

QICO 2018 INTERNAL REVIEW



Washington Metropolitan Area Transit Authority
WMATA



August 03, 2018

Capital Program – Management & Execution

- 10. *Metrorail New Railcar Manufacturing*
- 11. *Metrobus New Vehicle Acquisition*
- 12. *Contract Requirements*



ENGINEERING &
MAINTENANCE



SERVICE
DELIVERY



CAPITAL PROGRAM –
MANAGEMENT
& EXECUTION



INTERNAL SAFETY
& SECURITY REVIEW

Quality Assurance, Internal Compliance & Oversight (QICO)

Promoting Transparency, Accountability, & Public Confidence

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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. Authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

Why QICO Performed This Review:

- These internal reviews are intended to provide Metro senior management with an assessment of the state of Capital Program – Management & Execution within three distinct areas (Railcar Acquisition, Metrobus Vehicle Acquisition, and Capital Project Contract Specifications) and promote the actions needed to address any concerns.

QICO's Methodology:

- Develop relevant review activities by identifying and assessing risks to policies, procedures & standards, quality & compliance, and traceability.
- Review documentation, observe processes and interview key personnel.
- Review findings and required actions are rated based on severity of risk, 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 measureable resolution of identified concerns. To check the status of iCAPA implementation go to: www.wmata.com/initiatives/transparency/.

WHAT WE FOUND | CAPITAL PROGRAM – MANAGEMENT & EXECUTION

August 2018

10. Metrorail New Railcar Manufacturing

Wins:

- ✓ An effective Release for Shipment Process provides railcars are shipped from the manufacturer with accurate serialization records, proper approval, and no known items impeding placement into service.
- ✓ Inspection and test records are effectively maintained, managed, reviewed and controlled through an electronic Car History Book. Providing clear traceability and the ability to demonstrate compliance with Federal Requirements.

Action Areas Identified During Review:

- Identifying and controlling special processes (i.e. welding, painting, wire crimping) is required to mitigate workmanship defects that lead to lengthy delays and poor reliability.
- Ensuring that the manufacturer is providing efficient and effective engineering support to address design defects is critical to timely implementation of modifications, reducing the burden on Authority resources to complete work after plant shipment.
- Including stronger contract language for reporting on manufacturer's internal quality findings can reduce oversight costs for the Authority through more data driven reviews and inspections.

11. Metrobus New Vehicle Acquisition

Wins:

- ✓ Control of rework and retrofitting activities during the commissioning process ensures buses meet their form, fit and function capabilities prior to being entered into revenue service.
- ✓ Defects reported by the resident inspector ensures that Bus Engineering (BENG) and the manufacturer are made aware of workmanship problems which are corrected through a buy-back process.

Action Areas Identified During Review:

- Utilization of a central repository for document control and change management is essential for effective program management.
- Effective training on new vehicles and systems prior to entering service is necessary to ensure proper fleet operation and maintenance.
- Adequate manufacturer's oversight is essential to enhance the quality of the buses being delivered.

12. Capital Project Contract Requirements

Action Areas Identified During Review:

- Establish and implement a policy and a procedure for participation in the Metropolitan Washington Council of Governments (MWCOG) Cooperative Purchasing Program to allow WMATA to take advantage of the benefits and comply with FTA guidelines.
- Update and implement Standard Operating Procedures (SOPs) to describe WMATA procurement requirements in order to align WMATA with industry best practices and promote reliability, efficiency, and accuracy.
- Appropriate utilization of a Liquidated Damages clause in contracts will help protect the Authority's financial interest.
- Clear, accurate, and complete Scope of Work (SOW) specifications are vital for determining the intent and requirements for a proposed contract.

WHAT WE WILL DO MOVING FORWARD



Key Takeaway

Continuing to enhance contract language and project management practices to ensure greater quality of future acquisitions will contribute towards improving WMATA's quality, safety and reliability of service.

Through the implementation of 5 internal Corrective and Preventive Actions (iCAPAs) we are committed to driving quality improvement initiatives with the objective of safeguarding the mission success of the agency while enhancing customer experience. These strategic plans to address issues of concern, required actions and recommendations are intended to drive real progress that is measureable and verifiable.

10. Metrorail New Railcar Manufacturing

- Review and ensure contract language and requirements for future railcar acquisitions includes performance of appropriate quality checks and engineering design support by the manufacturer. Be sure to enhance the provisional language that defines specific consequences for failing to provide expected quality in regards to workmanship and configuration control.
- For details on the committed action plans see the following iCAPA: QICO-NRKM-18-01.

11. Metrobus New Vehicle Acquisition

- Identify opportunities to enhance program management, new vehicle training, and manufacturer oversight with regard to formal communication, document control, detailed training plans, and enhanced contract language to ensure delivery of quality vehicles.
- For details on the committed action plans see the following iCAPAs: QICO-NVAB-18-01, NVAB-18-02, & NVAB-18-03.

12. Capital Project Contract Requirements

- Identify opportunities to update and implement policies, procedures, and standards in accordance with the FTA Circular and the WMATA Procurement Manual to define expected practices, provide a roadmap for internal practices, and assure efficiency, consistency, and reliability.
- For details on the committed action plans see the following iCAPA: QICO-PRMT-18-01.



Washington Metropolitan Area Transit Authority

INTERNAL REVIEW 2018

**Internal Review: Capital Program – Management & Execution
(10) Metrorail New Railcar Manufacturing**

August 03, 2018



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**ENGINEERING &
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**CAPITAL PROGRAM –
MANAGEMENT
& EXECUTION**



**INTERNAL SAFETY
& SECURITY 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. Authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

Why QICO Performed This Review:

- This internal review is intended to provide Metro senior management with an assessment of the state of the Metrorail New Rail Car manufacturing process and promote the actions needed to address any concerns.

QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to policies, procedures & standards, quality & compliance, and traceability.
- Review documentation, observe processes and interview key personnel.
- Review findings and required actions are rated based on severity of risk, which ranges on a scale from "Insignificant" to "High".

INTERNAL REVIEW SUMMARY

August 2018

(10) Metrorail New Railcar Manufacturing

Wins:

- ✓ An effective Release for Shipment Process provides railcars are shipped from the manufacturer with accurate serialization records, proper approval, and no known items impeding placement into service.
- ✓ Inspection and test records are effectively maintained, managed, reviewed and controlled through an electronic Car History Book. Providing clear traceability and the ability to demonstrate compliance with Federal Requirements.

Areas for Improvement:

- The manufactures ability to properly control special processes such as Wire Crimping, Welding, and Painting is required to mitigate workmanship defects that lead to lengthy delays in manufacturing and can negatively affect reliability.
- Ensuring that the manufacturer is providing efficient and effective engineering support to address design defects is critical to timely implementation of modifications, reducing the burden on Authority resources to complete work after plant shipment.
- Including stronger contract language for reporting on manufacturers internal quality findings can reduce oversight costs for the Authority through more data driven reviews and inspections.

Required Actions:

- QICO-NRKM-18-01: Review and ensure contract language and requirements for future railcar acquisitions includes performance of appropriate quality checks and engineering design support by the manufacturer. Be sure to enhance the provisional language that defines specific consequences for failing to provide expected quality in regards to workmanship and configuration control.

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

10.1. FUNCTIONAL OVERVIEW AND STRUCTURE

Metrorail 7000 Series Railcar (Kawasaki) Manufacturing

In 2010, WMATA entered into contract RC7000 to purchase new Railcars from Kawasaki Railcar Incorporated, with all options exercised the Authority will receive 748 new 7000 Series Railcars. In 2012, Kawasaki began manufacturing railcars at Kawasaki Motors Manufacturing in Lincoln, Nebraska. As of July 1, 2018, Kawasaki has shipped 564 railcars, and WMATA has accepted and placed into service 548 railcars. The estimated completion of 7000 Series Railcar manufacturing and commissioning is July of 2019.

