Safety Management Systems and Data Management

Joe DeLorenzo
Associate Administrator and Chief Safety Officer
Office of Transit Safety and Oversight (TSO)

2025 APTA Safety and Risk Management Seminar

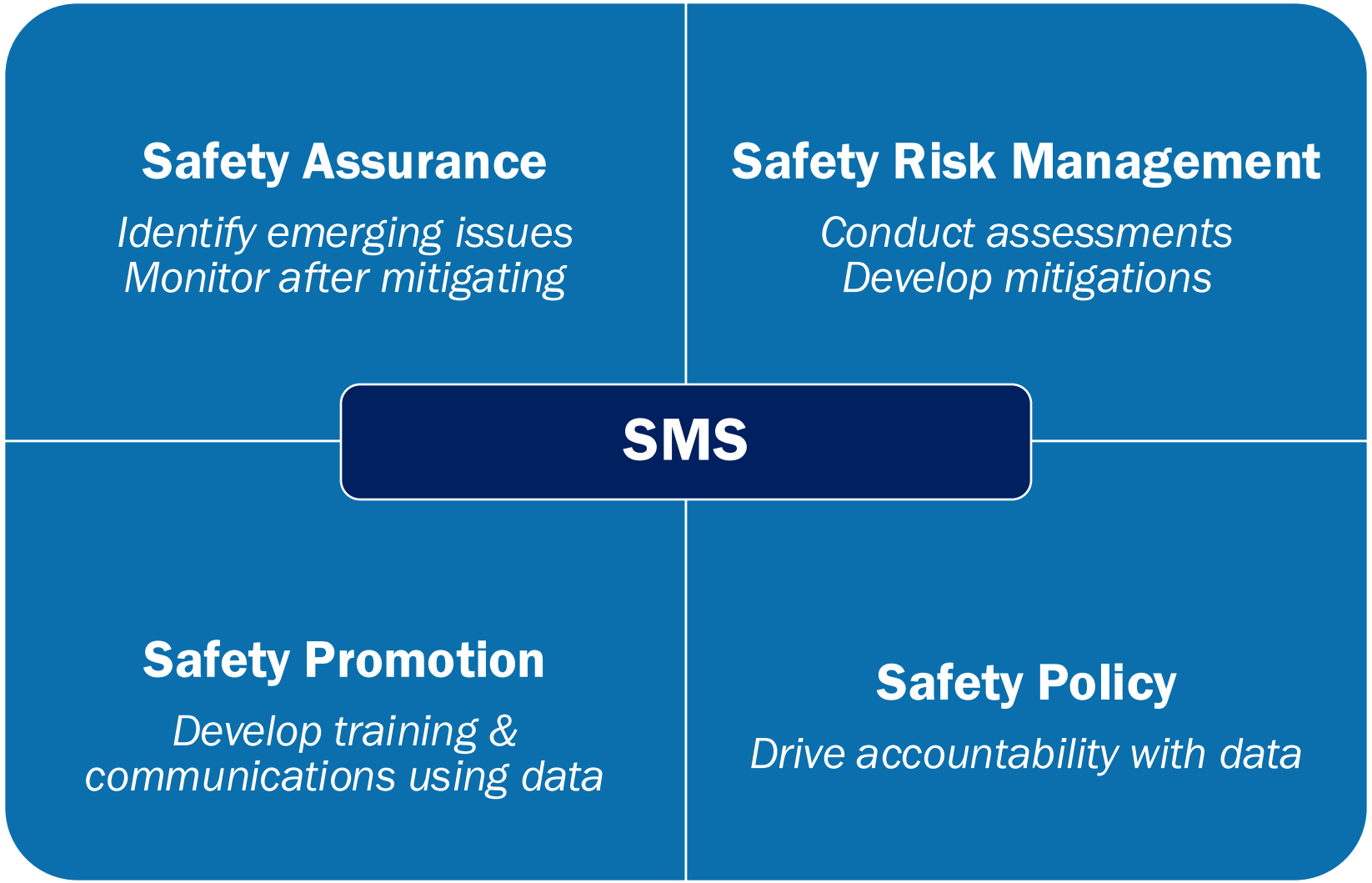
12/09/2025

U.S. Department of Transportation
Federal Transit Administration

Agenda

- Safety Management Systems & Data Foundations
- How to Think About Your Data
- The Role of Data in FTA's Safety Program
- Key Takeaways

