

Corrective Action Plan (CAP)

FTA-23-12-MBTA-CAT4-3

#### BACKGROUND

**Overview:** FTA issued Special Directive 22-12 to require the Massachusetts Bay Transportation Authority (MBTA) to address findings documented in FTA's Safety Management Inspection (SMI) report released on August 31, 2022. Conducted between April 14 and June 30, 2022, FTA's SMI reviewed the MBTA rail transit system management, operations, and maintenance programs. This Special Directive identifies seven (7) findings requiring action that the MBTA must take to improve MBTA's management of its operating and maintenance policies, monitoring of rail transit operations, Quality Assurance/Quality Control capabilities, and training and procedures.

#### **PURPOSE**

This Corrective Action Plan has been developed to address Special Directive No. 22-12, Category 4: Operating Conditions and Policies, Procedures, and Training

## FTA Finding

## Operating Conditions and Policies, Procedures, and Training

• Finding 3: MBTA's QA/QC program is not sufficiently independent from the activities it oversees.

## FTA Required Action

- 3.A MBTA must develop and administer a QA/QC program to independently oversee of ongoing QA/QC activities.
- 3.B MBTA must ensure that the QA/QC functions are independent of the functions of the Safety department and establish a monthly report to the GM.
- 3.C MBTA must develop a formal QA/QC procedure that details the oversight of and accountability and roles
  and responsibilities for QA/QC programs provided by railcar manufacturers and MBTA consultants related to
  quality control of its railcars and subcomponents.
- 3.D MBTA must ensure that the MBTA QA/QC independent group is staffed with a sufficient SMEs in necessary disciplines to ensure a complete and thorough understanding of the responsibilities under the purview of railcar maintenance and engineering.

## ANALYSIS AND RECOMMENDATIONS

### Analysis

The FTA Required Actions for SD 22-12 Category 4: Finding 3 can be summarized as:

- Building a Quality Management Program
- Ensure the Independent Oversight of the Quality Management Program
- Provide a Monthly Report to the GM
- Develop Formal QA/QC Procedures for Vehicle Engineering
- Develop Formal QA/QC Procedures for Vehicle Maintenance
- Ensure Sufficient Staffing Levels of SMEs in Railcar Maintenance and Engineering

#### Recommendations

In this CAP, the MBTA plans to address the following actions:

- 1. Building a Quality Management Program
  - a. Update the Quality Management System Manual
  - b. Ensure the Independent Oversight of the Quality Management Program
  - c. Provide a **Monthly Report** to the GM on all quality initiatives



FTA-23-12-MBTA-CAT4-3

Corrective Action Plan (CAP)

d. Establish department's long-term plan including staffing and resources to ensure **Sufficient Staffing Levels of SMEs in Railcar Maintenance and Engineering** 

- 2. Develop Formal QA/QC Procedures for Vehicle Engineering
  - a. Inventory existing quality efforts, SOPs, and initiatives
  - b. Establish critical processes to be audited
  - c. Formalize critical processes via Standard Operating Procedures (SOPs)
  - d. Develop a Quality Management Plan for Vehicle Engineering
  - e. Train employees on the Quality Management Plan
- 3. Develop Formal QA/QC Procedures for Vehicle Maintenance
  - a. Inventory existing quality efforts, SOPs, and initiatives
  - b. Establish critical processes to be audited
  - c. Formalize critical processes via Standard Operating Procedures (SOPs)
  - d. Develop a Quality Management Plan for Vehicle Maintenance
  - e. Train employees on the Quality Management Plan
- 4. Develop a **Document Management System (DMS)** to ensure critical documents are reviewed and updated on a regular cadence
  - a. Inventory existing document types and organizational practices
  - b. Ensure procedures for document control are established and maintained
  - c. Establish procedures for maintaining Quality Records
  - d. Procure and implement a Document Management System (DMS)
  - e. Train employees on use of the DMS

## **ACTION PLAN**

**Description**: Previously completed under original CAP #3 Action Plan:

- Established a Quality Management Advisory Group (QMAG) comprised of stakeholder groups involved in the oversight, support, and management of processes in need of auditing. Engaged in strategic planning sessions with the QMAG on CAP implementation.
- Began monthly reporting of QMP and QM activities to the GM.
- Developed an interim action plan for increasing QM activities and FY23 hiring.
- Procured and onboarded QM and VE consulting services.
- Hired a Director and Deputy Director of Document control to establish leadership for Document Management.
- Developed a Quality Management System Manual (QMSM) to govern Quality Management at the MBTA and socialized the QMSM with stakeholders.

