



**Massachusetts Bay
Transportation Authority**

Safety Data Analysis Report

April 2022

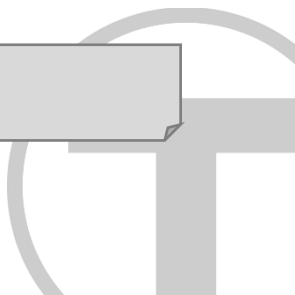
Matthew DeDonato
Deputy Director Safety Oversight and Planning

BUS

SAFETY PERFORMANCE INDICATORS

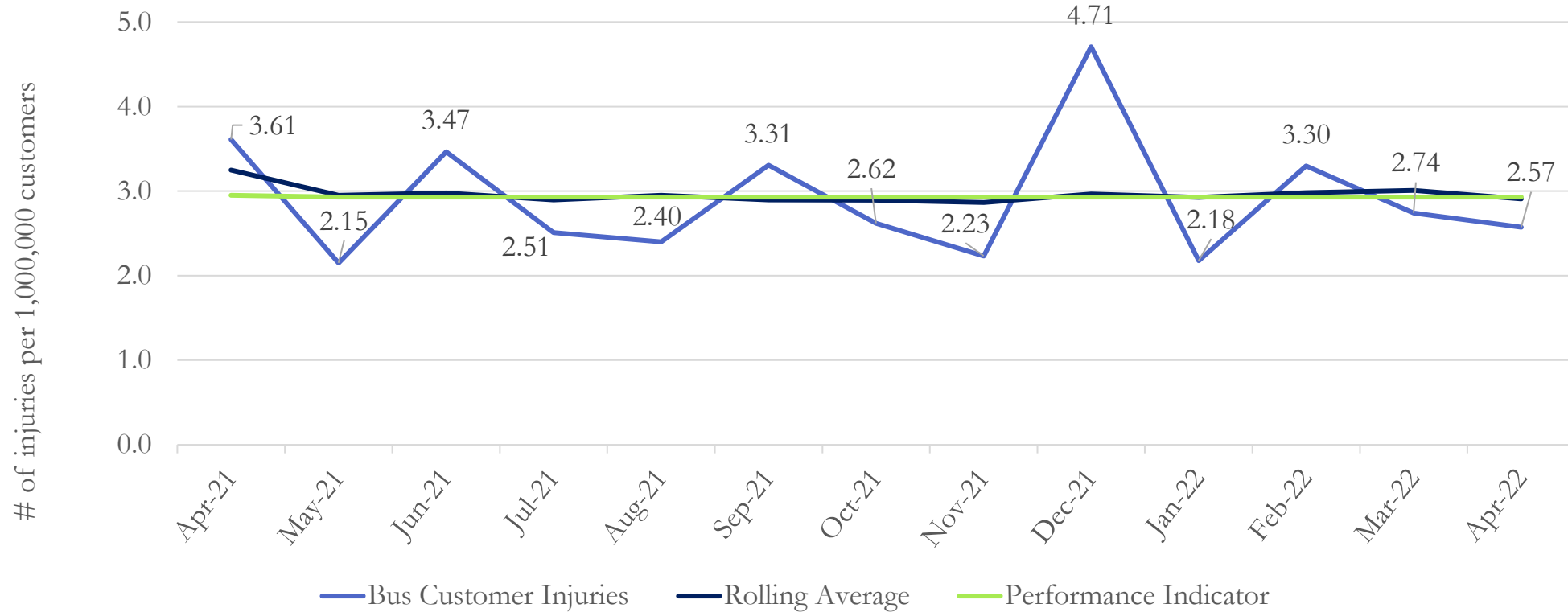
Bus - Safety Performance Indicators																			
Bus	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Fatalities - Total ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NTD Reportable Safety Events - Rate per million revenue miles	6.00	6.04	4.25	2.56	2.00	4.29	5.33	3.46	1.02	6.65	6.00	3.71	5.21	4.26	2.37	3.63	3.83	5.21	3.55
NTD Reportable Injuries - Rate per million revenue miles	15.50	9.29	8.50	11.24	11.53	11.93	13.86	9.90	10.22	17.90	15.50	11.01	14.00	9.59	12.42	9.86	11.50	14.00	10.79
Customer Injuries - Rate per million passenger trips	2.95	3.56	2.14	3.44	2.51	2.40	3.31	2.62	2.23	4.71	2.95	2.99	2.93	2.18	3.30	2.74	2.57	2.93	2.70
Collisions - Rate per million revenue miles	85.63	54.78	61.90	64.39	57.64	59.18	73.02	60.37	58.27	64.44	85.63	58.60	57.42	74.58	79.83	77.88	63.50	57.42	73.89
with Vehicle - Rate per million revenue miles	N/A	44.10	47.72	49.06	43.60	46.29	59.16	48.00	47.53	48.59	N/A	45.08	44.18	59.66	61.50	60.75	53.10	44.18	58.73
with Object - Rate per million revenue miles	N/A	6.50	10.39	10.73	11.53	8.59	9.59	9.40	9.71	11.25	N/A	9.93	9.73	11.72	14.78	13.50	7.66	9.73	11.88
with Person - Rate per million revenue miles	N/A	1.39	2.83	1.53	0.50	3.34	1.07	2.47	1.02	1.53	N/A	1.54	1.51	0.53	1.77	2.08	1.09	1.51	1.37
with T Vehicle - Rate per million revenue miles	N/A	2.79	0.94	3.07	2.00	0.95	3.20	0.49	0.00	3.07	N/A	2.04	2.00	2.66	1.77	1.56	1.64	2.00	1.91
Reportable Smoke/Fire Incidents	1	0	3	0	3	2	1	1	3	2	15	16	1	1	0	0	1	15	2
Mean Miles between Mechanical Failures	18,000	29,916	34,707	32,075	32,018	23,284	29,301	26,073	22,281	31,775	18,000	28,638	25,000	18,531	22,047	26,099	25,623	25,000	22,813