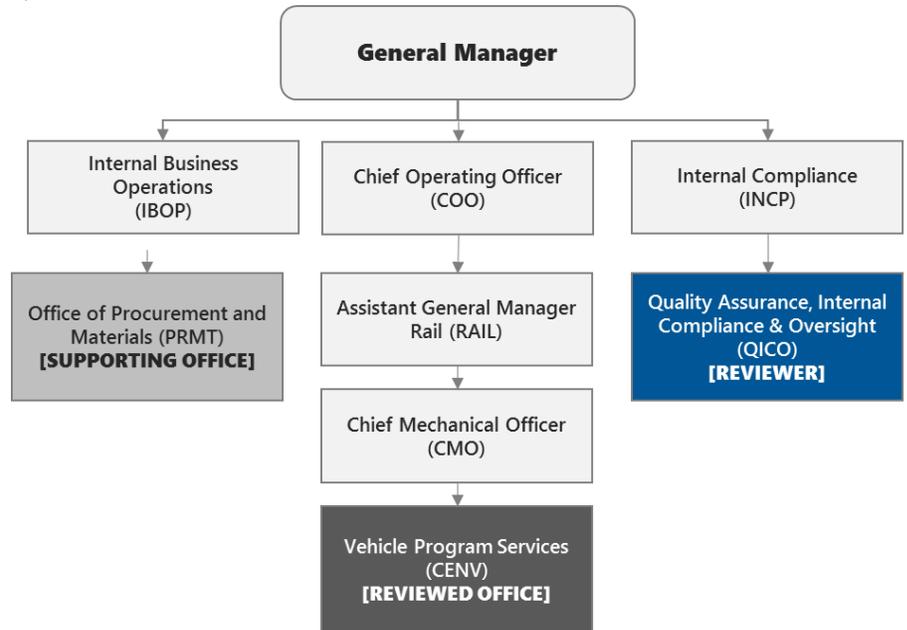
Organizational Structure and Background

Within WMATA, Vehicle Program Services (CENV) reports to the Chief Mechanical Officer (CMO). QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP). The Metrorail New Vehicle Acquisition Program is technically led by Vehicle Program Services (CENV), and supported by multiple departments including Safety (SAFE), QICO, Reliability (REPA), and Car Maintenance (CMNT).

Within Kawasaki, Kawasaki Railcar Incorporated (KRC) in Yonkers, New York is responsible for the Program Management and Supplier Quality. Kawasaki Motors Manufacturing (KMM) in Lincoln, Nebraska is responsible for the manufacturing and factory testing of railcars. Kawasaki Heavy Industries (KHI) in Kobe, Japan is responsible for the design and engineer of railcars, additionally KHI is the parent company of both KRC and KMM.

The scope of this internal review is to assess the manufacturing of new railcars which is the responsibility of Kawasaki, and the contract control methods the Authority utilizes to ensure mission success, which is the responsibility of CENV and is supported by the Office of Procurement (PRMT).

The manufacturing process for 7000 series railcars follows multiple steps, Sub-Supplied Equipment and components are manufactured, tested, inspected and shipped to KMM for assembly. At KMM Carshells are fabricated, equipment and interiors are assembled, and testing to verify functionality is completed. Railcars are then placed on trailers and shipped to WMATA. At ██████████ ██████████ conducts inspections and final testing prior to cars being accepted for use in service by the Authority.



10.2. REVIEW SCOPE

In this internal review, QICO is assessing the manufacturing of the 7000 Series Railcars, specifically reviewing Kawasaki's compliance with, and WMATA's ability to develop and monitor contract requirements for Supplier Management, Change Management, Process Control, and Training; focusing on three (3) general areas of assessment:

1. Policies, Procedures and Standards
2. Quality and Compliance
3. Traceability

QICO performed the internal review between May 1, 2018 and June 29, 2018. Interviews and Observations were conducted at Kawasaki's manufacturing facility in Lincoln, Nebraska (KMM), as well as at Kawasaki's corporate offices in Yonkers, NY (KRC).

Documentation Review

- Conformed Contract RC7000 (Mod. II dated April 1, 2012)
- KMM Quality Manual
- KMM Quality Assurance Program Plan
- Car History Book Records for Railcars 7105, 7240, 7496, and 7551 including:
 - o Factory Acceptance Test Records
 - o Request for Shipment
 - o Material Rejection Reports
 - o Configuration Control Records
 - o Serialization Lists
 - o Factory Inspection Records
- KMM Training Records for Wiring and Crimping as of 6/1/18
- KMM Internal Audits Operating Procedure 822P4-01 5/13/13
- KMM Corrective Action 852P4-01 3/19/15
- KMM Customer Communications 723R1-01 10/16/07
- KMM Supplier Evaluation 741P4-04 3/2/15
- KMM Calibration Guidelines RC-15P-01 5/19/17
- KRC Procurement Quality Standard, 7000 Series Transit Cars WM7-U-8005 Rev G 7/13/11
- CFR 2012 Title 49, Volume 7 – Part 663 – Pre-Award and Post Delivery Audits of Rolling Stock Purchases

Personnel Discussions

KMM – Quality Manager, [REDACTED]
 KMM – Procurement Manager, [REDACTED]
 KMM – Production Engineering Manager, [REDACTED]
 KMM – Production Foreman, [REDACTED]
 KMM – Senior Quality Engineer, [REDACTED]
 KMM – Senior Quality Engineer, [REDACTED]
 KRC – Program Manager, [REDACTED]
 KRC – Supplier Quality Manager, [REDACTED]
 KRC – Quality Representative, [REDACTED]

10.3. WHAT WORKED WELL (WINS)

Wins are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

W-NRKM-18-01 [Application and Fulfillment](#)

Reduces [Service Delivery Risk](#) Owner – CENV

- ✓ **An effective Release for Shipment Process provides railcars are shipped from the manufacturer with accurate serialization records, proper approval, and no known items impeding placement into service.**

Discussion

- Between May 2016 and May 2018 the number of items on the shipped open items list has been reduced from an average of 22 per railcar to an average of 6 per railcar.
- Of the average six (6) open items per railcar shipped since January 2018 over 95% of open items that will required negligible amounts of rework (for example pending software design change or deviation request approval).

W-NRKM-18-02 [Data Assurance](#)

Reduces [Legal and Compliance Risk](#) Owner – CENV

- ✓ **Inspection and test records are effectively maintained, managed, reviewed and controlled through an electronic Car History Book. This provides clear traceability and compliance with Federal Requirements.**

Discussion

- Car History Books for Railcars 7105, 7240, 7496, and 7551 were reviewed for completeness and correctness of records related to the manufacturing of Rail Cars. The following areas were checked:
 - o Section 2 Truck Records (11 Test Record)- 100% Complete and 100% Valid
 - o Section 3 Carbody Records (11 Test Records)- 100% Complete and 100% Valid
 - o Section 4 Car Inspection Records (11 Inspection Records)- 100% Complete and 100% Valid
 - o Section 5 Factory Car Test Records (19 Test Records)- 100% Complete and 100% Valid
 - o Section 7 Master Serial Number Listing (1 Document of Record)-100% Complete and 100% Valid
 - o Section 8 Material Reject Report (MRR) Information (2 Documents of Record)- 100% Complete and 100% Valid
 - o Section 9 Release for Shipment (1 Inspection and 3 Documents of Record)- 100% Complete and 100% Valid

10.4. AREAS FOR IMPROVEMENT

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

F-NRKM-18-01 [Quality Control](#)

[Service Delivery – Elevated \(4,4\)](#) ■ Owner – CENV

- **Finding: Identifying and controlling special processes (i.e. welding, painting, wire crimping) is required to mitigate workmanship defects that lead to lengthy delays and poor reliability.**

Discussion

- During the assessment conducted at Kawasaki Motors Manufacturing it was discovered that wire crimping defects went undetected by Kawasaki and were found by WMATA's Resident Inspectors resulting in defects that require rework on all 548 on-site at WMATA, this will result in rework that will take over one year to accomplish.
- Upon review of the Kawasaki Material Rejection Reports, the rejections resulting in the largest delays to the program were both related to special processes (KMM-MRR-039D-Welding, over 30 day delay to the program, and KMM-MRR-081/83/85-Wire Crimping, over 60 day delay to the program).
- Over 90% of all WMATA generated Surveillance Inspection Reports are due to workmanship defects noted within Welding, Crimping, or Painting.

F-NRKM-18-02 [Change Management](#)

[Service Delivery – Elevated \(4,4\)](#) ■ Owner – CENV

- **Finding: Ensuring that the manufacturer is providing efficient and effective engineering support to address design defects is critical to timely implementation of modifications, reducing the burden on Authority resources to complete work after plant shipment.**

Discussion

- For the shipped open items for all cars delivered in 2018, over 95% of issues were related to Engineering Open Items, of this subset over 50% had been open for over 365 days.
- WMATA is currently utilizing an entire facility, consisting of space for eight (8) railcars as well as related personnel to support a modification program for over two hundred 7000 series railcars. The expected total time to complete this program is greater than 2 years.

