

SMS and Safety Oversight Team Overview

Michael Catsos
Director of SMS and Safety Oversight

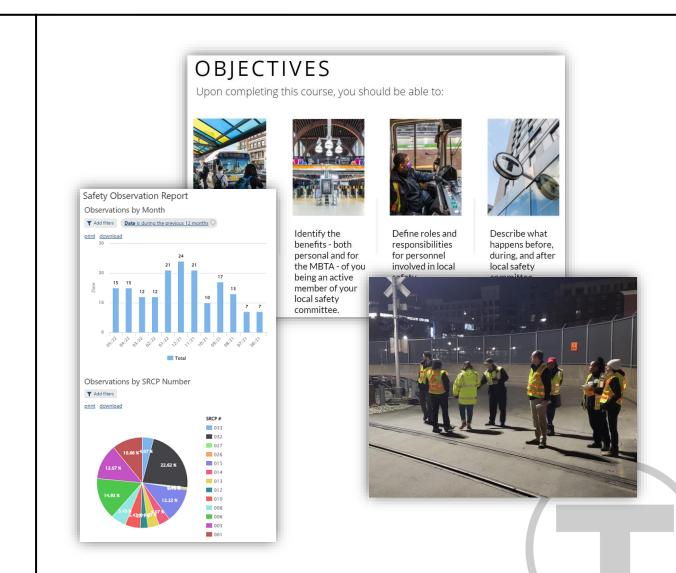
SMS and Safety Oversight – Team Overview

- Core areas of responsibility:
 - Compliance with Federal and State Safety Regulations
 - Safety Management System (SMS) Implementation
 - Long-term Support for SMS Required Processes
 - Proactive Hazard Identification and Management
 - Monitoring Effectiveness of Risk Mitigations
 - Decision Support Tools and Processes for Leadership
 - Training, Communication, and Interface with Front-Line Employees
- Two sub-teams:
 - Safety Assurance and Promotion
 - Safety Data

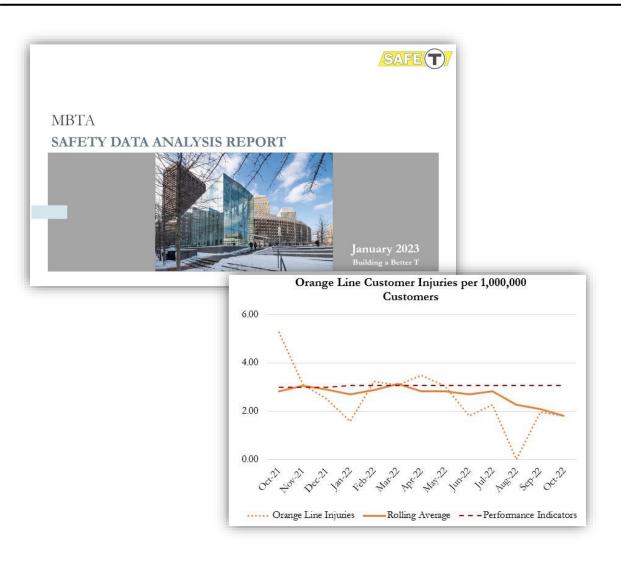


Safety Assurance & Promotion

- Corrective Action Plan Tracking and Implementation Support
- Safety Risk Management Support
- Internal and External Auditing
- Safety Committee Monitoring and Recordkeeping
- Safety Communications and Training
- Field Observations and Inspections



Safety Data



- Employee Safety Reporting Program Management
- Field Observations and Inspections
- KPI Monitoring
- Safety Data Collection and Validation
- Daily, Weekly, and Monthly Data Reporting
- Ad-Hoc Data Analysis for Decision Support





