SAFETY CULTURE OVERSIGHT IN TRANSPORTATION

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Overview

- NJ TRANSIT Overview
- Examples of NJ TRANSIT Safety Culture Programs
  - **C^3RS (An employee – safety program)**
  - **E^3 (A public – safety program)**
- Senior Management Commitment
- Summary

NJ TRANSIT

- New Jersey's public transportation corporation
- Third largest provider of bus, rail, and light rail transit in the nation
- Link major points in New Jersey, New York, and Philadelphia.

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NJ TRANSIT Rail Operations

- 285,000 daily passenger trips
- Operate in 15 of the state's 21 counties
- Approximately 693 scheduled daily trains on 12 rail lines.
- 82 million passenger trips annually covering more then 2 billion miles.
- Responsible for 544 miles of track, 12 movable bridges, 669 stationary bridges, 164 rail stations, and more than 1,200 signals.

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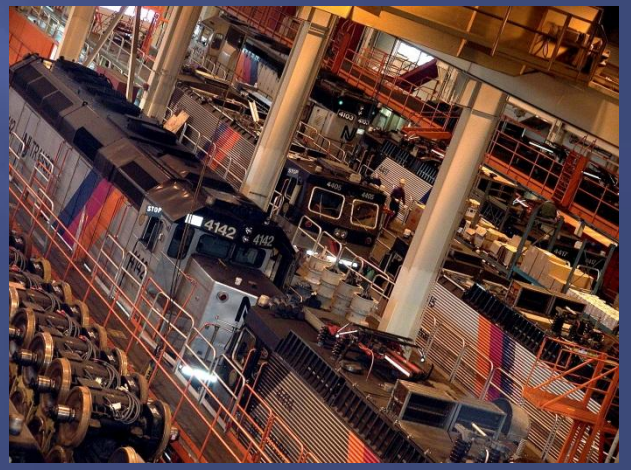
NJ TRANSIT Rail Fleet

- Revenue Service
  - 75 electric powered locomotives
  - 230 "Arrow" multiple-unit cars
  - 105 diesel-electric locomotives
  - 1083 "Comet" and Multi- Level push-pull coaches
- Non-Revenue Service
  - 7 diesel-electric locomotives
  - 85 pieces of work equipment



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NJ TRANSIT Rail Oversight

- Federal Railroad Administration (FRA)
- Federal Transit Administration (FTA)
- New Jersey State Department of Health, Public Employees Occupational Safety and Health Administration (PEOSHA)
- Environmental Protection Agency (EPA)
- New York State Public Transportation Safety Board (NY-PTSB)
- National Transportation Safety Board (NTSB)
- American Public Transportation Association (APTA) Manual of Standards and Recommended Practices for Rail Passenger Equipment

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Example of a Safety Culture Program at NJ Transit Rail

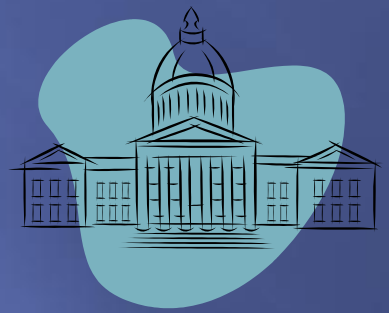
Confidential **C**lose **C**all **R**eporting **S**ystem

(C^3RS)

C³RS

Federally funded research project sponsored by:

- Federal Railroad Administration
- U.S. Department of Transportation's Bureau of Transportation Statistics (BTS)
- U.S. Department of Transportation Volpe Center



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C³RS

Designed to improve safety, based on confidential, non punitive reporting of conditions or incidents that have the potential for more serious consequences.