F-NRKM-18-03 [Application & Fulfillment](#)

[Service Delivery – Elevated \(4,4\)](#) ■ Owner – CENV

- **Finding: Including stronger contract language for reporting on manufacturer's internal quality findings can reduce oversight costs for the Authority through more data driven reviews and inspections.**

Discussion

- Over 90% of WMATA's inspectors time utilization is related to conducting hold point inspection, preventing the Authorities inspectors from monitoring work in progress.
- Workmanship defects related to wiring and crimping as noted in KMM-MRR-081/83/85 were identified during a surveillance inspection and would not have been identified during hold point inspections due to concealment through the normal installation processes.
- The manufacturer for the 7000 series Railcars has failed to implement an effective system for conducting in-process inspections, all inspection records provided were based upon conducting hold-point inspections.

10.5. SUMMARY OF REQUIRED ACTIONS

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#).

QICO-NRKM-18-01 Action Owner – CENV

Overall Risk – Elevated (Average Score) ■

Required Action: Review and ensure contract language and requirements for future railcar acquisitions includes performance of appropriate quality checks and engineering design support by the manufacturer. Be sure to enhance the provisional language that defines specific consequences for failing to provide expected quality in regards to workmanship and configuration control.

Applicable Findings

- F-NRKM-18-01: Identifying and controlling special processes (i.e. welding, painting, wire crimping) is required to mitigate workmanship defects that lead to lengthy delays and poor reliability.
 - o Measure: [Quality Control](#). Risk: [Service Delivery – Elevated \(4,4\)](#).
- F-NRKM-18-02: Ensuring that the manufacturer is providing efficient and effective engineering support to address design defects is critical to timely implementation of modifications, reducing the burden on Authority resources to complete work after plant shipment.
 - o Measure: [Change Management](#). Risk: [Service Delivery – Elevated \(4,4\)](#).
- F-NRKM-18-03: Including stronger contract language for reporting on manufacturer’s internal quality findings can reduce oversight costs for the Authority through more data driven reviews and inspections
 - o Measure: [Application & Fulfillment](#). Risk: [Service Delivery – Elevated \(4,4\)](#).

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



Washington Metropolitan Area Transit Authority

INTERNAL REVIEW 2018

Internal Review: Capital Program – Management & Execution (11) Metrobus New Vehicle Acquisition

August 03, 2018



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Why QICO Performed This Review:

- This internal review is intended to provide Metro senior management with an assessment of the state of Metrobus New Vehicle Acquisition process and promote the actions needed to address any concerns.

QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to policies, procedures & standards, quality & compliance, and traceability.
- Review documentation, observe processes and interview key personnel.
- Review findings and required actions are rated based on severity of risk, which ranges on a scale from "Insignificant" to "High".

INTERNAL REVIEW SUMMARY

August 2018

Metrobus New Vehicle Acquisition

Wins:

- ✓ Control of rework and retrofitting activities during the commissioning process, ensures buses meet their form, fit, and function capabilities prior to being entered into revenue service.
- ✓ Defects reported by the resident inspector ensures that BENG and the manufacturer are made aware of workmanship problems which are corrected through a buy-back process.

Areas for Improvement:

- Utilization of a central repository for document control and change management is essential for effective program management.
- Effective training on new vehicles prior to entering service is required to ensure proper fleet operation and maintenance.
- Adequate manufacturer's oversight is essential to improve the quality of the buses being delivered.
- Adherence to the four week pilot bus testing requirement is recommended for a sufficient acceptance process.
- The inclusion of post-delivery inspection requirements in the contract is important for a streamlined commissioning and acceptance process.

Required Actions:

- QICO-NVAB-18-01: Establish formalized communication and document control for program correspondence, related to both commercial and technical subjects.
- QICO-NVAB-18-02: Establish a detailed training plan, including the training modules, targeted audience, delivery dates and location. Retain training records within ELM and/or a central repository.
- QICO-NVAB-18-03: Provide monthly manufacturer supplied analysis of the defects, including trends and the actions taken to improve those trends. For future procurements, include a contractual requirement that identifies the targeted number of defects per bus and the actions to be taken in case of deviation.

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

11.1. FUNCTIONAL OVERVIEW AND STRUCTURE

Metrobus New Vehicle Acquisition

WMATA's Metrobus service is essential to the region's transportation system. The network has a broad reach to all of the regional activity centers as well as to neighborhoods throughout various parts of the region, operating out of nine (9) full service divisions. Metrobus provides more than 433,000 trips each weekday serving 12,000 bus stops in the District of Columbia, Maryland, and Virginia¹. It is the 6th busiest bus agency in the United States, with a fleet of more than 1,500 buses operating on 299 routes². Metrobus is responsible for procuring, operating, and maintaining a fleet of diesel, compressed natural gas (CNG), and hybrid rolling stock; the fleet also comprises of both standard 40-ft and articulated 60-ft buses.

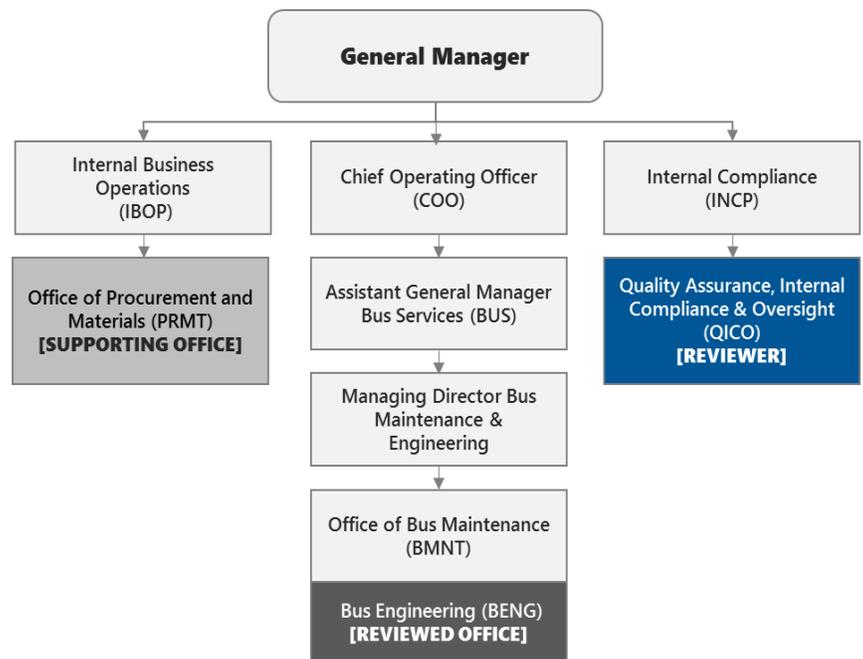
The Authority needs to accommodate the growing demand for bus service while maintaining service effectiveness and reliability. Typical challenges facing Metrobus service include increased traffic congestion which result in slower trips, overcrowding, and less reliable service. According to the Metro 2025 Initiatives, a bus fleet of 2,026 by 2025 would relieve [bus] overcrowding, increase operational efficiencies and on-time performance, and allow Metro to meet the growing demand for bus transit.

Organizational Structure and Background

Within WMATA, Bus Services (BUSV) reports to the Chief Operating Officer (COO). As shown in the organization chart, QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP). The Metrobus New Vehicle Acquisition Program is technically led by the sub-group Bus Engineering (BENG) which is within the Office of Bus Maintenance (BMNT). The scope of this internal review is to assess the acquisition of new buses from a technical perspective, which is the responsibility of BENG and is supported by the Office of Procurement (PRMT).

BENG has the responsibility of developing and managing bus technical specifications. BENG collaborates with BMNT to address their engineering concerns, ensuring buses are constructed with a sound engineering design and through a robust manufacturing processes. BENG is also responsible for ensuring that the newly procured buses meet federal, state and local regulations, and cross-references the American Public Transportation Association (APTA) white book specifications. This is ensured through constant interface with vendors and manufacturer.

Currently Metrobus acquires an average of 100 new buses per year. Annually, an average of 100 buses receive a midlife rehabilitation to maintain the fleet in a state of good repair. Buses are retired, on average, after fifteen (15) years. The specifics of which vehicles are retired before or after that target age depends on a variety of factors, including fuel efficiency and reliability.