Safety Data Analysis Report

BUS SAFETY PERFORMANCE INDICATORS

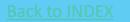


See Notes

Bus - Safety Performance Indicators															1	1			
Bus	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	No v- 22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Fatalities - Total ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NTD Reportable Safety Events - Total ²	10	8	4	7	7	8	6	8	12	11	12	10	6	120	99	8	8	98	8
NTD Reportable Safety Events - Rate per million revenue miles	5.21	4.26	2.37	3.63	3.83	4.35	3.26	4.45	6.35	6.50	6.53	5.59	3.32	5.21	4.54	4.21	4.48	4.21	4.48
NTD Reportable Injuries - Total ²	27	18	21	19	21	18	22	19	28	35	43	13	20	324	277	24	23	286	23
NTD Reportable Injuries - Rate per million revenue miles	14.00	9.59	12.42	9.86	11.50	9.80	11.95	10.57	14.83	20.69	23.40	7.26	11.07	14.00	12.70	12.23	12.88	12.23	12.88
Customer Injuries - Rate per million passenger trips	2.93	2.18	3.30	2.74	2.57	2.29	2.16	1.96	2.12	4.07	3.72	1.42	2.02	2.93	2.56	2.54	2.83	2.54	2.83
Collisions - Rate per million revenue miles	57.42	74.58	79.83	77.88	63.51	81.08	65.75	60.09	81.54	90.43	72.37	83.82	67.56	57.42	74.78	60.08	68.30	60.08	68.30
with Vehicle - Rate per million revenue miles	44.18	59.66	61.50	60.75	53.11	64.21	52.71	46.74	65.13	72.70	58.76	58.18	55.37	44.18	59.84	56.64	49.82	56.64	49.82
with Object - Rate per million revenue miles	9.73	11.72	14.78	13.50	7.67	14.15	9.78	11.13	11.65	13.00	11.43	11.18	8.31	9.73	11.51	10.77	15.67	10.77	15.67
with Person - Rate per million revenue miles	1.51	0.53	1.77	2.08	1.10	1.09	1.09	1.11	1.59	2.96	1.09	1.68	0.55	1.51	1.38	1.49	1.68	1.49	1.68
with T Vehicle - Rate per million revenue miles	2.00	2.66	1.77	1.56	1.64	1.63	2.17	1.11	3.18	1.77	1.09	2.79	2.21	2.00	1.97	2.39	1.12	2.39	1.12
Reportable Smoke/Fire Incidents	1	1	0	0	1	2	0	3	2.00	1	2	2	0	15	14	1	1	16	1
Mean Miles between Mechanical Fallures	25,000	18,531	22,047	26,099	25,623	25,199	27,128	23,317	17,374	16,595	22,229	14,685	19,428	25,000	18,718	29,500	15,091	29,500	15,091

1 In accordance with FTA performance target guidance, trespasser and suicide related fatalities are excluded from fatality counts
2 In accordance with FTA performance target guidance, security related events (including suicides/attempted suicides) are excluded from the safety events total





RAIL



l) See Notes

SAFETY PERFORMANCE INDICATORS - Heavy Rail

Heavy Rail	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTC
Fatalities - Total ¹	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0
NTD Reportable Safety Events - Total ²	2	0	3	1	2		2	2	3		0	0	3	24	25	2	1	24	1
NTD Reportable Safety Events - Rate per million revenue miles	1.00	0.00	1.78	0.52	1.09	2.75	1.18	1.31	2.17	3.23	0.00	0.00	2.05	1.00	1.32	1.07	0.64	1.07	0.64
NTD Reportable Injuries - Total ²	16	23	18	18	23	17	16	14	11	1.7	14	20	11	195	202	15	23	180	23
NTD Reportable Injuries - Rate per million revenue miles	8.46	12.54	10.66	9.32	12.56	9.36	9:42	9.14	7.96	13.75	12.58	13.65	7.52	8.46	10.64	7.99	14.64	7.99	14.64
Mainline Revenue Train Derailments	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Mainline Non-Revenue Train Derailments	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Yard Derailments	0	0	0	1	0	0	0	0	0	.0	0	0	0	3	1	0	0	4	0
Maintenance Vehicle Derailments	0	.0	1	0	0		0	0	3	1	0	0	0	5	8	0	0	5	0
Mean Miles between Mechanical Failures	47,500	26,193	33,891	43.898	51.980	73,942	66,535	41 019	44,136	50.554	77 170	64.826	49.750	47,500	55,222	44,500	64.076	44,500	64,076