In March 2022, bus ridership was at approximately 68% of the 2019 ridership.



BUS

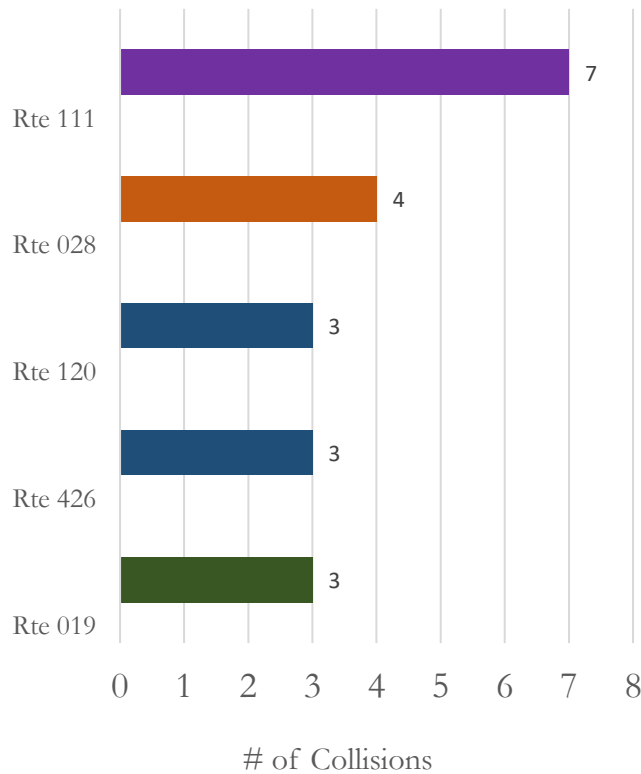
CUSTOMER INJURIES PER 1,000,000 CUSTOMERS, PAST 13 MONTHS



BUS

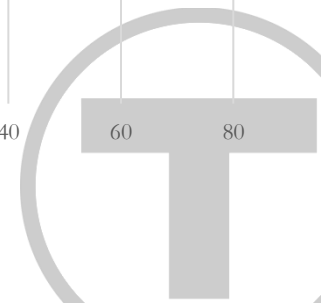
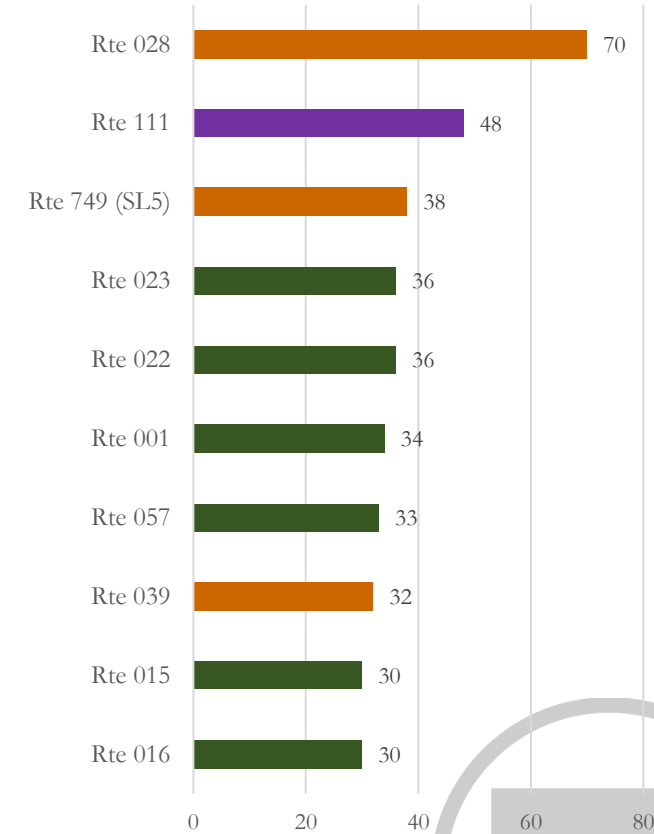
Collision Breakdown

