CPUC Rail and Transit Hazard Management Program

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2012 Railroad Right-of-Way Trespass Prevention Workshop

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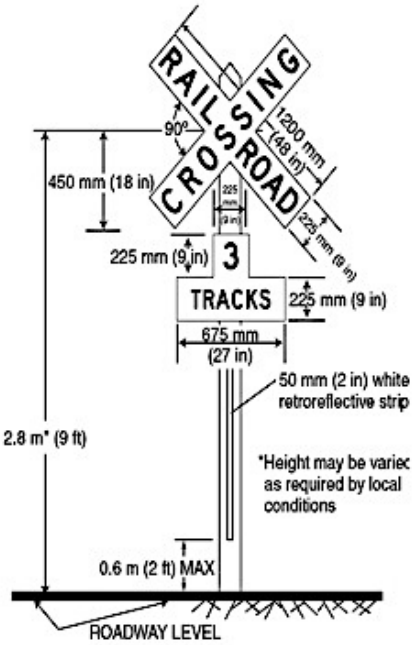
Outline

- CPUC Program Overview
- Rail Transit Hazard Program
  - Part 659 Requirements
  - CPUC Hazard Program
  - Going Forward
- Rail Crossing Program
  - Trespassing Measures
- Wrap-up / Question

CPUC Overview



CPUC's Rail Safety Organization

- **Railroad Operations Safety Branch**
  - Railroad track, signaling, Haz. Mat., etc.
  - Works closely with FRA
- **Rail Transit and Crossings Branch**
  - **Rail Transit Safety Section**
    - SSO for BART, SF MUNI, LA Metro, SD Trolley, Sprinter etc.
  - **Transit Operations Safety Section**
    - Transit track, signal and train control, motive power and equipment, and operations inspections
  - **Rail Crossings Engineering Section**
    - CPUC authority required for new crossings and modification of existing crossings (Transit and Railroad crossings)

CPUC Overview: Rail Operations Safety Branch

- **CPUC participates in the FRA State Participation Program**
  - Enforces all 49 CFR 200 series railroad safety regulations, as applicable
  - Enforces a number Commission General Orders and state laws
  - XX FRA Certified inspectors in track, motive power and equipment, HazMat, operating practices, signal and train control
  - Investigate and report on all fatal and injury accidents, including trespass
  - Recommendations issued to local jurisdictions and railroads

CPUC Overview: Rail Transit

- **Oversight Rail Transit Agencies**

1. Bay Area Rapid Transit (BART);
2. San Francisco Municipal Transportation Agency (SF-Muni);
3. Sacramento Regional Transit District (SRTD);
4. Santa Clara Valley Transportation Authority (SCVTA);
5. Los Angeles County Metro Transportation Authority (LA-Metro);
6. North County Transit District – Sprinter (NCTD); and
7. San Diego Trolley Inc. (SDTI).

- **Oversight of other fixed guideway systems:**
  - Funicular/incline - Angels Flight (Los Angeles),
  - Automated People Movers - SFO Airtrain (San Francisco), Sacramento Airport APM, BART airport connector
  - Trolleys – Port of Los Angeles Red Car Line, The Grove, Americana (Southern California)

CPUC Overview: Rail Crossings

- **CPUC authorization required for all new crossings and crossing modifications:**
  - All Transit and Railroad crossings
  - New crossings (at-grade and grade-separations)
  - Change in type of warning devices at public crossings
  - Road Modifications (widening, medians, sidewalks)
  - Change in number of tracks
- **Authorization process**
  - Formal Commission Application for new rail crossings
  - New transit system crossings under General Order 164-D, based on. submission of a Hazard Analysis for each proposed crossing
  - Staff authorization of modifications for existing rail and transit crossings through delegated authority under General Order 88-B

Rail Transit: 49 CFR Part 659 Requirements

- **Hazard Management Process 659.31(a) :**

  "…a process to identify and resolve hazards during its operation, including any hazards resulting from subsequent system extensions or modifications, operational changes, or other changes within the rail transit environment."

- **Requirement of the CPUC Program Standard**

  The program standard lays out how the CPUC will conduct its state safety oversight activities.

