



**Commonwealth of Massachusetts
Department of Public Utilities ("DPU")
Rail Transit Safety Division**

**DPU State Safety Oversight
Annual Report to MBTA Board of Directors
December 19, 2024**



- Federal Requirement for State Safety Oversight (“SSO”)
- DPU Rail Transit Safety Team
- SSO Functions
 - Events & Investigations + Data Visuals
 - On-Scene Response + Data Visual
 - Field Observations + Data Visual
 - Corrective Action Plans (“CAPs”)
 - Fast Facts: Investigations & CAPs
 - Diversion Monitoring
 - Data Visuals: Derailments and Corrective Actions
- Initiatives & Activities of Note
 - DPU Success on FTA’s Findings and 2024 Audit
 - Risk-Based Inspection (“RBI”) Program
 - SMART Database and Dashboards
- Roadmap Forward
- Discussion / Q&A



DPU Rail Transit Safety is located above the South Station rail terminal in downtown Boston.

Photo credit: MBTA

Federal Requirement for SSO



Federal law requires a State Safety Oversight Program (“SSOP”) and State Safety Oversight Agency (“SSOA”) for rail transit systems.

Thirty states – including Massachusetts – have rail transit systems required to have a Federal Transit Administration (“FTA”)-certified SSOP.

MBTA’s subway (Red, Green, Blue, Orange and Mattapan lines) is the only rail transit system in Massachusetts that meets FTA’s criteria for SSOP oversight.

DPU is the SSOA for Massachusetts. The SSOP is within DPU’s Rail Transit Safety Division.



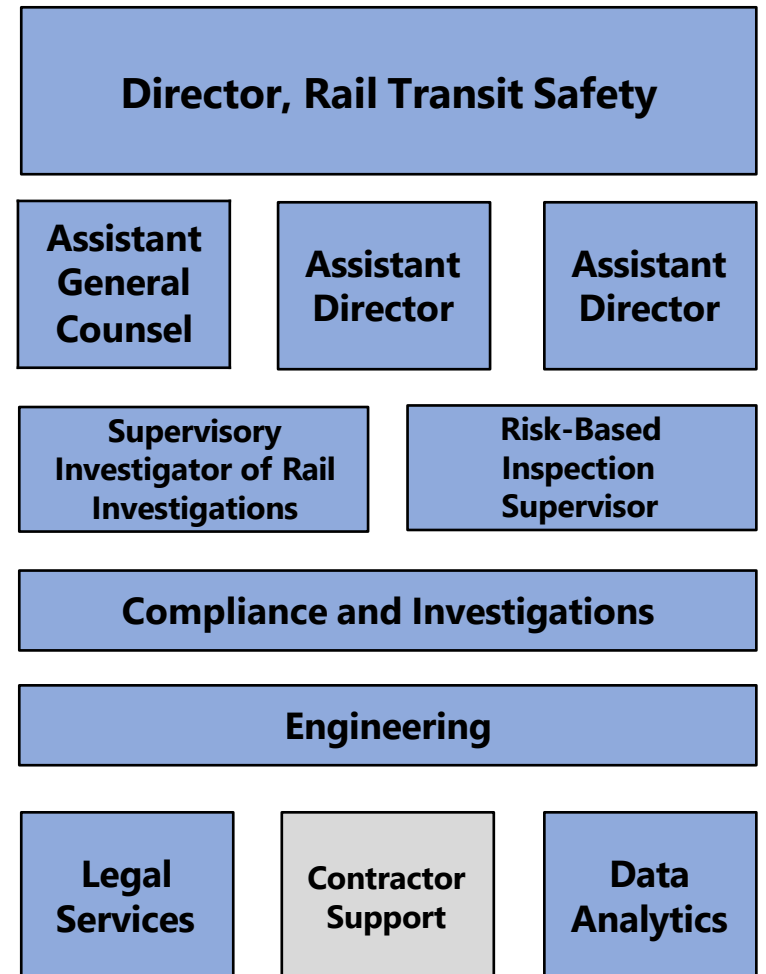
FTA’s map of certified SSOPs across the country.
Illustration credit: FTA



In December 2022, DPU created the Rail Transit Safety Division and hired its first Director. The Division has doubled in size from 9.5 team members in December 2022, to 20 team members as of December 2024.

The Division consists of:

- An experienced leadership team
- A supervisory investigator
- Compliance officers and investigators
- A Risk-Based Inspection supervisor
- Engineering experts in various disciplines
 - Track, signaling, vehicles, electrical power
- Data analytics team
- Legal services
- Contractor support (as needed)

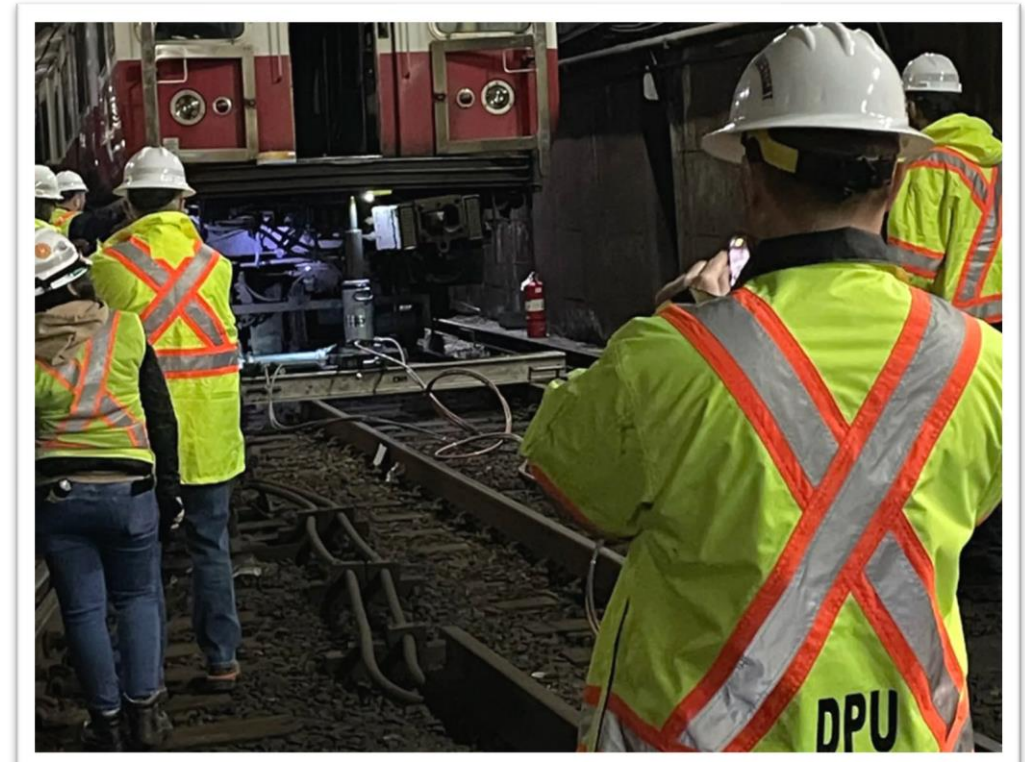


Events and Investigations

DPU oversees MBTA's response to rail safety events and investigations.