Top 5 Routes with Highest # of Collisions



Route	Description
111	Woodlawn to Haymarket Station
28	Mattapan Station to Ruggles Station
120	Orient Heights Station to Jeffries Point
426	Central Square, Lynn to Wonderland or Haymarket
19	Fields Corner Station to Kenmore or Ruggles Station

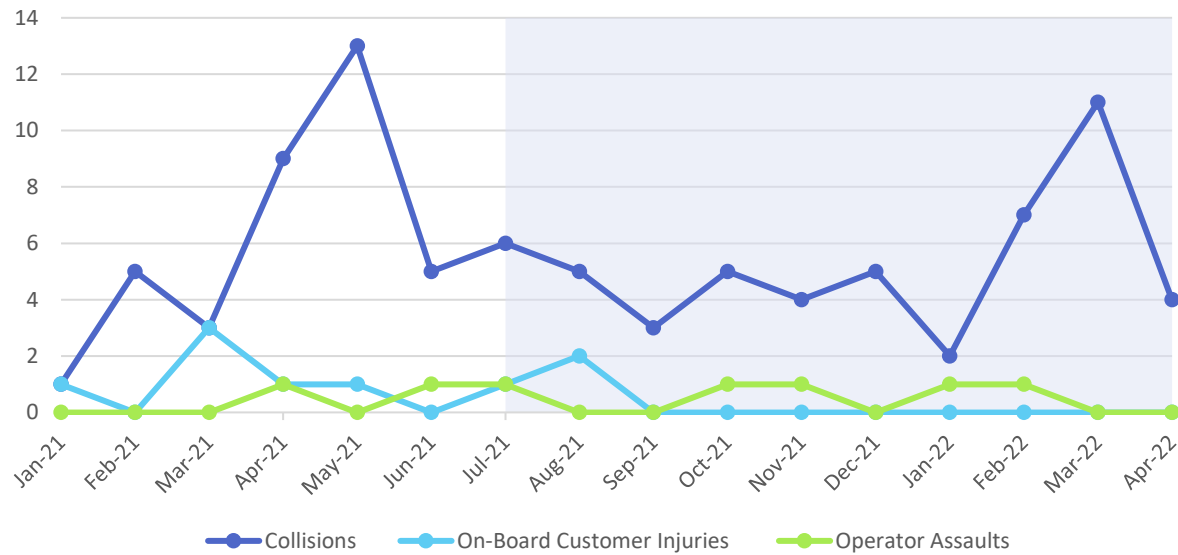
Top 10 Routes with Highest # of Collisions Past 12 Months