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C³RS Background

Adopted from the Aviation Industry

- Aviation Safety Reporting System (ASRS)
- Global Aviation Information Network (GAIN)

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C^3RS Implementation

C^3RS pilot program by FRA on four railroads

- Union Pacific Railroad (UP), Canadian Pacific Railway (CP), NJ TRANSIT (NJTR) and Amtrak (ATK)
- NJ TRANSIT only railroad with program implemented system wide

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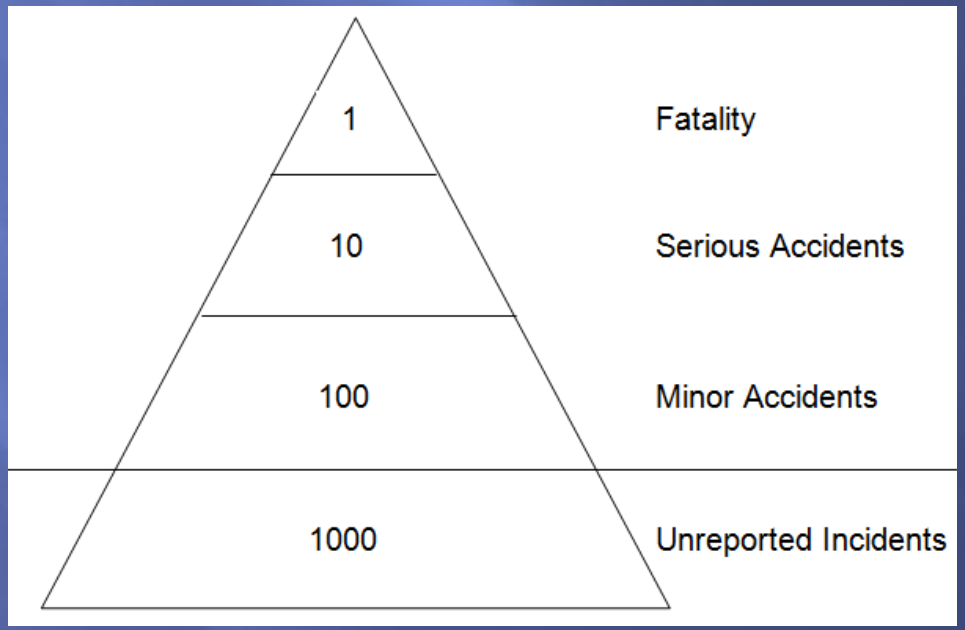
C3RS Design Concept

- More incidents than accidents.
- Typically "accidents" are reported and "incidents" are not.



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C³RS Design Challenges

- Shift from discipline orientated safety culture to a root cause, non punitive "**SAFETY FIRST**" culture.

- Participation between NJTR Management, Labor, and the FRA in the joint Peer Review Team to review close call data.

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C³RS Event Examples

- Failure to follow specific operating and safety rules and procedures.
- Run-through switch that does not result in derailment.

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C3RS Concept

- Employees reluctant to report incidents; might get "in trouble."
- **Confidentiality** critical to success.
- **C^3RS is a tool to proactively analyze close call data & find trends and patterns before an accident occurs.**

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C³RS Process Steps

1. Employee reports "Close Call" to the federal Bureau of Transportation Statistics (BTS) as an "initial report".

2. BTS contacts employee for details of incident.

3. BTS ensures confidentiality.

4. BTS provides info to the Peer Review Team (PRT).

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C³RS Process Steps

- PRT meets monthly to review incidents & develop Corrective Actions to give to Support Team (ST).
- ST meets quarterly with PRT to discuss Recommended Corrective Actions.
- ST meets independently to review Recommended Corrective Actions.

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C³RS Corrective Actions

- **PRT to address "run through" switches.**
  - On-site training by PRT on how to make outbound reverse movements in train yards.
  - Installing loud speakers to improve yard communication.
  - Painting of track switches to enhance visibility.
  - Lighting improvements.

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C³RS Corrective Actions

- Creation of C3RS Poster.