- 1 In accordance with FTA performance target guidance, trespasser and suicide related fatalities are excluded from fatality counts
- 2 In accordance with FTA performance target guidance, security related events (including suicides/attempted suicides) are excluded from the safety events total



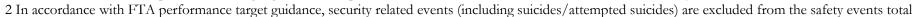


RAIL

SAFETY PERFORMANCE INDICATORS - HEAVY RAIL CONT'D

Orange Line	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Customer Injuries - Rate per million passenger trips	3.06	1.57	3.25	3.02	3.39	2.94	1.80	2.27	0.00	1.97	1.80	1.80	1.18	3.06	2.13	1.85	2.72	1.85	0.54
Coll Islons - Rate per million revenue miles	2.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	19.58	0.00	0.00	0.00	2.27	0.80	88.0	0.00	0.88	0.00
with Vehicle - Rate per million revenue miles	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0	0.00
with Object - Rate per million revenue miles	0.7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	13.12	0.00	0.00	0.00	0.7	0.54	0.2	0.00	0.2	0.00
with Person - Rate per million revenue miles	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.57	0.00	0.7	0.00	0.7	0.00
with T Vehicle - Rate per million revenue miles	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	6.56	0.00	0.00	0.00	0	0.27	0.00	0.00	0	0.00
Reportable Smoke/Fire Inddents	2	1	5	2	7	2	1	5	1	2	0	0	1	28	27	2	1	58	1
Red Line	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Customer Injuries - Rate per million passenger trips	3.01	5.75	3.99	2.51	3.15	1.76	1.75	1.54	2.71	1.74	1.73	4.29	2.46	3.01	2.65	2.02	3.68	2.02	0.74
Coll Islans - Rate per million revenue miles	88.0	1.88	0.00	0.84	0.00	0.00	1.89	0.00	0.00	1.27	0.00	0.00	0.00	0.88	0.52	0.00	1.21	0	0.24
with Vehicle - Rate per million revenue miles	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.00	0.00	0	0.00
with Object - Rate per million revenue miles	0.32	0.00	0.00	0.00	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.09	0.4	0.00	0.4	0.00
with Person - Rate per million revenue miles	0.4	1.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.27	0.00	0.00	0.00	0.4	0.26	0.4	1.21	0.4	0.24
with T Vehicle - Rate per million revenue miles	0.16	0.00	0.00	0.84	0.00	0.00	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.17	0.00	0.00	0	0.00
Reportable Smoke/Fire Indidents	5	- 6	11	5	5	0	5	2	3	2	3	3	2	70	47	5	2	91	2
Blue Line	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Customer Injuries - Rate per million passenger trips	1.05	3.88	0.00	0.00	1.01	0.00	1.79	0.00	1.76	1.66	1.69	0.00	0.96	1.05	1.05	0.88	0.93	88.0	0.19
Coll Islons - Rate per million revenue miles	0.72	6.03	0.00	2.79	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.72	1.10	0	0.00	0	0.00
with Vehicle - Rate per million revenue miles	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0.5	0.00	0.5	0.00
with Object - Rate per million revenue miles	0.48	6.03	0.00	0.00	0.00	4.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.48	0.83	0.5	0.00	0.5	0.00
with Person - Rate per million revenue miles	0.24	0.00	0.00	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.28	0	0.00	0	0.00
with T Vehicle - Rate per million revenue miles	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00

¹ In accordance with FTA performance target guidance, trespasser and suicide related fatalities are excluded from fatality counts









