



INTERNAL REVIEW

Metro's Structure Inspections

In response to the internal review report for Metrorail Structure Inspections dated April 10, 2017 QICO has coordinated with Operations and Engineering departments to develop five (5) comprehensive CAPs. Each CAP outlines the findings, requirements and recommendations addressed, and a detailed action plan outlining responsible parties and specific actionable items.

EXECUTIVE LEADERSHIP OF RESPONSIBLE PARTIES

Corrective Action Plan (CAP) Commitment




Joseph Leader
Chief Operating Officer (COO)

6/7/17

Date

WMATA INTERNAL OVERSIGHT

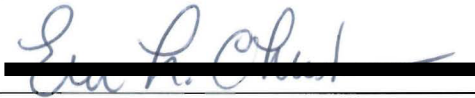
Corrective Action Plan (CAP) Acknowledgement



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

06/07/17

Date



Eric Christensen
Chief, Internal Compliance (INCP)

6/8/17

Date



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

6/9/17

Date



CORRECTIVE ACTION PLAN

Purpose and Scope

On April 10, 2017 QICO issued a comprehensive report from an internal review of Metrorail's Structure Inspections. This Corrective Action Plan (CAP) has been developed to address the following finding and required actions per QICO-SIM-17-01.

QICO Finding

QICO Recommendation

F-SIM-17-04: Structural findings that do not pose a danger to passengers or others are not being addressed efficiently.

WMATA must continue developing a strategy to address the major structural deficiencies.

F-SIM-17-07: Condition assessments performed by QICO and ENGA at the Van Dorn Street differ in remediation conclusions.

Perform reassessment of concrete conditions at the Van Dorn station platform, taking into account the findings of the QICO inspection report.

F-SIM-17-08: Materials in storage areas past expiration date.

Inspect all storage facilities for expired materials and dispose of them.

Required Action

QICO-SIM-17-01: WMATA must developing a strategy to address structural findings.

(Risk Rating: Elevated) ■

Plan Description

F-SIM-17-04: WMATA will develop a new integrated lifecycle asset management and capital programing process that will move the existing asset base to a State of Good Repair and prioritize new needs from concept to completion. Policy Instruction 1.18/0 Transit Asset Management Policy will be updated and require each department to create or maintain an asset inventory and condition assessment in Enterprise Asset Management Registry (Maximo). Departments will also develop and manage an asset management strategy and plans. WMATA plans to roll out implementation Summer 2017.

F-SIM-17-07: The office of Infrastructure Renewal Program Group (IRPG) has just initiated phase 1 of the preliminary design and engineering of rehabilitation of 10 station platforms including Van Dorn street. Funding allocated for this project in FY 17and FY 18 are CIP- 246 and D&E capital respectively. IRPG will provide quarterly updates to QICO.

F-SIM-17-08: STRC acknowledges that a materials management plan needs to be developed and implemented. Initial action involved the removal and disposal of all expired materials from TRST-Structures storage areas. Second action will require a thorough assessment of current practices and needs based on daily operational responsibilities. Once completed, a business plan will be generated specifying a scope of work in addition to any tools and labor resources required. Plan is to at minimum include processes for ordering, receiving, stowing/storing, bin/location management, restocking, and reporting needs.

Business Impact – Budget/Cost Estimate

- **Process Execution** – A current process/procedure exists that meets the QICO Required Action, this type of initiative does not need additional resources.

PLAN SCHEDULE

Actionable items	Description	Responsible Party*	Estimated Start	Estimated Completion
1 Capital and Assessment Program Management	WMATA will develop a new integrated lifecycle asset management and capital program and update Policy Instruction 1.18/0 Transit Asset Management.	Shyam Kannan, Thomas Webster (PLAN, OMBS)	06/01/17	10/31/17



PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
2	Station Platforms-Rehabilitation	Quarterly update / progress report for station platform reconstruction; including scope schedule and budget.	Kenneth Spain (IRPG)	05/01/17	12/05/17
3	Disposal Acknowledgement	STRC management acknowledging disposal of all expired materials from TRST-Structures storage areas.	Kim Keene (TRST)	05/15/17	06/29/17
4	Materials Management Business Plan	Assess materials management needs within STRC. Develop a business plan to address findings and implement processes based on industry standards and agency objectives.	Kim Keene (TRST)	05/15/17	10/31/17
5	Contractual support	Establish funding. Draft contract documentation for gaining resource(s) to support development of a materials management process. Staff augmentation process to include solicitation and onboarding.	Kim Keene (TRST)	05/15/17	08/21/17
6	Project Plan	Produce a scope of work for implementation. This is to include project schedule, tool assessment and labor resources required.	Kim Keene (TRST)	8/21/17	10/31/17
7	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	12/05/17	01/24/18