## Next steps under this CAP include:

- Further development and messaging of the QMSM
- Build out of processes and SOPs for critical activities in Vehicle Maintenance and Vehicle Engineering
- Develop and execute Quality Management Plans (QMPs) for Vehicle Maintenance and Vehicle Engineering
- Formalize and execute auditing processes
- Procure and implement a Document Management System (DMS)
- Develop a hiring plan



FTA-23-12-MBTA-**CAT4-3** 

#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End³
		Quality Management Pro	gram		
G1	GM briefing  Activities established under SD 22-12 CAP 3		QCO: Meredith Sandberg & Mark Molewyk	Ongoing	
<b>32</b>	Project Management Plan (PMP) & Integrated Schedule	Plan (PMP) & schedule for comprehensive coordination		Ongoing	
1	Assess organizational structure	Provide evidence of execution of an appropriate governance structure for Quality Management to ensure QM is independent.	GM's Office: Katie Choe QCO: Meredith Sandberg	11/27/2023	12/8/2023
2	Procure QM consulting services	Identify consulting resources to assist in program development including quality processes and documentation, long-term planning, and creation of promotional and training materials.	QCO: Mark Molewyk VE: Bill Wolfgang VM: Steve Hicks Legal: Kevin Scanlon Procurement: Jeffrey Cook	11/27/2023	2/16/2024
3	Quality Management System Manual (QMSM) – Update #1	Update the QMSM to:  Incorporate FTA feedback on original submission under SD22-12 CAP#3 AI 5.		2/16/2024	3/22/2024
4	Create promotional materials	Develop promotional materials to familiarize MBTA employees with the Quality Management initiative and new QMSM.	QCO: Meredith Sandberg & Mark Molewyk CX: Danny Levy	2/16/2024	4/5/2024
5	Develop QM training materials  Create a brief training on basic Quality  Management principles. Develop a training implementation plan that reflects and highlights timing and/or priority around different target audience(s).		QCO: Meredith Sandberg & Mark Molewyk Administration: D. Panagore L&D/Training: Marie Walker	2/16/2024	4/5/2024
6	Message the QMSM	Message the QMSM Distribute the promotional materials and QMSM to employees.		4/8/2024	4/19/2024
7	Train MBTA staff	Train impacted personnel on basic Quality Management principles. Provide updates on	Administration: David Panagore	4/8/2024	4/1/2025

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

<sup>&</sup>lt;sup>2</sup> Est Start – Estimated Start Date <sup>3</sup> Est End – Estimated Completion Date