Following a reportable event, MBTA Safety sends DPU a digital "preliminary notification". For certain types of safety events, MBTA also notifies FTA and/or the National Transportation Safety Board ("NTSB"). DPU may require (or MBTA may initiate) Immediate Corrective Actions ("ICAs") to immediately correct safety issues

MBTA prepares and submits to DPU a final report once MBTA Safety's investigation is complete. DPU reviews the Investigation Reports and related ICAs, and may reject them and require additional action or explanation if DPU determines they are not sufficient.

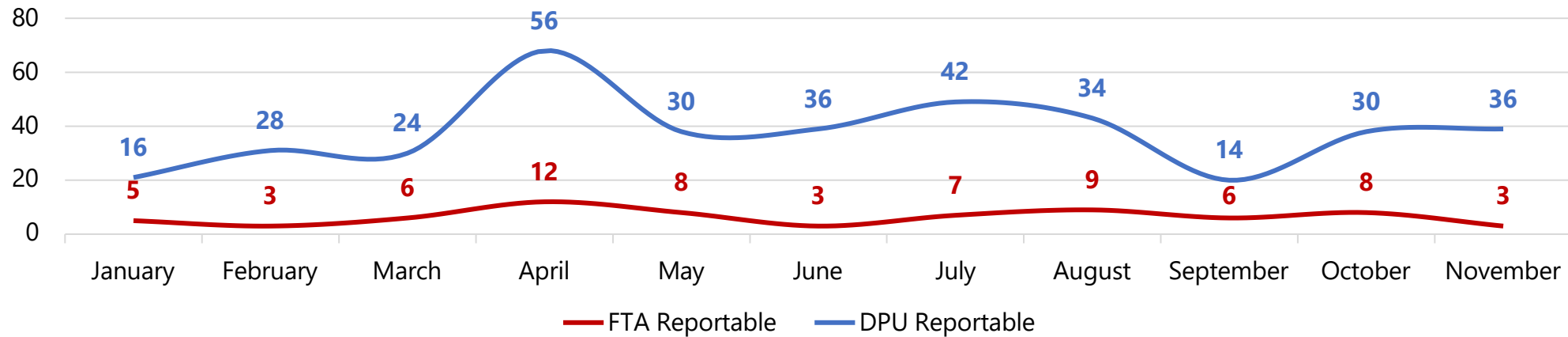


A DPU team member observes and documents the re-railing of a derailed Red Line vehicle.

DPU File Photo



2024 MBTA Reportable Safety Events By Month - Top 5 Event Types Per Month (Color Coded by Reportable Entity)*



Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation	Violation - Speed Violation
Violation - Wrong Route	Violation - Signal Violation	Violation - Wrong Route	Derailment - Maintenance Vehicle	Derailment - Maintenance Vehicle	Violation - Door Violation	Violation - Wrong Route	Violation - Wrong Route	Derailment - Maintenance Vehicle	Violation - Clearance Violation	Violation - Rules Violation (Other)
Violation - Signal Violation	Violation - Wrong Route	Derailment - Main Line	Violation - Rules Violation (Other)	Violation - Signal Violation	Violation - Wrong Route	Derailment - Maintenance Vehicle	Violation - Signal Violation	Violation - Clearance Violation	Violation - Wrong Route	Violation - Clearance Violation
Derailment - Maintenance Vehicle	Collision - with Vehicle	Violation - Signal Violation	Violation - Door Violation	Violation - Rules Violation (Other)	Derailment - Maintenance Vehicle	Inf./Equip. - Pantograph	Collision - with Vehicle	Violation - Rules Violation (Other)	Derailment - Maintenance Vehicle	Violation - Signal Violation
Collision - with Vehicle	Derailment - Maintenance Vehicle	Construction - Struck By	Violation - Clearance Violation	Violation - Door Violation	Person - Gap	Violation - Clearance Violation	Derailment - Maintenance Vehicle	Violation - Door Violation	Violation - Signal Violation	Collision - with T Vehicle

*Numbers current as of December 1, 2024. Out of a total of **1,896** events, **78** were FTA reportable and **360** were DPU reportable.



Reporting Thresholds

FTA Reportable Threshold <i>An event that involves any of the following:</i>	State Reportable Threshold
Fatality	Evacuation to the Right-of-Way, not life safety
Two or more injuries	Evacuation of a Station Area, not life safety
Collision: - Resulting in one or more injuries; - Between two rail transit vehicles; or - Resulting in disabling damage to a rail transit vehicle	Split Switch or Significant Switch Damage from a Rail Vehicle
Unintended train movement	Significant OCS/Pantograph Damage event that disrupts service for more 2 hours
Evacuation for life safety reasons	Significant Third Rail Damage event that disrupts service for more than 2 hours
Derailment	Near Miss – such as Flagging, Work Zones, or any Worker on or near the Right-of-Way
	Hard Couple/Tack On
	Train Collision with Motor Vehicle/Work Equipment, Infrastructure, Not FTA Reportable
	Runaway Rail Vehicle, includes Work Equipment, Not FTA Reportable
	Any significant safety event determined between DPU and MBTA as needing investigation. (Example Safety Rules Violations)

Above are FTA's federal reporting thresholds that take effect 1/1/25 due to recent amendments to 49 C.F.R. § 674. FTA's current thresholds are generally similar.