¹ [2013 Metrobus Fleet Management Plan Update]

² [Office of Bus Transportation (BTRA): Business Plan 2016-2017-2018]

11.3. WHAT WORKED WELL (WINS)

Wins are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

W-NVAB-18-01 [Application and Fulfillment](#)

Reduces [Service Delivery Risk](#) Owner – BMNT

- ✓ Control of rework and retrofitting activities during the commissioning process, ensures buses meet their form, fit and function capabilities prior to being entered into revenue service.

Discussion

- A retrofit log was provided, detailing the issues that need to be reworked/retrofitted, the corresponding bus numbers and the cut-off bus numbers that indicate the end of the rework/retrofitting activity.

W-NVAB-18-02 [Quality Control](#)

Reduces [Service Delivery Risk](#) Owner – BMNT

- ✓ Defects reported by the resident inspector ensures that BENG and the manufacturer are made aware of workmanship problems which are corrected through a buy-back process.

Discussion

- At the manufacturer's plant, resident inspectors are documenting defects found which are being corrected by the manufacturer before the buses go through safety certification and enter into revenue service.

11.4. AREAS FOR IMPROVEMENT

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

F-NVAB-18-01 [Change Management](#)

[Service Delivery – Elevated \(4,4\)](#) ■ Owner – BMNT

- **Finding: Utilization of a central repository for document control and change management is essential for effective program management.**

Discussion

- No procedure or records were provided pertaining to the cause of the changes to the technical specification.
- Document change records are not centrally located and controlled, prior to the official amendments communicated through the procurement process. Technical changes made during the building process are reviewed by BENG and BMNT as applicable, however their approvals and sign-offs are not documented. The Contracting Officer's Technical Representative (COTR) is the only person doing the sign-off and communicating the approval of the changes to the vendor. This demonstrates an incomplete change management process.
- A concession was made to bypass the four week pilot bus testing outlined in the technical specification (STP 1.1 Pilot Bus & TF7 Offeror's Demonstrator (Test) Vehicle at WMATA), however the details and the sign-offs of the concession were not documented.
- Upon reviewing the master files for buses [REDACTED], the following information was missing:
 - o The inspector's name, step heights, shift speeds, ambient air temperature, and floor heater checks are missing on page 54 of the Bus [REDACTED] New CNG 40 Foot Bus Inspection Report.
 - o While Allison's Vendor Pre-Delivery Inspection (PDI) form is included with buses [REDACTED] and [REDACTED] the other vendor PDIs listed on the New Bus Check Off sheet are not. This includes Cummins (engine), Thermo King (HVAC), Fireline (engine fire suppression system), ORION (camera), Luminator (destination signs), DriveCam (camera), and Clever Devices (fleet management).
 - o Bus [REDACTED] has no vendor PDI checklists.
 - o Bus [REDACTED] (page 57) Pre-Delivery Visual and Measured Inspection is missing pass/fail marks.
 - o Bus [REDACTED] (Page 55) and [REDACTED] (Page 63) noise level test results are blank.
 - o Bus [REDACTED] (Page 19) and [REDACTED] (Page 67) New Bus Check off Sheet is missing WMATA inspection signatures and dates.
 - o All provided Allison Production Checklists have incomplete road test checks.
 - o SAFE's Bus Safety and Security Compliance checklists/reports were not included.
- Per BMNT SOP3.11 New Bus Acceptance Procedure, Revision 5 – Section 13, all documents related to the new bus receipt and inspection process must be maintained in the Bus Master file. This includes BMNT, HOMT, SAFE, and vendor post-delivery inspection reports.

F-NVAB-18-02 [Skills Management](#)

[Service Delivery – Low \(2,3\)](#) ■ Owner – BMNT

- **Finding: Effective training on new vehicles and systems prior to entering service is necessary to ensure proper fleet operation and maintenance.**

Discussion

- Hard copy training records were presented to QICO for review. Per BENG, these training records currently cannot be retrieved from a central repository or PeopleSoft ELM.
- No training plan is in place to ensure all Metrobus operators and BMNT personnel are trained on newly acquired buses per RFP FQ18001 [REDACTED], section TS5.6 Training, and SOP 3.18, Lifecycle of a Metrobus.
- As updated systems are introduced or major changes occur, there is in no plan in place to familiarize technicians prior to those updates being integrated into the fleet.

- Finding: Adequate manufacturer’s oversight is essential to enhance the quality of the buses being delivered.**Discussion**

- Upon review of snag sheets of incoming new buses, a high number of defects were found. This demonstrates a lack of manufacturer’s oversight to improve the trends of the total defects detected by WMATA’s on-site inspectors. While these defects are corrected before delivery, the overall trend should be addressed by the vendor and followed up on by WMATA. The number of defects recorded in the snag lists are as following:
 - o Snag sheet dated March 2009 for bus [REDACTED] totals 134 defects found by WMATA’s on-site inspector.
 - o Snag sheet dated August 2011 for bus [REDACTED] totals 141 defects found by WMATA’s on-site inspector.
 - o Snag sheet dated March 2017 for bus [REDACTED] had a total of 89 defects found by WMATA’s on-site inspector.
 - o Snag sheet dated April 2018 for bus [REDACTED] had a total of 152 defects found by WMATA’s on-site inspector.
- The required four weeks of pilot bus testing outlined in STP.1.1 Pilot Bus (FQ18001/BTK Technical Specification) and TF7 Offeror’s Demonstrator Test Vehicle at WMATA (RFP FQ18001/BTK) will not be conducted due to time constraints.
- Post-delivery inspection requirements for sub systems (engine, transmission, CCTV, and doors) were not included in the contract, resulting in separate contracts created post solicitation.

11.5. SUMMARY OF REQUIRED ACTIONS

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

QICO-NVAB-18-01 Action Owner – BMNT

[Overall Risk – Elevated \(Average Score\)](#) ■

Required Action: Establish formalized communication and document control for program correspondence, related to both commercial and technical subjects.

Applicable Findings

- F-NVAB-18-01: Utilization of a central repository for document control and change management is essential for effective program management.
 - o *Measure:* [Change Management](#). *Risk:* [Service Delivery – Elevated \(4,4\)](#)

QICO-NVAB-18-02 Action Owner – BMNT

[Overall Risk – Low \(Average Score\)](#) ■

Required Action: Establish a detailed training plan, including the training modules, targeted audience, delivery dates and location. Retain training records within ELM and/or a central repository.

Applicable Findings

- F-NVAB-18-02: Effective training on new vehicles and/or systems prior to entering service is required to ensure proper fleet operation and maintenance.
 - o *Measure:* [Skills Management](#). *Risk:* [Service Delivery Risk – Low \(2,3\)](#)

QICO-NVAB-18-03 Action Owner – BMNT

[Overall Risk – Elevated \(Average Score\)](#) ■

Required Action: Provide monthly manufacturer supplied analysis of the defects, including trends and the actions taken to improve those trends. For future procurements, include a contractual requirement that identifies the targeted number of defects per bus and the actions to be taken in case of deviation.

Applicable Findings

- F-NVAB-18-03: Adequate manufacturer's oversight is essential to improve the quality of the buses being delivered.
 - o *Measure:* [Quality Control](#). *Risk:* [Service Delivery Risk – Elevated \(4,4\)](#)

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



Washington Metropolitan Area Transit Authority

INTERNAL REVIEW 2018

Internal Review: Capital Program – Management & Execution
(12) Contract Requirements

August 03, 2018



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



ENGINEERING &
MAINTENANCE



SERVICE
DELIVERY



CAPITAL PROGRAM –
MANAGEMENT
& EXECUTION



INTERNAL SAFETY
& SECURITY REVIEW



INTERNAL REVIEW SUMMARY

August 2018

Capital Program – Management & Execution: Contract Requirements

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. Authorized by the General Manager as outlined in the [Quality Management System Plan \(QMSP\)](#).

Why QICO Performed This Review:

- This internal review is intended to provide Metro senior management with an assessment of the state of the Office of Procurement and Materials (PRMT) and promote the actions needed to address any concerns.

QICO's Methodology:

- Develop relevant review activities by identifying and assessing any risks to policies, procedures & standards, quality & compliance, and traceability.
- Review documentation, observe processes and interview key personnel.
- Review findings and required actions are rated based on severity of risk, which ranges on a scale from "Insignificant" to "High".

