vice President, Internal Compliance (INCP)**Date***Paul J. Wiedefeld***General Manager & Chief Executive Officer (GM/CEO)***May 18, 2020***Date*

PURPOSE  
AND  
SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Office of Shops and Material Support (SAMS) Internal Review. This internal Corrective and Preventive Action (iCAPA) report is developed to address associated finding(s) and required action(s) for **QICO-SAMS-20-01**.

## FINDING(S)

F-SAMS-20-01: Documenting and issuing detailed, accurate standards and work instruction for routine functions improves efficiency and consistency within SAMS' operations.

F-SAMS-20-03: Equipment calibration certification ensures equipment performance and continuity.

REQUIRED  
ACTION

QICO-SAMS-20-01

*Office of Shops and Material Support (SAMS)**Risk:* Elevated

Establish communication process with engineering to ensure current and accurate repair and maintenance standards are implemented in the System Maintenance, Maintenance Control Policy (SMNT MCP). Develop documented work instruction for radio certification, precision measurement equipment calibration, and verification of externally calibrated equipment.

*Measure: Process Control**Risk Category: Service Delivery (3,4)*

## ACTION PLAN OVERVIEW

SAMS is currently implementing their Quality Management Plan (COO QMP). As part of the QMP, they will complete the following:

- Organize, summarize, reference, and connect all the procedures, work instructions, forms, and even records that its sub-departments need to do their job every day. The QMP will serve as the standard to describe the materials, organizational structures, and processes that together make up the department's quality management practices. Specifically, as part of this iCAPA, we will be assessing the calibration certification procedure, SMNT MCP, radio certification process and work instructions for retagging of externally calibrated equipment and precision measurement/test equipment calibration process. (e.g., multimeters, voltmeters, ohmmeters, etc.). The certification and calibration procedures will mirror the processes prompted by Original Equipment Manufacturer (OEM) software on workstation computers and denote asset specific requirements regarding process steps. SAMS will modify Material Control (MC) shipping log to include checklist capturing if returned items have both a certification of calibration (Y/N) and certification barcode (Y/N). In the event there is no equipment calibration certification returned, equipment will not return to operating department for placement in service until certification is received from vendor.



- Document Quality Management System (DQMS) - establish and create a central document repository which will include all SAMS' governing documentation (SMNT MCP) and all of the Operations and Maintenance (O&M) documents maintained by SAMS. This central document repository will also include a document control procedure that defines SAMS' document control process, including the creation, review, approval, access, storage, and revision of controlled documents.
- Training on or familiarization with the controlled documents housed in the department's DQMS. Personnel must sign a training log or other written acknowledgement form to indicate they are aware of the documents.

**Business Impact – Budget/Cost Estimate: Operating**

Process Improvement – A current process/procedure needs to be optimized to address the Required Action(s). This type of initiative does not need additional resources because current manpower will be used to improve the process.

Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Update ATC 2000	Automatic Train Control Engineering (ATCE) will update and submit ATC 2000 – to include soldering standard (IPC-610D) and static protection measures to be implemented in repair of ATCE equipment.	<b>Myron Fitch (ATCE)</b> <b>Supporting Office<sup>4</sup>:</b> <b>Tonia Jennings (SMNT)</b>	04/17/20	09/16/20
2. Establish Communication Process	ATCE and SAMS will establish a continuous communication loop, such as a recurring meeting, to distribute and review standards revisions.	<b>Myron Fitch (ATCE)</b> <b>Supporting Office<sup>4</sup>:</b> <b>Kenneth Qualls (SAMS)</b>	04/17/20	09/16/20
3. Create/Update SOPs/Work Instructions	SAMS will create/modify and submit document control procedure: <ul style="list-style-type: none"><li>• Create a radio certification and test equipment calibration certification procedure</li><li>• Create a process for retagging of externally calibrated equipment</li><li>• Modify and submit Material Control (MC) shipping log to include calibration certification and calibration barcode checklist.</li></ul>	<b>Kenneth Qualls/ Tonia Jennings (SAMS)</b>	04/17/20	09/16/20

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



Actionable Items	Description	Responsible Party <sup>4</sup>	Est Start <sup>5</sup>	Est End <sup>6</sup>
4. Update SMNT MCP	SAMS will update and submit SMNT MCP to include: <ul style="list-style-type: none"><li>• Updating the Beyond Economic Repair (BER) process in the SMNT MCP so that written descriptions are consistent with business process work flow depictions throughout the MCP's appendices.</li><li>• Incorporate applicable ATCE repair standards into SMNT MCP.</li></ul>	Kenneth Qualls/ Tonia Jennings (SAMS)	04/17/20	09/16/20
5. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	04/17/20	10/16/20

## PERFORMANCE MEASURES

Evidence that at least 95% of active personnel have received training on or familiarization with the controlled work instructions for radio certification and precision measurement equipment calibration as per Actionable Item #3.

Evidence of established communication process as per Actionable Item #2.

Evidence of signature acknowledgement to indicate awareness of SMNT MCP & SOP/Work Instructions revisions as per Actionable Items #3 & #4.

<sup>4</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>5</sup> Est Start – Estimated Start Date.