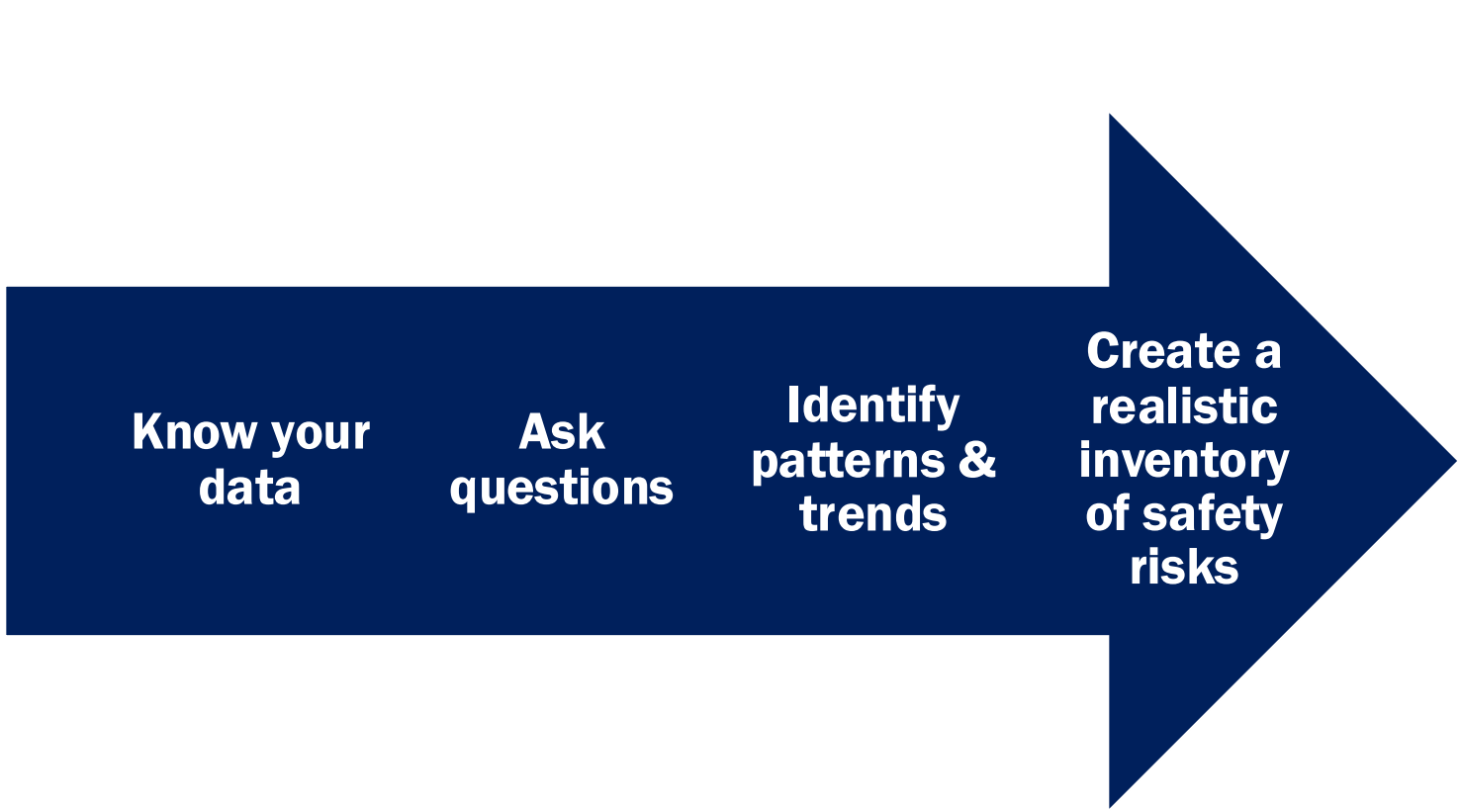
Using Data to Inform Safety Management Systems (SMS) Practices