RAIL



SAFETY PERFORMANCE INDICATORS - LIGHT RAIL

Light Rail - Safety Performance Indicators								-											
Light Rall	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Fatalities - Total ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NTD Reportable Safety Events - Total ²	2	3	3	4	2	2	5	1	5	3	1	2	2	31	33	2	2	27	2
NTD Reportable Safety Events - Rate per million revenue miles	5.58	6.27	6.79	8.05	4.16	4.10	10.30	2.05	9.94	5.67	1.84	3.94	3.83	5.58	5.53	4.94	3.83	4.94	3.83
NTD Reportable Injuries - Total ²	7	5	10	7	5	11	12	9	8	9	- 6	10	12	84	104	7	10	79	10
NTD Reportable Injuries - Rate per million revenue miles	14.70	10.45	22.64	14.09	10.41	22.57	24.71	18.44	15.91	17.01	11.04	19.70	22.99	14.70	17.44	14.35	19.15	14.35	19.15
Mainline Revenue Train Derallments	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	1	2	1
Mainline Non-Revenue Train Derail ments	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	2	0
Yard Derallments	0	0	0	0	0	0	0	0	0	0	0	0	1	4	1	0	0	4	0
Maintenance Vehicle Derailments	0	1	0	2	1	1	0	0	0	0	0	0	0	1	5	0	0	3	0
Mean Miles between Mechanical Fallures	7,500	7,329	5,311	7,558	9,806	8,150	6,302	6,187	5,898	6,146	7,673	9,688	8,115	7,500	6,618	7,650	4,622	7,650	4,622
Green Line	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	5ep-22	Oct-22	Nov-22	Dec-22	2022 Target	2022 YTD	2023 Monthly Target	Jan-23	2023 Target	2023 YTD
Customer Injuries - Rate per million passenger trips	3.48	2.00	3.00	2.21	1.70	4.38	1.77	1.35	3.85	2.55	2.16	2.98	4.77	3.48	2.72	2	3.99	2	3.99
Collisions - Rate per million revenue miles	4.44	6.27	11.32	6.04	6.24	2.05	10.30	0.00	7.95	1.89	1.84	9.85	1.92	4.44	5.37	2.86	3.83	2.86	3.83
with Vehicle - Rate per million revenue miles	1.66	4.18	9.06	4.03	4.15	2.05	4.12	0.00	1.99	1.89	0.00	9.85	0.00	1.66	3.35	1.36	0.00	1.36	0.00
with Object - Rate per million revenue miles	0.74	0.00	0.00	0.00	2.08	0.00	0.00	0.00	1.99	0.00	0.00	0.00	1.92	0.74	0.50	0.44	1.91	0.44	1.91
with Person - Rate per million revenue miles	0.92	0.00	0.00	0.00	0.00	0.00	2.06	2.05	3.98	0.00	0.00	0.00	0.00	0.92	0.67	0.48	1.91	0.48	1.91
with T Vehicle - Rate per million revenue miles	1.11	2.09	2.26	2.01	0.00	0.00	4.12	0.00	0.00	0.00	1.84	0.00	0.00	1.11	1.01	0.58	0.00	0.58	0.00
Reportable Smoke/Fire Incidents	3	3	8	4	2	2	2	3	3	1	1	0	2	33	31	5	1	62	1