<sup>6</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

ATCE

Myron Fitch

(Signature/Date)  
[Redacted]

SAMS

Kenneth Qualls

(Signature/Date)  
[Redacted]

## SUPPORTING ROLE ACKNOWLEDGEMENT

SMNT

Unriquea Butts

(Signature/Date)  
[Redacted]

## SECOND-LEVEL RESPONSIBILITY

ENGA

Nichalos Gardner

(Signature/Date)  
[Redacted]

FSVT

Rodolfo Bitar

(Signature/Date)  
[Redacted]

PURPOSE  
AND  
SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Office of Shops and Material Support (SAMS) Internal Review. This internal Corrective and Preventive Action (iCAPA) report is developed to address associated finding(s) and required action(s) for **QICO-SAMS-20-02**.

## FINDING(S)

F-SAMS-20-02: Implementing a documented and comprehensive training program streamlines performance and keeps technicians well-informed of best practices.

REQUIRED  
ACTION

QICO-SAMS-20-02

***Office of Shops and Material Support (SAMS)****Risk:* High

Establish and implement a training program that encompasses all training requirements of SAMS' personnel.

*Measure: Training      Risk Category: Service Delivery (4,5)*

## ACTION PLAN OVERVIEW

SAMS will review procedures to determine which documents and Original Equipment Manufacturer (OEM) requirements are applicable for creation of a training program specific to SAMS' operations and personnel requirements. SAMS will provide the identified documentation and OEM requirements with the Office of Technical Skills and Maintenance Training (TSMT) for training program requirements creation, training program development, as well as a training program implementation schedule.

**Business Impact – Budget/Cost Estimate: Operating**

Process Improvement – A current process/procedure needs to be optimized to address the Required Action(s). This type of initiative does not need additional resources because current manpower will be used to improve the process.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Identification of Training Standards	Establish and submit a list of all relevant procedures and Original Equipment Manufacturer (OEM) standards for bench/component level repair, inclusive of soldering standards.	<b>Kenneth Qualls (SAMS)</b> <b>Supporting Office<sup>4</sup>:</b> <b>Myron Fitch (ATCE)</b>	04/10/20	09/16/20
2. Develop Training Requirements	Develop and submit training requirements from identified training standards, specifically bench/component level repairs, inclusive of soldering standards and anti-static work station protection.  SAMS will submit an updated training matrix by roles, inclusive of management and non-management.	<b>Kenneth Qualls (SAMS)</b> <b>Supporting Office<sup>4</sup>:</b> <b>Joseph Robinson (TSMT)</b>	09/17/20	03/31/21
3. Develop a Training Program	Develop a training program, inclusive of On the Job Training (OJT), based on SAMS' requirements.  TSMT will submit a training implementation schedule.	<b>Joseph Robinson (TSMT)</b> <b>Supporting Office<sup>4</sup>:</b> <b>Kenneth Qualls (SAMS)</b>	04/01/21	06/02/21
4. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	<b>QICO</b>	06/02/21	07/14/21

## PERFORMANCE MEASURES

Evidence of updated training matrix, training procedure and training program implementation schedule.

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

SAMS

Kenneth Qualls

(Signature/Date)

TSMT

Joseph Robinson

(Signature/Date)

## SUPPORTING ROLE ACKNOWLEDGEMENT

ATCE

Myron Fitch

(Signature/Date)

## SECOND-LEVEL RESPONSIBILITY

SMNT

Unriquea Butts

(Signature/Date)

ENGA

Nichalos Gardner

(Signature/Date)

## **Office of Emergency Management iCAPAs**

Return to [Summary of Required Actions](#)



## INTERNAL SAFETY REVIEW

### Internal Safety Review

In response to the Internal Safety Review report regarding the Office of Emergency Management (OEM), the Office of Quality Assurance Internal Compliance & Oversight (QICO) has coordinated the development of three (3) iCAPAs. These iCAPAs have been developed to address the associated findings and required actions.

## EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES

### Internal Corrective and Preventive Action (iCAPA) Commitment



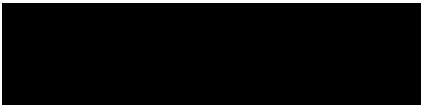
Joseph Leader

Date

*Executive Vice President & Chief Operating Officer*

## WMATA INTERNAL OVERSIGHT

### Internal Corrective and Preventive Action (iCAPA) Commitment



Hakim Davis

Date

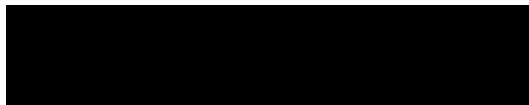
*Vice President, Quality Assurance, Internal Compliance & Oversight (QICO)*



Eric Christensen

Date

*Executive Vice President, Internal Compliance (INCP)*



5-15-2020

Paul J. Wiedefeld

Date

*General Manager & Chief Executive Officer (GM/CEO)*

PURPOSE  
AND  
SCOPE

On March 31, 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Office of Emergency Management (OEM) Internal Safety Review report. This internal Corrective and Preventive Action (iCAPA) is developed to address the associated finding and required action for **QICO-OEM-20-01**.

## FINDING(S)

F-OEM-20-01: Developing comprehensive governing documentation for internal functions and external training would encourage standardization, thoroughness and efficiency.

REQUIRED  
ACTION

QICO-OEM-20-01

*Office of Emergency Management (OEM)**Risk: Low*

Develop comprehensive procedures and training curricula that fully describe work performed and training goals.

*Measure: Safe Work Standards**Risk Category: Safety (2,3)*

## ACTION PLAN OVERVIEW

OEM will submit two (2) Standard Operating Procedures (SOP) covering Duty Officer Assignments and Rail Operations Control Center (ROCC) Liaison Assignments in accordance with Quality Management System Plan (QMSP) standards.