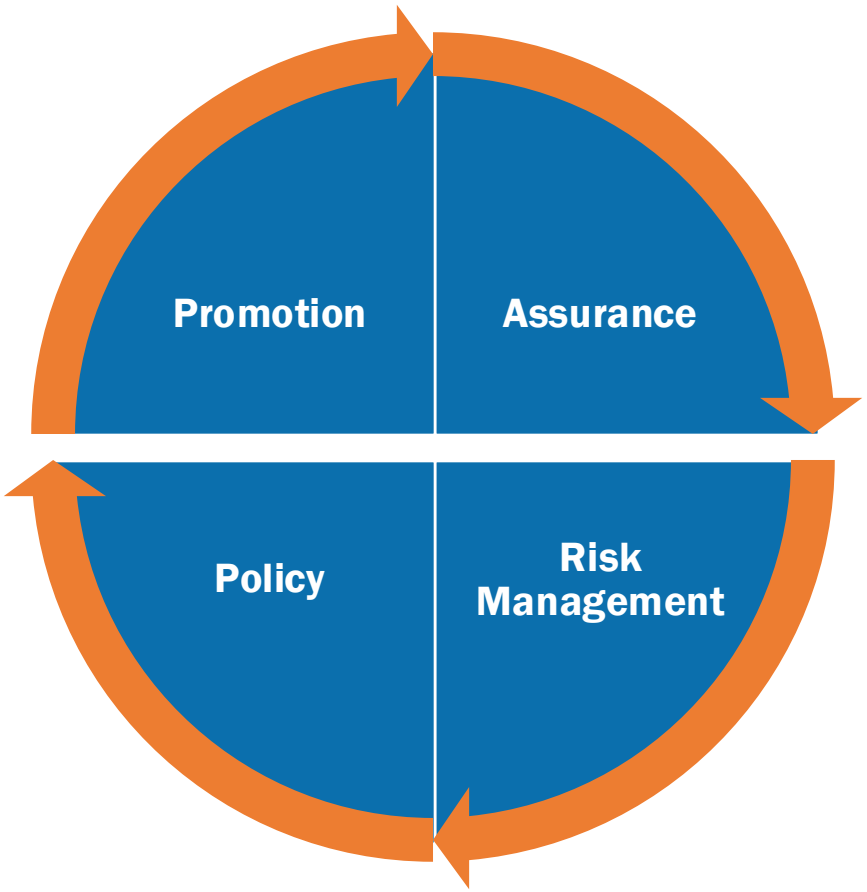


Safety Data & SMS

- SMS is not a linear process with an obvious starting point
- Think of safety data as foundational to SMS and implicit in each pillar
- Safety data provides an on-ramp to SMS components
- No advanced degrees or special tools required: safety data is for everyone

From Safety Data Management to SMS

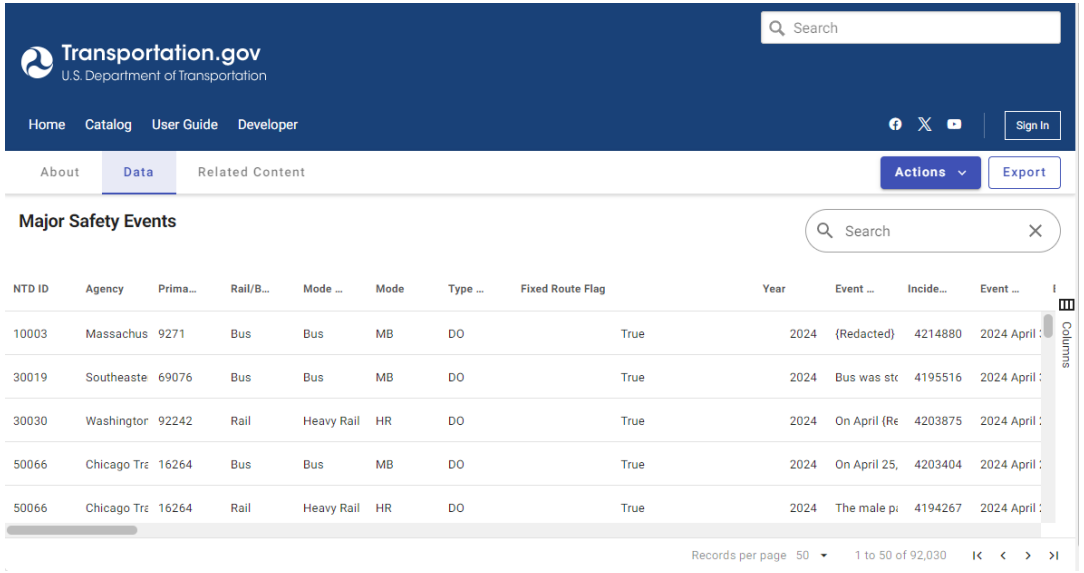




Know Your Data

What safety data do we have and what can it tell us?