FTA-23-12-MBTA-CAT4-3

#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End³
		progress as part of the monthly Verification Report.	Administration: D. Panagore Training: Marie Walker		
7a	Train MBTA Staff – Wave 1	Train impacted personnel on basic Quality Management principles – target Wave 1 audience from Training Plan in Actionable Item #5	Administration: D. Panagore Training: Marie Walker	4/8/4024	8/9/2024
7b	Train MBTA Staff – Wave 2	Train impacted personnel on basic Quality Management principles – target Wave 2 audience from Training Plan in Actionable Item #5	Administration: D. Panagore Training: Marie Walker	8/12/2024	12/20/2024
7с	Train MBTA Staff – Wave 3	Train impacted personnel on basic Quality Management principles – target Wave 3 audience from Training Plan in Actionable Item #5	Management principles – target Wave 3 Panagore audience from Training Plan in Actionable Training: Marie		4/1/2025
8	QMSM – Update #2	Update the QMSM with a focus on the audit process, including NCRs, corrective actions, and pre and post-audit activities.	QCO: Mark Molewyk	4/22/2024	11/1/2024
9	Auditing program	Formalize and execute auditing program for Vehicle Engineering and Vehicle Maintenance of heavy and light rail cars.	QCO: Mark Molewyk & John Barnicoat VE: Bill Wolfgang VM: Steve Hicks	4/22/2024	1/10/2025
10	Update Staffing plan	Develop a plan to hire or engage auditors, SMEs, and other necessary personnel to support program growth and develop staffing and hiring plan, consistent with Workforce Assessment (SD 22-9 Finding #1). Consideration of the Quality Management staffing needs is currently included in that Workforce Assessment effort, and this deliverable will identify any additional needs created by actions in this CAP for incorporation.	QCO: Meredith Sandberg & Mark Molewyk HR: Gil Alzate	11/4/2024	6/27/2025
11	Develop training on auditing process	Create a training demonstrating the audit process including the key players, steps, and required follow-up. Develop a training implementation plan that reflects and highlights timing and/or priority around different target audience(s).	QCO: Meredith Sandberg & Mark Molewyk Administration: D. Panagore L&D/Training: Marie Walker	10/7/2024	12/13/2024
12	Train MBTA employees on the auditing process	Train impacted personnel on auditing process. Provide updates on progress as part of the monthly Verification Report.	Administration: D. Panagore Training: Marie Walker	12/16/2024	12/19/2025
12a	Train MBTA employees – Wave 1	Train impacted personnel on auditing process – target Wave 1 audience from Training Plan in Actionable Item #11	Administration: D. Panagore Training: Marie Walker	12/16/2024	4/18/2025



FTA-23-12-MBTA-CAT4-3

#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End <sup>3</sup>
12b	Train MBTA employees – Wave 2	Train impacted personnel on auditing process – target Wave 2 audience from Training Plan in Actionable Item #11	Administration: D. Panagore Training: Marie Walker	4/21/2025	8/15/2025
12c	Train MBTA employees – Wave 3	Train impacted personnel on auditing process – target Wave 3 audience from Training Plan in Actionable Item #11	Administration: D. Panagore Training: Marie Walker	8/17/2025	12/19/2025
13	QMSM – Update #3	Capture final development updates in the QMSM.	QCO: Mark Molewyk	11/4/2024	2/28/2025
14	Launch QM Oversight Committee	Launch annual oversight steering committee to review the health of Quality at the MBTA.	QCO: Meredith Sandberg & Mark Molewyk	11/4/2024	1/10/2025
14a	QM Oversight Committee – Quarterly Update #1	Quarterly update on activities and progress associated with the oversight steering committee, in advance of its initial annual meeting post-Launch. Anticipate providing deliverable update by end of the denoted month.	QCO: Meredith Sandberg & Mark Molewyk	3/1/2024	3/31/2024
14b	QM Oversight Committee – Quarterly Update #2	Quarterly update on activities and progress associated with the oversight steering committee, in advance of its initial annual meeting post-Launch. Anticipate providing deliverable update by end of the denoted month.	QCO: Meredith Sandberg & Mark Molewyk	6/1/2024	6/30/2024
14c	QM Oversight Committee – Quarterly Update #3	Quarterly update on activities and progress associated with the oversight steering committee, in advance of its initial annual meeting post-Launch. Anticipate providing deliverable update by end of the denoted month.	QCO: Meredith Sandberg & Mark Molewyk	9/1/2024	9/30/2024
14d	QM Oversight Committee – Quarterly Update #4	Quarterly update on activities and progress associated with the oversight steering committee –		12/1/2024	12/31/2024
15	CAP verification	MBTA departments will evaluate actionable items/deliverables before submission to FTA to confirm there is reasonable evidence that the findings and this required action have been resolved, considering the scope and performance measures.	QCO: Meredith Sandberg	Ongoing	
		QA/QC Procedures for Vehicle	Engineering		
16	Inventory and identify critical VE processes	Inventory existing quality framework including critical processes and procedures and identify critical processes requiring formal documentation.	QCO: Mark Molewyk & John Barnicoat VE: Bill Wolfgang	12/4/2023	3/1/2024