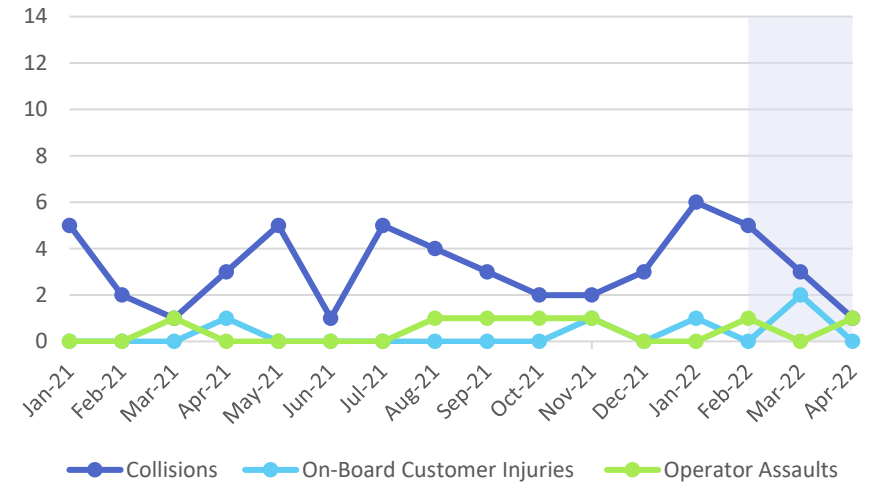
BUS

Free Bus Route Safety Incidents

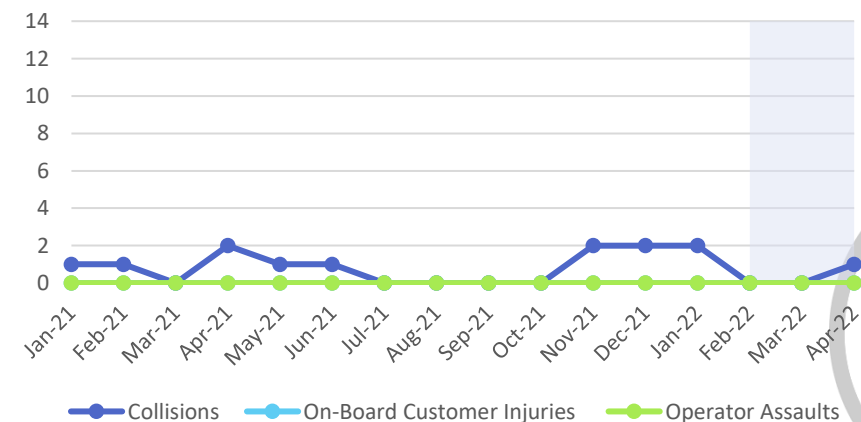
Route 28 Safety Incidents



Route 23 Safety Incidents



Route 29 Safety Incidents



RAIL

SAFETY PERFORMANCE INDICATORS - Heavy Rail

Heavy Rail - Safety Performance Indicators																			
Heavy Rail	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Fatalities - Total ¹	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
NTD Reportable Safety Events - Rate per million revenue miles	1.00	0.00	1.74	1.76	0.51	1.00	1.62	0.52	1.63	1.04	1.00	1.09	1.00	0.00	1.78	0.52	1.09	1.00	0.82
NTD Reportable Injuries - Rate per million revenue miles	9.45	8.06	5.81	8.78	6.67	6.02	7.02	13.12	10.34	8.87	9.45	8.39	8.46	12.54	10.66	9.32	12.56	8.46	11.26
Mainline Revenue Train Derailments	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0	0
Mainline Non-Revenue Train Derailments	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
Mean Miles between Mechanical Failures	47,000	55,634	41,955	47,064	48,344	51,118	40,399	29,975	39,987	42,484	47,000	44,617	47,500	26,193	33,891	43,898	51,980	47,500	36,574
Orange Line	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Customer Injuries - Rate per million passenger trips	2.99	2.61	2.26	3.53	2.78	2.20	1.52	4.95	3.09	2.53	2.99	3.12	3.06	1.57	3.25	3.02	3.48	3.06	2.90
Collisions - Rate per million revenue miles	0.77	5.32	4.28	2.25	0.00	3.54	2.01	2.12	0.00	2.13	0.77	2.32	2.27	0.00	0.00	0.00	0.00	2.27	0.00
Reportable Smoke/Fire Incidents	5	4	6	2	3	1	2	0	3	2	56	29	2	1	5	2	7	28	15
Red Line	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Customer Injuries - Rate per million passenger trips	4.36	4.67	2.08	2.26	2.45	2.33	1.98	1.79	3.55	1.89	4.36	3.05	3.01	5.75	3.99	2.51	3.27	3.01	3.69
Collisions - Rate per million revenue miles	0.48	1.10	0.00	2.14	1.89	0.00	0.00	0.00	2.85	0.91	0.48	0.90	0.88	1.88	0.00	0.84	0.00	0.88	0.68
Reportable Smoke/Fire Incidents	5	6	4	9	2	6	3	5	4	5	63	71	5	6	11	5	5	70	27
Blue Line	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Customer Injuries - Rate per million passenger trips	1.02	0.00	1.23	0.00	0.00	0.00	0.00	2.65	1.07	3.52	1.02	1.07	1.05	3.88	0.00	0.00	1.02	1.05	1.09
Collisions - Rate per million revenue miles	0.21	0.00	3.06	0.00	0.00	2.74	0.00	0.00	0.00	0.00	0.21	0.73	0.72	6.03	0.00	2.79	0.00	0.72	2.28
Reportable Smoke/Fire Incidents	1	0	1	1	1	0	0	0	0	1	6	11	1	0	0	0	1	11	1

In April 2022, heavy rail ridership was at approximately 49% of the ridership compared to 2019.