- The Duty Assignment SOP will include responsibilities related to weather notifications, vehicle inspections and incident response.
- The ROCC Liaison SOP will cover responsibilities related to working in the ROCC during daily assignments, emergencies and special events.

All OEM training includes a detailed Instructor Guide to facilitate the delivery of course curricula. Instructor Guides are not required or intended to be physically utilized during course delivery. Instructors are expected to be familiar with the course's subject matter and adapt the delivery of the content to the individual audience. OEM will provide an Instructor Guide for the scenario-based training course witnessed by the auditors detailing the objectives for that specific training.

**Business Impact – Budget/Cost Estimate: Operating**

Process Improvement – A current process/procedure needs to be optimized to address the Required Action(s). This type of initiative does not need additional resources because current manpower will be used to improve the process.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Duty Assignment SOP	OEM will develop and submit a Duty Assignment SOP that will include responsibilities related to weather notifications, vehicle inspections and incident response.	Ronald Bodmer OEM	05/11/20	07/29/20
2. ROCC Liaison SOP	OEM will develop and submit a ROCC Liaison SOP that will cover responsibilities related to working in the ROCC during daily assignments, emergencies and special events.	Ronald Bodmer OEM	05/11/20	07/29/20
3. Revise External Training Curricula	OEM will develop and submit an Instructor Guide for the scenario-based training.	Ronald Bodmer OEM	05/11/20	07/29/20
4. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	07/29/20	08/28/20

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.

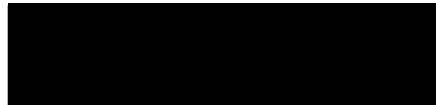


## RESPONSIBLE PARTIES

OEM

Ronald Bodmer

(Signature/Date)



## SECOND-LEVEL RESPONSIBILITY

MTPD

Ronald A. Pavlik

(Signature/Date)



PURPOSE  
AND  
SCOPE

On March 31, 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Office of Emergency Management (OEM) Internal Safety Review report. This internal Corrective and Preventive Action (iCAPA) is developed to address the associated finding and required action for **QICO-OEM-20-02**.

## FINDING(S)

F-OEM-20-02: Reviewing and updating official documentation within the required periodicity optimizes applicability and incorporates changes in a timely manner.

REQUIRED ACTION	QICO-OEM-20-02	<i>Office of Emergency Management (OEM)</i>	<i>Risk: Low</i> <span style="background-color: green; width: 20px; height: 20px; display: inline-block;"></span>
Review and update applicable emergency response plans per the direction within each document or the Emergency Operations Plan, whichever occurs soonest.  <i>Measure: Application &amp; Fulfillment      Risk Category: Service Delivery (2,3)</i>			



OEM conducts biennial review and updates of all emergency plans requiring an updated signature from the appropriate representatives from key leadership positions.

The reformatting of the Family Assistance Plan has been completed and it is in the process of being routed for approval. There were no substantive changes made to the content.

The reformatting of the Emergency Operations Plan (EOP) has been completed and it is in the process of being routed for approval. There were no substantive changes made to the content.

As a result of the many reorganizations that occurred last year, we have revised each of the 21 OEM departmental Continuity of Operations Plan (COOP) annexes and will have signatures on the final three by mid-summer. The original COOP base plan is being re-envisioned as a stand-alone Authority-wide plan and will be routed for approval.

The Emergency Operations Center Manual has been eliminated as a stand-alone document. The content is included as part of the EOP. The manual has created confusion because the content was located in two different documents. This move is part of OEM's effort to streamline the emergency preparedness program. The document has been removed from the Emergency Plans page.

OEM will submit current and approved versions of the following plans:

- Family Assistance Plan
- Emergency Operations Plan
- Continuity of Operations Authority-wide Plan
- Station Emergency Response and Evacuation Plan

#### **Business Impact – Budget/Cost Estimate: Operating**

Process Execution – A current process/procedure exists that meets the Required Action(s), but needs to be executed. This type of initiative does not need additional resources.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Family Assistance Plan	OEM will update and submit the Family Assistance Plan.	Ronald Bodmer OEM	05/11/20	06/03/20
2. Emergency Operation Plan	OEM will update and submit the Emergency Operations Plan	Ronald Bodmer OEM	05/11/20	07/01/20
3. Continuity of Operations Plan	OEM will develop and submit the new Continuity of Operations Plan.	Ronald Bodmer OEM	05/11/20	07/29/20
4. Update OEM plans	OEM will update and submit the Station Emergency Response and Evacuation Plan.	Ronald Bodmer OEM	05/11/20	08/05/20
5. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	08/05/20	09/11/20

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

OEM

Ronald Bodmer

(Signature/Date)



## SECOND-LEVEL RESPONSIBILITY

MTPD

Ronald A. Pavlik

(Signature/Date)



PURPOSE  
AND  
SCOPE

On March 31, 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Office of Emergency Management (OEM) Internal Safety Review report. This internal Corrective and Preventive Action (iCAPA) is developed to address associated finding and required action for **QICO-OEM-20-03**.

## FINDING(S)

F-OEM-20-03: Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of OEM field activities.

REQUIRED  
ACTION

QICO-OEM-20-03

*Office of Emergency Management (OEM)**Risk: Low*

Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.

