AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

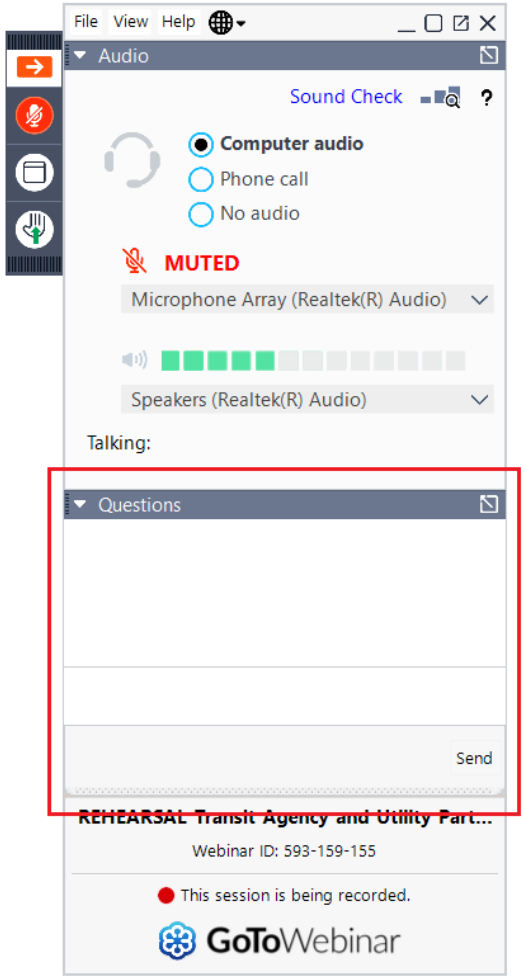
Rail Transit Defensive Operations - Part 2

Presentation by Members of: The Rail Transit Operating Practices Working Group (OPWG)

Questions

To submit a question or comment, please type it into the Questions box in the menu panel.

At the conclusion of the webinar, we will address as many questions as time allows.



APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations Agenda

Part 1 – July 14, 2020

Introduction & Background of the OPWG

Defensive Operations in a Light Rail Environment:

- ACI Light Rail Operations
- NJ Transit - Newark Line
- San Diego MTS

Q&A

Part 2 – September 16, 2020

Introduction

Defensive Operations in a Heavy Rail Environment:

- Miami-Dade Transit (MDT)
- Bay Area Rapid Transit (BART)

Safety Overview:

- Defensive Operations as an integral part of an Agency Safety Plan (TRA)

Q&A

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations – Meet Your Moderator

Brian Riley
WSO-CSSD, Superintendent of Transportation for the Rail Division, MTS

MTS Metropolitan Transit System

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations – Meet Your Speakers

Roy Aguilera
Chief Transportation Officer
Bay Area Rapid Transit

BART

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations – Meet Your Speakers

Gregory Robinson
General Superintendent, Rail Transportation
Department of Transportation & Public Works (DTPW)

MIAMI-DADE COUNTY

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations – Meet Your Speakers

CHRISTOPHER E. WALLGREN, WSO-CSE, TSSP
Vice President
TRA

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations in a Heavy Rail Environment

Presentations by Bay Area Rapid Transit (BART), Miami-Dade Transit (MDT), and Transportation Resource Associates (TRA)

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION


BART
Defensive
Rail
Operations
Roy Aguilera
Chief Transportation
Officer
Bay Area Rapid Transit
BART

BACKGROUND

BART trains stop and open doors automatically over 99% of the time with no operator intervention. In cases that the train does not stop correctly or there is a station equipment malfunction, train operators are required to use manual procedures (Rule 311).