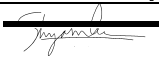
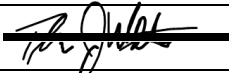
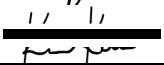
*In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

COMPLETION DOCUMENTATION

Performance Measures

- 100% removal of expired materials in TRST storage areas in accordance with actionable item #3.
- Completed project scope, schedule and budget information for station platform rehabilitations.
- Compliance with materials management practices established under actionable item #4.

RESPONSIBLE PARTIES

IRPG	Kenneth Spain	
PLAN	Shyam Kannan	
OMBS	Thomas Webster	
TRST	Kim Keene	

SECOND LEVEL RESPONSIBILITY

AGM RAIL	Andrew Off	
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CORRECTIVE ACTION PLAN

Purpose and Scope

On April 10, 2017 QICO issued a comprehensive report from an internal review of Metrorail’s Structure Inspections. This Corrective Action Plan (CAP) has been developed to address the following findings and required action per QICO-SIM-17-02.

QICO Finding

QICO Recommendation

F-SIM-17-09: The Essential bridge inspection equipment has been unavailable for over a year due to inadequate certification.

Develop a formal process to ensure critical inspection equipment is inspected and/or certified according to their specific needs. Alternatively, evaluate the potential outsourcing of critical inspections requiring specialized equipment to ensure these certifications do not prevent completion of these items.

F-SIM-17-10: Bridge inspections are delayed due to inconsistent processing/securing of agreements with CSX railroad, where WMATA requires access to CSX right-of-way to complete inspections.

Coordinate with procurement and external relations functions to establish written requirements for securing CSX support agreements with enough lead time to ensure inspection target start date is met; evaluating the potential to secure these agreements on a multi-year basis.

F-SIM-17-12: Inspection intervals are extended by structure inspection personnel without the consultation of engineering.

Establish written requirements for engineering approval prior to changing the periodicity of inspections.

Required Action

QICO-SIM-17-02: Establish formal processes to ensure that critical inspections are completed according to schedule. Alternatively, evaluate the potential outsourcing of critical inspections to ensure these items are completed on-time.

(Risk Rating: High) ■

Plan Description

F-SIM-17-09: TRST-Structures will develop formal procedures for equipment management in order to ensure that critical equipment is regularly maintained, appropriately certified, and ready to use when needed. Inspection and certification as well as training for the telescopic bridge inspection unit will be conducted by a third party consultant.

F-SIM-17-10: The current access agreement with CSX will expire on June 29, 2017, with CSX moving to an online-only process for Right of Entry agreements on June 30. Office of Real Estate and Station Planning and General Counsel will develop a draft and work on approving a long-term Master Agreement with CSX, TRST-Structures will provide both offices supporting information on all Metro assets needed to facilitate the process.

F-SIM-17-12: A procedure by which variances in structure inspection frequency are reviewed for approval by ENGA are in development and will be incorporated into a future revision of each relevant Asset Inspection Manual

Business Impact – Budget/Cost Estimate

- **Process Execution** – A current process/procedure exists that meets the QICO Required Action, this type of initiative does not need additional resources.



PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
1	Equipment Management SOP	Develop a SOP and assign accountable staff which manages the maintenance and certification of critical inspection equipment.	K. Keene (TRST)	05/10/17	08/15/17
2	Recertification, Training Curriculum and Roster	Consultant will recertify the use of telescopic bridge inspection units and develop training for relevant personnel.	K. Keene (TRST)	07/15/17	09/28/17
3	Draft-WMATA/ CSX Contract	Long Term Contract between WMATA and CSX clarifying access to CSX right-of-way, anticipated cost flagmen and other overheads	Anabela Talaia (LAND)	05/29/17	09/28/17
4	Executed WMATA/ CSX Contract	Long Term Contract between WMATA and CSX clarifying access to CSX right-of-way, anticipated cost flagmen and other overheads	Anabela Talaia (LAND)	09/29/17	01/31/18
5	New Request Form	Approved Request for Engineering Approval for Delay in Inspection	K. Keene (TRST)	05/29/17	09/28/17
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	09/29/17	02/28/18

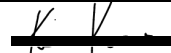
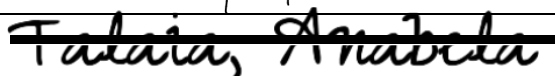
*In the event of personnel or departmental changes, responsibilities for actionable items shall transfer to the new leadership.