RAIL

SAFETY PERFORMANCE INDICATORS – Light Rail

Light Rail - Safety Performance Indicators																			
Light Rail	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 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 - Rate per million revenue miles	5.83	0.00	2.65	2.48	4.72	11.67	0.00	2.10	2.07	3.99	5.83	3.21	5.58	6.27	6.79	8.05	4.16	5.58	6.32
NTD Reportable Injuries - Rate per million revenue miles	17.25	5.13	21.20	9.93	68.38	9.33	10.94	10.52	8.29	9.97	17.25	16.60	14.70	10.45	22.64	14.09	10.40	14.70	14.23
Mainline Revenue Train Derailments	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0
Mainline Non-Revenue Train Derailments	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Mean Miles between Mechanical Failures	7,000	12,202	7,814	7,280	5,721	6,077	7,308	7,516	8,393	7,817	7,000	7,780	7,500	7,329	5,311	7,558	9,806	7,500	7,277
Green Line	2021 Monthly Target	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	2021 Target	2021 Total	2022 Monthly Target	Jan-22	Feb-22	Mar-22	Apr-22	2022 Target	2022 YTD
Customer Injuries - Rate per million passenger trips	4.23	1.61	1.60	2.00	14.37	1.60	1.69	1.60	1.55	1.56	4.23	3.53	3.48	2.00	3.00	2.21	1.82	3.48	2.23
Collisions - Rate per million revenue miles	6.65	0.00	5.30	2.48	9.43	4.67	2.19	2.10	4.14	7.98	6.65	4.53	4.44	6.27	11.32	6.04	6.24	4.44	7.38
Reportable Smoke/Fire Incidents	4	1	2	3	0	2	1	0	7	5	45	34	3	3	8	4	2	33	17

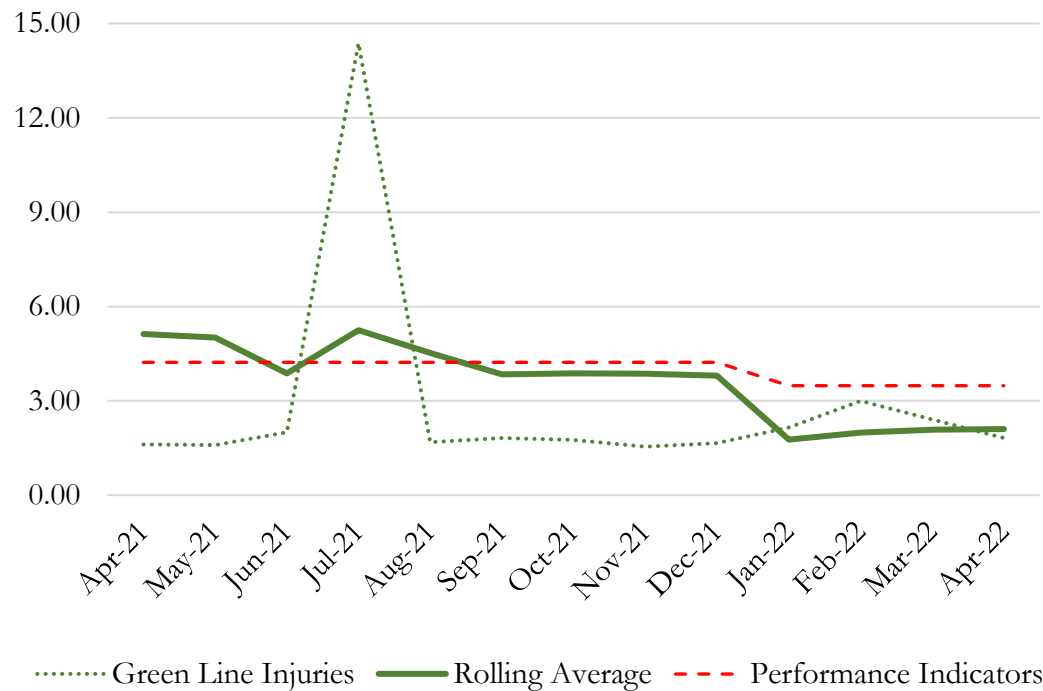
In April 2022, light rail ridership was at approximately 47% of the ridership compared to 2019.