FTA-23-12-MBTA-CAT4-3

#	Actionable Items	nable Items Description		Est Start <sup>2</sup>	Est End³
I6a	Identify Current State of VE QM activities	Identify current state of quality management activities based on outputs of Al 16.	QCO: Mark Molewyk & John Barnicoat VE: Bill Wolfgang	2/1/2024	3/31/2024
16b	Develop Interim Action Plan - VE	Develop interim plan for continuous improvement based on findings from Actionable Item #16 and #16a. May include buildout of staffing plan related to supporting the enhancement of those processes.	QCO: Mark Molewyk & John Barnicoat VE: Bill Wolfgang	4/1/2024	5/31/2024
17	Develop and update VE processes and SOPs	Document critical processes identified as requiring formal documentation and review and update existing policies and procedures.	VE: Bill Wolfgang Capital: Erik Stoothoff QCO: Mark Molewyk & John Barnicoat	3/1/2024	8/30/2024
18	Create Vehicle Engineering QMP	, ,		6/21/2024	9/20/2024
19	Develop training designed to familiarize VE staff with the new QMP. Develop a training implementation plan that reflects and highlights timing and/or priority around different target audience(s).		QCO: Mark Molewyk VE: Bill Wolfgang Administration: D. Panagore L&D/Training: Marie Walker	8/19/2024	12/20/2024
20	Train VE staff	Train impacted Vehicle Engineering staff on the new QMP. Provide updates on progress as part of the monthly Verification Report.	VE: Bill Wolfgang Administration: D. Panagore Training: Marie Walker	1/6/2025	12/19/2025
20a	Train VE Staff – Wave #1	Train impacted Vehicle Engineering staff on the new QMP – target Wave 1 audience from Training Plan in Actionable Item #19	Administration: D. Panagore Training: Marie Walker	1/6/2025	5/9/2025
20b	Train VE Staff – Wave #2	The new Civie - larger wave / augience		5/12/2025	9/12/2025
20c	Train VE Staff – Wave #3	Staff – Train impacted Vehicle Engineering staff on the new QMP – target Wave 3 audience from Training Plan in Actionable Item #19		9/15/2025	12/19/2025
21	Distribute VE QMP	Work with Communications team to develop an effective distribution plan and messaging around the release of the VE QMP to staff.	VE: Bill Wolfgang	12/23/2024	1/24/2025
22	Review existing VE contracts and 3 <sup>rd</sup> party QMPs	Review quality plans of railcar manufacturers and/or MBTA consultants related to quality control of railcars or subcomponents against new QMP. As applicable, mitigate discrepancies through	QCO: Mark Molewyk VE: Bill Wolfgang Legal: Maribeth Ladd	1/6/2025	6/27/2025



FTA-23-12-MBTA-CAT4-3

#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End³
		engineering review and the waiver process, contract changes to incorporate MBTA quality requirements, or other approved methods.	Procurement: Ray Wise		
		QA/QC Procedures for Vehicle	Maintenance		
23	Inventory and identify VM critical processes	Inventory existing quality framework including critical processes and procedures and identify critical processes requiring formal documentation.	QCO: Mark Molewyk & John Barnicoat VM: Steve Hicks	12/4/2023	3/1/2024
3а	Identify Current State of VM QM activities	Identify current state of quality management activities based on outputs of Al 23.	QCO: Mark Molewyk & John Barnicoat VE: Steve Hicks	2/1/2024	3/31/2024
3b	Develop Interim Action Plan - VM			4/1/2024	5/31/2024
24	Develop and update VM processes and SOPs  Document critical processes identified as requiring formal documentation and review and update existing policies and procedures.		VM: Steve Hicks Operations: Dave Carney QCO: Mark Molewyk & John Barnicoat	3/1/2024	8/30/2024
25	Create Vehicle Maintenance QMP	, , , , , , , , , , , , , , , , , , ,		6/21/2024	9/20/2024
26	Develop VM QMP training	Develop training designed to familiarize VM staff with the new QMP. Develop a training implementation plan that reflects and highlights timing and/or priority around different target audience(s).	QCO: Mark Molewyk VM: Steve Hicks Administration: D. Panagore L&D/Training: Marie Walker	8/19/2024	12/20/2024
27	Train VM staff	Train impacted Vehicle Maintenance staff on the new QMP. Provide updates on progress as part of the monthly Verification Report.	Administration: D. Panagore Training: Marie Walker VM: Steve Hicks	1/6/2025	12/19/2025
27a	Train VM Staff – Wave #1	Train impacted Vehicle Engineering staff on the new QMP – target Wave 1 audience from Training Plan in Actionable Item #26.	Administration: D. Panagore Training: Marie Walker	1/6/2025	5/9/2025
27b	Train VM Staff – Wave #2	Train impacted Vehicle Engineering staff on the new QMP – target Wave 2 audience from Training Plan in Actionable Item #26.	Administration: D. Panagore Training: Marie Walker	5/12/2025	9/12/2025



