Massachusetts Bay Transportation Authority

FTA Safety Management Inspection Update

MBTA Safety, Health & Environment Subcommittee Meeting

February 9, 2023

Katie Choe, Chief of Quality, Compliance & Oversight

Data as of: February 26, 2023

Draft for Discussion & Policy Purposes Only

Green Line Work Train

On March 3, 2023, the FTA notified the MBTA that it has approved the closeout of Special Directive 4 CAP 9.

Finding 9: MBTA's Green Line work train has been inoperable for at least 8 months.

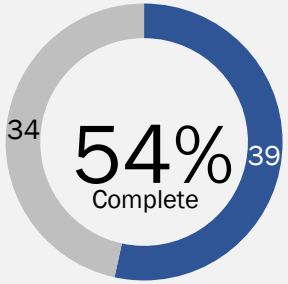
Required Action: MBTA must restore Green Line work train capabilities.

This is the first CAP closure of the Safety Management Inspection.

Action Items Completed
Action Items Remaining

FTA SMI Response Progress Summary

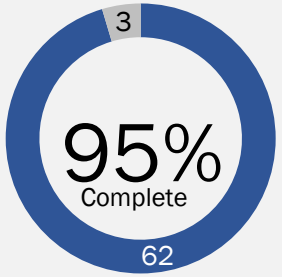
SD-04 Track Maintenance & PPE



36%

6/8/2022 Timeline 6/28/2024

SD-05 Vehicle Securement



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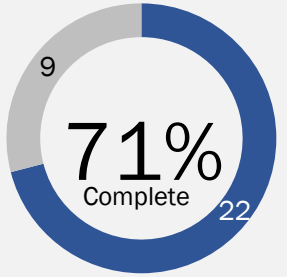
6/1/2022 Timeline 12/29/2023

SD-06 Operations Control Center



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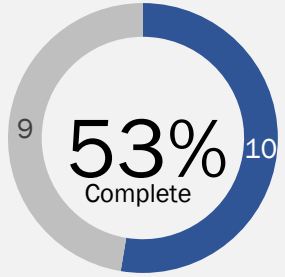
6/1/2022 Timeline 7/1/2024

SD-07 Lapsed Certifications



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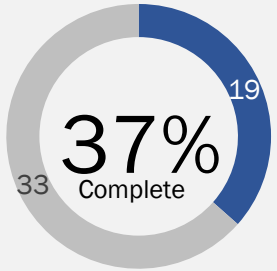
6/13/2022 Timeline 10/1/2024

SD-09 Workforce



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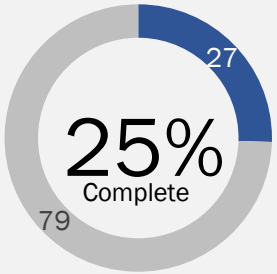
10/1/2022 Timeline 6/28/2024

SD-10 Safety Information & SMS



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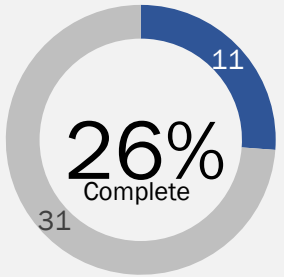
10/17/2022 Timeline 7/1/2024

SD-11 Safety Communication



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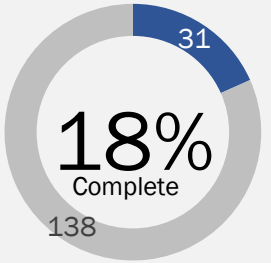
9/1/2022 Timeline 1/4/2024

SD-12 Policies, Procedures & Training



23%

6/7/2022 Timeline 10/3/2025

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FTA Special Directive Spending Update

- $378M in one-time state funds appropriated in FY23 to address ongoing safety related to FTA Special Directives
  - $266M under Chapter 126 of the Acts of 2022
  - $112M under Chapter 268 of the Acts of 2022
- As of Q2, $90.9M in FTA directive spending
  - Includes new, unbudgeted spending associated with the FTA directives and does not include previously budgeted work, new positions posted but not yet hired, or encumbered contracts to be spent

Directive	Description	Amount Spent
22-4	Address deficiencies in personal protective equipment and right of way safety; to correct defective track conditions; and to address management practices that negatively impact track repair	$75.84M
22-5	Address the pattern of safety incidents and interim safety findings concerning unintended and uncontrolled train movements by disabled trains in maintenance facilities and rail yards	$8.59M
22-6	Address the pattern of safety incidents and interim safety findings related to actions within the Operations Control Center at MBTA	$1.01M
22-7	Address the pattern of safety incidents and interim safety findings concerning lapsed training certifications of safety-sensitive rail personnel	$0.71M
22-9	Assist the MBTA in focusing its attention on balancing demands from operations and capital projects with workforce capacity and capability to inform resource prioritization	$0.07M
22-10	Enhance and expedite implementation of the agency's SMS, including the development of procedures, safety management training, safety risk assessment, and safety assurance activities to build the organization's capability to identify safety concerns and to prioritize action to mitigate safety risk	$0.07M
22-11	Improve MBTA's management of its safety committee process, employee safety reporting program, and safety promotion activities	$0.07M
22-12	Improve MBTA's management of its operating and maintenance policies, monitoring of rail transit operations, Quality Assurance/Quality Control capabilities, and training and procedures	$0.63M
Directive support	Support services and resources necessary to facilitate the progress and completion of multiple directives, including human resources for hiring and retention along with quality compliance & oversight of FTA directives	$3.92M

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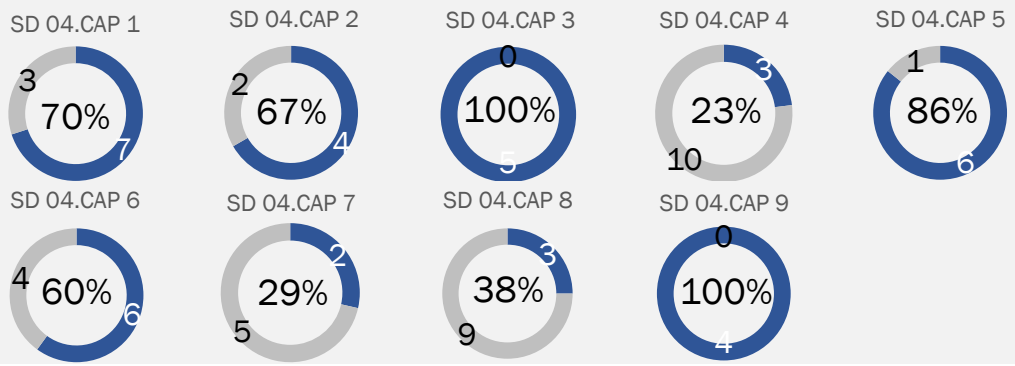
SD 22-4: Track Maintenance & PPE