- NTD Data | FTA (dot.gov)
- Major Safety Events | Department of Transportation - Data Portal



High-level look is achievable with a spreadsheet

	2020	2021	2022	2023
Heavy Rail	**252**	**274**	**311**	**337**
Main Line Derailment	50	53	56	52
Rail Collision	202	221	255	285
Light Rail	**449**	**491**	**589**	**616**
Main Line Derailment	54	32	53	42
Rail Collision	395	459	536	574
Street Car Rail	**169**	**198**	**207**	**249**
Main Line Derailment	15	19	32	34
Rail Collision	154	179	175	215
Grand Total	870	963	1107	1202

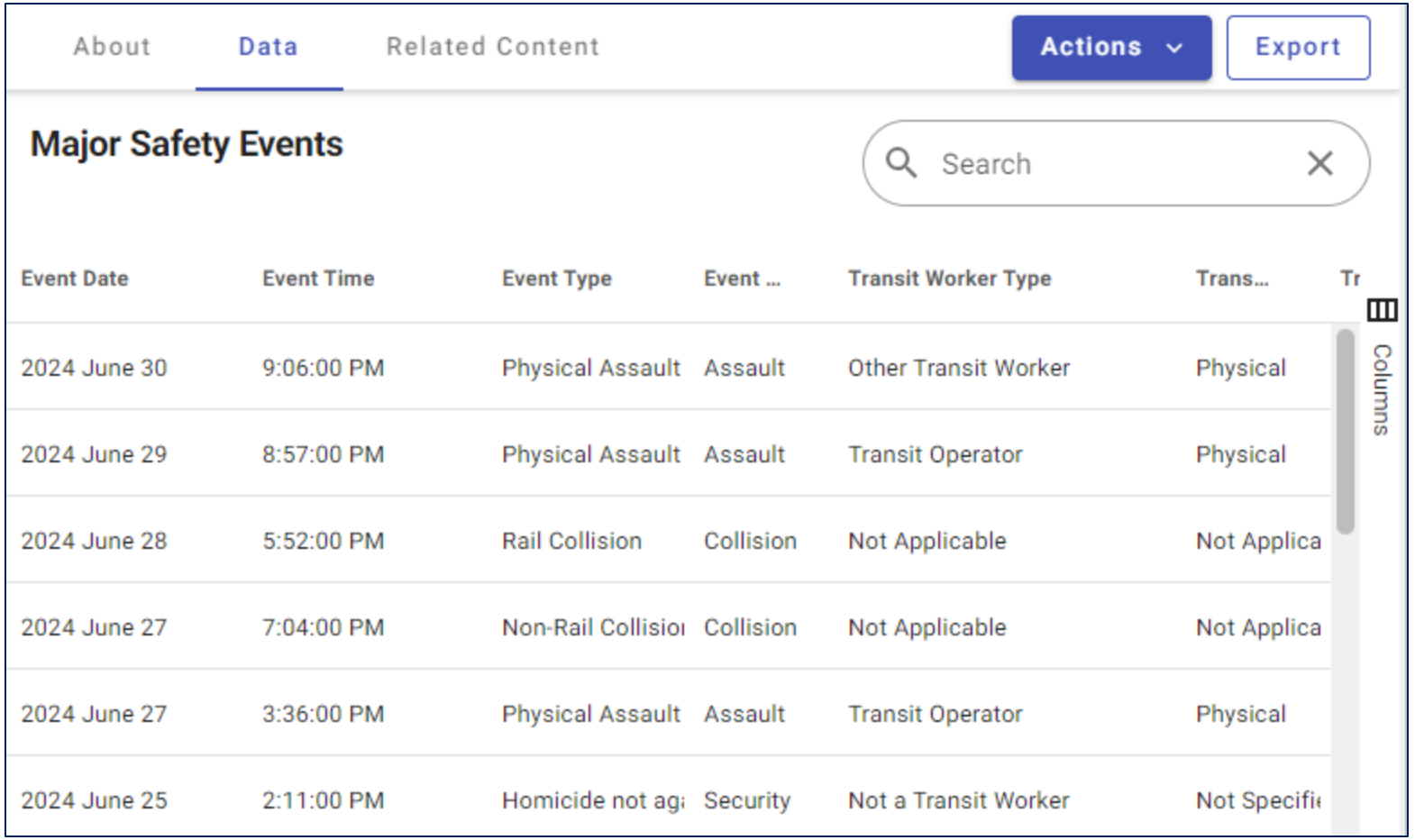
Ask Questions

Who?