*Measure: Job Safety**Risk Category: Safety (2,4)*

## ACTION PLAN OVERVIEW

OEM will submit a Quality Control Program per P/I 1.15 section 5.08 and System Safety Program Plan (SSPP) section 13.3 (Process for Ensuring Rules Compliance). The purpose of this program promotes standardized practices and delineates responsibilities for carrying out Roadway Worker Protection (RWP) compliance checks in the Office of Emergency Management and "work" (during exercises and training) zones under the authority of the OEM Roadway Worker in Charge (RWIC); for the purpose of assuring qualified personnel are properly setting up safe work zones as specified in the Metrorail Safety Rules and Procedures Handbook (MSRPH). This procedure will assist OEM in regularly carrying out RWP compliance checks.

**Business Impact – Budget/Cost Estimate: Operating**

Process Improvement – A current process/procedure needs to be optimized to address the Required Action(s). This type of initiative does not need additional resources because current manpower will be used to improve the process. There is no budget impact from the project.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Quality Control Program	OEM will create and submit a Quality Control Program that adheres to all the requirements set forth in P/I 1.15 section 5.08 and the SSPP section 13.3 (Process for Ensuring Rules Compliance).	Ronald Bodmer OEM	05/11/20	09/30/20
2. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	09/30/20	10/30/20

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.

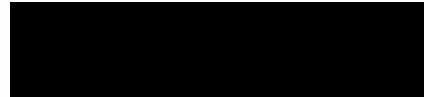


## RESPONSIBLE PARTIES

OEM

Ronald Bodmer

(Signature/Date)



## SECOND-LEVEL RESPONSIBILITY

MTPD

Ronald A. Pavlik

(Signature/Date)



## **Department of Information Technology iCAPAs**

Return to [Summary of Required Actions](#)



## INTERNAL SAFETY REVIEW

### Internal Safety Review

In response to the Internal Safety Review report regarding the Department of Information Technology (IT), the Office of Quality Assurance Internal Compliance & Oversight (QICO) has coordinated the development of three (3) iCAPAs. These iCAPAs have been developed to address the associated findings and required actions.

## EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES

### Internal Corrective and Preventive Action (iCAPA) Commitment



John Kuo

Date

*Executive Vice President, Internal Business Operations (IBOP)*

## WMATA INTERNAL OVERSIGHT

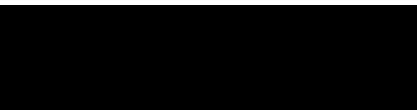
### Internal Corrective and Preventive Action (iCAPA) Commitment



Hakim Davis

Date

*Vice President, Quality Assurance, Internal Compliance & Oversight (QICO)*



Eric Christensen

Date

*Executive Vice President, Internal Compliance (INCP)*



May 18, 2020

Paul J. Wiedefeld

Date

*General Manager & Chief Executive Officer (GM/CEO)*



## PURPOSE AND SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Internal Safety Review (ISR) report for the office of Information Technology (IT). The objective of the IT ISR is to internally validate that routine operations, new projects, systems, and training under the purview of the Department of Information Technology are compliant with WMATA's System Safety Program Plan (SSPP). The SSPP is a WMATA-wide safety plan created by the Department of Safety & Environmental Management (SAFE) in accordance with Federal Transit Administration (FTA) guidelines (49 CFR 659), and details WMATA's approach to satisfying the 21 required elements for system safety.

This internal Corrective and Preventive Action (iCAPA) is developed to address associated finding(s) and required action(s) for **QICO-IT-20-01**.

## FINDING(S)

F-IT-20-01: Consistent participation in routine Departmental Safety Committee meetings is essential to continuously improve safety program throughout the IT department.

## REQUIRED ACTION

QICO-IT-20-01

*Department of Information Technology (IT)**Risk: Elevated*

Develop a Departmental Safety Committee (DSC) within IT per P/I 10.2/4. Alternatively, participate in the IBOP departmental safety committee if such committee exists.

*Measure: [Safety Management]      Risk Category: Safety (3,5)*

## ACTION PLAN OVERVIEW

IT will establish a Departmental Safety Committee (DSC) and, once established, conduct stand-alone meetings or designate time within existing IBOP meetings for DSC activities. A SAFE representative will attend DSC to support the committee.

**Business Impact – Budget/Cost Estimate: Operating**

New/Expanded Initiative or Process – A new initiative needs to be created or a current process/procedure needs to be substantially expanded to address the Required Action(s). Additional resources will be required to address these initiatives.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Departmental Safety Committee	<p>IT will establish a DSC and, once established, conduct stand-alone meetings or designate time within existing IBOP meetings for DSC activities.</p> <p>A SAFE representative will attend DSC meetings to support the committee.</p>	Karen Thomas IT <b>Supporting Office<sup>4</sup>:</b> Cardiff Fisher SAFE	05/04/20	09/30/20
2. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	10/01/20	10/30/20

## PERFORMANCE MEASURES

Provide documentation showing the establishment of a DSC, including its required members and meeting plan.

Three months of meeting notes, agendas and sign-in sheets demonstrating attendance and inclusion of agenda item.

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

IT

Karen Thomas

(Signature/Date)

## SUPPORTING ROLE ACKNOWLEDGEMENT

SAFE

Gregory Kupka

(Signature/Date)

## SECOND-LEVEL RESPONSIBILITY

IT

Al B. Short

(Signature/Date)



## PURPOSE AND SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Internal Safety Review (ISR) report for the office of Information Technology (IT). The objective of the IT ISR is to internally validate that routine operations, new projects, systems, and training under the purview of the Department of Information Technology are compliant with WMATA's System Safety Program Plan (SSPP). The SSPP is a WMATA-wide safety plan created by the Department of Safety & Environmental Management (SAFE) in accordance with Federal Transit Administration (FTA) guidelines (49 CFR 659), and details WMATA's approach to satisfying the 21 required elements for system safety.