FTA-23-12-MBTA-CAT4-3

#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End
7с	Train VM Staff – Wave #3	Train impacted Vehicle Engineering staff on the new QMP – target Wave 3 audience from Training Plan in Actionable Item #26.	Administration: D. Panagore Training: Marie Walker	9/15/2025	12/19/2025
8	Distribute VM QMP	Work with Communications team to develop an effective distribution plan and messaging around the release of the VM QMP to staff.	VM: Steve Hicks	12/23/2024	1/24/2025
:9	Review existing VM contracts and 3 <sup>rd</sup> party QMPs	Review quality plans of contracts in support of MBTA vehicle maintenance against new QMP. As applicable, mitigate discrepancies through engineering review and the waiver process, contract changes to incorporate MBTA quality requirements, or other approved methods.	QCO: Mark Molewyk VM: Steve Hicks Procurement: Jeff Cook Legal: Kevin Scanlon	1/6/2025	6/27/2025
		Document Management System	o support QM	•	
30	Inventory and identify Quality Records and Workflows	cords and Actionable Items #16-17 and #23-24 related		12/4/2023	8/16/2024
31	Develop QM DM Processes and SOPs	Develop plan for QM "Future-State" document control, processes, and workflows including SOPs, workflows, and document control plans. Incorporates outputs from the inventory and identification activity in Actionable Item #30.	QCO: Sylvia Welsh Legal: Kevin Scanlon Administration: D. Panagore	8/16/2024	12/16/2024
32	Procure Document Management System (DMS)	Identify and select DMS to address QM by supporting document control, records management, regulatory compliance, and QM audit requirements.	QCO: Sylvia Welsh IT: John Glennon Procurement: Jeffrey Cook Administration: D. Panagore Legal: Kevin Scanlon	2/1/2024	8/30/2024
33	Develop QM DM Training plan	Develop comprehensive plans for DMS differentiated instruction and training (synchronous and asynchronous) for MBTA QM staff using/working with the DMS. Develop a training implementation plan that reflects and highlights timing and/or priority around different target audience(s).	QCO: Sylvia Welsh Administration: D. Panagore L&D/Training: Marie Walker	1/1/2025	4/30/2025
34	Implement DMS	reflects and highlights timing and/or priority around different target audience(s).  Implement selected software solution, including but not necessarily limited to: specification and design, development of any required customization and integration.		9/1/2024	6/1/2025



FTA-23-12-MBTA-CAT4-3

Corrective Action Plan (CAP)

PLAN STRUCTURE							
#	Actionable Items	Description	Responsible Party <sup>1</sup>	Est Start <sup>2</sup>	Est End³		
35	Deliver QM DM Training Plan	Train impacted staff on using/working with the DMS. Concept supports training rollout initiation approximately one month prior to rollout/go-live of the DMS implementation (Actionable Item #34) and is intended to train sufficient user base to support rollout usage. Training rollout will continue to onboard additional users over a period, and ongoing delivery of this capability will be coordinated with and driven in accordance with our centralized training philosophy. Provide updates on progress as part of the monthly Verification Report.	QCO: Sylvia Welsh Administration: D. Panagore L&D/Training: Marie Walker	5/1/2025	12/19/2025		
35a	Train QM DM Staff – Wave #1	Train impacted staff on the new DMS – target Wave 1 audience from Training Plan in Actionable Item #33	Administration: D. Panagore Training: Marie Walker	5/1/2025	6/30/2025		
35b	Train QM DM Staff – Wave #2	Train impacted staff on the new DMS – target Wave 2 audience from Training Plan in Actionable Item #33	Administration: D. Panagore Training: Marie Walker	7/1/2025	9/26/2025		
35c	Train QM DM Staff – Wave #3	Train impacted staff on the new DMS – target Wave 3 audience from Training Plan in Actionable Item #33	Administration: D. Panagore Training: Marie Walker	9/27/2025	12/19/2025		