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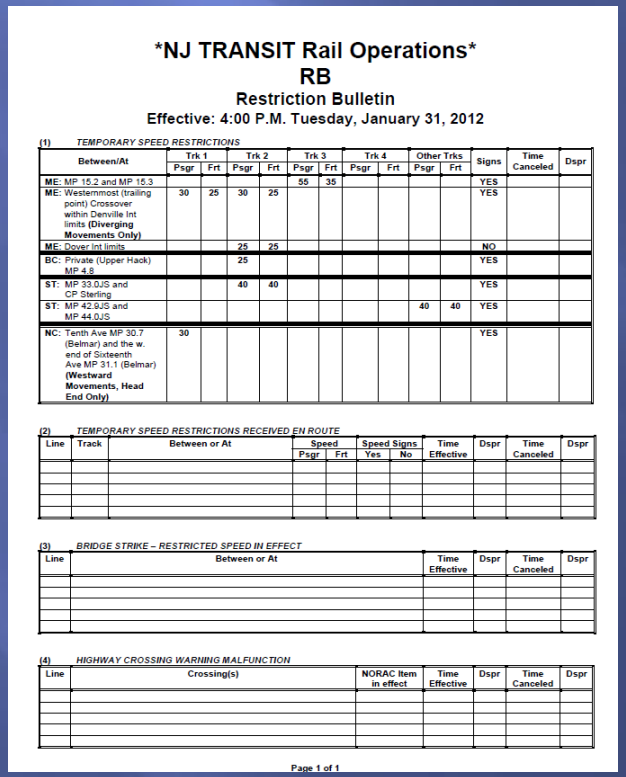
C³RS Corrective Actions

- PRT developed a separate daily speed restrictions bulletin order, reducing the amount of written directives (Form D).



NJ TRANSIT Rail Operations
RB
Restriction Bulletin
Effective: 4:00 P.M. Tuesday, January 31, 2012

(1) *TEMPORARY SPEED RESTRICTIONS*

Between/At	Trk 1		Trk 2		Trk 3		Trk 4		Other Trks		Signs	Time Canceled	Dspr
	Psgr	Frt	Psgr	Frt	Psgr	Frt	Psgr	Frt	Psgr	Frt			
ME: MP 15.2 and MP 15.3					55	35					YES		
ME: Westernmost (trailing point) Crossover within Denville Int limits **(Diverging Movements Only)**	30	25	30	25							YES		
ME: Dover Int limits			25	25							NO		
BC: Private (Upper Hack) MP 4.8			25								YES		
ST: MP 33.0JS and CP Sterling			40	40							YES		
ST: MP 42.9JS and MP 44.0JS									40	40	YES		
NC: Tenth Ave MP 30.7 (Belmar) and the w. end of Sixteenth Ave MP 31.1 (Belmar) **(Westward Movements, Head End Only)**	30										YES		

(2) *TEMPORARY SPEED RESTRICTIONS RECEIVED EN ROUTE*

Line	Track	Between or At	Speed		Speed Signs		Time Effective	Dspr	Time Canceled	Dspr
			Psgr	Frt	Yes	No				

(3) *BRIDGE STRIKE – RESTRICTED SPEED IN EFFECT*

Line	Between or At	Time Effective	Dspr	Time Canceled	Dspr

(4) *HIGHWAY CROSSING WARNING MALFUNCTION*

Line	Crossing(s)	NORAC Item in effect	Time Effective	Dspr	Time Canceled	Dspr

Page 1 of 1

C³RS Corrective Actions

- Changing the cab design to allow paperwork to be kept in sight.