- F1: New Footwear PPE Policy went into Effect 3/1/23; All New Requirements Now In Effect
- F2: New PPE Compliance Program went into Effect 3/1/23
- F3: Raised Tufts Curve Speed Restriction from 10MPH to 18MPH

  NB Cologne Egg Replacement Complete; SB Ongoing
- F4: Engaged European Consulting Firm to Evaluate ROW Availability
- F5: Completed Initial Assessment of Maintenance Needs and Resource Availability
- F6: Developed Capital Funding Request & Plan for Accelerated Implementation
- F7: Began Weekly Distribution of New Speed Restriction Report to Executives
- F8: Performed Track Inspections and Maintenance: Speed Restrictions at 7.4% of Track as of 3/1/23
- F9: Restored Green Line Work Train to Working Order

By the Numbers:

- 9 Findings: 0 Closed, 9 Ongoing



Data as of: February 26, 2023

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Action Items Completed

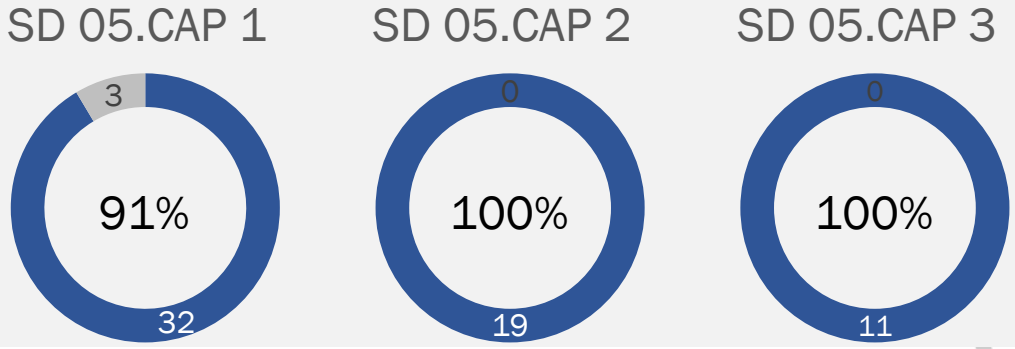
Action Items Remaining

SD 22-5: Safe Vehicle Movement & Securement

- F1: Developed & Implemented New Vehicle Securement Procedures
- F2: Completed Training of All Heavy and Light Rail Personnel
- F3: Developed Compliance Program and Prototyping to Validate

By the Numbers:

- 3 Findings: 0 Closed, 3 Ongoing



Data as of: February 26, 2023

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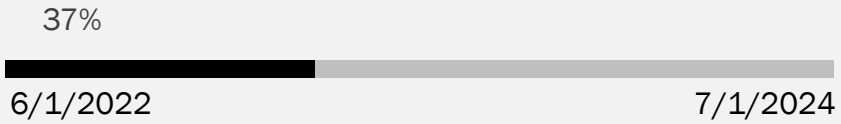
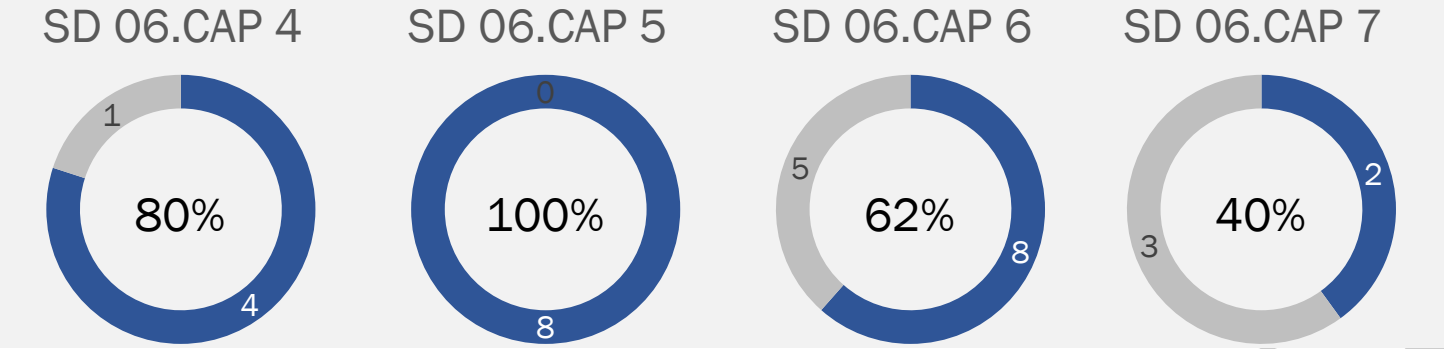
SD 22-6: Operations Control Center

- F1: Recertified 100% of OCC Staff
- F2: Ensured 100% Compliance with Work Hour Restrictions
- F3: Established Operating Procedures to Ensure No Staff Performing Dual Roles
- F4: Ensured 100% Compliance with Work Hour Restrictions
- F5: Staffed to 26 Dispatchers Including Supplemental Resources
- F6: Implementing plan to make OCC role more attractive
- F7: Recertified 100% of OCC Staff

By the Numbers:

- 7 Findings: 0 Closed, 7 Ongoing





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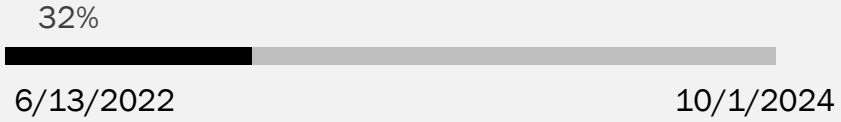
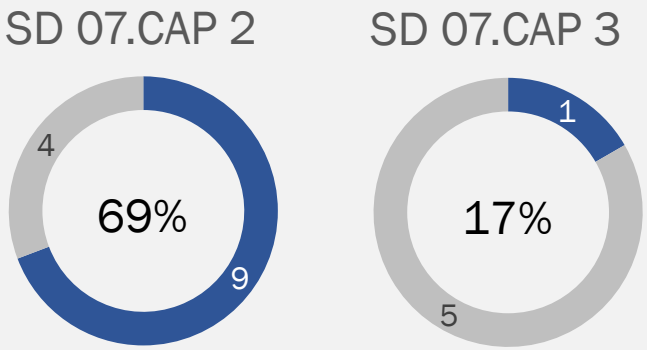
SD 22-7: Lapsed Certifications

- F1: Ensured 100% of Operating Personnel Are Current in Certifications
- F2: Ensured 100% of Operating Personnel Are Current in Certifications
- F3: Ensured 100% of Operating Personnel Are Current in Certifications

By the Numbers:

- 3 Findings: 0 Closed, 3 Ongoing





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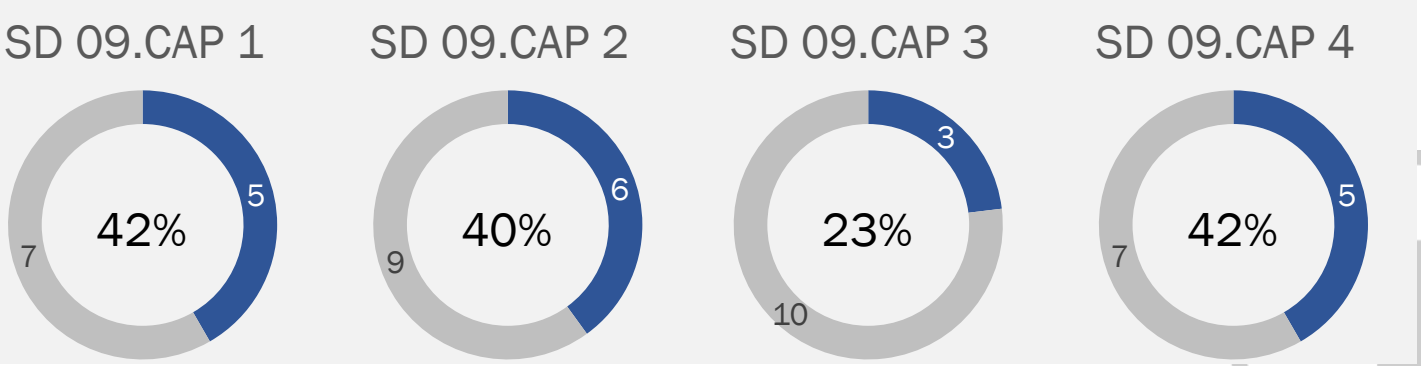
SD 22-9: Workforce

- F1: Began Workforce Assessment
- F2: Began Hiring & Recruitment Plan engagement
- F3: Selected Safety Engineering & Certification consultant
- F4: Issued Contractor Oversight Program RFP
  Held Contractor Outreach on SMI Impact on Design & Construction

By the Numbers:

- 4 Findings: 0 Closed, 4 Ongoing



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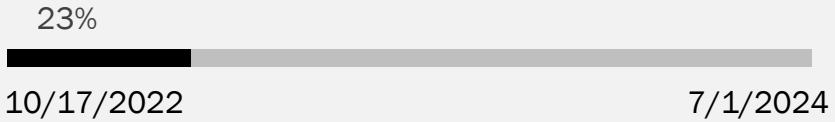
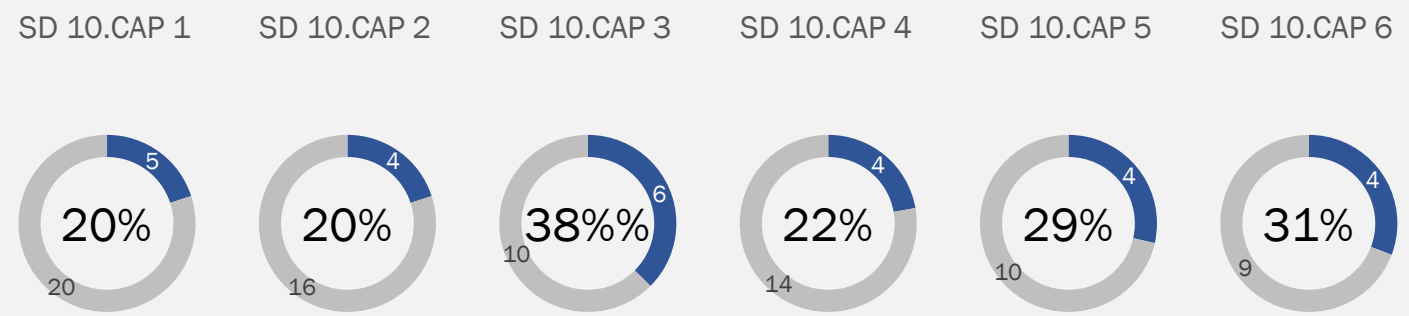
SD 22-10: Safety Information & SMS

- F1: Onboarded consultant for SMS Implementation
- F2: Onboarded consultant for Executive Communication
- F3: Onboarded consultant for Safety Data Analysis
- F4: Onboarded consultant for Safety Assurance Process
- F5: Onboarded consultant for Safety Risk Assessment
- F6: Onboarded consultant for Safety Risk Monitoring

By the Numbers:

- 6 Findings: 0 Closed, 6 Ongoing





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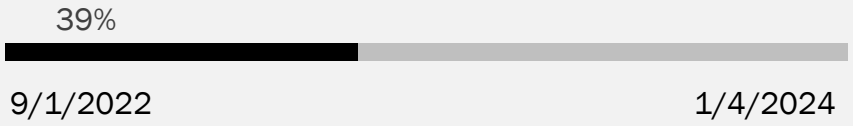
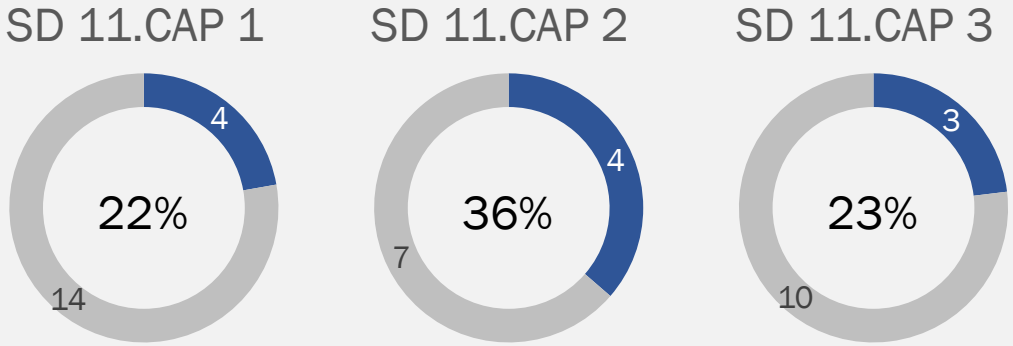
SD 22-11: Safety Communication

- F1: Standardized Local Safety Committee Procedures
- F2: Scheduled & Published Local Safety Committee Meeting Series
- F3: Launched Employee Concerns Hotline & Safety Hotline Campaign

By the Numbers:

- 3 Findings: 0 Closed, 3 Ongoing





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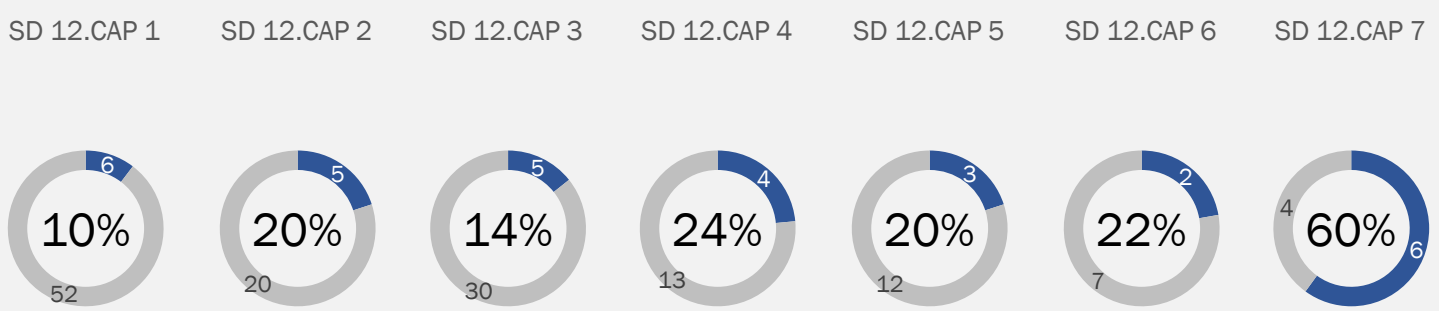
SD 22-12: Policies, Procedures & Training

- F1: Established Rules Compliance Working Group Structure
- F2: Awarded consultant for Rules Compliance & Monitoring Program
- F3: Issued Quality Management Plan & Monthly Executive Briefing
- F4: Issued RFP for Technical Training Development
- F5: Developing RFP for Electronic Manual & Tool Development
- F6: Issued RFP for Mentoring Program
- F7: Completed Repairs on 17 of 18 Radio Weak Spots

By the Numbers:

- 7 Findings: 0 Closed, 7 Ongoing



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Action Items Completed

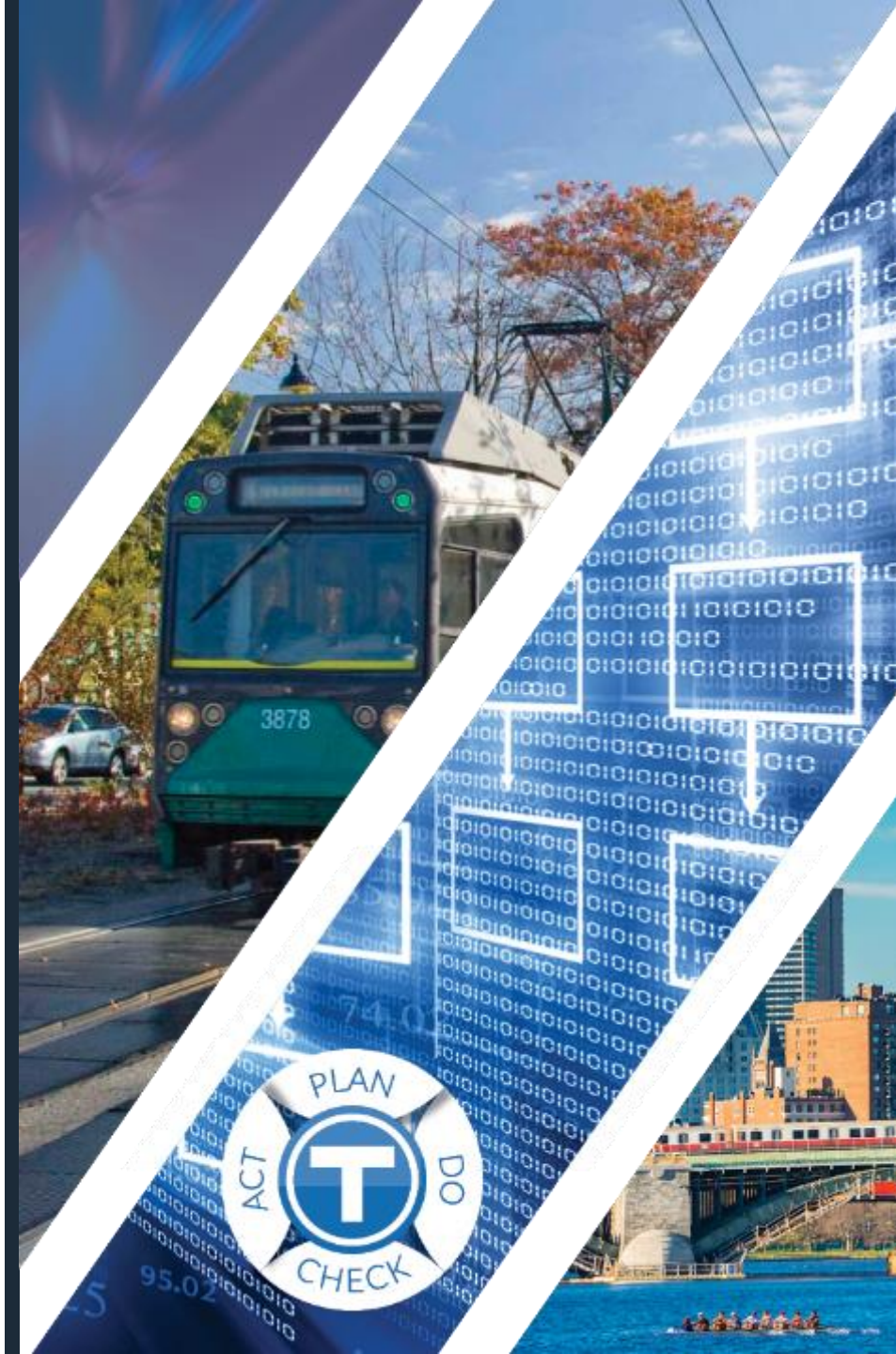
Action Items Remaining

Overview of Quality Management Plan

Mark Molewyk – Director of Quality Management

March 9th, 2023

Quality Management



Agenda

1. Purpose
   - What is a Quality Management System?
   - What is a Quality Management Plan?
2. Scope
   - Which assets and processes are managed by the QMP?
3. Leadership & Stakeholders
   - Who is involved?
4. Implementation
   - Risk-Based Audit Approach
   - Feedback, Monitoring, and Communication
   - Next Steps