Reposition train to the 10-car marker

1. Attempt to open train doors in road manual mode, in this mode the train reverifies if train is correctly berthed before opening doors.
2. If doors still don't open, the operator contacts the Operations Control Center for authorization to open side doors on the platform side in the yard manual mode, in this mode doors open upon command.
   - Prior to opening doors in yard manual mode, operator is required to visually verify and verbally confirm with the OCC that the doors will open on the platform side

Potential Consequences

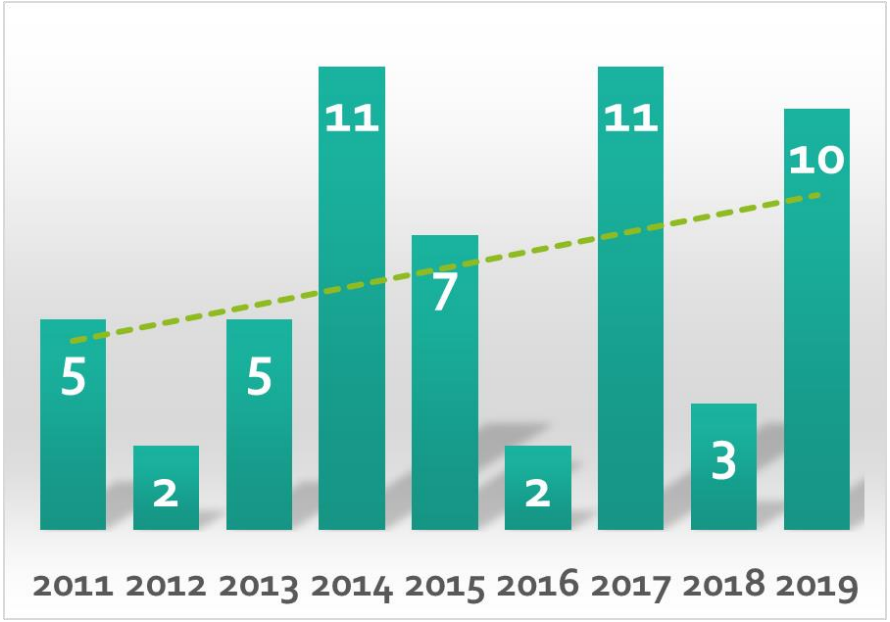
Violations of Rule 311

- Opening side doors on non-platform side or outside the platform could potentially result in life altering injuries or death to passengers
- The level of danger increases on aerial structures or stations with adjacent tracks

Current Trend

Violations of Rule 311

- The trend of side doors open on the non-platform side or outside the platform continue to increase year over year
- The root cause continues to be **momentary loss of focus** combined with an attempt to expedite the 311-door procedure
- In many instances operators simply failed to visually verify the stop location and view that the doors will open on the platform side or that the train is repositioned correctly to the 10-car marker



Past Attempts to Reverse the Trend

The management team attempted to reverse the trend and minimize the number of violations by:

- Training:
  - Review of rule 311 in certification, recertification and refresher training courses
- Raising awareness:
  - Rule 311 posters were posted in every train operator breakroom reminding operators of proper procedures and dangers of rule 311 violations
- Revision to Rule 311:
  - Added requirement for train operator to contact the OCC to verbally verify train position and that doors will open on platform side

Proposed Solution

Pointing and Calling

- Addition of a stop marker strip on the platform side
- Black stripe will allow operator to correctly position their train cab between the wall and the stripe on the platform
- Prior to activating the "door open" button, the operator will open the window, scan the area, point and call that their cab window is positioned between the marker and the wall.
- Requires multiple actions to keep operator's attention and focus
- The procedure will be added to our Operations Compliance checks

Miami-Dade County

Department Of Transportation & Public Works (DTPW)

Defensive Rail Operations Program

Miami-Dade County

Department Of Transportation & Public Works (DTWP)

Defensive Rail Operations Program

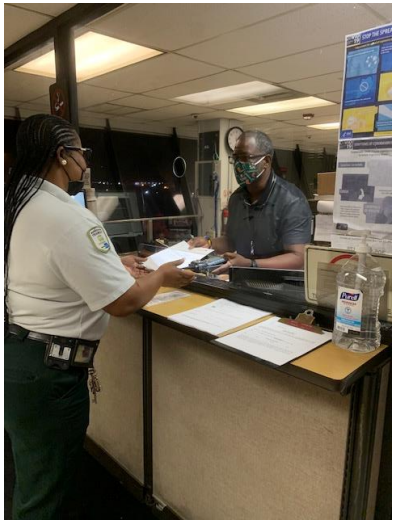
Objective: To improve operation personnel awareness of the operating environment and its safe zones, to provide skills and techniques to recognize potential hazards, and to prepare for unexpected situations.