Risk Classification

DPU Risk Level	MBTA Incident Type
High	Collisions (All Types)
	Derailment (All Types)
	Near Miss
	Person – Assault on Employee
	Person – Door
	Person – Pit
	Person – ROW Trespasser
Serious	Runaway Train
	Construction – Near Miss
	Fire/Smoke
	Hard Train Coupling
	Infrastructure/Equipment (All Types)
	Person – Alighting
	Person – Boarding
	Person – Employee Injury
	Person – Gap
	Person – Personal Security Event
	Person – Platform
	Security (All Types)
	Split Switch (All Types)
Violation (All Types)	
Medium	Person – Station (Other)
Low	Person – Elevator
	Person – Escalator
	Person – On Board
	Person – Stairs

*Numbers current as of December 1, 2024.

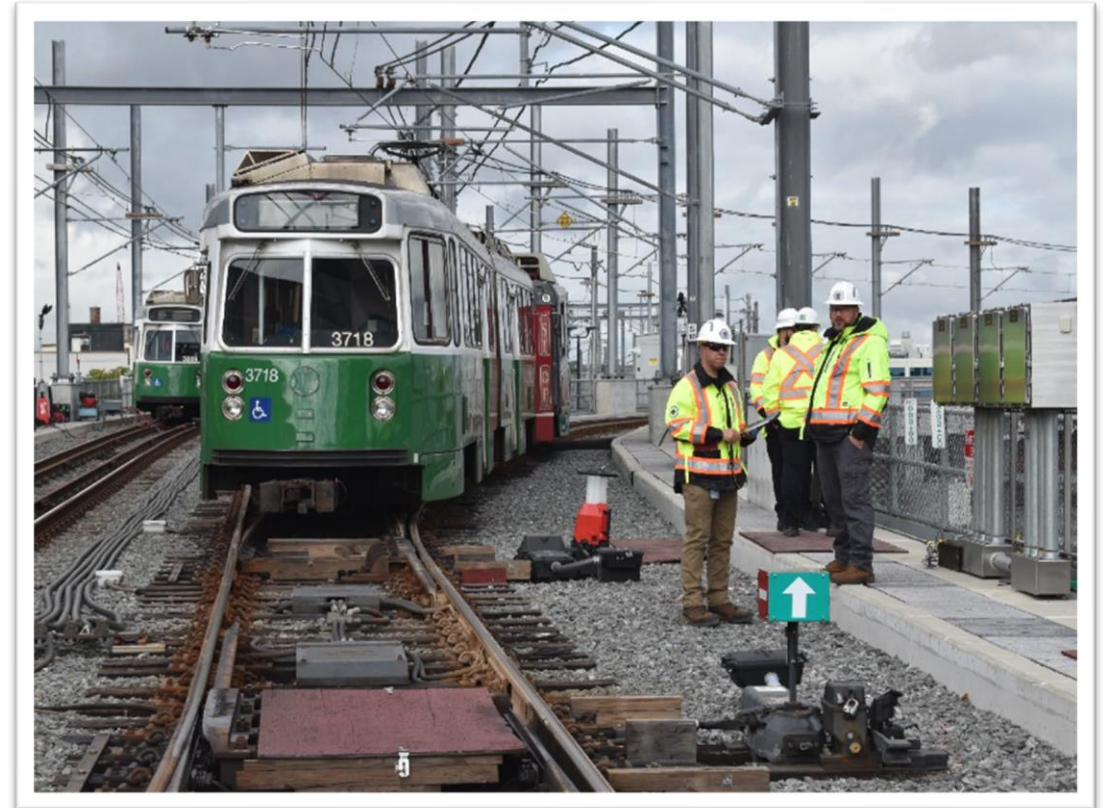
On-Scene Response

DPU maintains an “on call” rotation of staff who respond to calls from MBTA’s Operations Control Center (“OCC”) for certain types of rail safety events.

These event types include, but are not limited to:

- Derailments and split switches
- Life safety evacuations of railcars, trolleys, and stations
- Damage to third rail or overhead power
- Fire/smoke events
- Rail transit vehicle collisions
- Serious injuries
- Fatalities

While on scene, DPU oversees the thoroughness and sufficiency of MBTA's initial investigation. DPU also collects its own evidence and documents its observations to support DPU's later review of MBTA's final Investigation Report.