This internal Corrective and Preventive Action (iCAPA) is developed to address associated finding(s) and required action(s) for **QICO-IT-20-02**.

## FINDING(S)

F-IT-20-02: Establishment of a formal compliance check program related to safety rulebook management contributes to the safe execution of IT field activities.

## REQUIRED ACTION

QICO-IT-20-02

**Department of Information Technology (IT)***Risk: Low*

Create a formal compliance check program per P/I 1.15 to manage safety rule prioritization, define roles and responsibilities, and establish compliance checks.

*Measure: Job safety      Risk Category: Safety (2,4)*

## ACTION PLAN OVERVIEW

IT will review activities that occur under the purview of safety rules and then develop and submit a formal safety rules compliance check program that adheres to all the requirements set forth in P/I 1.15 section 5.08 and the SSPP section 13.3 (Process for Ensuring Rules Compliance).

**Business Impact – Budget/Cost Estimate: Operating**

New/Expanded Initiative or Process – A new initiative needs to be created or a current process/procedure needs to be substantially expanded to address the Required Action(s). Additional resources will be required to address these initiatives.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Quality Control Program	IT will review and submit activities that occur under the purview of safety rules and then develop a formal safety rules compliance check program that adheres to all the requirements set forth in P/I 1.15 section 5.08 and the SSPP section 13.3 (Process for Ensuring Rules Compliance).	Karen Thomas IT	05/04/20	10/28/20
2. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	11/02/20	11/20/20

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

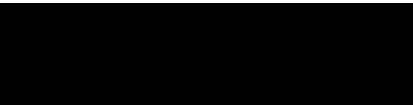
<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

IT

Karen Thomas



(Signature/Date)

## SECOND-LEVEL RESPONSIBILITY

IT

Al B. Short



(Signature/Date)



## PURPOSE AND SCOPE

In March 2020, the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued the Internal Safety Review (ISR) report for the office of Information Technology (IT). The objective of the IT ISR is to internally validate that routine operations, new projects, systems, and training under the purview of the Department of Information Technology are compliant with WMATA's System Safety Program Plan (SSPP). The SSPP is a WMATA-wide safety plan created by the Department of Safety & Environmental Management (SAFE) in accordance with Federal Transit Administration (FTA) guidelines (49 CFR 659), and details WMATA's approach to satisfying the 21 required elements for system safety.

This internal Corrective and Preventive Action (iCAPA) is developed to address associated finding(s) and required action(s) for **QICO-IT-20-03**.

## FINDING(S)

F-IT-20-03: Maintaining a training and certification matrix for employees and contractors promotes proper skills management and safety certifications.

## REQUIRED ACTION

QICO-IT-20-03

**Department of Information Technology (IT)***Risk: Moderate*

Develop and maintain a training and certification matrix per SSPP Section 16.1 that details required training and certification (including safety related items) for all IT positions.

*Measure: Safety Training & Certification      Risk Category: Safety (2,5)*

## ACTION PLAN OVERVIEW

IT will establish a training matrix that details all safety training and certification required by governing regulations for each IT position (as defined by unique HR job codes). This matrix will self-prescribe a periodic review and revision requirement.

IT will develop a system/process to periodically review the required safety training and certification completion status of all IT personnel.

**Business Impact – Budget/Cost Estimate: Operating**

New/Expanded Initiative or Process – A new initiative needs to be created or a current process/procedure needs to be substantially expanded to address the Required Action(s). Additional resources will be required to address these initiatives.



Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
1. Develop & Maintain Training and Certification Matrix	IT will establish and submit a training matrix that details all safety training and certification required by governing regulations for each IT position (as defined by unique HR job codes).	Karen Thomas IT	05/04/20	07/01/20
2. Training Completion Database	IT will develop and submit a system/process to periodically review the required safety training and certification completion status of all IT personnel.	Karen Thomas IT	05/04/20	09/02/20
3. QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	09/03/20	10/02/20

## PERFORMANCE MEASURES

N/A

<sup>1</sup> In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

<sup>2</sup> Est Start – Estimated Start Date.

<sup>3</sup> Est End – Estimated Completion Date.

<sup>4</sup> Offices designated as supporting roles provide subject matter expertise to responsible parties during action development and are not directly responsible for delivery of actionable items listed above.



## RESPONSIBLE PARTIES

IT

Karen Thomas



(Signature/Date)

## SECOND-LEVEL RESPONSIBILITY

IT

Al B. Short



(Signature/Date)

## **SUPPLEMENTAL MATERIALS**

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## **APPENDIX A: THE 15 CORE QMS STANDARDS PER THE QUALITY MANAGEMENT SYSTEM PLAN**