Purpose

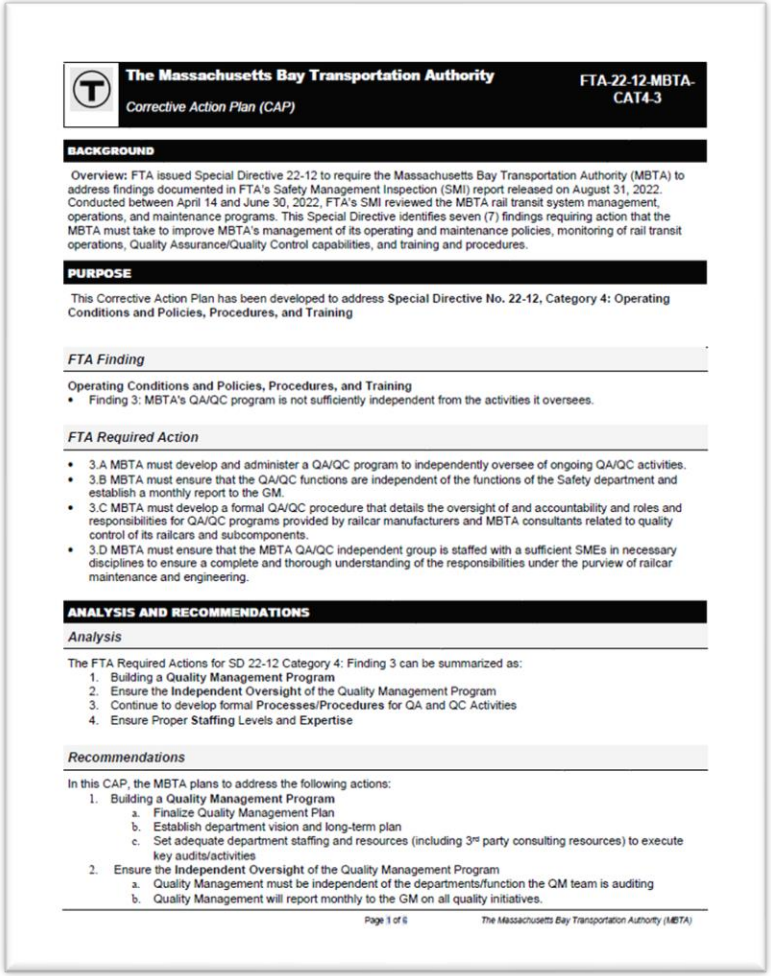
Quality Management

Overview of the QM CAP

Quality Management FTA Required Actions

The FTA Required Actions for SD 22-12 CAP 3 can be summarized as:

1. Build a **Quality Management Program**
2. Ensure the **Independent Oversight** of the Quality Management Program
3. Develop formal **Processes/Procedures** for QA/QC Activities
4. Ensure Proper **Staffing** Levels and **Expertise**



The Massachusetts Bay Transportation Authority — FTA-22-12-MBTA-CAT4-3

Corrective Action Plan (CAP)

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:

1. Building a **Quality Management Program**
2. Ensure the **Independent Oversight** of the Quality Management Program
3. Continue to develop formal **Processes/Procedures** for QA and QC Activities
4. Ensure Proper **Staffing** Levels and **Expertise**

Recommendations

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

1. Building a **Quality Management Program**
   a. Finalize Quality Management Plan
   b. Establish department vision and long-term plan
   c. Set adequate department staffing and resources (including 3rd party consulting resources) to execute key audits/activities
2. Ensure the **Independent Oversight** of the Quality Management Program
   a. Quality Management must be independent of the departments/function the QM team is auditing
   b. Quality Management will report monthly to the GM on all quality initiatives.

Page 1 of 6 — *The Massachusetts Bay Transportation Authority (MBTA)*

Quality Management Plan

The FTA SD 22-12 CAP 3 requires 4 high-level actions

Action 1: Build a **Quality Management Program**

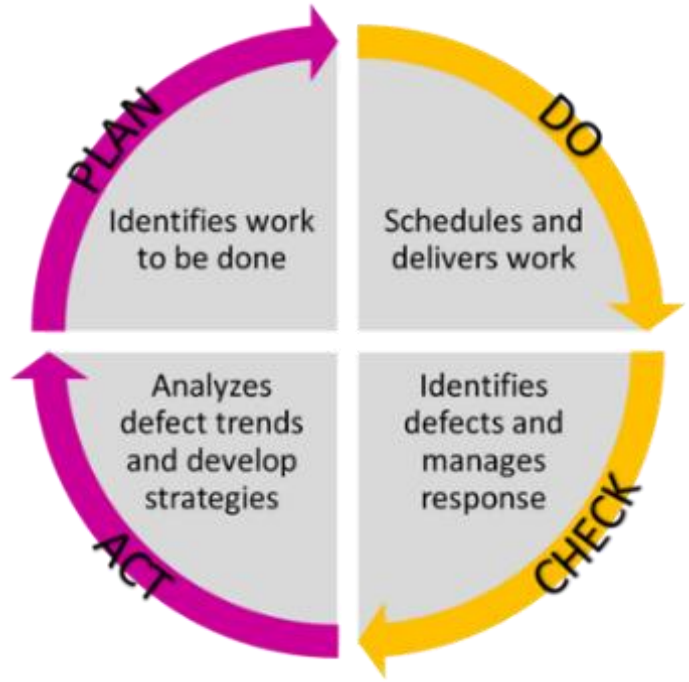
Quality Management Plan lays out the policy, vision, and implementation plan for the MBTA's Quality Management System

- Finalized QMP in late 2022
- Currently socializing with stakeholders
- QM teams have started to implement the policies laid out in the QMP

Overview of Quality Management Plan

Establishes how quality will be managed – aligned to the ISO 9001 Plan, Do, Check, Act Framework.

	1.	**Introduction** – Purpose, scope
	2.	**Quality Management Principles and Objectives** – Policy, objectives, and KPIs
Plan	3.	**QM Framework** – QMS approach, risk management, improvement
	4.	**Documentation Compliance Audit Framework –** ISO-2859 Audit Plan
Do	5.	**Quality Management Key Activities** – Compliance audit process, types of audits, records
Check	6.	**Performance Evaluation** – Control points, management review
Act	7.	**Improvement** – Improvement and advancement actions
	8.	**Leadership** – Stakeholders, structure, roles and responsibilities
	9.	**Program Vision –** Where are we going?