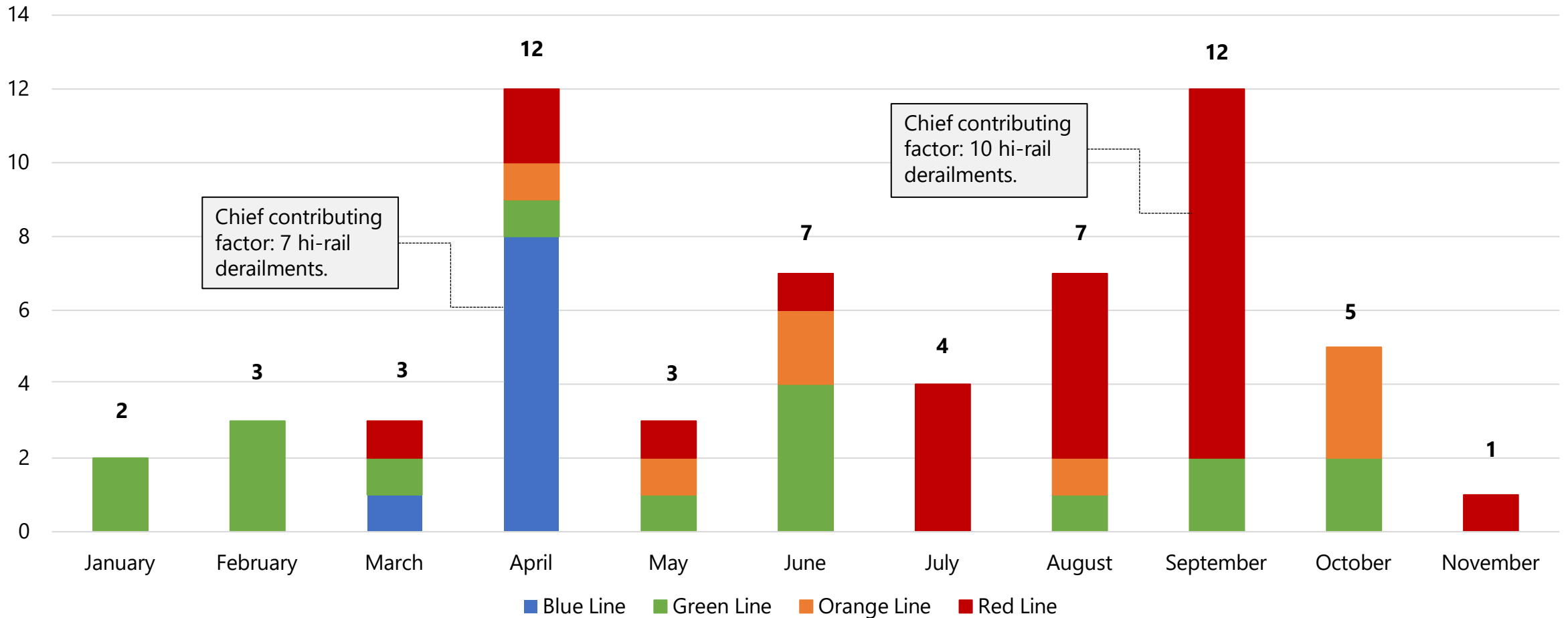


Director of Rail Transit Safety, Robert Hanson, and Assistant Director, David Carvalho, on scene at a Green Line derailment.

DPU File Photo



DPU On-Scene Incident Response, Month Over Month by Line in 2024*



*Numbers current as of December 1, 2024.
Incident Response is a small subset of all DPU field work.

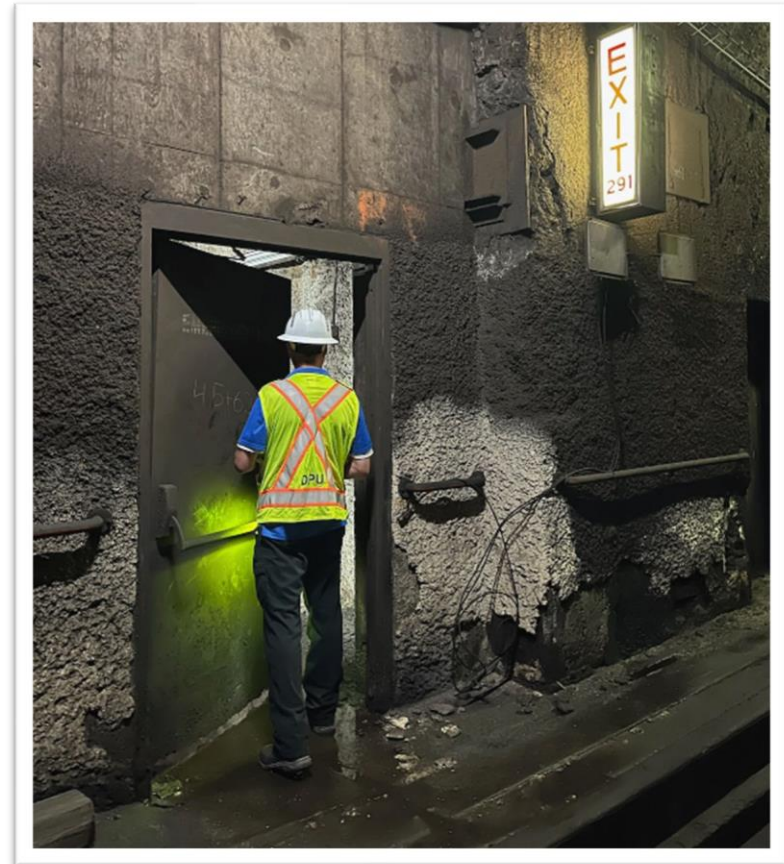
Field Observations

DPU is unique among SSOAs nationally due to the significant amount of its field work. DPU's field observations are a vital part of its oversight work.

Field observation types include, but are not limited to:

- Track walks
- Power system checks
- Personal Protective Equipment ("PPE") and Right-Of-Way access card checks
- Construction safety briefing shadowing
- Green Line speed audits using LiDAR guns
- Headlight and door procedure checks
- Station and carhouse/yard safety audits
- Operation Control Center ("OCC") visits

As staffing has increased, DPU has increased the number of field observations it conducts.



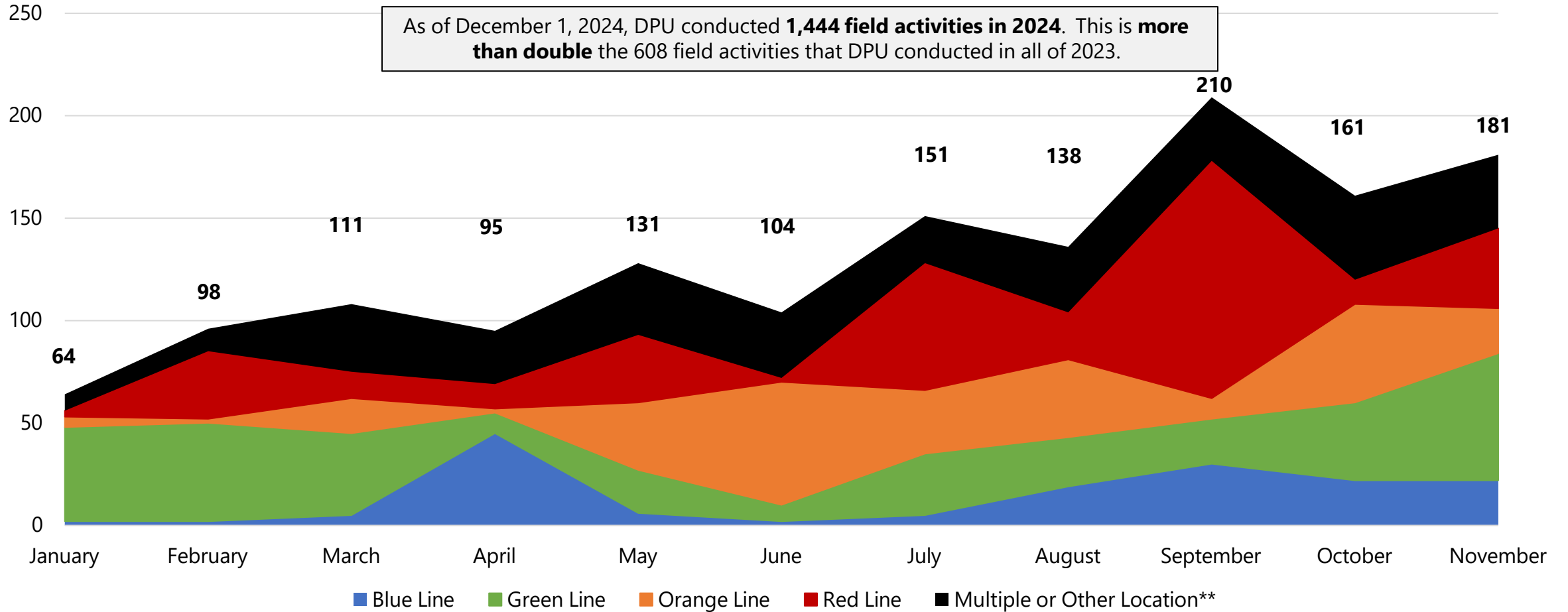
A DPU team member inspects an emergency exit during a field observation activity in a tunnel.