Keywords:
Operation Environment
Operation Awareness
Situation Awareness

DTPW is developing a robust Defensive Rail Operation Program based on combining elements of relative procedures and practices and improve operation personnel skills and techniques when confronted with adverse situations. These elements/actions include, but not limited to:

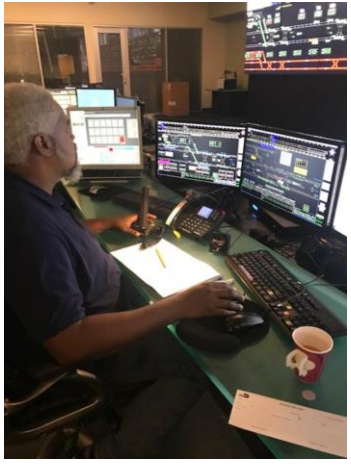
1. Improved Train Operator and Control Center personnel awareness of conditions effecting mainline operations.
2. Track Allocation
   A. On-track work areas
   B. Adjacent track construction
3. Road-Way Protection
4. Train Operator Point and Call techniques
   1. Be observant; look, search/hunt and point & call out.
5. Platform and Door operation by Authorized By-pass.
   1. Look, point & call-out, verify and request authorization

These efforts are improving Train Operator operational and situational awareness, and overall system safety.

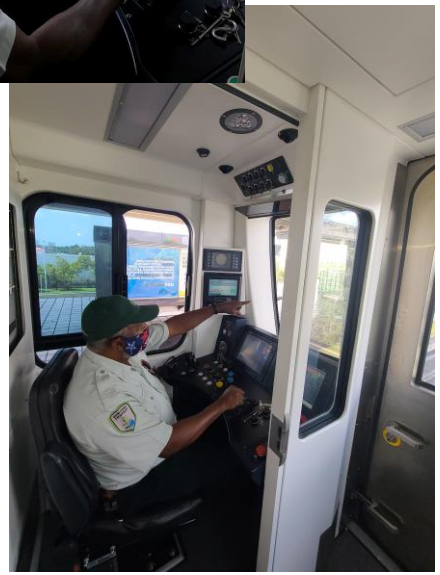


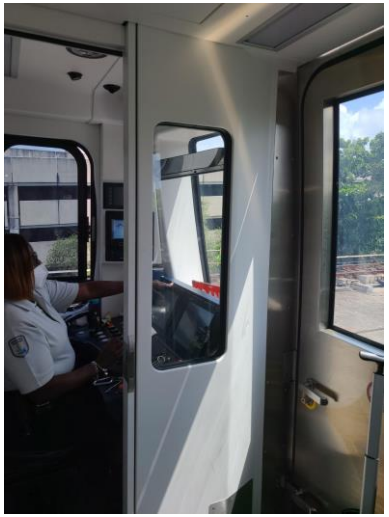
At check-in and dispatch, Train Operators are given a radio and encouraged to review the current Track Allocation

The Rail Traffic Controller (RTC) approves mainline access and updates the Train Operator of current conditions, emphasizing areas where on-track personnel are working.



Look
Hunt & search
Point & call-out





When normal door operations fails, Train Operators must obtain RTC authorization for by-pass approval. The RTC may authorize by-pass after the train is repositioned to the platform and after the Train Operator has verified all doors are on the platform by looking & pointing to the platform that will be served.