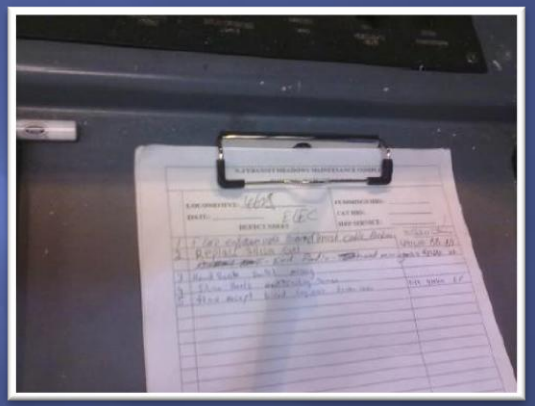


Figure 1
TSRB clip

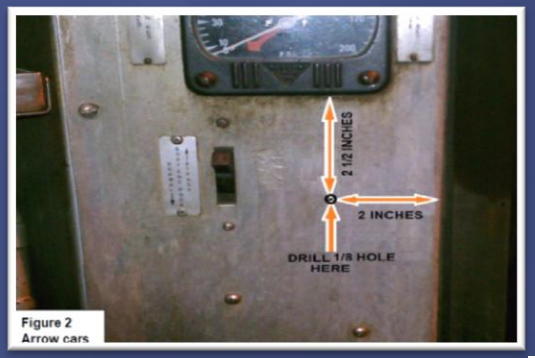


Figure 2
Arrow cars

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C³RS Corrective Actions

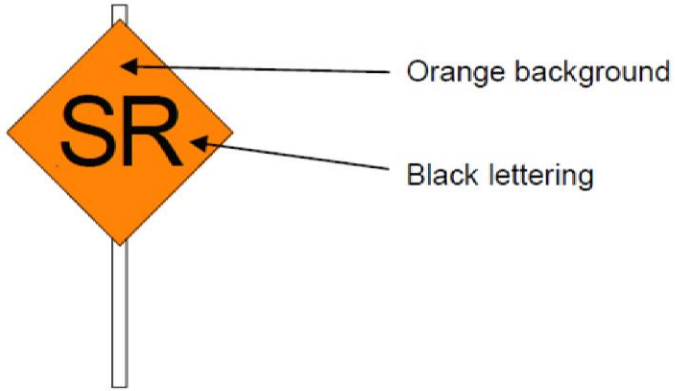
Posting speed restriction “reminder” signs at station stops that fall within the temporary speed limits.

NEW SPECIAL INSTRUCTION 296-1 – TEMPORARY SPEED LIMIT REMINDER SIGN **(Effective 4/9/13)**

Effective **4:00 P.M. Tuesday, April 9, 2013**, New Special Instruction 296-1 – Temporary Speed Limit Reminder Sign in effect as follows:

296-1. TEMPORARY SPEED LIMIT REMINDER SIGN

The Temporary Speed Limit Reminder Sign will be placed approximately 500 feet from the ends of the station platform and will serve as a reminder to the crew that they are **within** the limits of a temporary speed restriction.



C³RS Corrective Actions

- Creating a new Safety Job Briefing checklist.

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December 1, 2012

T&E SAFETY JOB BRIEFING

Discuss all of the following items during your Safety Job Briefing. Each time conditions change or other employees become involved in the task, there must be an additional Safety Job Briefing.

TRAIN MOVEMENT
- Call Dispatcher/Yardmaster
- Train numbers (Assignment)
- Bulletin Orders/RB's/AMTRAK TSRB's (Tracks out of service, obstructions, speed restrictions)
- Form D's
- Special Instructions for line(s) or location
- RF and TM Notices
- TTSB's/Schedule changes (Additional or Deleted Station Stops)

SAFETY ISSUES
- Division Notices
- Summary Safety Bulletin
- Safety Rule of the Day
- Proper PPE for the Task
- Known Safety Hazards
- Unusual Yard Conditions
- Method of Communication between the crew (Working radio, communication signals)
- Emergency Preparedness Equipment (Flashlight, Fire Extinguisher, Pry Bar, and First Aid Kit)

EMPLOYEE RESPONSIBILITIES
- Comply with NJ TRANSIT Electronic Device rules
- Correct Time
- Switches and Derails properly lined (double check)
- Working Portion of Train (Doors in operation)
- Cars to work

PASSENGER ISSUES
- Private Cars or Groups
- ADA passengers
- Method of communication with passengers (Crewmember responsible)
- Role of crewmembers during passenger emergency or unusual occurrences

C3RS OPERATING INSTRUCTIONS

NORAC Rule 19 – Horn or Whistle failed en route

The following actions must be taken when the horn or whistle on the lead engine or unit fails en route:

1. Notify the Dispatcher as soon as possible.
2. Ring the bell continuously, if equipped.
3. Stop before each public highway crossing at grade and provide on-ground warning until the crossing is occupied, unless:
   a. Automatic crossing warning devices are functioning properly,
   or
   b. No traffic is approaching or stopped at a crossing not equipped with automatic crossing warning devices.
4. Reduce speed to not exceeding **30 MPH** while approaching locations where employees are known to be working.
5. Reduce speed at other locations where warranted by the prevailing conditions.