Areas for Improvement:

- Establish and implement a policy and a procedure for participation in the Metropolitan Washington Council of Governments (MWCOG) Cooperative purchasing program to allow WMATA to take advantage of the benefits and comply with FTA guidelines.
- Update and implement Standard Operating Procedures (SOPs) to describe WMATA procurement requirements in order to align WMATA with industry best practices and promote reliability, efficiency, and accuracy.
- Appropriate utilization of a Liquidated Damages clause in contracts will help protect the Authority's financial interest.
- Clear, accurate, and complete Scope of Work (SOW) specifications are vital for determining the intent and requirements for a proposed contract.

Required Actions:

- **QICO-PRMT-18-01:** Identify opportunities to update and implement policies, procedures, and standards in accordance with the FTA Circular and the WMATA Procurement Manual to define expected practices, provide a roadmap for internal practices and assure efficiency, consistency and reliability.
(Risk Rating: Moderate)

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

12.1. FUNCTIONAL OVERVIEW AND STRUCTURE

Office of Procurement and Materials (PRMT)

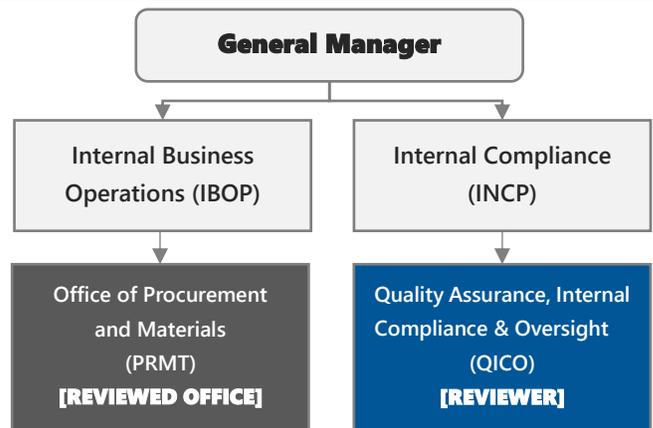
The Office of Procurement and Materials (PRMT) is responsible for procuring goods and services for WMATA. QICO is independent of this function, reporting to the General Manager through Internal Compliance (INCP). PRMT is the only office authorized to execute contracts on behalf of WMATA. The Chief Procurement officer is responsible for selecting, recommending, appointing, and delegating Contracting Officer responsibility. The Chief Procurement Officer is also charged with developing and issuing procurement procedures to implement policies of the WMATA Board, which are aligned with federal regulations and the WMATA Compact.

Organizational Structure and Background

PRMT has a Chief Procurement Officer and a Deputy Chief Procurement Officer. There are five (5) Procurement Managers, six (6) Contract Managers and 29 Contract Administrators who work in teams to serve WMATA's business units with purchasing goods and services.

Each Procurement Manager supports one of the following units:

- IT & Exec Services
- BUS & ACCS
- PLNT/SMNT/TIES
- CENI/MCAP
- Inventory



Procurement Manager IT & Exec Services	Procurement Manager BUS & ACCS	Procurement Manager PLNT/SMNT/TIES
- Responsible for supporting IT, Treasury, Legal, Human Resources, Safety and Police	- Responsible for supporting Bus and Access Service	- Responsible for supporting the Offices of Plant Maintenance, Systems Maintenance and the Department of Transit Infrastructure and Engineering Services
Procurement Manager CENI/MCAP	Procurement Manager CENI/MCAP Inventory	
- Responsible for supporting Chief Engineer Infrastructure Services as well as Major Capital Projects - Responsible for soliciting all solicitations for Architectural and Engineering Services.	- Responsible for supporting WMATA inventory acquisitions	

12.2. REVIEW SCOPE

This internal review is designed to provide an independent evaluation of the procurement processes involved in contract requirements' development, promote compliance with internal and external regulatory requirements, and drive quality improvement initiatives that safeguard the mission success of WMATA. QICO performed the internal review between March 6 and May 4, 2018.

QICO reviewed documentation and interviewed personnel, noting both wins, and areas for improvement. QICO's findings are categorized into three (3) groups: Policies Procedures & Standards, Quality & Compliance, and Traceability. For each finding there is an associated Recommendation (a suggestion for improving a process based upon QICO's review). Findings are combined into Required Actions, which summarize the steps action owners must take to address discrepancies. Additionally, there are Supplemental Business Guidance items which are opportunities for applying quality related standards, programs, and procedures to bring greater safety and efficiencies.

Documentation Review

- WMATA's procurement files for 22 contracts containing federal and non-federal funding, diverse scopes (Equipment, Materials, Supplies, Services, Construction), and procurement actions (RFP, IFP, Options, Sole Source).
- Procurement SOPs issued via Interoffice Memorandum: Exercising an Option, Checklists, Independent Cost Estimates and Single Bid Analysis.
- WMATA Procurement Procedures Manual

Personnel Discussions

- Procurement Managers:
 - o [REDACTED]
 - o [REDACTED]
 - o [REDACTED]
- Counsel, Government Contracts
 - o [REDACTED]
 - o [REDACTED]
- Bus Maintenance
 - o [REDACTED]
 - o [REDACTED]

12.3. AREAS FOR IMPROVEMENT

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

F-PRMT-18-01 [Work Standards](#)

[Strategic – Low \(2,2\)](#) ■

Owner – PRMT

- **Finding: Establish and implement a policy and a procedure for participation in the Metropolitan Washington Council of Governments (MWCOG) Cooperative Purchasing Program to allow WMATA to take advantage of the benefits and comply with FTA guidelines.**

Discussion

- FTA Circular 4220.1F Third Party Contracting Guidance specifies that “although FTA does not encourage the practice, a recipient may assign its contractual rights to purchase property and services to other recipients if the original contract contains an appropriate assignability clause that provides for the assignment of all or a portion of the specified deliverables as originally advertised, competed, evaluated, and awarded, or other appropriate assignment provisions. Some refer to this process as ‘piggybacking’.” (FTA C 4220.1F, V, 7, a, (2))
- The MWCOG Cooperative Purchasing program allows participating agencies to maximize purchasing efficiency on commodities bought in bulk with standard specifications. The program is executed through the inclusion of an assignability clause or a joint procurement.
- QICO reviewed WMATA’s procurement guidance (Policy/Instructions, Policy Memoranda, Procurement Procedures Manual, SOPs) which did not contain reference of WMATA’s participation in the MWCOG Cooperative Purchasing Program.
- QICO reviewed 22 contracts, executed between CY2016-17, 14 of which included the MWCOG Cooperative Purchasing Rider (the Rider):
 - o Five (5) contracts are federally funded and nine (9) are operationally funded.
 - o The contract scopes that included the piggybacking clause were Software, Equipment, Materials, Construction, Professional Services, Services and Supplies.
 - o Three (3) different versions of the Rider were observed in procurement files without any apparent document version control.
 - o The Rider was included on contract scopes without a reasonable regional interest, e.g. *FQ16128 Wood Cross Ties* and *CQ18037 Comprehensive Transit Bus Intelligent Transportation System (ITS) P&C Maintenance and Warranty Services*.

F-PRMT-18-02 [Work Standards](#)

[Service Delivery – Moderate \(3,3\)](#) ■

Owner – PRMT

- **Finding: Update and implement Standard Operating Procedures (SOPs) to describe WMATA procurement requirements in order to align WMATA with industry best practices and promote reliability, efficiency, and accuracy.**

Discussion

QICO reviewed Procurement SOPs to assess the level of compliance and the effectiveness of the processes in place in accordance with WMATA Procurement Procedures Manual and FTA Circular 4220.1F.

- Interoffice Memoranda 16-03 Checklist, 16-05 Single Bid Analysis, 16-06 exercising an Option and 16-09 Independent Cost Estimate SOPs do not provide comprehensive processes to guide procurement staff while administering contracts.
- Interoffice Memorandum 16-06 Exercising an option, issued May 10, 2016, references a specific project’s Procurement System Review and includes reference to a non-existent attachment. An older version of the SOP, issued January 15, 2014 via Interoffice Memorandum 14-05, was still available on the website. It contained the exact same content, but it included the attachment. Interoffice Memorandum 16-06 does not reference the existence or status of the earlier SOP.