COMPLETION DOCUMENTATION

Performance Measures

- 95% of active, relevant personnel receive training as prescribed under actionable item #2.
- Long-term agreement secured with CSX.

RESPONSIBLE PARTIES

TRST	Kim Keene	
LAND	Anabela Talaia	

SECOND LEVEL RESPONSIBILITY

AGM RAIL	Andrew Off	
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CORRECTIVE ACTION PLAN

Purpose and Scope

On April 10, 2017 QICO issued a comprehensive Report from an internal review of Metro’s Structure Inspections. This Corrective Action Plan (CAP) has been developed to address the following finding and required action per QICO-SIM-17-03.

QICO Finding

QICO Recommendation

F-SIM-17-06: Inspection reports omit current photos, in favor of archived photos, bringing into question the accuracy and reliability of inspection records.

Perform an evaluation of current inspection and reporting practices employed by the structures inspection team, in relation to WMATA’s standards and industry best-practice, instituting corrective measures and management controls to eliminate deficiencies identified in the evaluation.

Required Action

QICO-SIM-17-03: Perform an evaluation of current inspection and reporting practices employed by the structures inspection team, in relation to WMATA’s standards and industry best-practice, instituting corrective measures and management controls to eliminate deficiencies identified in the evaluation.

(Risk Rating: Elevated)

Plan Description

F-SIM-17-06: TRST-Structures is undertaking two initiatives: 1) Moving to Maximo from InspectTech to take advantage of workflow customization, integration with the work order system already in place, and provide mobile capture solutions which should improve the turnaround time from inspection to completed reporting; and 2) Development of a new Standard Operating Procedure (SOP) for Inspection Reporting to formally require staff to perform their inspection functions according to WMATA requirements, industry standards and generally accepted practices for structural inspection. While a new system in Maximo for inspection reports is being developed and evaluated, the Inspection Reporting SOP will focus primarily on the functions and capabilities of the existing InspectTech software; it will, however, include timelines for when reports from a given inspection must be entered and approved, and quality checks as described in WMATA-2000 Inspection Work Order Process. All inspection staff will be trained on the new SOP.

Business Impact – Budget/Cost Estimate

- **Process Execution** – A current process/procedure exists that meets the QICO Required Action, this type of initiative does not need additional resources.

PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
1	Structural Inspection Reporting SOP	Finalize SOP and develop training for all inspection staff.	K. Keene (TRST)	05/15/17	08/04/17
2	Employee Training	Train employees on new procedures.	K. Keene (TRST)	08/07/17	09/28/17



PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
3	Inspect Tech – Maximo Transition	Establish feasibility in using Maximo for inspection process to maintenance measures. Assess ability to perform reporting capabilities and download historical data. Partner with IT/AMS to analyze requirements and resources needed. Produce a project plan that captures all aspects for moving forward and indoctrinating Maximo as the tool to use for holistic asset management (to include mobile applications).	K. Keene (TRST)	05/15/17	12/27/17
3a	Obtain contractual support	Establish funding. Draft contract documentation for additional resource(s) to support Maximo transitioning effort. Staff augmentation process to include solicitation and onboarding.	K. Keene (TRST)	05/15/17	08/21/17
3b	Project Plan	Produce a project plan for implementation. This is to include a scope of work, project schedule, resource assessment, stakeholders and pilot group.	K. Keene (TRST)	08/21/17	12/27/17
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	12/27/17	01/29/18

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

COMPLETION DOCUMENTATION

Performance Measures

- 95% of active inspection personnel complete training as prescribed in actionable item #2.
- Evidence of data migration from Inspect Tech to Maximo, as established under actionable item #3.

RESPONSIBLE PARTIES

TRST	Kim Keene	
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SECOND LEVEL RESPONSIBILITY

AGM RAIL	Andrew Off	
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CORRECTIVE ACTION PLAN

Purpose and Scope

On April 10, 2017 QICO issued a comprehensive report from an internal review of Metrorail’s Structure Inspections. This Corrective Action Plan (CAP) has been developed to address the following finding and required actions per QICO-SIM-17-04.