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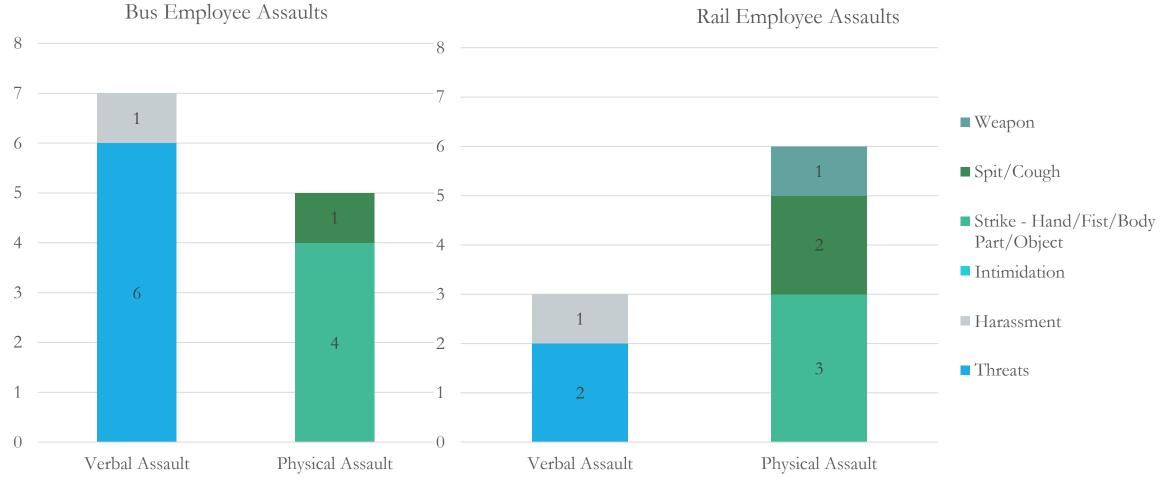




EMPLOYEE INJURIES

EMPLOYEE ASSAULTS BY MODE AND TYPE









SAFETY HOTLINE

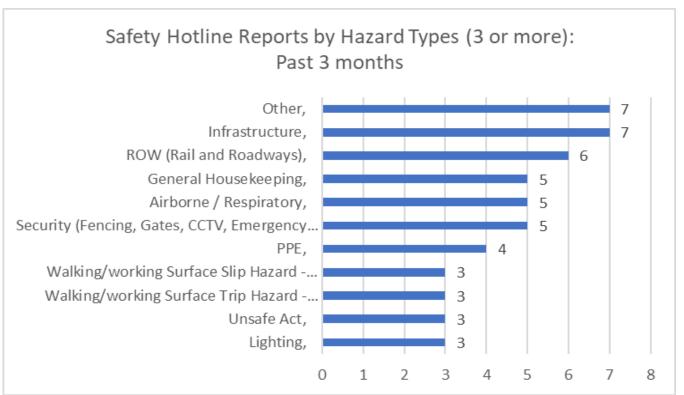
REPORTING SYSTEM



Safety Hotline Reporting Options

- Safety Hotline: (617) 222-SAFE/7233
- Safety Notification email: <u>SafetyNotification@mbta.com</u>
- Direct reporting to an MBTA Safety official
- Submitting Form B by email, to an MBTA Safety official, or by fax: (617) 222-5127

Month	Total Reports	Closed
November 2023	26	13
December 2023	25	15
January 2023	23	6
Total	74	34



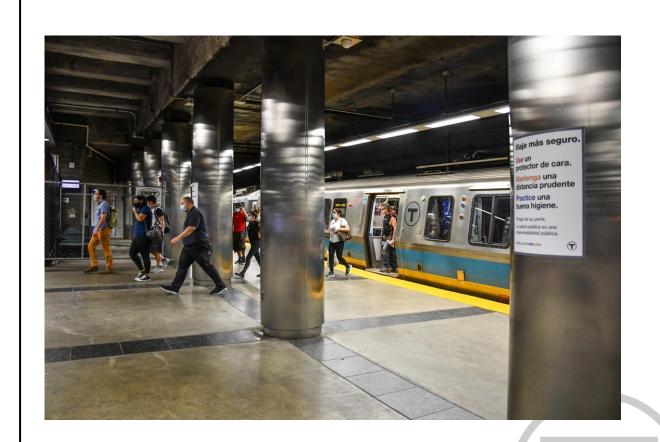




2022 Internal Safety Audit Overview

Internal Safety Audits: Background

- Federal and state regulations at 49
 CFR Part 673 and 22 CMR 151
 require internal audits to evaluate compliance with safety program and associated policies / procedures
- MBTA's audit program applies to all directly operated and contract services for:
 - Heavy Rail
 - Light Rail
 - Bus
 - Paratransit