## **COMPLETION DOCUMENTATION**

#### Performance Metrics

The MBTA agrees upon a Quality Management System Manual and critical processes to be audited by the
independent quality management department. By establishing the scope of this CAP, the MBTA will proceed
with documenting critical processes, communicating audits results with executive leadership, and executing a
hiring plan to staff quality management efforts.

## Verification

### Overview:

- QMSM signed off
- SOPs signed off
- · Hiring plan for QM completed
- QMP for Vehicle Engineering
- QMP for Vehicle Maintenance
- · DMS in place to support QM
- Monthly training updates

## **BUDGET/COST ESTIMATE**

**Overview:** Quality Management, E&M, and OCE will require additional resources in the form of Operating Budget and headcount to execute this CAP. The budget values below are estimates that will require further analysis and refinement as the work associated with this CAP is implemented.



# The Massachusetts Bay Transportation Authority Corrective Action Plan (CAP) FTA-23-12-MBTA-CAT4-3

Segment Code	Cost Estimate
Hiring of Quality Management SMEs	\$1,000,000
3 <sup>rd</sup> Party Audit Resources	\$1,000,000
Consulting engineering/planning resources	\$8,000,000
DMS (\$10M annually, 3 years)	\$30,000,000
10% Contingency	\$4,000,000
Total	\$44,000,000



Corrective Action Plan (CAP)

FTA-23-12-MBTA-CAT4-3

CORRECTIVE ACTION PLAN COMMITMENT							
Responsible Parties							
Department <sup>4</sup>	Name	email	Signature	DocuSigned by:			
Engineering & Maintenance	Doug Connett			Doug Connett			
Vehicle Maintenance	Steve Hicks			0890960FE4674D6			
Vehicle Engineering	Bill Wolfgang			William Sy. Wolfgang			
QCO – Document Management	Sylvia Welsh			97A5B556535F48B			
QCO – Quality Management	Mark Molewyk			9FE9B27BA9B042C			
Labor Relations	Dan Kazakis			1A15CD3CE108416 DocuSigned by:			
Finance	Mary Ann O'Hara			Mary Andr. D'Hara.			
Engineering & Capital	Xin Zhou			Boty Staned by 4B1  About 100 100 100 100 100 100 100 100 100 10			
Legal	Kevin Scanlon			3A3AB1EB29C847D1			
Information Technology	John Glennon			78D978934FB44FB			
Procurement	Jeffery Cook			850451B235C34CF			
Training	Marie Walker			C8238EF50D624B0			
Workforce	Ahmad Barnes			2056A0A16A0341D Ahmad Barnes			
Customer & Employee Experience	Danny Levy			DocuSigned by: C905D70689224D6			
			·	AAB14BE2F99B419			

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



Corrective Action Plan (CAP)

FTA-23-12-MBTA-CAT4-3

Executive Leadership of Responsible Parties	
DocuSigned by:	12/21/2023
Meredithe Sandberg	12/21/2023
Meredith Sandberg 658497	Date
MBTA Chief of Quality, Compliance, and Oversight	
Davidimed by	
Doublined by:	12/21/2023
David Panagore  David Panagore  David Panagore  David Panagore	
MBTA Chief Administrative Officer	Date
	ī
DocuSigned by:	
	12/21/2023
Ryan Coholare 79273934C3	Date
MBTA Chief Operating Officer	
DocuSigned by:	12 /20 /2022
I should P. Le	12/20/2023
Timothy Lesmak <sup>7</sup> ACB43F	Date
MBTA Chief Safety Officer	
DocuSigned by:	12/21/2023
Philip Eng	
MBTA General Manager & CEO	Date