1. **Management Responsibilities:** Commitment of senior management to implement, maintain, and continually improve upon WMATA's Quality Management System
2. **Document Quality Management System:** The combined set of quality documents, including a Quality Management System Plan, subordinate Quality Management Plans, Policies & Procedures, Work Instructions, Forms, etc.
3. **Design Control:** Processes to ensure the consistent development and maintenance of quality design documentation for projects and assets based on requirements, standards, criteria, etc.
4. **Document Control:** Managing information to ensure the most current approved documents are used
5. **Purchasing:** Providing for timely procurement of the right items/assets and services required for proper performance
6. **Identification & Traceability of Assets & Materials:** The ability to track the unique history, location performance, and configuration of any asset over its lifecycle
7. **Process Control:** Management and documentation of inter-related resources and activities to turn inputs into outputs/outcomes
8. **Inspection, Testing & Status:** Verification and documentation that practices, processes, assets, and materials comply with applicable procedures, specification, etc. and are fit for service
9. **Inspection, Measuring & Test Equipment:** Identification and periodic testing and calibration of measuring and test equipment to assure readiness for use
10. **Non-Conformance:** Systematic tracking of work performed or material that does not meet procedures, specs, contract requirements, etc.
11. **Corrective & Preventive Actions:** Measured taken to modify processes/procedures to correct and prevent recurrence of non-conformances and failures
12. **Quality Records:** Documents generated by Quality functions that provide objective evidence of fulfilment of requirements
13. **Internal Reviews & Quality Assessments:** Independent, objective review of conformance to quality standards and/or the overall effectiveness of processes in delivering acceptable levels of quality
14. **Training:** Providing skills and knowledge required for staff to successfully perform a job
15. **Customer Focus:** Proactively addressing the needs and wants of internal and external customers, always

## APPENDIX B: SAFETY REVIEW SYSTEM SAFETY MEASURES

### Policies, Procedures & Standards (SSPP Elements 1-5, 12, 13, 15 & 17)

- **Safe Work Standards:** The existence and effectiveness of department policies, procedures, manuals, work instructions, safety and security practices, and other safety and security requirements that define department safe work practices.
- **Work Measurement:** The existence and effectiveness of operational safety goals and sound management routines to achieve these goals.
- **Configuration Management:** The existence and effectiveness of processes, tools, and techniques to manage changes to a system to achieve intended outcomes.
- **Safety Management:** The existence and effectiveness of supervision strategy to ensure personnel are adequately equipped to perform work safely and qualified to perform work to standard.

### Training, Certification & Compliance (SSPP Elements 16, 18, 20 & 21)

- **Application & Fulfillment:** Adherence to existing/adopted policies, procedures, and standards; including applicable engineering or other technical requirements that specify material and/or workmanship standards.
- **Job Safety:** Adherence to safety requirements, including enterprise-wide standards (e.g. MSRPH) or those specific to a particular type of work (e.g. PPE).
- **Safety Training & Certification:** The existence and effectiveness of a training strategy to ensure personnel are adequately qualified to perform work.
- **Regulations & Oversight:** Adherence to requirements, guidelines, and recommendations from external/regulatory authorities and internal oversight functions, including items issued for corrective and preventive actions.

### Hazard Management (SSPP Elements 6, 10, 11 & 19)

- **Data Assurance:** Assessing the existence of a hazardous condition that has been identified.
- **Assets and Activities:** The performance of gathering all data, conducting interviews & field inspections to determine the risk level and prioritize hazardous conditions and focus available resources on the most serious hazards requiring resolution.
- **Document Control:** Assessing the effectiveness of hazard tracking and documentation of all systems to mitigate and prevent reoccurrence.

### Safety (SSPP Elements 7, 8, 9 & 14)

- **Managing Safety in System Modification:** Evaluating and assuring that a proposed modification does not adversely affect the system, vehicle, equipment or facility previously certified under the System Safety & Security process.
- **Emergency Management:** Assessing the management of operational emergencies and preparedness to maintain and continue safe operation under such conditions.
- **Occupational Safety & Health:** Validating the development of Safety programs and the administration of training to required personnel to assure safe and healthful working conditions for employees and contractors.

## APPENDIX C: RISK ASSESSMENT

### Risk Assessment Methodology

Risk is defined as an uncertain event or condition that, if it occurs, has a positive or negative effect on the organization's objectives and operations (both threats and opportunities). It is assessed on the combination of the probability of occurrence of risk and the severity of the risk. Risk management is an attempt to answer the following questions:

- What can go wrong? – The Risk
- How bad are the consequences? – The Impact
- How often does/will it happen? – The Probability of Occurrence
- Is the risk acceptable? – The Risk Treatment, Remediation

### Categories of Risk

- **Service Delivery** – A broad range of risks with direct or indirect impact on daily transit and/or business operations. The risk of direct or indirect losses or other negative effects due to inadequate or failed internal business or transit operations, or from external events that impair internal processes, people, or systems.
- **Financial** – The risk to achievement of the Authority's mission arising from an inability to manage credit, debt and financial leverage, and other financial resources. Financial risk would also include risk arising from adverse movements in market rates or the Authority's inability to meet its obligations.
- **Legal & Compliance** – Risks arising from a failure to comply with applicable laws and regulations and a failure to detect and report activities that are not compliant with statutory, regulatory, or internal policy requirements. Failure to comply with prescribed guidelines and established practices. This would also include a lack of awareness or ignorance of the relevant standards, guidelines or regulations.
- **Safety** - The risk of achievement of the Authority's mission arising from failures to prevent hazards that may cause harm to human, equipment, or the environment. This would also include risk arising from the Authority's inability to comply with safety-related legal or regulatory standards.
- **Strategic** – Risks arising from failure to achieve strategic or tactical objectives, an adverse business decision, or a lack of strategic direction and leadership. This would also include the ineffective implementation of the strategic plans, a lack of business strategies developed to achieve goals, and inadequate resources deployed against the achievement of those goals. Strategic risks can be affected by changes in the political environment such as changes in administration and resulting changes in strategic priorities. Strategic risks can also be triggered by actions of key stakeholders such as the Tri-Jurisdictional law makers or the Federal Transit Administration (FTA).
- **Technology** – The risk of unexpected losses from inadequate systems, breaches in information technology security, and inadequate business continuity planning. This would also include risks to the achievement of the Authority's mission arising from the inability of networks, security, and technologies to meet Metro's evolving needs.
- **Reputation** – The risk to the achievement of the Authority's mission arising from negative internal or external stakeholder opinion. Reputation risk affects the Authority's ability to establish new and/or sustain existing relationships.