DPU File Photo



DPU Field Activity in 2024, By Month of Activity and Location Line if Applicable*

As of December 1, 2024, DPU conducted **1,444 field activities in 2024**. This is **more than double** the 608 field activities that DPU conducted in all of 2023.



Note: Mattapan Line inspection numbers are included within Red Line.

*Numbers current as of December 1, 2024.

**The black area contains inspections at OCC, carhouses, yards, truck pad facilities, and activities involving multiple lines or locations.

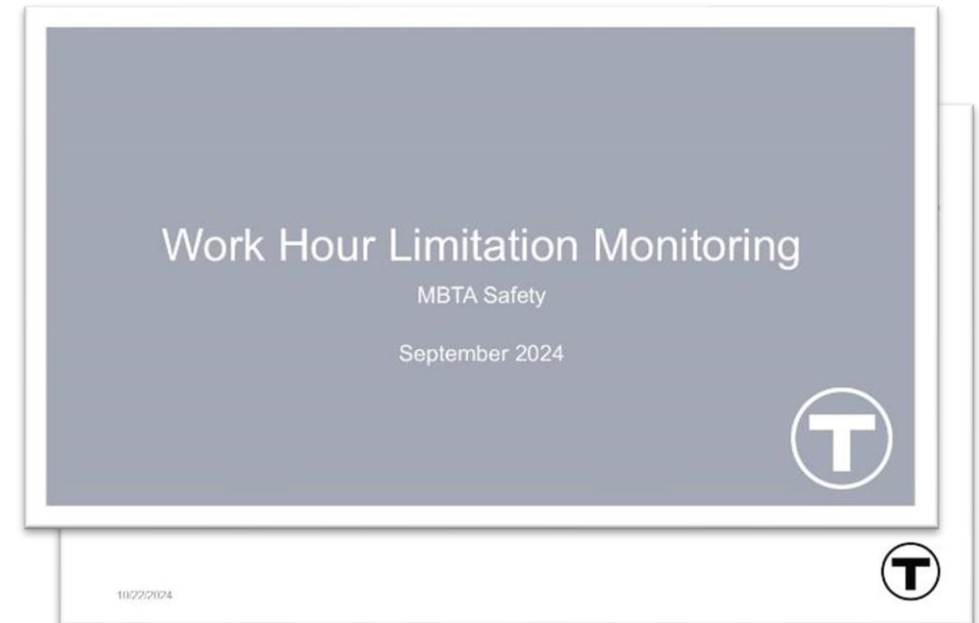
Corrective Action Plans (“CAPs”)

In response to safety events, hazards, inspections or other activities, MBTA may voluntarily adopt CAPs. DPU may also require MBTA to develop CAPs.

Each CAP consists of one or more Corrective Actions to mitigate the hazard or safety issue with deadlines for completion. DPU monitors MBTA’s CAP compliance and addresses noncompliance.

To close a CAP or a Corrective Action, MBTA sends a closure request with evidence of compliance to DPU for review and approval. DPU may reject a closure request if MBTA did not demonstrate compliance.

Once a CAP is closed, DPU continues its monitoring of the underlying activity and may reopen a closed CAP if MBTA’s actions prove insufficient.



Cover materials from an MBTA CAP submittal to DPU. This open CAP with MBTA Safety requires a monthly audit of Hours-of-Service data to assess compliance across multiple MBTA business units.

MBTA Submittal to DPU



**Fast Facts: Investigations and CAPs in 2024*

Investigations*		
30 open investigations		171 investigations closed
137 final reports received	32 rejected final reports	2** final reports are past due

CAP Status
39 currently open CAPs
25 CAPs closed in 2024
94 open actions <small>(Within CAPS)</small>
29% Of open actions MBTA has missed target date of completion

How do we track?
<ul style="list-style-type: none"> Regular meetings with MBTA <ul style="list-style-type: none"> MBTA Safety Weekly Meeting with MBTA Executive Leadership Monthly Hazard Tracking Meeting CAP Scope and Prioritization DPU's SMART Database MBTA-facing status reports

*Numbers as of December 13, 2024 **Open with a 60-day final report due date that has passed and no report received.

Diversion Monitoring

DPU provides active oversight of MBTA's ongoing Track Improvement Program ("TIP").

Throughout the TIP, DPU joins construction safety briefings and observes construction activities to ensure work is conducted in a safe manner. DPU responds in-person to TIP-related safety events, such as derailments of maintenance vehicles.

DPU also reviews TIP documents to ensure that checklists are properly completed, certifications are validated, and required safety processes are followed.

DPU issued CAP directives and required numerous corrective actions throughout the TIP to address the root causes and strive to reduce the number of maintenance vehicle derailments during the TIP.