What is the Quality Management System

Policies, Objectives, Plan, Audits

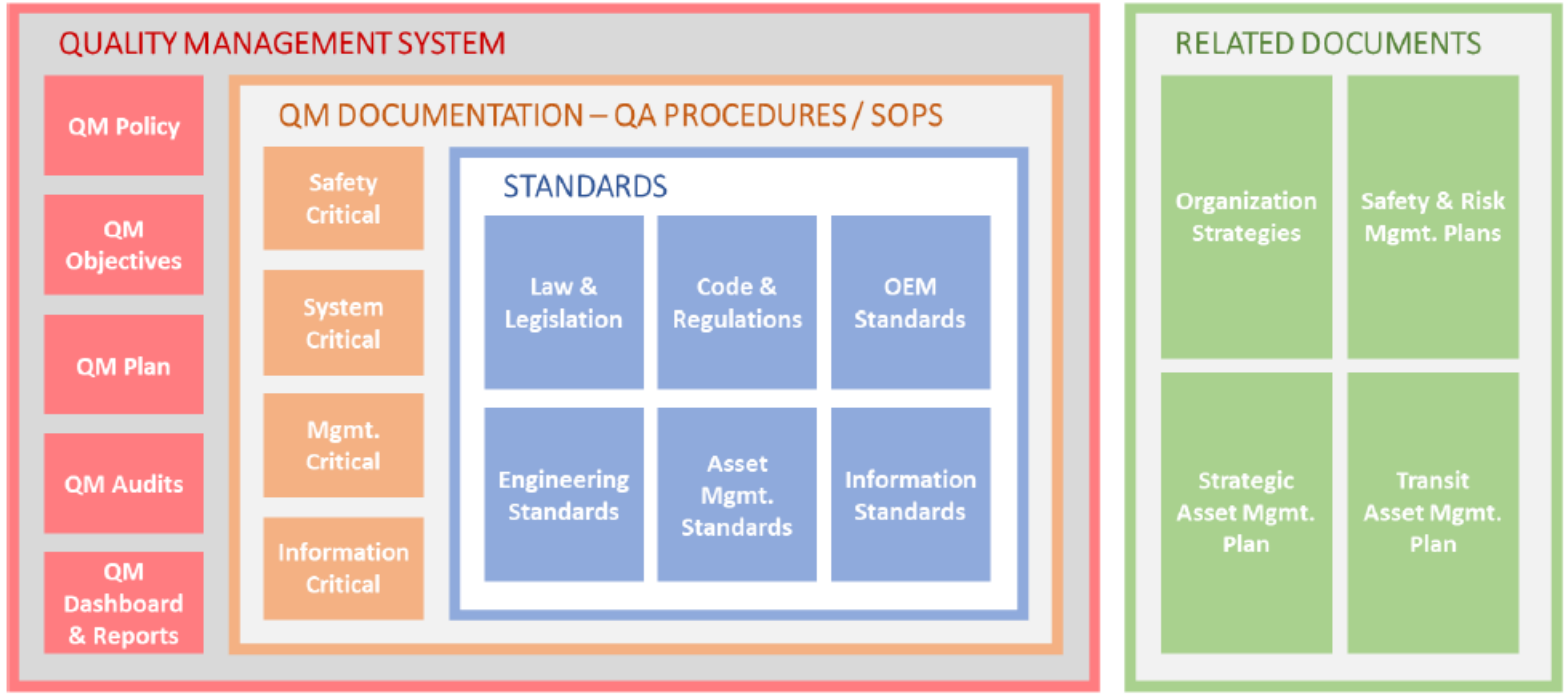
Built on

QA Documentation and Procedures

Built on

Agreed Upon Standards

FIGURE 2 | QMS DOCUMENT FRAMEWORK



Scope & Stakeholders

Scope

What does this QMS govern?

- Focused on maintenance today
- Infrastructure and fleet assets
- Vision for expansion throughout Product Lifecycle

What type of activities?

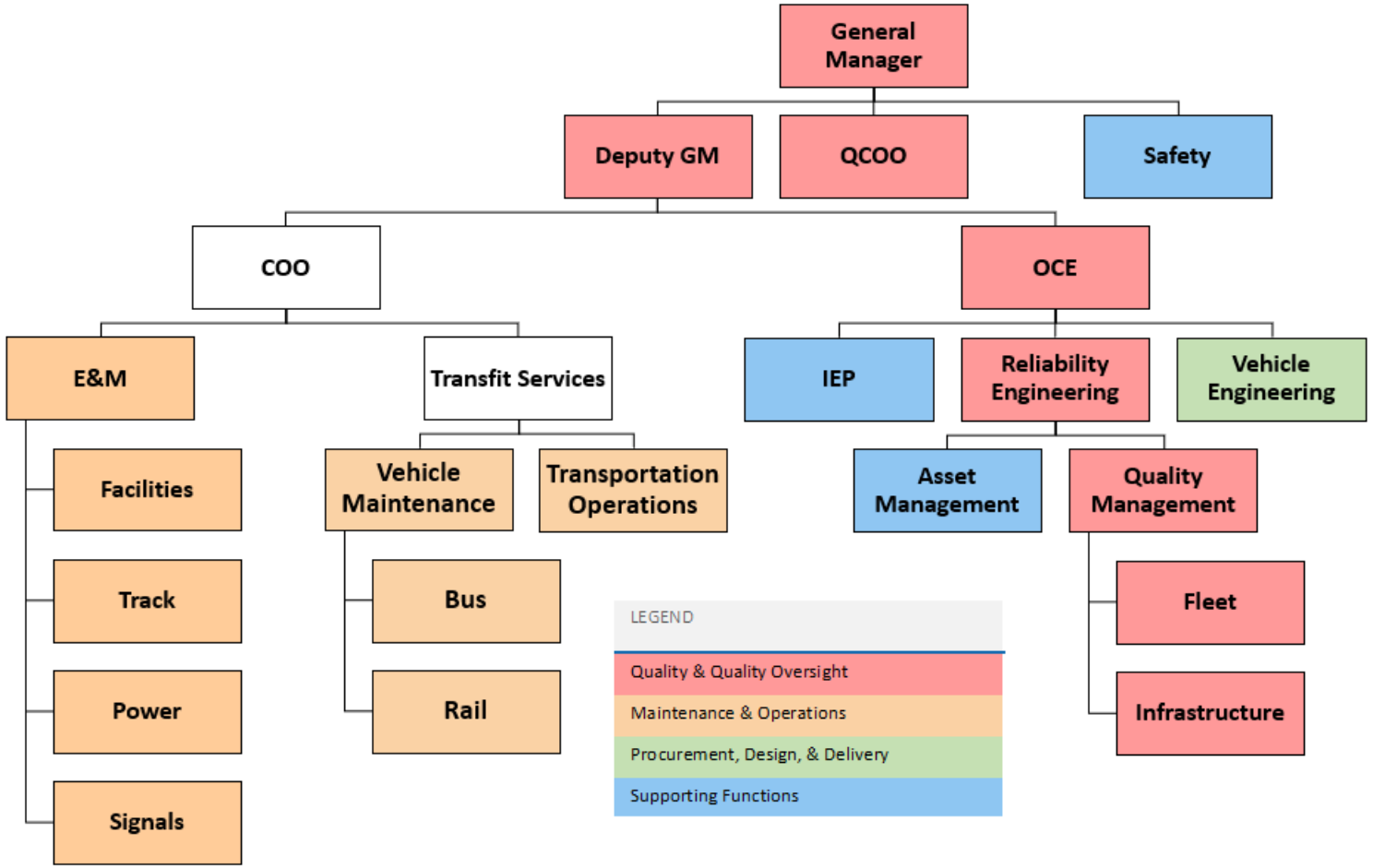
- Today, safety critical
- Tomorrow, strategic expansion beyond safety only

TABLE 1 | ASSETS AND ASSET LIFECYCLE STAGES INCLUDED IN CURRENT QMP

ASSET	ASSET LIFECYCLE STAGE		
	DESIGN & PROCUREMENT	MAINTENANCE	OPERATIONS
Infrastructure: Track, Power, Signals, Facilities	N/A for Current QMP	Safety Critical preventive maintenance inspection (PMI) activities	N/A for Current QMP
Rail Vehicles: Heavy Rail, Light Rail	N/A for Current QMP	All PMI activities.	Piloting program, but N/A for Current QMP.
Bus Vehicles	N/A for Current QMP	All PMI activities.	Piloting program, but N/A for Current QMP.
Commuter Rail: Infrastructure and Vehicles	N/A for Current QMP	Piloting program, but N/A for Current QMP.	N/A for Current QMP