F-PRMT-18-02 [Work Standards](#)[Service Delivery – Moderate \(3,3\)](#) ■

Owner – PRMT

- Interoffice Memorandum 16-03 Checklists issued on May 10, 2016 stated the purpose to issue documentation checklists. The SOP contains two (2) types of checklists: *File Review* and *Contract File Contents* checklists. The SOP indicates that an older version of the SOP was issued on February 6, 2014, via Interoffice Memorandum 14-06. This version contains three checklists, two of which are the same as in the latest SOP.
 - o Through QICO's review of 22 procurement files, two (2) files did not contain any checklists
- The SOPs are also labeled Interoffice Memoranda

F-PRMT-18-03 [Work Standards](#)[Strategic – Low \(2,2\)](#) ■

Owner – PRMT

- **Finding: Appropriate utilization of a Liquidated Damages clause in contracts will help protect the Authority's financial interest.**

Discussion

- FTA Circular 4220.1F Third Party Contracting Guidance specifies that "a recipient may use liquidated damages if the recipient reasonably expects to suffer damages through delayed contract completion and the extent or amount of such damages would be difficult or impossible to determine." (FTA C 4220.1F, IV, 2.b.(6)(b) 1))
- The WMATA Procurement Procedures Manual (PPM) only specifies the inclusion of a Liquidated Damages clause for construction contracts.

QICO conducted a review of contract files and noted that two (2) of the contracts reviewed included a Liquidated Damages clause.

- FQ15104 Escalator Canopies, a construction contract, contains the calculation for liquidated damage but it does not contain the clause for liquidated damages as identified in the PPM.
- FQ15186 1,031 CCTV On-Board Surveillance Systems, a supply and service contract, contains a clause for liquidated damages, but it does not include calculations to justify the value for liquidated damages.

F-PRMT-18-04 [Work Standards](#)[Service Delivery – Elevated \(4,3\)](#) ■

Owner – PRMT

- **Finding: Clear, accurate, and complete Scope of Work (SOW) specifications are vital for determining the intent and requirements for a proposed contract.**

Discussion

- FTA Circular 4220.1F Third Party Contracting Guidance requires that "each solicitation must provide a clear and accurate description of the technical requirements for the property or services to be procured." Chapter III 3a
- The WMATA PPM contains guidance on the requirements of specifications, purchase descriptions, and scopes/statements of work, WMATA PPM version 7.4, section 3.4
- The PPM does not specify how completeness is verified. It was noted that there is a Program Approval for Release form in 18 contract files, but the form does not include any statement of what the signatures signify.
- QICO noted that the CQ17012 Wabtec Inventory Parts contract file did not include a purchase description that meet the standards of the PPM.
- QICO noted that there are five (5) contracts that did not include a signed Program Approval for Release form.
- QICO's discussions with Program Office personnel indicates that PRMT does not have an established procedure to set a standard for clear and accurate scopes of work.

12.4. SUMMARY OF REQUIRED ACTIONS

Findings are categorized by [Quality Measures](#) and rated according to [Risk Assessment](#)

QICO-PRMT-18-01

Action Owner – PRMT

Overall Risk – Elevated (Average Score) ■

Required Action: Identify opportunities to update and implement policies, procedures, and standards in accordance with the FTA Circular and the WMATA Procurement Manual to define expected practices, provide a roadmap for internal practices, and assure efficiency, consistency, and reliability.

Applicable Findings

- F-PRMT-18-01: Establish and implement a policy and a procedure for participation in the Metropolitan Washington Council of Governments (MWCOC) Cooperative purchasing program to allow WMATA to take advantage of the benefits and comply with FTA guidelines.
 - o *Measure:* [Work Standards](#). *Risk:* [Strategic – Moderate \(3,3\)](#)
- F-PRMT-18-02: Update and implement Standard Operating Procedures (SOPs) to describe WMATA procurement requirements in order to align WMATA with industry best practices and promote reliability, efficiency, and accuracy
 - o *Measure:* [Work Standards](#). *Risk:* [Service Delivery – Low \(2,4\)](#)
- F-PRMT-18-03: Appropriate utilization of a Liquidated Damages clause in contracts will help protect the Authority's financial interest.
 - o *Measure:* [Work Standards](#). *Risk:* [Strategic – Moderate \(3,3\)](#)
- F-PRMT-18-04: Clear, accurate, and complete Scope of Work (SOW) specifications are vital for determining the intent and requirements for a proposed contract.
 - o *Measure:* [Work Standards](#). *Risk:* [Service Delivery – Elevated \(4,3\)](#)

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

CAPITAL PROGRAM INTERNAL CORRECTIVE AND PREVENTIVE ACTIONS (iCAPAs)



INTERNAL REVIEW

Capital Program – Management & Execution

In response to the internal review of Capital Program – Management & Execution, including review of Metrorail New Railcar Manufacturing, Metrobus New Vehicle Acquisition, and Contract Requirements, the office of Quality Assurance, Internal Compliance & Oversight (QICO) has coordinated the development of five (5) iCAPAs. Each iCAPA outlines the findings, recommendation and requirements to be addressed, and a detailed action plan outlining responsible parties and specific actionable items.

EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES

internal Corrective and Preventive Action (iCAPA) Commitment



Joseph Leader
Chief Operating Officer (COO)

7-27-18
Date

WMATA INTERNAL OVERSIGHT

internal Corrective and Preventive Action (iCAPA) Acknowledgement



Angel Peña
Managing Director, Quality Assurance, Internal Compliance & Oversight (QICO)

07/27/18
Date



Eric Christensen
Chief of Internal Compliance (INCP)

7/30/18
Date



Paul J. Wiedefeld
General Manager & Chief Executive Officer (GM/CEO)

7/31/18
Date

METRO RAIL NEW RAILCAR MANUFACTURING iCAPAs

Return to [Summary of Required Actions](#)

Purpose and Scope

On July 19, 2018 the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an internal review report regarding Metrorail New Railcar Manufacturing. This internal Corrective and Preventive Action (iCAPA) has been developed to address required action QICO-NRKM-18-01 and the associated finding(s).

Required Action

QICO-NRKM-18-01 *Vehicle Program Services (CENV)*
Chief Mechanical Officer (CMO)

Elevated

Review and ensure contract language and requirements for future railcar acquisitions includes performance of appropriate quality checks and engineering design support by the manufacturer. Be sure to enhance the provisional language that defines specific consequences for failing to provide expected quality in regards to workmanship and configuration control.

Applicable Finding(s)

- **F-NRKM-18-01:** Identifying and controlling special processes (i.e. welding, painting, wire crimping) is required to mitigate workmanship defects that lead to lengthy delays and poor reliability.
 - o *Measure: Quality Control*
 - o *Risk: (Service Delivery – Elevated)*
- **F-NRKM-18-02:** Ensuring that the manufacturer is providing efficient and effective engineering support to address design defects is critical to timely implementation of modifications, reducing the burden on Authority resources to complete work after plant shipment.
 - o *Measure: Change Management*
 - o *Risk: (Service Delivery – Elevated)*
- **F-NRKM-18-03:** Including stronger contract language for reporting on manufacturer's internal quality findings can reduce oversight costs for the Authority through more data driven reviews and inspections.
 - o *Measure: Application & Fulfillment*
 - o *Risk: (Service Delivery – Elevated)*

Action Plan Overview

CENV will work with QICO to request additional data from Kawasaki, additionally evidence of engagement and updates to future specifications and contract language to address concerns and lesson learned.

Business Impact – Budget/Cost Estimate

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

PLAN STRUCTURE

Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1. Request for Additional Information	CENV will work with QICO to draft and submit a program letter to Kawasaki requesting additional inspection data on a weekly basis for the remainder of the manufacturing process. CENV will submit a copy of the signed program letter to Kawasaki.	Tara Soesbee CENV Supporting Office ⁴ : QICO	07/31/18	09/06/18
2. Engage Stakeholders and Implement Updates	CENV to provide most recently updated new railcar technical specification, and conduct review meetings with all required stakeholders to update terms and conditions (contract general and special provisions). CENV will provide meeting notes and sign-in sheets.	Tara Soesbee (CENV)	07/30/18	06/26/19
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	06/27/19	07/25/19

Completion Documentation & Performance Measures

- A signed program letter notifying Kawasaki of the request for additional information as noted in Actionable Item 1.
- A dated copy of the latest version of the newest Railcar Technical Specification, all related Meeting Notes and Sign-In Sheets for meetings pertaining to the review of Contract Terms and Conditions as noted in Actionable Item 2.

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

² Est Start – Estimated Start Date.

³ Est End – Estimated Completion Date.