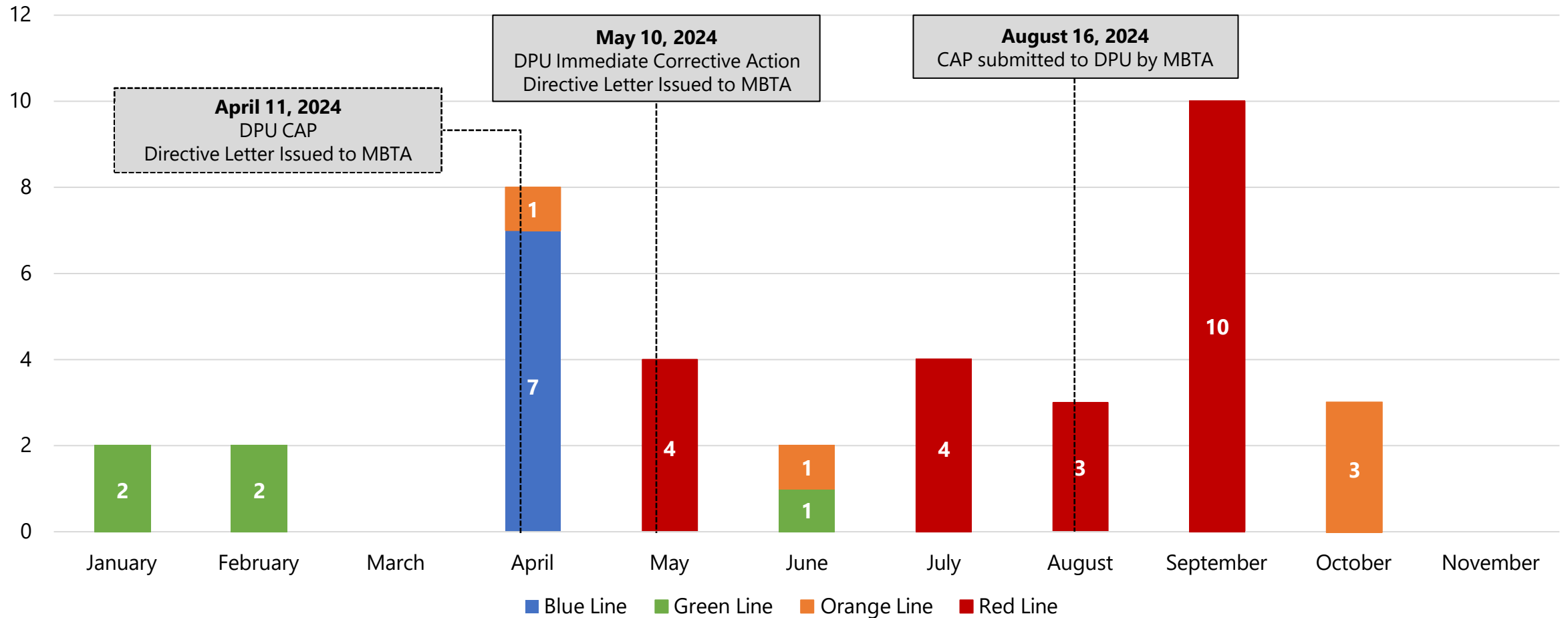


DPU team members on scene at a construction vehicle derailment in 2024.

DPU File Photo



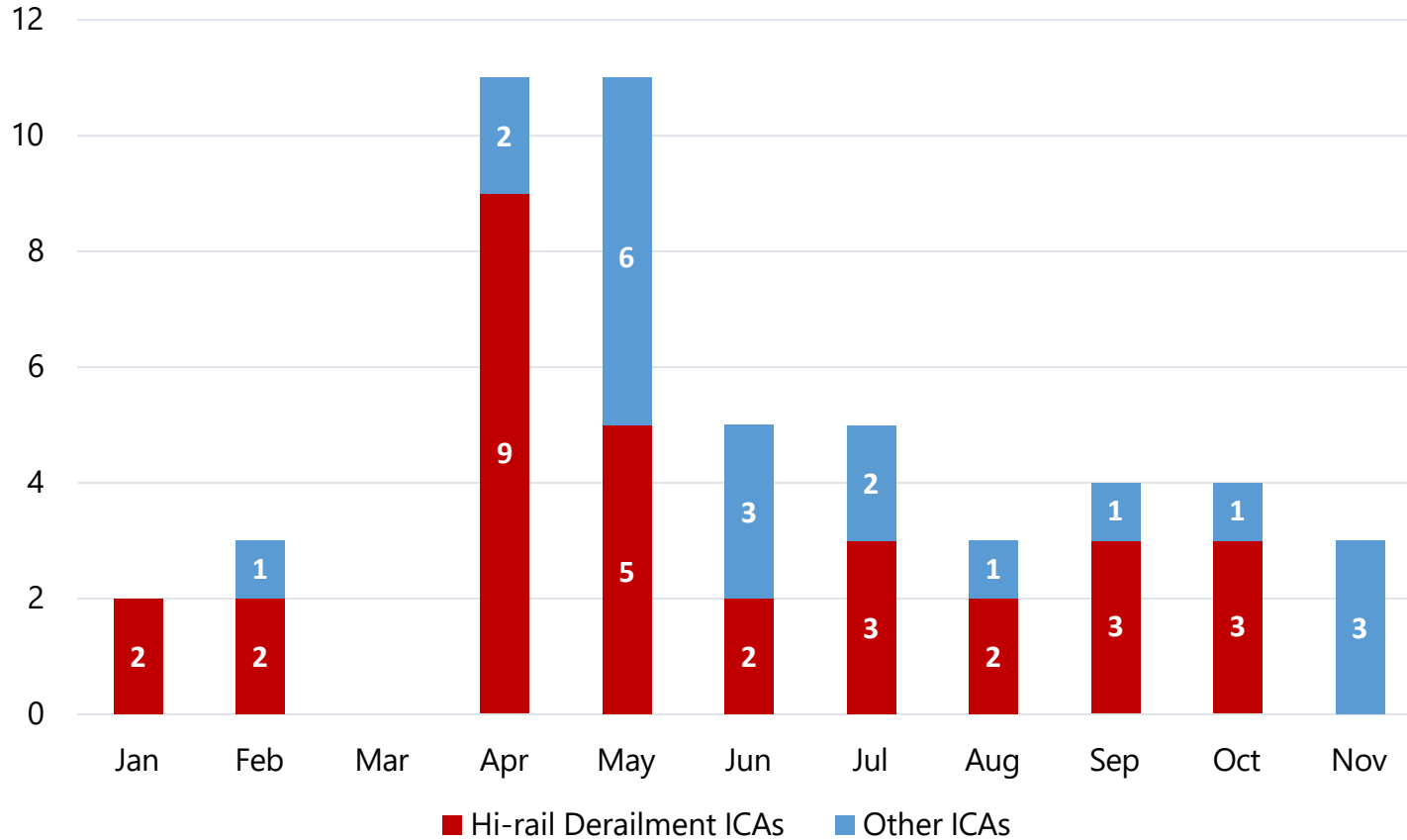
DPU Actions in Response to Maintenance Vehicle Derailments in 2024*



*Numbers current as of December 1, 2024.