What?

When?

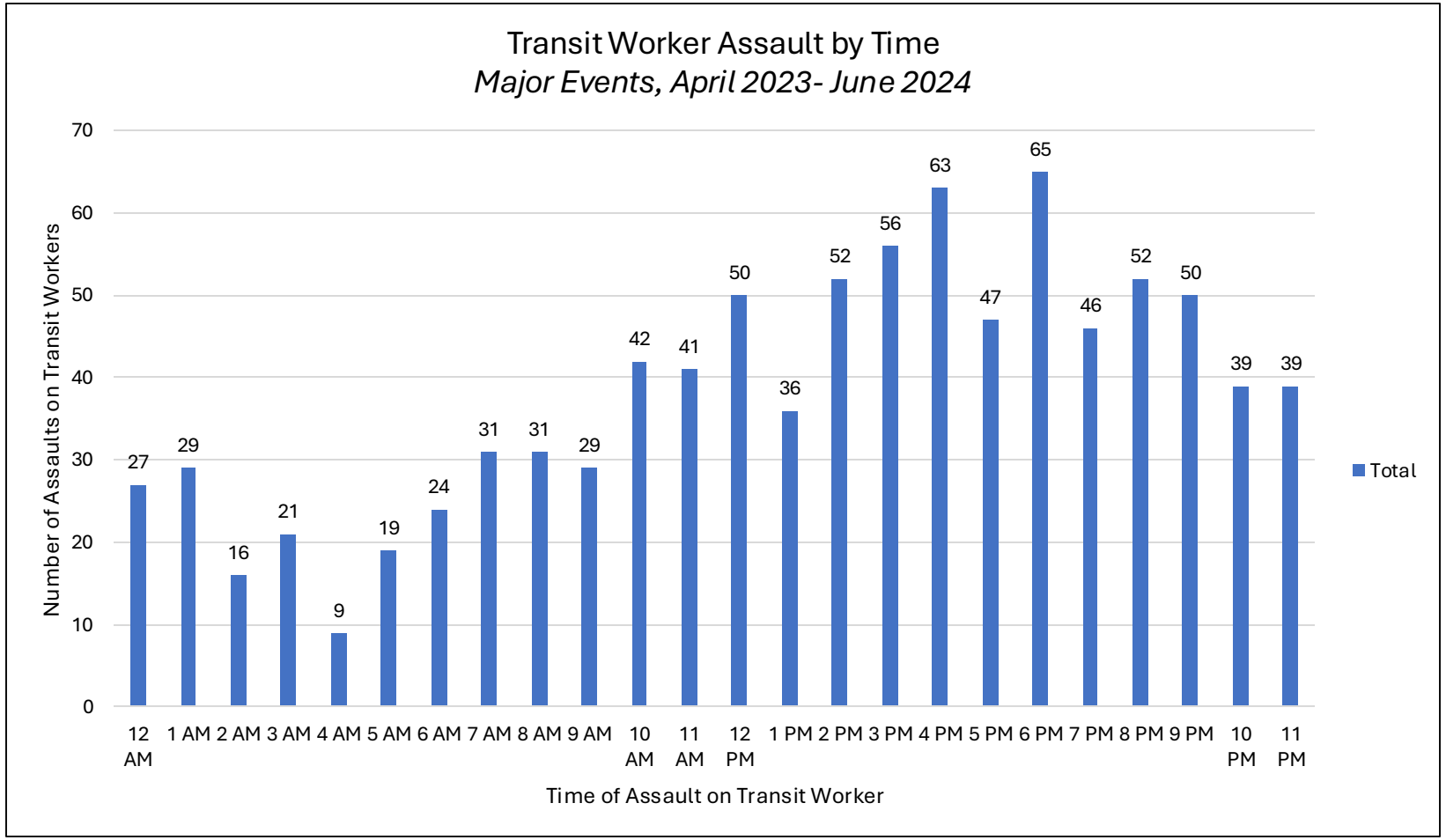
Where?



