



## COMPREHENSIVE INTERNAL REVIEW SUMMARY

### What is QICO?

- It's an internal management function that reports to the General Manager (GM/CEO) that provides quality and compliance assessments to assure departments are fulfilling business objectives, addressing corrective actions, and complying with NTSB, FTA, TOC, MSC, and other agency requirements and recommendations, promoting transparency and accountability. Results of these reviews are presented to senior management to communicate what went well, and to promote the implementation of actions to address areas for improvement.

### Purpose of this Review:

- The comprehensive nature of this internal review encompasses four distinct areas within Metrorail Engineering and Maintenance functions; Metrorail Vertical Transportation, Metrorail Fire & Life Safety Systems, Parts & Materials Inventory Management, and a Post-SafeTrack Assessment of Next-Level Maintenance Requirements; accounting for the 13<sup>th</sup> – 16<sup>th</sup> installments of QICO's 20-part CY2017 internal review. Each of these reviews was conducted in the third and fourth quarters (Q3 & Q4) of calendar year (CY) 2017, and are intended to collectively provide an overall assessment of observed activities to Metro's senior management to improve future capital program planning.

### Methodology:

- QICO developed relevant review activities by assessing risks to integration management, scope management, time management, cost management, quality management, human resource management, communication management, risk management, procurement management, stakeholder management and records management.
- QICO reviewed each function's governing documentation and records, assessed their conformance to requirements, and interviewed key personnel.
- Review findings and required actions are rated based on severity of risk, which ranges from 'Insignificant' to 'High' scale. Each is associated with either project-specific areas, or identified as a systemic issue across capital program management.

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

## Metrorail Engineering & Maintenance



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### 13. Metrorail Vertical Transportation: Escalator Maintenance and Inspection

**Key Takeaway:** Implementation of a maintenance control program and improving data analysis activities will promote sustainable performance of Metro's escalator systems.

#### Wins:

- ✓ Escalator mechanics were well versed in system components.

#### Areas for Improvement:

- Effective maintenance planning and scheduling is required to maximize maintenance efforts.
- A formal maintenance control program is required to assure compliance with code requirements and effective application of maintenance practices.
- Consistent capture of maintenance data is required for future maintenance planning.

#### Required Actions:

- **QICO-MVT-17-01:** Conduct an analysis of the current practices used to gather and store vertical transportation information. Create or modify methods to enhance the value and reliability of data collected and stored.
- **QICO-MVT-17-02:** Establish methods for maintenance personnel to perform their work more properly, efficiently, and effectively.
- **QICO-MVT-17-03:** Establish a maintenance control program that follows ASME code A17.1 Section 8.6; including methods for capture and storage of relevant maintenance data.

### 15. Parts & Materials Inventory Management

**Key Takeaway:** The implementation of a Material Requirement Planning (MRP) process and the application of its fundamentals and principles will assure Metro has an effective and efficient supply chain.

#### Wins:

- ✓ Shipment analysis performed by Supply Chain Enterprise Services (SCES) promotes effective corrective measures.

#### Areas for Improvement:

- Effective management of supply chain systems is essential to the availability of parts/materials and reduce the number of stockouts.
- Clear definition of roles, responsibilities, and functions within MIPN is required to assure activities are carried out consistently and in coordination with other departments.

#### Required Actions:

- **QICO-PMIM-17-01:** Determine a method to implement a Material Requirement Planning (MRP) system while incorporating the fundamental industry standards which will enhance the efficiency and effectiveness of the supply chain process.
- **QICO-PMIM-17-02:** Evaluate current material receiving practices and develop methods to ensure items with shelf-life limitations are identified and tracked through the supply chain system. A shelf life policy needs to be developed to ensure incoming products have adequate shelf life prior to entering into stock across the authority.
- **QICO-PMIM-17-03:** Identify all parts and materials that require an incoming/receiving inspection for quality control purposes, define specific methods to verify key product characteristics of these items, and develop methods to ensure these items are inspected as required.
- **QICO-PMIM-17-04:** Establish governing documentation to define roles and responsibilities for the office of MIPN to ensure clear departmental duties across the supply chain.
- **QICO-PMIM-17-05:** Establish and clarify requirements vendors must follow to ensure WMATA has clear supplier promised date and ship date used to update WMATA's data enterprise services.
- **QICO-PMIM-17-06:** Procurement must identify and evaluate PR's that have been aging greater than 30 days in order to maximize efficiency and eliminate the continuing growth of the PR backlog.

### 14. Metrorail Fire & Life Safety: Fire Suppression Inspection and Testing

**Key Takeaway:** The Fire and Life Safety (FLS) equipment observed is in good condition and practices are in accordance with national standards; however, the oversight roles must be clearly defined.

#### Wins:

- ✓ Office of Plant Maintenance (PLNT) utilizes a FLS Work Order Escalation Process for resolving FLS issues.

#### Areas for Improvement:

- Clear definition of roles, responsibilities, and processes for the Fire Marshal's Office are required.
- Effective oversight of inspection, testing and maintenance programs for fire and life safety systems is required.
- Consistent application of maintenance practices is necessary.

#### Required Actions:

- **QICO-FLS-17-01:** Establish governing documentation to define the roles, responsibilities, and processes for the Fire Marshal's Office (FMO) to ensure clear departmental ownership and obligations across Fire and Life Safety (FLS) systems.
- **QICO-FLS-17-02:** Conduct an evaluation of current maintenance practices, including maintenance records and material storage, and establish methods to ensure requirements are clearly defined and adhered to.

### 16. Post-SafeTrack: Assessment of Next-Level Maintenance Requirements

**Key Takeaway:** Although the SafeTrack program significantly improved conditions within each surge area, improved scope definition, planning, and on-site inspection activities is needed to assure future routine maintenance and capital renewal work is completed effectively.

#### Wins:

- ✓ Management team introduced management tools to continually improve the planning and execution of Surges.
- ✓ Condition of track superstructure significantly improved in Surge areas.

#### Areas for Improvement:

- There was no specific requirement to develop a complete scope or plan prior to the launch of the emergency SafeTrack program
- Consistent practices for data capture are necessary to provide traceability of work completed during routine maintenance and capital renewal activities.
- Quality control measures are necessary to consistently identify and correct deficiencies during future routine maintenance and capital renewal.
- Additional maintenance is required for special trackwork not addressed during Surges.

#### Required Actions:

- **QICO-STP-17-01:** To promote the effective execution of future maintenance initiatives, establish or revise policy to indicate the minimum requirements for program documentation (plan, scope, schedule, etc.) and control mechanisms (change management), including development and approval timelines.
- **QICO-STP-17-02:** To improve the integrity of maintenance records, establish uniform requirements for the use of Maximo in the documentation of work activities, including applicable nomenclature and data fields for traceability.
- **QICO-STP-17-03:** To 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.