2024 MBTA Immediate Corrective Actions ("ICAs") reported to DPU*



Event Type	ICA Count
Derailment of Hi-Rail Vehicle	31
Collision including a Rail Transit Vehicle	5
Safety Rules Violation	3
Split Switch	3
Near Miss	3
Other Incident Requiring Investigation	2
Incident Resulting in Serious Injury	1
Significant Incident Requiring Investigation	1
Significant OCS/Pantograph Damage	1
Significant Switch Damage	1
Total	51

*Numbers current as of December 1, 2024.
 "OCS"- Overhead Catenary System



DPU Success On FTA's Findings and 2024 Triennial Audit

DPU worked diligently to address FTA's concerns in the 2022 Safety Management Inspections of MBTA and DPU and in the related special directives ("SDs") FTA issued to MBTA and to DPU.

In 2024, DPU made substantial progress in addressing FTA's requirements. FTA issued numerous closure letters to DPU addressing hazard oversight, track maintenance oversight, right-of-way safety, investigations, and CAP development to name a few.

Most notably, **FTA formally closed SD 22-8** in September 2024. FTA issued this SD to DPU in June 2022 and its closure underscores the significant progress DPU made as the SSOA over the past two and a half years.

“The determination that DPU has satisfied all the requirements related to SD 22-8 represents a tremendous amount of work, and FTA greatly appreciates your efforts.”

*Matthew J. Welbes
FTA Executive Director
September 2024*

*Excerpt from SD 22-8 closure letter FTA sent to DPU
Chair Van Nostrand on September 25, 2024.*



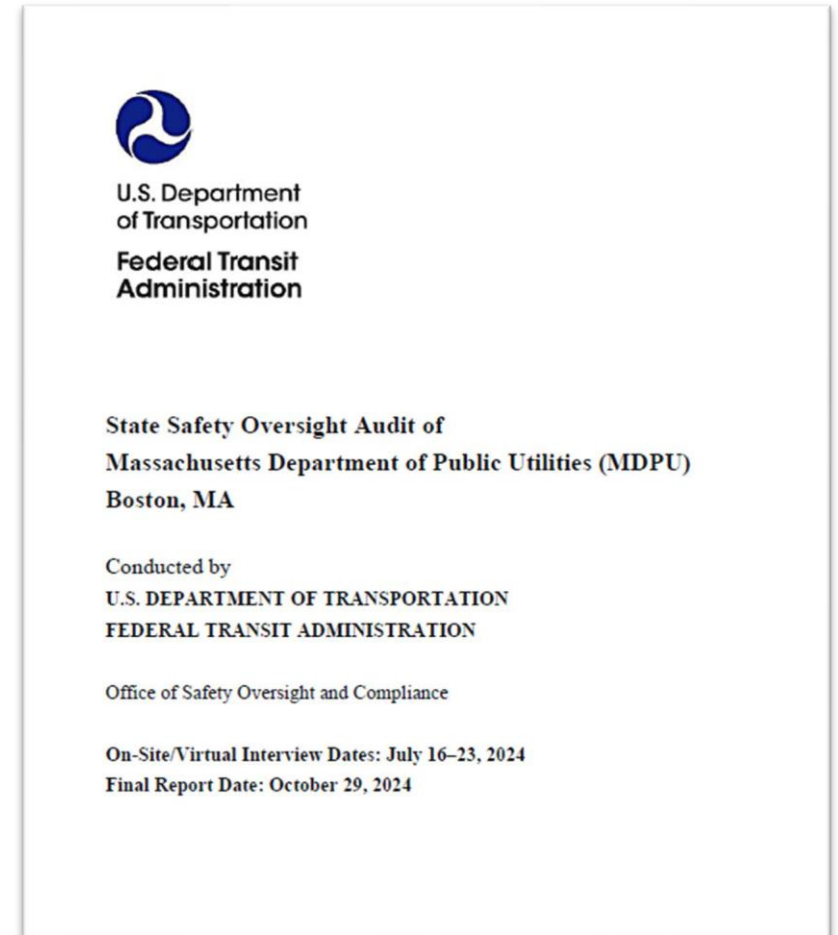
DPU Success On FTA's Findings and 2024 Triennial Audit

FTA was on-site in Boston with DPU and MBTA between July 16 - 23, 2024 to conduct its **Triennial Audit of DPU's SSOP**, its first Triennial review of DPU's SSOP since 2019.

FTA's Audit Team reviewed documentation used by DPU and MBTA to direct, manage, implement, and monitor the SSO program.

While on-site, FTA conducted extensive interviews with DPU and MBTA staff and performed site visits with DPU to various parts of the MBTA system.

In October, FTA released its 2024 Triennial Audit Report and found that DPU's SSOP is in full compliance with the SSO requirements under 49 C.F.R. Part 674.



Cover page from FTA's 2024 Triennial Audit Final Report, delivered on October 29, 2024.



Risk-Based Inspection (“RBI”) Program

In October 2022, FTA issued special directives to all SSOAs to develop and implement RBI programs as required by the Bipartisan Infrastructure Law. FTA required approval of an RBI program by the end of October 2024.

DPU submitted its RBI program to FTA in February 2024. **FTA approved DPU’s RBI program on October 23, 2024.** DPU is implementing the approved program.

While awaiting FTA’s review, DPU conducted a second RBI pilot activity (the first was in 2023), which assessed rules compliance at Green Line pedestrian crossings. DPU issued a final report to MBTA on this RBI pilot in July 2024 including a CAP requirement to address speeding and gong use.

R – Research

This is the opening phase of the process. In this phase, DPU analyzes Hazard and Incident risks, generates a short list of candidates, learns more about each on the short-list, and selects one or more for RBI inspection. The selected list is further researched including current status and any associated incidents and hazards.

I – Inspect

This is the primary phase of the process. In this phase, the RBI Team and assigned staff conduct inspections to determine the status of the risk and its associated incidents and hazards.

D – Determine

This is the wrap up phase of the process. In this phase, the RBI Team and assigned staff bring together information and make determinations about the risk.