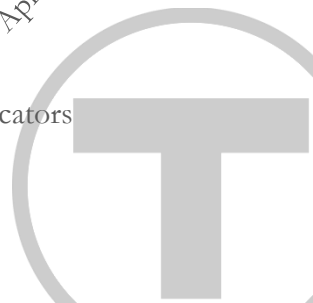
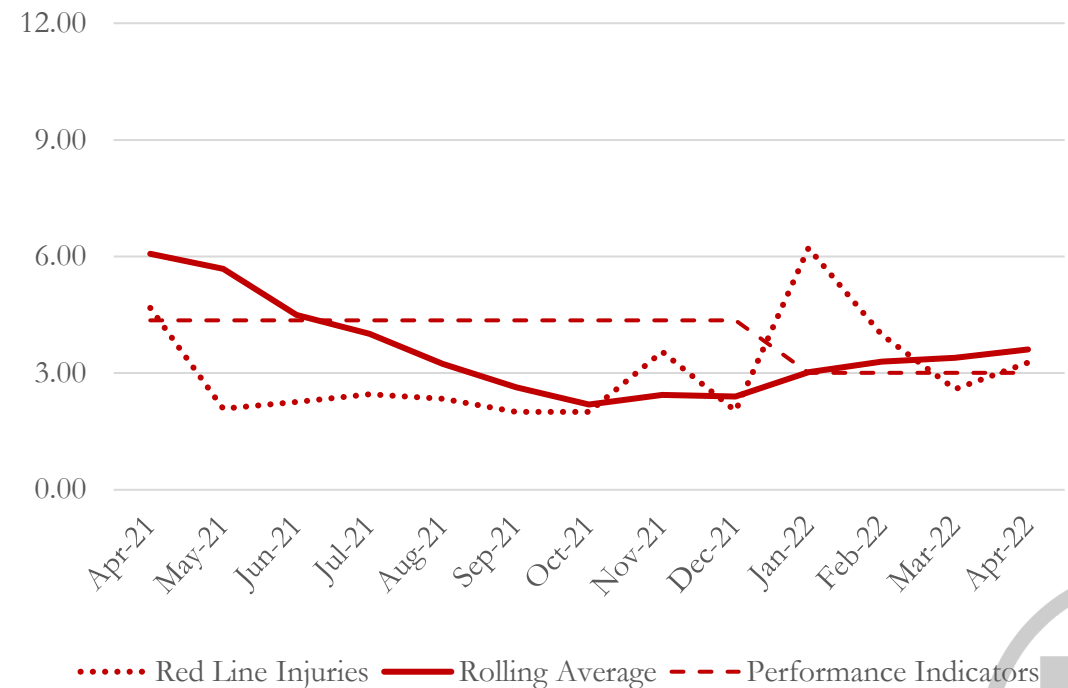
RAIL

CUSTOMER INJURIES per 1,000,000 Customers PAST 13 MONTHS

Green Line Customer Injuries per 1,000,000 Customers



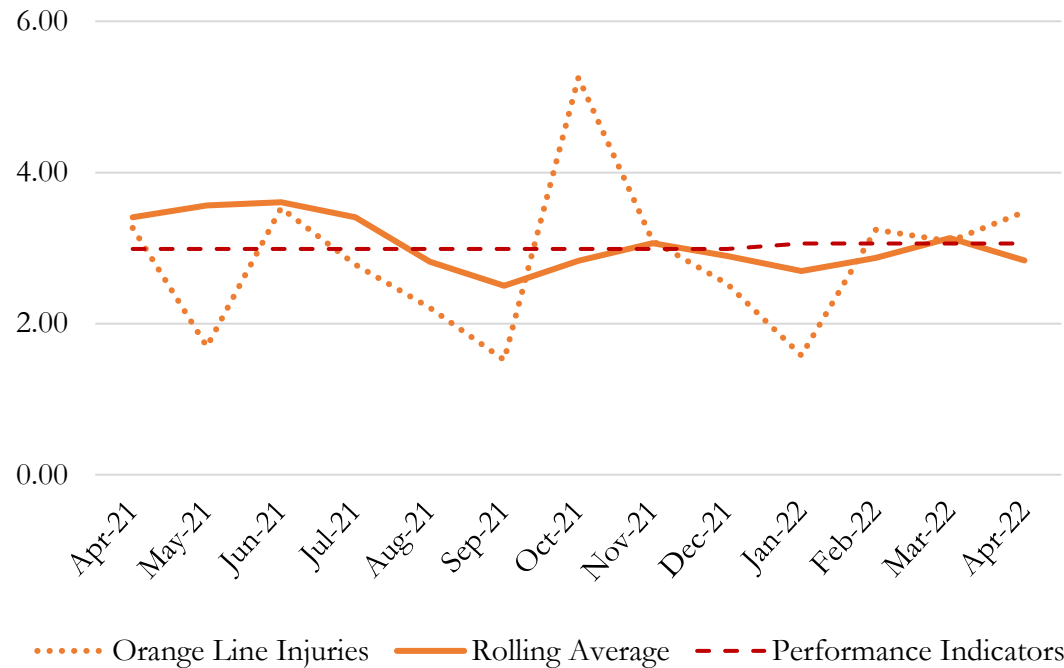
Red Line Customer Injuries per 1,000,000 Customers