Look & point

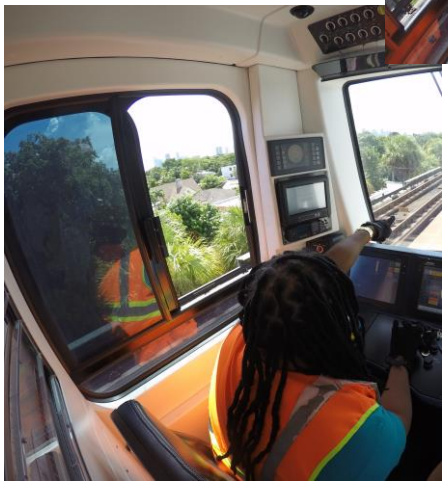
RTC Authorization

Monitor passenger flow

Road-way Protection:

Redundant signal protection for on-track maintenance personnel.

Train Operator hunt, point & acknowledge techniques.



Adjacent Track Construction:

Awareness of Adjacent Construction sites and the potential hazards.

How a Defensive Operations Program Serves as an Integral Part of Your RTA's Agency Safety Plan and Your Overall Safety Management System

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Defensive Operations & the PTASP – Objectives

- Understanding the Defensive Operations Program
- Understanding Safety Culture & Safety Management Systems (SMS)
- Safety in Context
- Overview of the SMS Structure
- What is the Public Transportation Agency Safety Plan?
- How are Defensive Operations & the PTASP Related?
- What Results Can We Expect?

What is Defensive Operations ?

- Anticipating what can happen that may affect safe train operation

- APTA Recommended Practice for Defensive Rail Operations *(draft)*
  - Why was it created?
  - Grounded in lessons learned
  - Proven experience
  - Expected outcome?

What is a Defensive Operations Program?

- Structured program of skills and understanding of how to safely operate rail vehicles to anticipate potential adverse events
  - Policy
  - Understanding Situational & Operational Awareness
  - “Safe zones” & the operating environment
  - Training & familiarization
  - Information source for enhanced future system design
  - **Feedback & learning**
- Structured program provides for continuous safety improvement

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Understanding Safety Culture & SMS

Per the FTA:

- **Safety Culture:** The shared values, actions, and behaviors that demonstrate a commitment to safety over competing goals and demands.

- **Safety Management System (SMS):** Formal, top-down, organization-wide, data-driven approach to managing safety risk and assuring the effectiveness of safety risk mitigations.

Safety in Context (per FTA)

From a Traditional Compliance Approach	To a Principled SMS Approach
Compliance-based	SMS-Principles-based
Following Rules & Procedures	**Identifying Risk & Exposures**
Punitive, Blame-Oriented	Collaborative, trust-oriented
Reactive – after accidents, identify causal factors and non-compliant individuals	**Proactive – prior to accidents, identify and mitigate system risks; continuous learning**

Defensive Operations programs build on key SMS approaches!

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

SMS Structure

- SMS is composed of four key elements:
  - Safety Management Policy
  - Safety Risk Management
  - Safety Assurance Processes
  - Safety Promotion
- These are the building blocks of the PTASP *and* the Defensive Operations Program

Public Transportation Agency Safety Plan (PTASP)

- Safety really is everybody's business!
  - *It is more than just the Safety Department's audits*
- Safety Department as an SMS hub
  - *All departments have embedded and intuitive safety responsibilities*
  - *SMS pillars tie these actions together*
- PTASP as the interactive guidebook
  - *PTASP functions as the guide to how all RTA personnel carry out safety*

Public Transportation Agency Safety Plan (PTASP) & Defensive Operations

- Various FTA requirements
  - *Accountable Executive, Chief Safety Officer, Safety Performance Targets, Continuous Improvement, Employee Safety Reporting, Safety Promotion, SSO Reporting, & Many More!*
- SMS Pillars *(revisited)*
  - Safety Management Policy
  - Safety Risk Management
  - Safety Assurance Processes
  - Safety Promotion

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Integrating Defensive Operations into the PTASP & Your SMS

- **Safety Management Policy**
  - *Does your agency safety policy reflect the realities of your operation?*
  - *How do your operating rules inform your policy?*
  - *How do your operating practices inform your policy?*
  - *How does your operating performance affect your goals/objectives?*