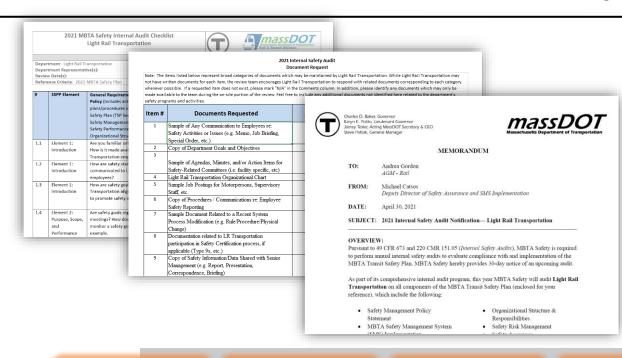


Internal Safety Audits: Timeline

 Departments and functions audited according to a rolling three-year schedule, with all areas audited at least once triennially

2022 (Complete)	2023	2024
Heavy Rail Transportation & Training	Operations Control Center (OCC)	Rail Vehicle Maintenance
Capital Delivery	Transit Facilities Maintenance (TFM)	Maintenance of Way (MOW)
Power	Procurement & Logistics	Light Rail Transportation & Training
Signals	Bus Maintenance	Occupational Health Services
Safety	E&M Training	Paratransit (The RIDE)
Bus Operations	Capital Transformation	Vertical Transportation
	Bridges, Tunnels, and Structures	

Internal Safety Audits: Process







Annual Kickoff Meeting, Internal Training, and Scoping Checklist, Document Request, and Schedule Development

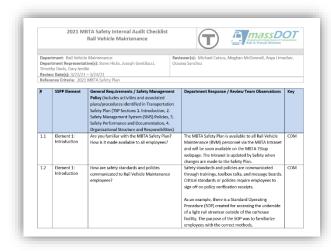
Management Interviews Records Reviews and Field Activities

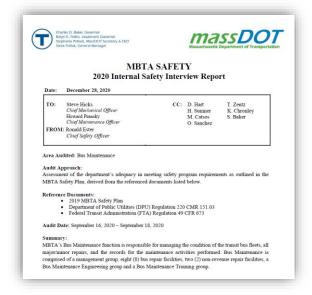
Checklist Completion

Draft and Final Report Completion

Corrective Action Plan Development + Review

Internal Safety Audits: Process







Annual Kickoff Meeting, Internal Training, and Scoping Checklist, Document Request, and Schedule Development

Management Interviews Records Reviews and Field Activities

Checklist Completion

Draft and Final Report Completion

Corrective Action Plan Development + Review

Internal Safety Audits: Process

Assessment Scale Level	Description
Noncompliant (NC)	Not in compliance with applicable regulations or MBTA safety program requirements.
Compliant with Recommendation (CWR)	 Technically in compliance with applicable regulations and requirements, but: No written plan, policy, or procedure is in place; Practices not fully consistent with industry best practices and standards; Organizational and resource issues inhibit performance of safety activities.
Compliant (COM)	Resources in place to accomplish all objectives. Employees trained and knowledgeable on the policies and procedures which facilitate compliance with safety requirements.

• In 2022:

- Seven (7) Findings of Noncompliance
- Nine (9) Findings of Compliance with Recommendation across six audited departments and functions
- Department / business unit management notified of potential findings and observations immediately during audit interviews and field activities

Internal Safety Audits: Reporting

- Summary Reports for individual audits issued within 90 days
- Corrective Action Plans due from department/business unit 30 days after Summary Report issued
- Annual ISA Report summarizing all activities in previous year due annually to DPU by February 15
 - Signed by MBTA Accountable Executive / General Manager