NORAC Rule 22 – Engine Lights (Failure)

a. Headlight

If all headlight bulbs fail en route, the Engineer must take the following actions:

1. Illuminate all external engine lights that can be illuminated (except red strobe light).
2. Notify the Dispatcher as soon as practical.
3. Ring the bell continuously, if equipped.
4. Sound the engine whistle or horn frequently.
5. Approach all public highway crossings at grade prepared to stop. Train may proceed over crossing not exceeding **20 MPH**. Speed applies to head end only.
6. Reduce speed at other locations when required by the prevailing conditions, not exceeding **50 MPH** at night.

EXCEPTION: These restrictions do not apply when the train has operable auxiliary lights.

b. Auxiliary Lights

Auxiliary lights must be operational before the engine leaves its initial terminal, and must be displayed when the engine is approaching and operating over public highway crossings at grade.

If one of a pair of auxiliary lights fails en route, the train may continue at Normal Speed, but the defective auxiliary light must be repaired no later than the next calendar day inspection.

If all auxiliary lights fail en route, the train must not exceed **20 MPH** while the leading end of the train is operating over public highway crossings at grade, and the auxiliary light(s) must be repaired at the next forward repair point.

QUICK REFERENCE CARD

NORAC Rule 242 – Absent or Imperfectly Displayed Signals

If a fixed signal is absent from the place where it is usually shown, movement must be governed by the most restrictive indication that can be given by that signal. This absence must be reported to the Dispatcher immediately. Imperfectly displayed signals must be reported to the Dispatcher or Operator as soon as practical, without delay to the train.

Imperfectly displayed signals must be regarded as the most restrictive indication that can be given by that signal.

The following exceptions apply to color light signals, position light signals, color position light signals, and semaphore signals:

1. Signal Indication Governs

If only one indication is possible, this indication will govern.

2. Restricting Signal Indication Applies

If more than one indication is possible, and it can be determined that all possible indications are more favorable than Stop and Proceed, trains may proceed as though a **Restricting Signal** were displayed.

NORAC Rule 241 – Passing a Stop Signal

Permission and repeating back to pass a stop signal will be given in the following manner:

No. (train number) engine (engine number) pass Stop Signal on (track) at (location) and proceed (direction) to (track).

NORAC Rule 504(b) – Delay in a Block Push-Pull Trains Making Station Stops or Slow Movement After Passing Distant Signal

If a push-pull train that has passed a distant signal makes a station stop or reduces speed to less than **10 MPH**, it must:

1. Approach the home signal **prepared to stop**,
   AND
2. Not exceed **40 MPH**, unless governed by a slower speed.

The train may resume the speed authorized by the distant signal when the home signal is seen to display a proceed indication.

If a push-pull train makes a stop other than a station stop in any block, it will be governed by NORAC Rule 504(a).

This card was developed by the C3RS Peer Review Team as a job aid to help ensure compliance with specific Operating Rules and Special Instructions. For complete information always refer to the specific Operating Rule or Special Instruction referenced.

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C³RS Corrective Actions

- Replacement of side-door windows (tinted to clear) on multilevel coaches to improve crew visibility of platforms at night.

C^3RS Benefits

- With the primary focus of C^3RS being the reduction of Human Factor Accidents, this program addresses current trends in rail accident data.
- Helps to further the goal of creating a positive safety culture in the railroad industry.
- Can help shift the overall railroad culture from discipline based to non-punitive by demonstrating the railroad's commitment to reducing accidents and incidents.

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