Leadership & Stakeholders

FIGURE 14 | MBTA ORGANIZATION CHART WITH STAKEHOLDER FUNCTIONS ONLY

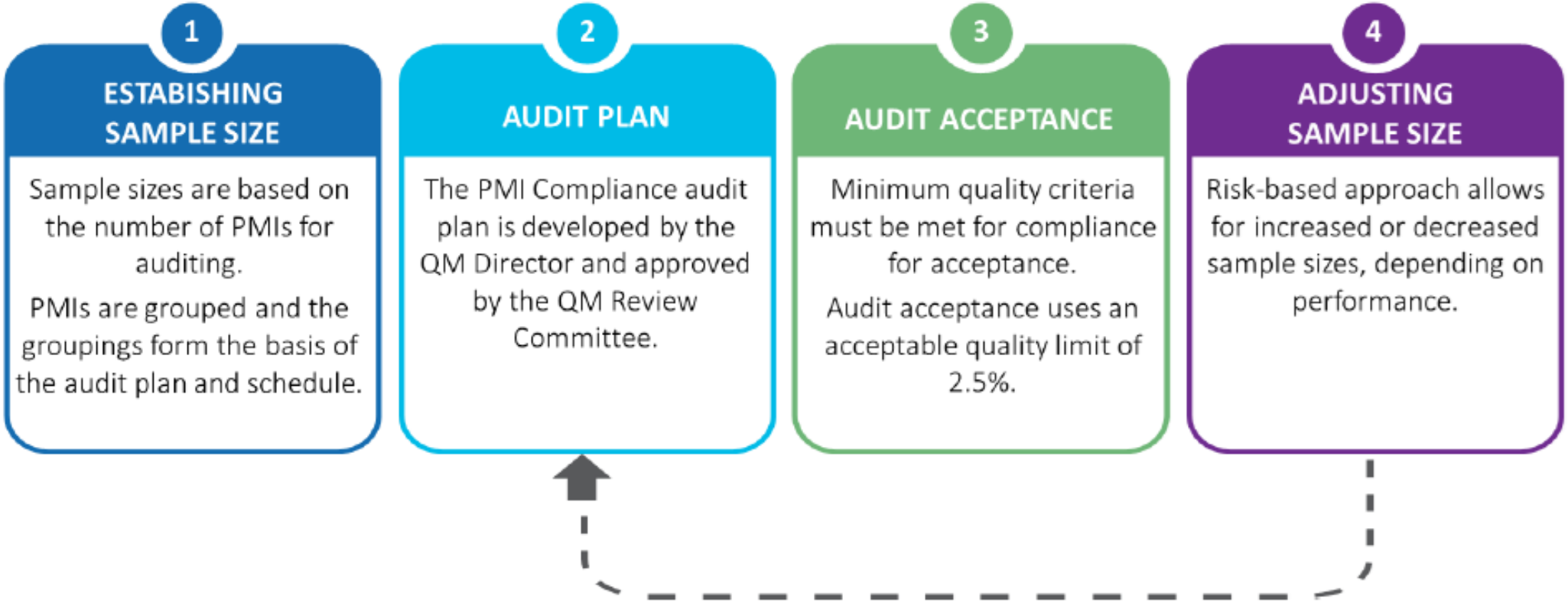


Implementation

Quality Management

Risk-Based Audit Approach

FIGURE 4 | PMI COMPLIANCE AUDIT APPROACH (ISO-2859 PART 1: 1999)



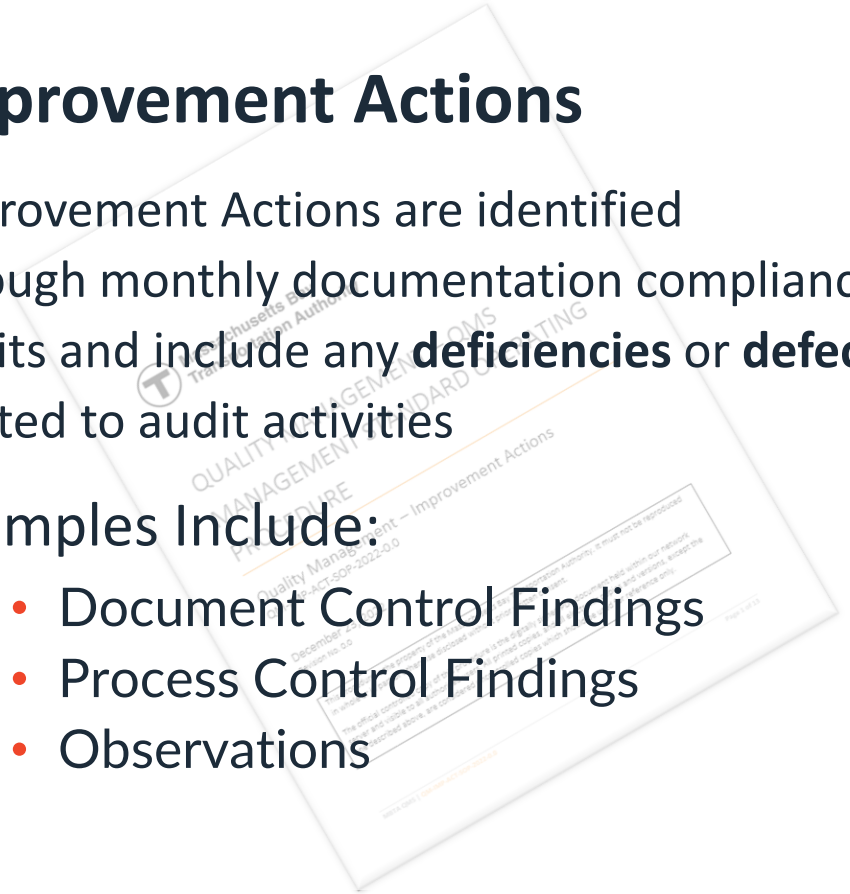
Improvement and Advancement Actions

Improvement Actions

Improvement Actions are identified through monthly documentation compliance audits and include any **deficiencies** or **defects** related to audit activities

Examples Include:

- Document Control Findings
- Process Control Findings
- Observations

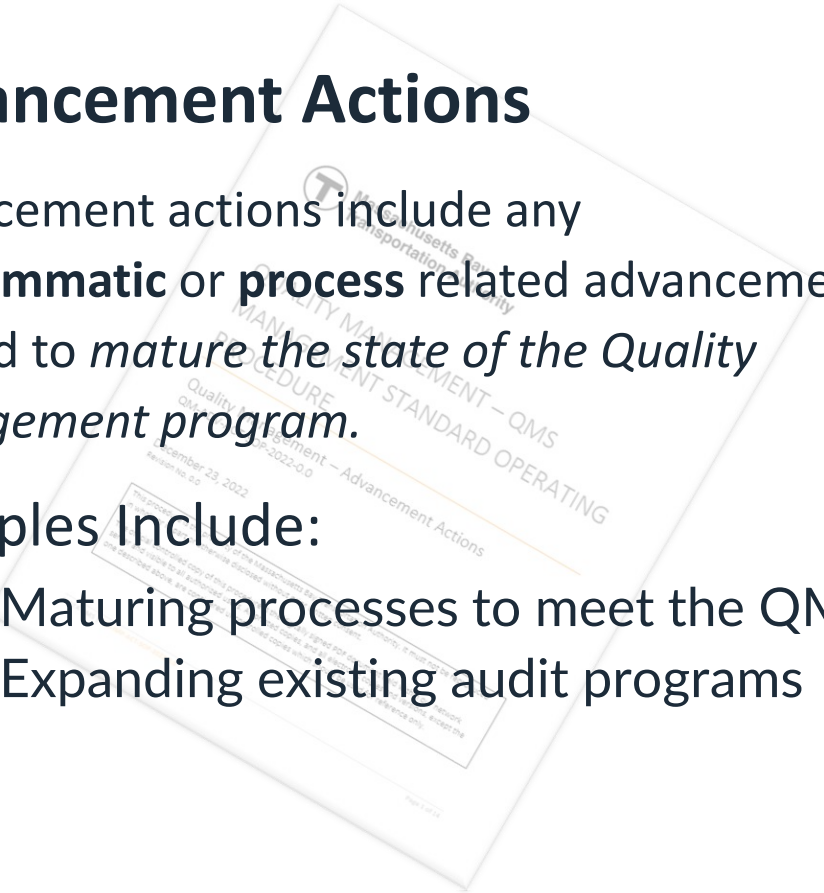


Advancement Actions

Advancement actions include any **programmatic** or **process** related advancement needed to *mature the state of the Quality Management program.*

Examples Include:

- Maturing processes to meet the QMP
- Expanding existing audit programs



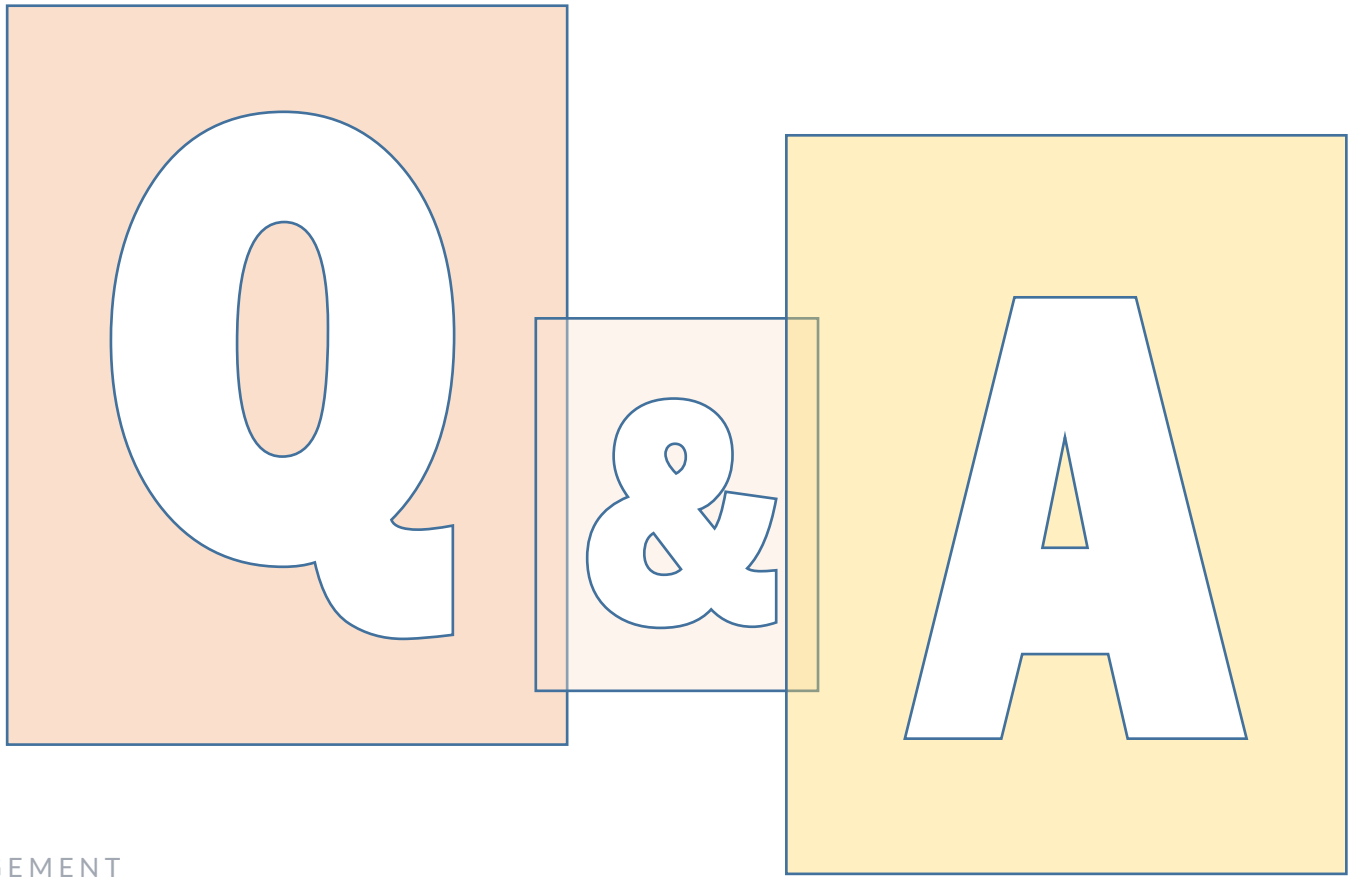
Next Steps – Executing The QM CAP

The published FTA CAP & Action Plan has 33 action items to establish an enterprise-wide Quality Management program which will bring in strategically identified activities under the oversight of the Quality Management Department.

These 33 action items can be simplified into a **high-level action plan:**

2022	1.	**Assemble the Team** - Quality Management Working Group Responsible for CAP SD 22-12-3
2023	2.	**Problem Definition** – Benchmark and Evaluate the Current State of Quality at the MBTA
	3.	**Constrain the Solution Space** – Which departments, systems, and process need QM oversight?
2024	4.	**Identify Resources** – Assess staffing levels. Do we need staff augmentation in short-term?
	5.	**Build the Solution** – Establish QA documents, build audit plan
2025	6.	**Execute the Solution** – Complete Hiring Plan, Pilot audits, establish communication and feedback
	7.	**Validate** – Confirm solution addresses issues laid out by FTA 22-12-3

Questions?



Questions