Event Date	Event Time	Event Type	Event ...	Transit Worker Type	Trans...	Tr
2024 June 30	9:06:00 PM	Physical Assault	Assault	Other Transit Worker	Physical	
2024 June 29	8:57:00 PM	Physical Assault	Assault	Transit Operator	Physical	
2024 June 28	5:52:00 PM	Rail Collision	Collision	Not Applicable	Not Applica	
2024 June 27	7:04:00 PM	Non-Rail Collisio	Collision	Not Applicable	Not Applica	
2024 June 27	3:36:00 PM	Physical Assault	Assault	Transit Operator	Physical	
2024 June 25	2:11:00 PM	Homicide not ag	Security	Not a Transit Worker	Not Specifi	

Identify Patterns and Trends

Major assaults on transit workers peak at 4pm and 6pm



The Role of Data in FTA's Safety Program

FTA depends on timely NTD reporting to effectively conduct safety oversight

NTD Reporting Deadlines

- **Major Event Report (S&S-40):** Due within 30 days of the event date
- **Non-Major Monthly Summary Report (S&S-50):** Due by the end of each month

Cybersecurity Event Reporting

- Cybersecurity events are reportable to the NTD
- Recipients must certify that they established a written plan for identifying and reducing cybersecurity risks **(49 U.S.C Section 5323(v))**
- FTA published a **Federal Register Notice** to clarify that IT is included as infrastructure

Assaults on Transit Workers Reporting

- FTA collects all transit worker assaults data for **major and non-major events**
- Non-major transit worker assaults are collected in a summarized format

Resources to support transit agencies with meeting required reporting timelines:
Policy manuals, FAQs, and designated POCs to answer questions.

Mitigation Monitoring Examples

49 CFR 673.27(b)(2): A transit agency must "monitor its operations to identify any safety risk mitigations that may be ineffective, inappropriate, or were not implemented as intended"

GD 24-1 Transit Agency Examples:

- Tracking counts and rates of transit worker assault before and after mitigation implementation
- Review of event records to monitor use of de-escalation techniques
- Camera footage review to confirm mitigation effectiveness
- Passenger feedback, surveys
- Operator feedback, surveys
- Tracking usage of mitigation (panic buttons, communication tools)

Mitigation Monitoring tells if a mitigation is achieving its intended outcome.

- Data may confirm mitigation effectiveness.
- Data may tell us that the mitigation is not reducing the severity or frequency of worker assaults and may prompt an agency to reevaluate the mitigation.

Risk-Based Inspection Program Requirements

FTA

- Issue a special directive requiring each SSOA to develop and implement risk-based inspection program
- Assess the capability of each SSOA to conduct compliant risk-based inspections

SSOAs

- Develop and implement a risk-based inspection program in accordance with 49 U.S.C. § 5329(k) and the special directive
- After implementing the approved program for 6 months, submit evidence of implementation to FTA

RTAs

- Coordinate with their SSOA on policies and procedures for inspection access and data collection; incorporate these into their Agency Safety Plan
- Share with SSOAs the data the RTA collects when identifying and evaluating safety risks

Risk-Based Inspection Program: Data Analysis

SSOA data analysis for RBI:

- Incorporates qualitative and quantitative data
- Includes, at a minimum, safety program, maintenance, and inspection data
- Helps to prioritize where to focus limited resources
- Provides an opportunity for proactive oversight activities

Submit RBI implementation documentation to demonstrate your SSOA's approved processes and how they led to the conducted RBIs:

1. DATA ANALYSIS
   - How were safety risks identified?
   - Did the analysis include, at a minimum, safety program, maintenance, and inspection data?
2. PRIORITIZATION
   - How were the identified safety risks ranked?
3. RISK-BASED INSPECTIONS
   - Were RBIs conducted for the highest risks based on the data analysis and prioritization results?

Data-Informed SMS: Key Takeaways

Understand safety data as a strategic asset in your agency

Take a broad view and drill down

Keep it simple, and don't reinvent the wheel

Utilizing data is a more efficient and effective way of addressing safety issues

Thank you

Joe DeLorenzo
Associate Administrator and Chief Safety Officer
Office of Transit Safety and Oversight
joseph.delorenzo@dot.gov

U.S. Department of Transportation
Federal Transit Administration