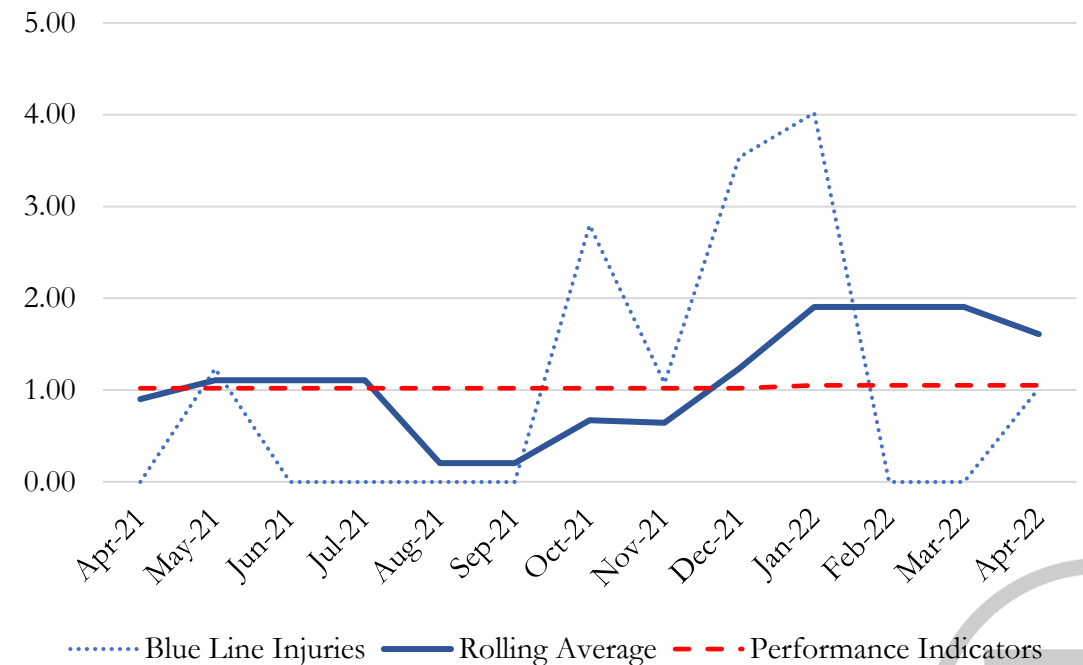
RAIL

CUSTOMER INJURIES per 1,000,000 Customers PAST 13 MONTHS CONT'D

Orange Line Customer Injuries per 1,000,000 Customers



Blue Line Customer Injuries per 1,000,000 Customers



FIRE/SMOKE

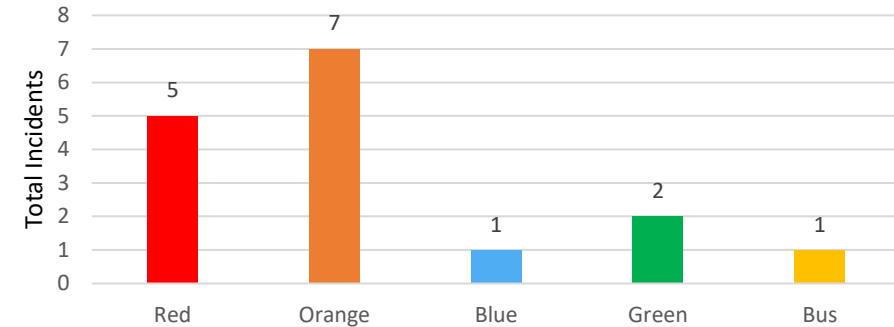
Code 1 Reportable Incidents

- fire/smoke with 1 or more injuries requiring transport
OR
- fire/smoke that requires suppression but not evacuation
OR
- fire/smoke with an evacuation onto the ROW

Code 1 Non-Reportable Incidents

- fire/smoke with **NO** injury transport, suppression or evacuation

TOTAL REPORTABLE INCIDENTS – April 2022



April Total Code 1: Fire/Smoke Incidents

NTD Criteria	Non-Reportable	Reportable
Rail	6	15
Bus	11	1
April Total Incident	17	16
2021 Total Monthly Avg	17.7	12.8