### Risk Assessment Process

The following risk matrix is used to assess risks within the universe of review areas. The universe (see Table 1) is comprised of the potential range of all review activities and review business units (or departments) that fall within QICO's scope and oversight authority. These business units consist of programs, processes, assets and people which together contribute to the fulfilment of the departments' strategic goals (Goal 1 - Build Safety Culture; Goal 2 - Deliver Quality Service; Goal 3 - Improve Regional Mobility; and Goal 4 - Ensure Fiscal Stability).

Risks are assessed based on the significance of their impact (see horizontal axis in Figure 1) and the probability of occurrence (see vertical axis in Figure 1). The probability ratings are rated on a scale of 1 (minimum) to 5 (maximum) and are driven by the metrics shown on the next page. The impacts ratings are also rated on a scale of 1 (minimum) to 5 (maximum) and are driven by the category of risks, which are then aligned on the metrics shown on the next page.

Each finding is given a severity rating of Insignificant, Low, Moderate, Elevated or High. All areas with Elevated/High ratings are considered to be high risk to the organization's objectives; and need to be mitigated/reduced in severity at the earliest. The risk ratings to the findings are provided as "Type of Risk" followed by "Severity Rating (Impact, Probability)" (e.g. a finding with "Elevated (4,3)" would mean a 'significant (4)' impact along with a 'possible (3)' probability of occurrence).

## APPENDIX C: RISK ASSESSMENT

### Risk Assessment Matrix

		Probability of Occurrence				
		Low	Moderate	Elevated	High	High
Almost Certain (5)		Low				
Likely (4)		Low	Low	Moderate	Elevated	High
Possible (3)		Low	Low	Moderate	Elevated	Elevated
Unlikely (2)		Insignificant	Low	Low	Moderate	Moderate
Rare (1)		Insignificant	Insignificant	Low	Moderate	Moderate
Probability		Potential Impact of Risk				
		Impact	Negligible (1)	Minor (2)	Moderate (3)	Significant (4)
						Major (5)

### Risk Scale Definitions

Insignificant	Reasonable assumption that this risk will not occur and unlikely to cause the activity to fail to meet part of its objective.
Low	Reasonable assumption that this risk will likely not occur & may cause a failure of the business process to meet part of its objectives.
Moderate	Reasonable assumption that this risk may occur & may cause a failure of the business process to meet a significant part of its objectives.
Elevated	Reasonable assumption that this risk will likely occur & likely to cause a failure of the business process to meet a significant part of its objectives.
High	Reasonable assumption that this will occur & will cause a failure of the business process to meet its objectives or cause objective failure in other activities.

### Potential Impact

- (1) **Negligible** – Unlikely to cause the activity to fail to meet part of its objectives.
- (2) **Minor** – May cause a failure of the business process to meet part of its objectives, which may expose Metro to minor financial losses, less- effective or efficient operations, some non- compliance with laws and regulations, waste of resources, etc.
- (3) **Moderate** – May cause a failure of the business process to meet a significant part of its objectives, or negatively impact the objectives of other activities, which may expose Metro to moderate financial losses, reductions to or ineffectiveness of operations, non- compliance with laws and regulations, sizable waste of resources, etc.
- (4) **Significant** – Likely to cause a failure of the business process to meet a significant part of its objectives, or negatively impact the objectives of other activities, which may expose Metro to significant financial losses, reductions to or ineffectiveness of operations, non- compliance with laws and regulations, sizable waste of resources, etc.
- (5) **Major** – Will cause a failure of the business process to meet its objectives, or cause objective failure in other activities, which may cause or expose Metro to major financial losses, interruptions in operations, failure to comply with laws and regulations, major waste of resources, failure to achieve stated goals, etc.

### Probability of Occurrence

- (1) **Rare** – Reasonable assumption that this risk will not occur
- (2) **Unlikely** – Reasonable assumption that this risk will likely not occur
- (3) **Possible** – Reasonable assumption that this risk may occur
- (4) **Likely** – Reasonable assumption that this risk will likely occur
- (5) **Almost Certain** – Reasonable assumption that this will occur