⁴ 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 Party/Parties

CENV

Tara Soesbee

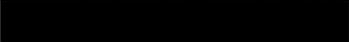
 7/26/18

(Signature/Date)

Supporting Role Acknowledgement

QICO

Brian G. Smith

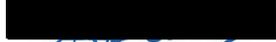
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(Signature/Date)

Second-Level Responsibility

CENV

Sachit Kakkar

 7/26/18

(Signature/Date)

CMOR

John Doherty

 7/27/18

(Signature/Date)

METROBUS MAINTENANCE AND ENGINEERING iCAPAs

Return to [Summary of Required Actions](#)

Purpose and Scope

On June 29, 2018 the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an internal review report regarding Metrobus New Vehicle Acquisition. This internal Corrective and Preventive Action (iCAPA) has been developed to address required action QICO-NVAB-18-01 and the associated finding(s).

Required Action**QICO-NVAB-18-01**

Office of Bus Maintenance (BMNT)
Transit Asset Management Office (TAMO)
Department of Information Technology (IT)

Elevated

Establish a central repository for change management, program related document control and written correspondence.

Applicable Finding(s)

- F-NVAB-18-01: Utilization of a central repository for document control and change management is essential for the effective program management.
 - o *Measure: Change Management*
 - o *Risk: (Service Delivery – Elevated)*

Action Plan Overview

TAMO will collaborate with BMNT and PRMT to develop a business use case. This will identify BMNT's requirements for a central repository for document control, change management, and communication. Once established, these requirements will be presented to IT for a technical software solution and implementation.

Business Impact – Budget/Cost Estimate

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. Additional resources will be required to address these initiatives.

PLAN STRUCTURE

Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1. Business Use Case	TAMO to collaborate with BMNT and PRMT, to develop and submit a written business use case identifying all business requirements for establishing a central repository for new bus acquisition.	Gregory Collins (TAMO) Supporting Office ⁴ : Barry Goldman (BMNT) Lisa Dunlap (PRMT)	07/23/18	10/24/18
2. Determine Software Application	IT to provide a software solution, functional requirements, non-functional requirements, and system requirements that meet the business requirements of the presented business use case, to include resources, funding, and a training plan.	Robert Dunham (IT-APPS)	10/25/18	11/21/19
3. Program Implementation	Review and revise existing SOP 3.18 Lifecycle of a Bus, incorporating the software solution, and roles and responsibilities into the business process. BMNT will submit the SOP and evidence of distribution.	Barry Goldman (BMNT)	12/02/19	02/05/20
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	02/06/20	03/05/20

Completion Documentation & Performance Measures

- A completed TAMO business use case.
- Updated SOP 3.18 and evidence of distribution/awareness.
- A working central repository that meets the requirements established in the business use case.

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

² Est Start – Estimated Start Date.

³ Est End – Estimated Completion Date.

⁴ 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 Party/Parties

TAMO

Andre Ferguson

[Redacted Signature]

July 17, 2018

(Signature/Date)

IT

Robert Dunham

[Redacted Signature]

7/17/18

(Signature/Date)

Supporting Role Acknowledgement

BMNT

Barry Goldman

[Redacted Signature]

7/17/18

(Signature/Date)

PRMT

Lisa Dunlap

[Redacted Signature]

7/17/18

(Signature/Date)

Second-Level Responsibility

BMNT

Dave Michels

[Redacted Signature]

7/17/18

(Signature/Date)

BUSV

Robert Potts

[Redacted Signature]

7/17/18

(Signature/Date)

TAMO

Gregory Collins

[Redacted Signature]

for Greg Collins July 17, 2018

(Signature/Date)

IT

Al Short

[Redacted Signature]

17 July 2018

(Signature/Date)

PRMT

Daniel Smith

[Redacted Signature]

7/18/18

(Signature/Date)

Purpose and Scope

On June 29, 2018 the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an internal review report regarding Metrobus New Vehicle Acquisition. This internal Corrective and Preventive Action (iCAPA) has been developed to address required action QICO-NVAB-18-02 and the associated finding(s).

Required Action

QICO-NVAB-18-02 Office of Bus Maintenance (BMNT)

Low



Establish a detailed training plan, including the training modules, targeted audience, delivery dates and location. Retain training records within ELM and/or a central repository.

Applicable Finding(s)

- **F-NVAB-18-02:** Effective training on new vehicles and/or systems prior to entering service is required to ensure proper fleet operation and maintenance.
 - o *Measure: Skills Management*
 - o *Risk: (Service Delivery – Low)*

Action Plan Overview

Establish a training plan and modules for new vehicles and/or systems prior to entering service.

Business Impact – Budget/Cost Estimate

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

PLAN STRUCTURE

Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1. Review and Revise SOP 3.18	BMNT will review and revise the training requirements in SOP 3.18 Lifecycle of a Bus. BMNT will submit SOP and evidence of distribution.	Barry Goldman (BMNT)	07/23/18	07/31/19
2. Establish a Training Plan	BMNT will develop a training plan for necessary personnel on new buses and/or systems.	Barry Goldman (BMNT)	07/23/18	07/31/19
3. Training Records Management	BMNT will document all training using ELM and/or a future central repository for records management.	Barry Goldman (BMNT)	07/23/18	01/02/19
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	01/03/19	02/06/19

Completion Documentation & Performance Measures

- BMNT will submit a training plan and ELM records for 3 months after the first bus is delivered in the base year of RFP FQ18001.

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

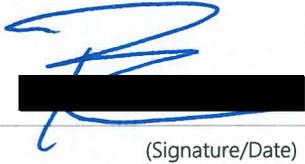
² Est Start – Estimated Start Date.

³ Est End – Estimated Completion Date.

Responsible Party/Parties

BMNT

Barry Goldman

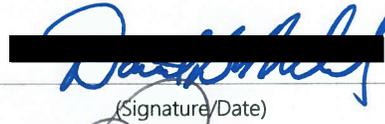

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7/9/18

Second-Level Responsibility

BMNT

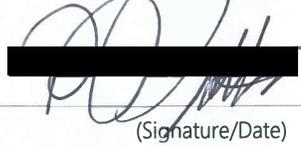
Dave Michels


(Signature/Date)

7/9/18

BUSV

Robert Potts


(Signature/Date)

7/16/18

Purpose and Scope

On June 29, 2018 the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an internal review report regarding Metrobus New Vehicle Acquisition. This internal Corrective and Preventive Action (iCAPA) has been developed to address required action QICO-NVAB-18-03 and the associated finding(s).

Required Action**QICO-NVAB-18-03** Office of Bus Maintenance (BMNT)*Elevated*

Provide monthly manufacturer supplied analysis of the defects, including trends and the actions taken to improve those trends. For future procurements, include a contractual requirement that identifies the targeted number of defects per bus and the actions to be taken in case of deviation.

Applicable Finding(s)

- **F-NVAB-18-03:** Adequate manufacturer's oversight is essential to improve the quality of the buses being delivered.
 - o *Measure: Quality Control*
 - o *Risk: Service Delivery – Elevated*

Action Plan Overview

Business Impact – Budget/Cost Estimate

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

PLAN STRUCTURE

Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1. Perform Analysis of Defects	Request for the manufacturer to provide monthly analysis reports of the defects reported on snag sheets, including trends and the actions taken to improve those trends.	Barry Goldman (BMNT)	10/31/18	06/26/19
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	07/01/19	08/03/19

Completion Documentation & Performance Measures

- BMNT will submit 6 months of manufacturer monthly analysis reports of the defects, including trends and actions to be taken.

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

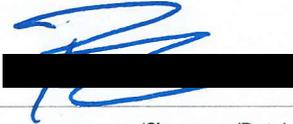
² Est Start – Estimated Start Date.

³ Est End – Estimated Completion Date.

Responsible Party/Parties

BMNT

Barry Goldman



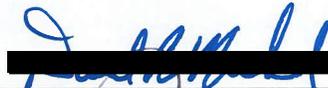
7/9/18

(Signature/Date)

Second-Level Responsibility

BMNT

Dave Michels

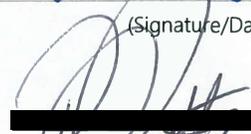


7/9/18

(Signature/Date)

BUSV

Robert Potts



7/16/18

(Signature/Date)

CONTRACT REQUIREMENTS iCAPAs

Return to [Summary of Required Actions](#)

Purpose and Scope

On June 1, 2018 the Office of Quality Assurance, Internal Compliance & Oversight (QICO) issued an internal review report regarding The Office of Procurement and Materials. This internal Corrective and Preventive Action (iCAPA) has been developed to address required action QICO-PRMT-18-01 and the associated findings.