April Total Reportable Incidents - AREA

	Apr-22	Apr-21
Red	5	6
Orange	7	4
Blue	1	0
Green	2	1
Bus	1	0
TOTAL	16	11



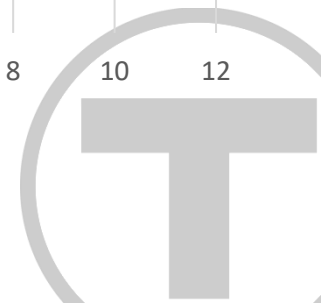
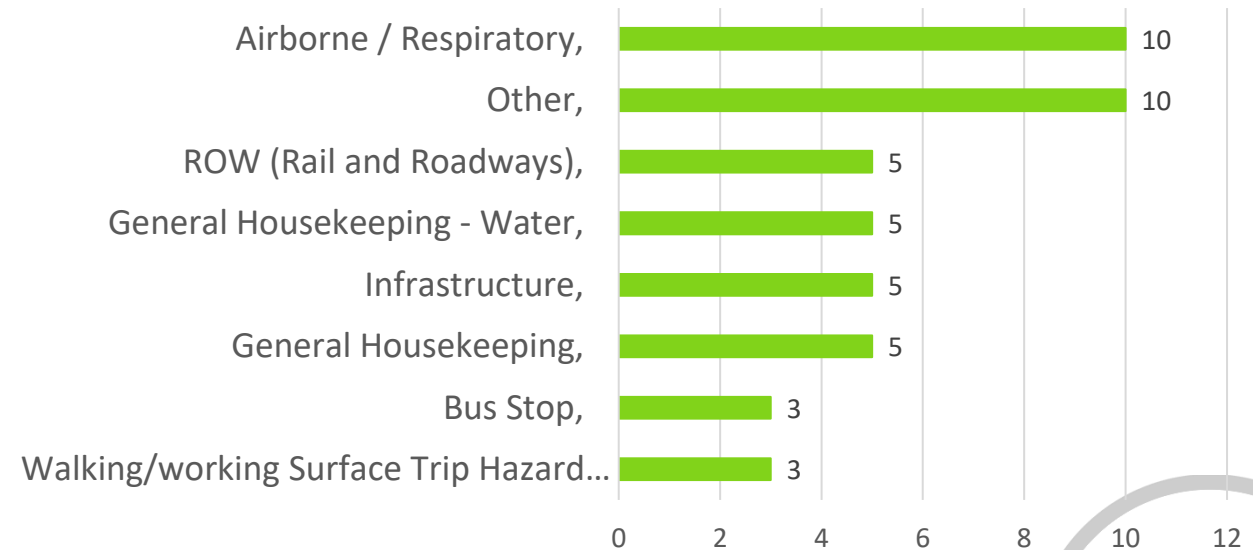
SAFETY HOTLINE

Safety Hotline Reporting Options

- Safety Hotline
- Safety Notification email
- Direct reporting to an MBTA Safety official
- Submitting Form B by email, to an MBTA Safety official, or by fax

Month	Total Reports	Closed
Feb 2022	24	18
Mar 2022	23	15
April 2022	24	12
Total	71	45

Safety Hotline Reports by Hazard Types (3 or more): Last 3 months



SAFETY HOTLINE



Below are examples of MBTA Safety Hotline reports received and investigated in April 2022.

- REPORT – Multiple safety issues at a Bus Maintenance Facility: paint booth not working correctly, painters need to open the overhead door and a hallway door to ventilate fumes, and the lift used for painting buses is not working causing employees to use a ladder.
Complete - Work orders were generated to fix overhead heaters, overhead door, and lift.
- REPORT – Power Department employees are working inside of a manhole without police detail. The crew attempted to block traffic with cones or a yellow pick-up truck with hazard lights, however, traffic was driving over the work site.
Monitoring - Safety conducted field observations with the Power Department and is looking into developing mitigations.



Entrance at Symphony Station

- REPORT –There are unhoused individuals setting up a shelter during off-hours every night at the WB & SB entrances of Symphony Station.
Pending – E&M and the Office of the Chief Engineer are looking at solutions to better secure the station entrances.



SAFETY INITIATIVES

Notable Safety Initiatives in April 2022

SMS Implementation

In April, MBTA Safety continued review of the Transit Safety Plan as part of the 2022 updates as well as the Phase 2 SMS Implementation exit criteria. Phase 2 has focused on strengthening the Safety Risk Management processes and completion of SMS Training. Safety also continued to work with the business units to review completion rates for the SMS Fundamentals Course.

OHS Program Development

In April, the OHS Team worked to prepare the next programs for SMRC review which will include Tools: Hand & Power, Bloodborne Pathogens, and Excavation & Trenching. The OHS Team also participated in Engineering & Maintenance's Safety Standardization Day with a focus on Hotworks Training. Additionally, development of Respiratory Training is underway and the OHS Team continues to host OSHA 10 and OSHA 30 classes.



SAFETY INITIATIVES

SMS Fundamentals Course

Announced in April 2021, the MBTA SMS Fundamentals Course, which is the baseline Safety Management System introduction for the MBTA Workforce has been released to all MBTA employees via the MassDOT LearningHub. The course objectives include defining SMS, reviewing SMS roles and responsibilities, identifying and reporting hazards, and how safety reports are managed. Below are the MBTA wide completion percentages and course completion by month.