Integrating Defensive Operations into the PTASP & Your SMS

- Risk Management is Fundamental to Defensive Ops.
- **Safety Risk Management**
  - *Is your safety departments hazard/risk management program integrated with your daily operating outputs?*
  - *Does Rail Operations have its own means of identifying hazards?*
  - *How are hazards reported, investigated, mitigated?*
  - *Can the Defensive Operations Program evolve to incorporate lessons learned?* *****Continuous Improvement*****

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Integrating Defensive Operations into the PTASP & Your SMS

- A formal Defensive Operations Program Helps Assure Safety
- **Safety Assurance**
  - *How are the fundamentals of a Defensive Operations Program identified, formalized, and integrated?*
    - *Are your rules & procedures appropriate?*
    - *Do your internal audits identify real risks?*
    - *How are event investigations applied agency-wide?*
    - *How are changes communicated agency-wide?*

Integrating Defensive Operations into the PTASP & Your SMS

- A formal Defensive Operations Program Must Be Visible
- **Safety Promotion**
  - *How are the fundamentals of a Defensive Operations Program promoted for employees?*
    - *Training*
    - *Bulletins, train orders, instructions, etc.*
    - *Pass-downs, toolboxes*
    - *Videos, safety boards, posters*
    - *Workshops*

Integrating Defensive Operations into the PTASP & Your SMS

- Just to reiterate*, defensive operations is about:*

  - *Developing an environment of safety data sharing & reporting*
  - *Learning from experience & applying lessons learned*
  - *Formally documenting these lessons into a plan to help all operators to think proactively*
  - *Measuring results to determine effectiveness*
  - *Continuous improvement*

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

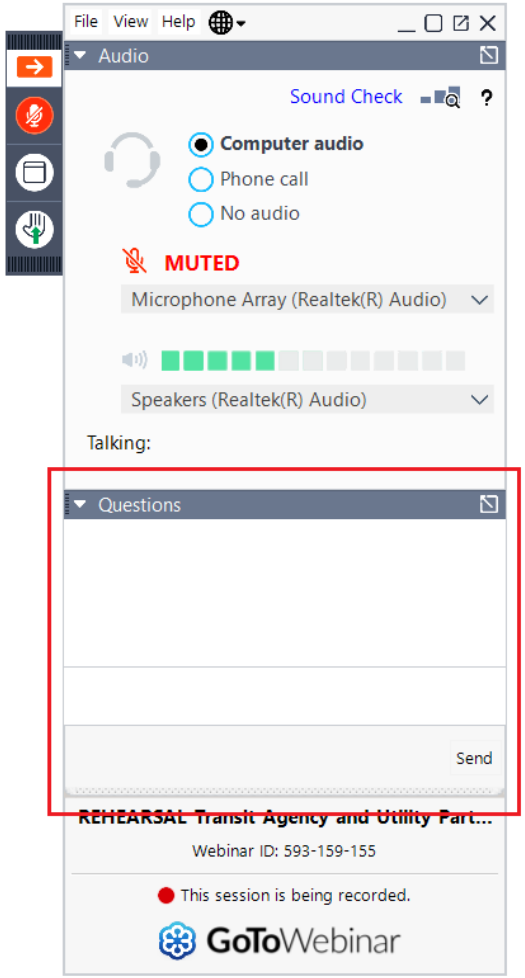
Summary

- New safety requirements will improve safety coordination agency-wide
- Rail operations personnel play a key role in this improvement
- Safety culture is based on the smart application of formal, interactive processes
- Defensive Operations Programs not only improve operational efficiency and effectiveness, they improve safety
- Defensive Operations Programs are embedded in every aspect of your RTA's PTASP & its SMS

Q & A

Questions

To submit a question or comment, please type it into the Questions box in the menu panel.



APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Speakers

Brian Riley
San Diego MTS

Christopher Wallgren
TRA

Gregory Robinson
Miami-Dade Transit

Roy Aguilera
Bay Area Rapid Transit

William McClellan
ACI

Joseph Tassiello
NJ Transit

APTA AMERICAN PUBLIC TRANSPORTATION ASSOCIATION

Thank you!

AMERICAN
PUBLIC
TRANSPORTATION
ASSOCIATION