QICO Finding

QICO Recommendation

F-SIM-17-01: Inspection reports are not consistently recorded following the actual inspection, often taking multiple weeks to complete.

Establish written requirements to capture inspection data as soon as practicable following completion of inspection activities. This process ensures and assures that data is accurate and valid.

- (1) Develop a process for data capture and assurance.
- (2) Coordinate with Information Technology (IT) Asset Management Systems (AMS) in evaluation of STIN mobile data capture solutions

F-SIM-17-02: QICO observed that reports can be completed up to six months after inspections are performed.

Establish written requirements to complete/finalize inspection reports, in coordination with engineering.

F-SIM-17-03: Inspection report generation does not incorporate quality control measures as required in the WMATA-2000.

Incorporate internal quality checks as outlined in WMATA-2000 “TRST MAXIMO Work Order Process” into the report generation process.

F-SIM-17-05: Inspection reports are not consistently reviewed by engineers to ensure adequate monitoring of inspection and maintenance activities.

As part of the changes made to create the proposed “Assets inspection teams” (Bridges, Parking garages, stations, etc....) the requirements for inspection report review will be outlined; delineating personnel responsibilities.

Required Action

QICO-SIM-17-04: Establish and implement written requirements to govern the capture, completion, quality control, and engineering review of inspection activities/reports.

(Risk Rating: Elevated)

Plan Description

F-SIM-17-05: Structures and ENGA will develop different inspection teams and corresponding approved manuals which will delineate personnel responsibilities including the team Engineer. Approved Manual will establish a standard for inspecting WMATA structures. The scope of inspection is to detect structural and nonstructural damages and deficiencies, to document structures’ current conditions for asset management, to provide recommendations for maintenance and rehabilitation actions, and to ensure the safety and reliability of transit operations. The overall objective of Structure inspection and asset management program is to minimize the total life-cycle costs of maintaining WMATA’s infrastructure network, while ensuring safe and efficient services.

F-SIM-17-01, 02 and 03: Structures is undertaking two initiatives: 1) Moving to Maximo from Inspect Tech to take advantage of workflow customization, integration with the work order system already in place, and provide mobile capture solutions which should improve the turnaround time from inspection to completed report; and 2) Development of a new Standard Operating Procedure (SOP) for Inspection Reporting to formally require staff to perform their inspection functions according to WMATA requirements, industry standards and generally accepted practices for structural inspection. While a new system in Maximo for inspection reports is being developed and evaluated, the Inspection Reporting SOP will focus primarily on the functions and capabilities of the existing Inspect Tech software; it will, however, include timelines for when reports from a given inspection must be entered and approved, and quality checks as described in WMATA-2000 Inspection Work Order Process. All inspection staff will be trained on the new SOP.

Business Impact – Budget/Cost Estimate

- **Process Execution** – A current process/procedure exists that meets the QICO Required Action, This type of initiative does not need additional resources.



PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
1	Assets Inspection Manuals	Approved inspection manuals: Bridges, Parking garages, stations	K. Keene (TRST)	05/15/17	10/16/17
2	Structural Inspection Reporting SOP	Finalize SOP and develop training for all inspection staff. Same as QICO-SIM-17-03 (#1 & #2)	K. Keene (TRST)	05/15/17	08/04/17
3	Inspect Tech – Maximo Transition	Establish feasibility in using Maximo for inspection process through to maintenance measures. Assess ability to perform reporting capabilities and download historical data. Partner with IT/AMS to analyze requirements and resources needed. Produce a project plan that captures all aspects for moving forward and indoctrinating Maximo as the tool to use for holistic asset management (to include mobile applications). Same as QICO-SIM-17-03 (#3)	K. Keene (TRST)	05/15/17	12/27/17
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	12/27/17	01/29/18

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

COMPLETION DOCUMENTATION

Performance Measures

- Evidence of data migration from Inspect Tech to Maximo, as established under actionable item #3.
- 100% of active inspection personnel provide signature acknowledgement of approved inspection manuals under actionable item #1.