Required Action

QICO-PRMT-18-01 *Office of Procurement and Materials (PRMT)*
General Counsel (COUN)

Elevated

Identify opportunities to update and implement policies, procedures and standards in accordance with the FTA Circular and the WMATA Procurement Manual to define expected practices, provide a roadmap for internal practices and assure efficiency, consistency and reliability.

Applicable Findings

- F-PRMT-18-01: Establish and implement a policy and a procedure for participation in the Metropolitan Washington Council of Governments (MWCOG) Cooperative purchasing program to allow WMATA to take advantage of the benefits and comply with FTA guidelines.
 - o Measure: [Work Standards](#). Risk: [Strategic – Moderate \(3,3\)](#)
- F-PRMT-18-02: Update and implement Standard Operating Procedures (SOPs) to describe WMATA procurement requirements in order to align WMATA with industry best practices and promote reliability, efficiency, and accuracy.
 - o Measure: [Work Standards](#). Risk: [Service Delivery – Low \(2,4\)](#)
- F-PRMT-18-03: Appropriate utilization of a Liquidated Damages clause in contracts will help protect the Authority's financial interest.
 - o Measure: [Work Standards](#). Risk: [Strategic – Moderate \(3,3\)](#)
- F-PRMT-18-04: Clear, accurate, and complete Scope of Work (SOW) specifications are vital for determining the intent and requirements for a proposed contract.
 - o Measure: [Work Standards](#). Risk: [Service Delivery – Moderate \(4,3\)](#)

Action Plan Overview

The Office of Procurement and Materials (PRMT) is in the process of updating and revising existing Standard Operating Procedures (SOPs). Prior to issuing new SOPs, the Office of the General Counsel (COUN) reviews SOPs and provides advice. In addition, COUN will determine the applicability of the use of particular clauses in contracts and is the primary responsible party for F-PRMT-18-03.

Business Impact – Budget/Cost Estimate

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

PLAN STRUCTURE

Actionable Items	Description	Responsible Party ¹	Est Start ²	Est End ³
1. SOP for Cooperative Purchasing Program	Develop and implement an SOP providing direction on WMATA's participation in the MWCOG cooperative purchasing program gathering input from Procurement Managers (PMs) and Contract Managers (CMs) in addition to COUN review, prior to finalization and distribution. PRMT will submit SOP.	T. Suzette Moore PRMT Supporting Office ⁴ : Jon Crocker COUN	06/12/18	01/30/19
2. Update the PPM to provide clarity on the use of Liquidated Damages clauses	PRMT and COUN will determine guidance for the expanded use of Liquidation Damages clauses in contracts with scopes other than construction and provide direction on updating the Procurement Procedure Manual (PPM) language. PRMT will submit a memorandum that the PPM language has been updated including a copy of the updated section of PPM.	T. Suzette Moore PRMT Supporting Office ⁴ : Jon Crocker COUN	07/09/18	01/30/19
3. WMATA-wide staff notice of new SOP & PPM updates	Issue staff notice announcing the establishment of a new SOP for Cooperative Purchasing Program and changes to PPM. PRMT will issue staff notice.	T. Suzette Moore PRMT	01/30/19	02/27/19
4. WMATA-wide staff notice of the expected standards of SOW	Issue staff notice of the standards expected of Scopes of Work (SOW). This communication will indicate the availability and location of online resources for the development of SOW for WMATA staff. PRMT will issue staff notice.	T. Suzette Moore PRMT	08/01/18	09/12/18
5. Reissue SOPs identified in F-PRMT-18-02	PRMT will review SOPs 16-03 Checklist, 16-05 Single Bid Analysis, 16-06 Exercising an Option and 16-09 Independent Cost Estimate. PRMT will revise SOPs to agency standard format, providing clear purpose, scope and direction. Reissue SOPs and remove any duplicates from the PRMT website. PRMT will submit a memorandum acknowledging that changes have been made and SOPs are updated.	T. Suzette Moore PRMT	07/16/18	10/31/18

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

² Est Start – Estimated Start Date.

³ Est End – Estimated Completion Date.

⁴ 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 ¹	Est Start ²	Est End ³
6. 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	02/27/19	03/27/19

Completion Documentation & Performance Measures

- N/A

Responsible Parties¹

PRMT

T. Suzette Moore

 June 27, 2018
(Signature/Date)

Supporting Role⁴ Acknowledgement

COUN

Jon B. Crocker

 19 Jun 2018
(Signature/Date)

Second-Level Responsibility

IBOP

John Kuo

 6/27/18
(Signature/Date)

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

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SUPPLEMENTAL MATERIALS

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Policies, Procedures & Standards

- Work Standards: The existence and effectiveness of department policies, procedures, manuals, work instructions, quality control measures, and other requirements that define department activities.
- Work Measurement: The existence and effectiveness of operational goals (indicators) and sound management routines to achieve these goals.
- Change Management: The existence and effectiveness of processes, tools and techniques to manage changes to a system to achieve intended outcomes.
- Skills Management: The existence and effectiveness of a training strategy to ensure personnel are adequately qualified to perform work.

Quality & Compliance

- 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).
- Quality Control: The performance of quality control functions to ensure the consistency and reliability of work performed; including the usage of properly calibrated equipment and compliant materials/parts.
- Regulations & Oversight: Adherence to requirements, guidelines, and recommendations from external/regulatory authorities and internal oversight functions, including items issued for corrective and preventive actions.

Traceability

- Data Assurance: Assessment of the validity, accuracy, consistency, relevance, and completeness of data used to schedule, document, and track work activities.
- Assets and Activities: Assessment of the ability to verify the history, location, or application of an item by means of documented recorded identification; including the quality and validity of data capturing this information.
- Document Control: Assessment of version control, ownership and approval, dissemination, storage and accessibility of business-critical documents.

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 often does/will it happen? – The Probability of Occurrence
- How bad are the consequences? – The Impact
- 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 Authority (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).

Risk Assessment Matrix

Almost Certain (5)	Probability of Occurrence	Low	Moderate	Elevated	High	High
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

Descriptions**Central Repository:**

Generically refers to a central place where data is stored and maintained. A repository can be a place where multiple databases or files are located for distribution over a network, or a repository can be a location that is directly accessible to the user without having to travel across a network.

Change Management:

The management of change and development within a business or similar organization. The controlled identification and implementation of required changes within a computer system.

Commissioning/Pilot Bus:

Process by which a new bus is tested on the authority's property to verify compliance with the contract specifications.

Diagnostic Equipment:

Specialty tools, and rugged designed laptops with various diagnostic software to troubleshoot equipment failures, capture stored data, and to update systems on board that may require software for improvements to performance.

Document Control:

A function or department which keeps track of all documentation, specifications and processes. The purpose is to ensure that everyone uses the correct and most current processes and specifications.

PeopleSoft ELM:

A computer based program that documents all the pertinent training data for WMATA employees and serves as their training record repository.

Maximo:

Maximo is an enterprise asset management system used for work order, incident, and asset condition tracking. Maximo work orders specify one or more particular tasks and the labor, materials, services, and tools associated with each task.

Metropolitan Washington Council of Governments (MWCOC) Cooperative Purchasing Program:

A program coordinated by the Metropolitan Washington Council of Governments to assist its member jurisdictions in saving money on the purchase of commodities and services through economies of scale and through the reduction of administrative costs. The Purchasing Program includes purchasing departments from COG's member jurisdictions, other local governments in the region as well as school boards and other agencies including the Washington Metropolitan Area Transit Authority, the Metropolitan Washington Airports Authority and a number of the region's water and sewer authorities.

Request for Proposal (RFP):

A document that solicits proposal, often made through a bidding process, by an agency or company interested in procurement of a commodity, service, or valuable asset, to potential suppliers to submit business proposals.

Retrofit/Rework:

The act of adding a component or accessory to something that did not have it when it was manufactured.

Root Cause Analysis:

A method of problem solving used for identifying the root causes for faults or problems.

Standard Operating Procedure (SOP):

Standard Operating Procedures (SOP) delineate responsibilities and procedures for performing certain maintenance functions.

Supplier Management:

The process of obtaining and managing of products or services needed to operate a business or other type of organization. The purpose of supply management procedures is to keep costs stable and use resources effectively to increase the profits and efficiency of the business or organization.

Windchill:

Product Lifecycle Management (PLM) software developed by PTC.