E – Enforce

This is the reporting phase of the process. The RBI Team and assigned staff create a brief report summarizing their findings for the RBI activity and any enforcement measures to be taken.

DPU’s RBI Program uses a four-step methodology (“RIDE”) for each RBI conducted.

DPU Diagram



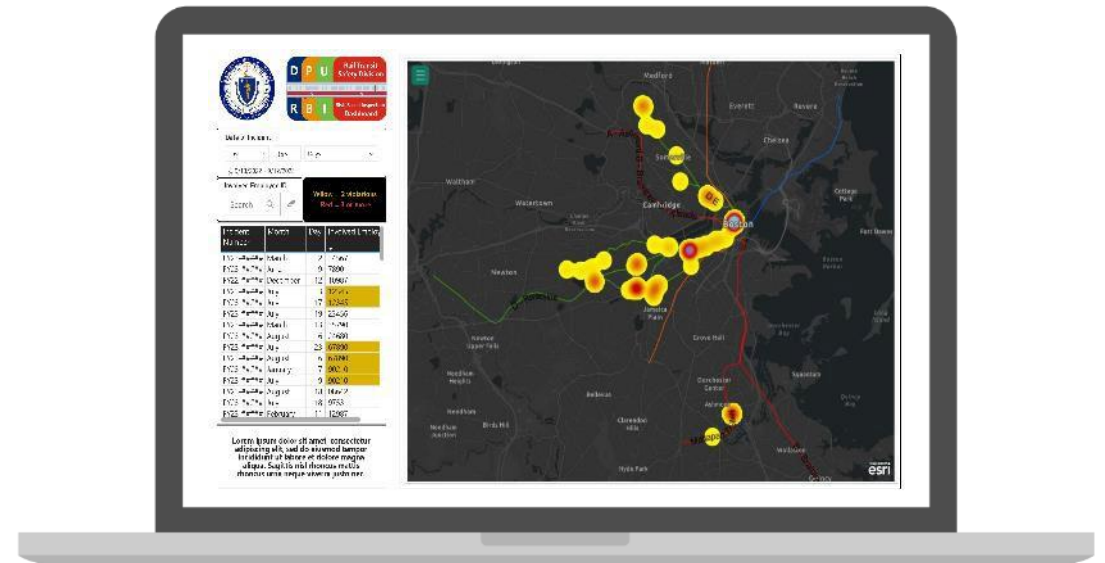
SMART Database and Dashboards

In September 2024, DPU launched "SMART" – Safety Management Application for Rail Transit – an innovative database application to help manage the Massachusetts SSOP.

SMART allows DPU to track safety event investigations, CAPs, and other SSOP responsibilities. Data from SMART will assist DPU with data-driven decisions and promote safety oversight of MBTA.

A SMART mobile app is planned for release in 2025, which will allow DPU SSO staff access to SMART data wherever they are across the MBTA system.

SMART joins DPU's growing library of data tools, including dashboards, reports, and geospatial heatmaps.



DPU uses tools like geospatial heatmaps to visualize safety event and hazard patterns over time.

DPU Rendering

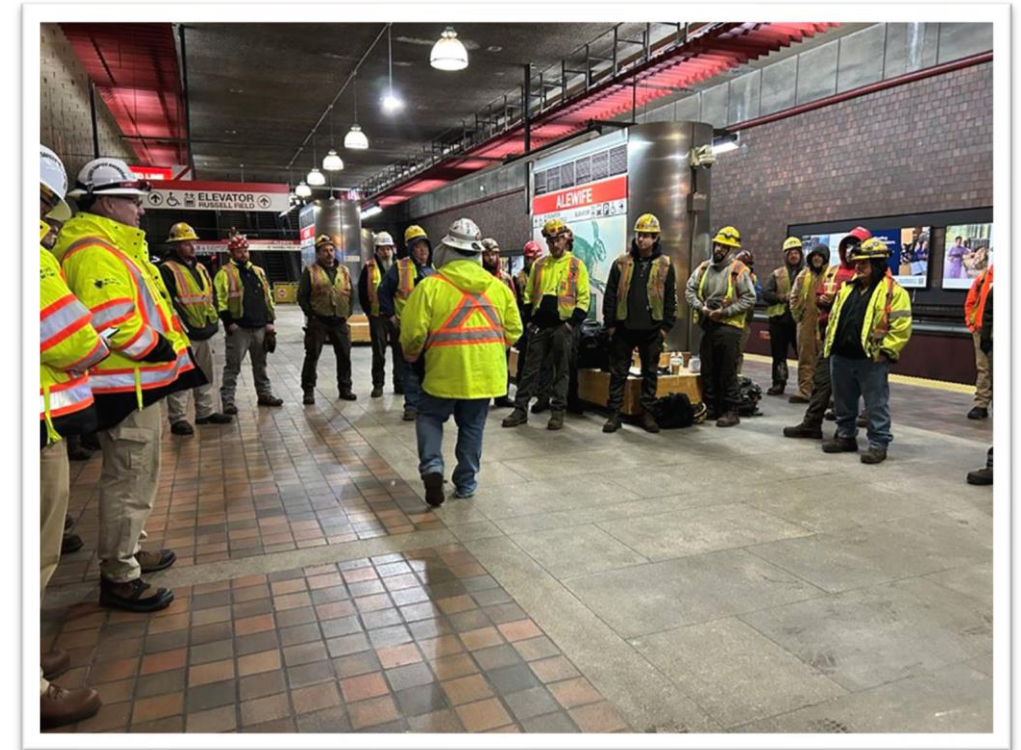
DPU's SSOP top priority is the safe operation of the MBTA's rail transit system and the safety of its riders and employees.

DPU continues to assess and maintain a staffing level with the training and experience appropriate to oversee a system of the age, size, and complexity of the MBTA.

DPU continues to increase its use of data to make decisions, with the goal of detecting and addressing safety risks proactively.

DPU continues to develop a transparent SSOA program that provides the public and other key stakeholders an understanding of how the program operates.

Overall, DPU remains committed to being the SSOA that the Commonwealth deserves, a leader in the transit industry for safety oversight.



DPU team members on scene at a safety briefing.

DPU File Photo



Thank you!

DPU Rail Safety can be found online at <https://www.mass.gov/orgs/rail-transit-safety-division>