## APPENDIX D: TECHNICAL TERMINOLOGY

### DESCRIPTION

- **Advanced Information Management (AIM) System:** An electronic rail system that allows ROCC to manage all rail line traffic, traction power devices, and stations equipment by receiving information from the field, processing it, and displaying it on workstations and large projection screens.
- **After-Action Report (AAR):** A document that summarizes key exercise or incident evaluation including an exercise or incident overview and an analysis of objectives and core capabilities and how they were or were not met.
- **Bench Level Repair:** Is the testing, disassembly, repair or overhaul of a component or sub-assembly of a system. Off equipment component repairs which generally occur within a repair shop.
- **Beyond Economic Repair (BER):** A classification applied to equipment or assets for which technicians have deemed repair as economically unfeasible and replacement with new asset or equipment is more financially sensible. BER (Beyond Economical Repair): A classification applied to equipment or assets for which technicians have deemed repair as economically unfeasible and replacement with new asset or equipment is more financially sensible.
- **Calibration:** The process of adjusting equipment to be within the appropriate tolerance to precisely perform the equipment's function. Generally applied to measuring equipment.
- **Certification:** Periodic task performed by technicians which tests equipment to ensure functions are within calibration. Upon completion of testing all passing equipment received a new sticker denoting when the next certification must occur.
- **Chemical Bio-Hazard Emergency Management System:** Chemical sensing devices are strategically located in select Metrorail stations to detect the presence of hazardous chemical agents and provide notification to a central monitoring system located within ROCC. Each Operations Console is equipped with the CB-EMS. Activation of sensors will transmit an alarm message to the CB-EMS to indicate the various stages of alarm- Blue (stage 1), Yellow (stage 2), or Red (stage 3). SOP 42 provides the approved processes to respond to the various stages of alert.
- **Continuity of Operations Plan (COOP):** COOP capability identifies essential functions and consists of plans and procedures, alternate facilities, alternate communications and data support systems, reinforced by comprehensive training, orientation and exercise programs.
- **Departmental Safety Committee (DSC):** DSCs are management level safety committees that serve as the intermediary between the respective Local Safety Committees (LSCs) and Executive Safety Committee.
- **Emergency Trip Station (ETS):** An emergency station (identifiable by a blue light) located at regular intervals along the roadway; each station consists of a dedicated phone line to the central rail operations control center and also an emergency trip button that de-energizes traction power to each designated contact rail section within the limits of the power feed.
- **Hazard:** 49 C.F.R. Part 673 defines a hazard as any real or potential condition that can cause injury, illness, or death; damage to or loss of facilities, equipment, rolling stock, or infrastructure of a public transportation system; or damage to the environment.
- **Internal Corrective and Preventive Action (iCAPA):** A formal written strategic plan to address issues of concern, required actions and recommendation resulting from internal reviews or quality assessments.
- **ISO 9001:** A set of standards that helps organizations ensure they meet customers and other stakeholder needs within statutory and regulatory requirements related to a product or service. Third-party certification bodies provide independent confirmation that organizations meet the requirements of ISO 9001.
- **Local Safety Committee (LSC):** Establishes and fosters a close working relationship with front-line employees, unions, safety, contracted operators (if applicable), and middle management regarding safety issues.
- **Maximo:** WMATA's Enterprise Asset Management system used for work order, incident and defect tracking. Maximo Work Orders (WO) specify a particular task and the labor, materials, services and tools required to complete the task.
- **Metrorail Safety Rules and Procedures Handbook (MSRPH):** The document that governs all activities within the Metrorail system by both WMATA employees and contractors regarding safety.

- **Policy/Instruction:** A set of principles, rules, and guidelines formulated or adopted by an organization to reach its long-term goals and typically published in a booklet or other form that is widely accessible. They are usually designed to influence and determine all major decisions and actions, and all activities take place within the boundaries set by them.
- **Precision Measuring Equipment:** Interchangeable with the term test equipment and refers to equipment used to measure input or outputs of devices. I.E. voltmeters, multimeters
- **Quality Control Program:** A program internal to WMATA executive-level departments to ensure safety rules are prioritized, roles and responsibilities are defined, and compliance checks are in place.
- **Radio Protocols:** Formal authorized standard verbiage to be used in communicating certain terms and acknowledgments through radio communication.
- **Rail Traffic Controller (RTC):** RTC is primarily responsible for supervising and coordinating all Main Line activities, to include train operations and maintenance activities. Maintain headway adherence by monitoring train arrival and departure schedules from yards, terminals and stations; initiate trouble shooting procedures and strategy in order to minimize delays. Monitor Main Line equipment status and various alarm systems; maintain positive radio communications with trains and field personnel; monitor and control the movement of nonrevenue trains and track equipment through the system, operate wayside equipment as required.
- **Roadway Worker in Charge (RWIC):** A qualified employee responsible for the roadway safety of all workers within their working limits. RWICs are qualified Roadway Protection (RWP), level 4.
- **Roadway Worker Protection (RWP):** RWP is a means of providing personnel with a uniform method of establishing On-Track protection, while minimizing dangers and hazards associated with working on the Roadway.
- **Safety and Security Certification Review Committee (SCRC):** Provides guidance for the safety and security certification of major construction and rehabilitation projects and vehicle procurement.
- **Standard Operating Procedure (SOP):** Standard Operating Procedures (SOP) delineate responsibilities and procedures for performing a specific function or task.
- **System Safety Program Plan (SSPP):** The Washington Metropolitan Area Transit Authority SSPP consists of a series of required activities that must be undertaken to verify the safety of its customers, employees, emergency responders, and the public. It includes the application of management structure, safety analysis techniques, accident/incident investigation, internal safety auditing, hazard management, safety and security certification, emergency management, fire protection, and fire suppression requirements.
- **Track Circuit Bond:** [REDACTED]
- **Warning Strobe and Alarm Device (WSAD):** A safety device used to confirm that the third rail is not electrified. WSADs are installed in a work zone to alert workers (by means of a siren and strobe light) if power has not been removed from, or is inadvertently restored to, the third rail.