RESPONSIBLE PARTIES

TRST	Kim Keene	
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SECOND LEVEL RESPONSIBILITY

AGM RAIL	Andrew Off	
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CORRECTIVE ACTION PLAN

Purpose and Scope

On April 10, 2017 QICO issued a comprehensive report from an internal review of Metrorail’s Structure Inspections. This Corrective Action Plan (CAP) has been developed to address the following finding and required actions per QICO-SIM-17-05.

QICO Finding

QICO Recommendation

F-SIM-17-11: The Monthly Preventive Maintenance Summary produced by RCMP does not accurately represent the state of compliance with scheduled structure inspections.

Improve reporting processes to ensure that all out of- compliance inspections are included in current reports, to reflect the actual status of compliance with inspection requirements.

F-SIM-17-13: The enterprise asset management system (currently MAXIMO) is not fully utilized to document inspection information.

Continue implementation of FTA CAP TOC-SRT-15-006 requiring MAXIMO work orders be incorporated into Inspect Tech

F-SIM-17-14: Current reporting software utilized to generate inspection reports is ineffective in management of inspection data for current and future analysis.

Evaluate system capabilities to ensure the reporting and data collection needs of WMATA can be satisfied by the current database system, or through alternative methods.

Required Action

QICO-SIM-17-05: Establish formal practices for the capture of inspection defects in the enterprise asset management system for improved data quality/integrity.

(Risk Rating: Moderate)

Plan Description

F-SIM-17-11: The office of Reliability Centered Maintenance Planning (RCMP) is working on an alternate reporting procedure to highlight Work Order’s that are overdue using a 30/60/90+ day overdue reporting format. Currently the Monthly Preventive Maintenance summary doesn’t capture overdue WO’s.

F-SIM-17-13: TRST-Structures is continuing to work with MOC to establish and implement a process for creating Maximo work orders for non-structural defects. TRST SOP 208-06 has been established to require the creation of Maximo work orders for structural defects with a rating of 4 or less.

F-SIM-17-14: TRST-Structures is undertaking two initiatives: 1) Moving to Maximo from InspectTech to take advantage of workflow customization, integration with the work order system already in place, and provide mobile capture solutions which should improve the turnaround time from inspection to completed reporting; and 2) Development of a new Standard Operating Procedure (SOP) for Inspection Reporting to formally require staff to perform their inspection functions according to WMATA requirements, industry standards and generally accepted practices for structural inspection. While a new Maximo system for inspection reports is being developed and evaluated, the Inspection Reporting SOP will focus primarily on the functions and capabilities of the existing InspectTech software; it will, however, include timelines for when reports from a given inspection must be entered and approved, and quality checks as described in WMATA-2000 Inspection Work Order Process. All inspection staff will be trained on the new SOP.

Business Impact – Budget/Cost Estimate

- **Process Execution** – A current process/procedure exists that meets the QICO Required Action, this type of initiative does not need additional resources.



PLAN SCHEDULE

Actionable items		Description	Responsible Party*	Estimated Start	Estimated Completion
1	Continue implementation of FTA CAP TOC-SRT-15-006	Work with MOC to implement the process for creation of Maximo work orders for non-structural defects.	K. Keene (TRST)	05/15/17	07/31/17
2	TRST SOP 208-06	Excerpt of SOP which states the requirement for the creation of Maximo work orders for structural defects with a rating of 4 or less.	K. Keene (TRST)	05/01/17	06/12/17
3	New Procedure- SOP	New reporting approach to highlight Work Order's that are overdue using a 30/60/90+ day format. Sample reports will be included in the submission.	Frank Palmeri (RCMP)	04/25/17	05/25/17
4	Inspect Tech – Maximo Transition	Continue development of existing Maximo proof-of-concept for inspection reporting and asset management with IT AMS and establish a 'Pilot' team to further refine the software and develop attendant procedures.	K. Keene (TRST)	05/15/17	12/27/17
5	QICO CAP Verification Report	QICO will evaluate actionable items submitted to confirm there is reasonable evidence that the findings and this required action have been resolved, taking into account the actionable item descriptions and performance measures.	QICO	12/27/17	01/29/18

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

COMPLETION DOCUMENTATION

Performance Measures

- Evidence of accurate reporting mechanisms in accordance with actionable item #3.
- Evidence of data migration from Inspect Tech to Maximo, as established under actionable item #4.

RESPONSIBLE PARTIES

TRST	Kim Keene	
RCMP	Frank Palmeri	

SECOND LEVEL RESPONSIBILITY

RAIL	Andrew Off	
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