- **Requirement on transit agencies under General Order 164-D, Section 6**

Rail Transit: 49 CFR Part 659 Requirements

- **Hazard Management Process - 49 CFR 659.31(b) and Commission General Order 164-D, Section 6 :**

1. Define the rail transit agency's approach to hazard management and the implementation of an integrated system-wide hazard resolution process;
2. Specify the sources of, and the mechanisms to support, the ongoing identification of hazards;
3. Define the process by which identified hazards will be evaluated and prioritized for elimination or control;
4. Identify the mechanism used to track through resolution the identified hazard(s);
5. Define minimum thresholds for the notification and reporting of hazard(s) to oversight agencies; and
6. Specify the process by which the rail transit agency will provide ongoing reporting of hazard resolution activities to the oversight agency

49 CFR Part 659 Requirements

- **Program Standard 49 CFR 659.15 (b) requirements**
  - "ongoing communication and coordination relating to the identification, categorization, resolution, and reporting of hazards to the oversight agency"

- **CPUC RTSS Procedures Manual (Program Standard)**
  - Includes sample reporting thresholds (red signal violation)
  - Reporting requirements (notification process / time, monthly reporting, logging)

49 CFR Part 659 Requirements

- **System Safety Program Plan (SSPP) (659.19-f)**
  - Transit agencies to include in its SSPP:

    "a description of the rail transit agency's process used to implement its hazard management program, including activities for:

    1. Hazard identification;
    2. Hazard investigation, evaluation and analysis;
    3. Hazard control and elimination;
    4. Hazard tracking; and
    5. Requirements for on-going reporting to the oversight agency relating to hazard management activities and status"

CPUC audits to ensure SSPP contains requirements

49 CFR Part 659 Requirements

- **Safety Certification 49 CFR 659.19 (g)**
  - Requires specific safety certification plan for extensions and major projects.
  - Commission General Order 164-D Section 11 specifically requires the safety certification plan to contain hazard analysis of the project during preliminary engineering.
  - Resolution of the hazard or its control is required.
  - Tracking and follow up may be required.

Hazard Examples

- **Event:**
  - 08/04/2012 – Trespass location identified on Sacramento Regional Transit District system
  - Numerous trespassers identified over short period

- **Reason for Notification:**
  - Identified by CPUC Staff

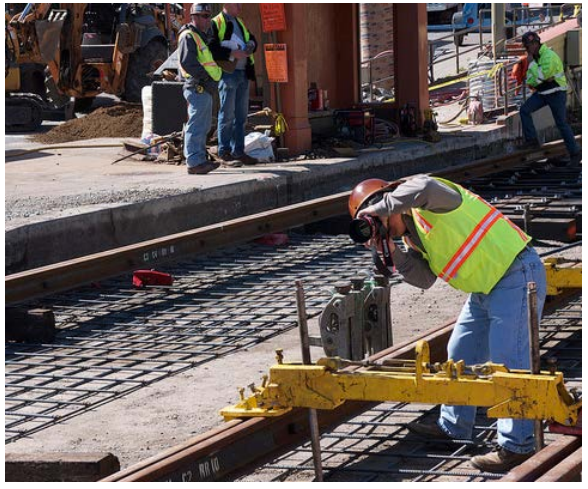
- **Follow-up:**
  - Transit agency notified, justification for current configuration?
  - After-action report of corrective action plan (CAP)

Hazard Examples

- **Event:**
  - 03/07/2012– Bicyclist injured near on Muni Tracks
  - Bicyclist wheel caught in MUNI track, feel & injured by oncoming bus
  - Bicyclist injured and transported to hospital
- **Reason for Notification:**
  - Media Coverage, Potential Train vs. Bicyclist
- **Follow-up:**
  - Determine MUNI mitigations for repeat incidents
  - Investigation report for hazard / incident

Hazard Examples

- **Event:**
  - 04/2010– MUNI track defects discovered by internal inspectors
  - Potential derailment
- **Reason for Notification:**
  - Not notified, hazard discovered by internal inspectors
- **Follow-up:**
  - Determine MUNI mitigations for repairing track
  - Investigation report for hazard



Going Forward

- **Clearly Defining Hazard Thresholds**
  - Develop hazard conditions that require notification and reporting, similar to current accident requirements
  - Considering the following items

Near-miss occurrences:
Near-miss collision of train with another train or object (defined as deployment of emergency brake to prevent collision)
Near-miss collision with employee or contractor on the rail right-of-way
Near-miss electrocution
Near-miss industrial accident with potential for fatality or serious injury
Signal Issues:
Wrong side signaling failure (false proceed)
An activation failure, a partial activation, or a false activation of a rail grade crossing warning system
Local or system-wide malfunction of the signal system or system component

Going Forward

Switch Issues:
Switch run-through
Improperly lined track switches (switch left in incorrect position)
Failure to latch and or lock a track switch
Operating over a track switch previously run through (i.e. damaged or broken)
Condition of Track:
Broken rail (or increase changes in number, frequency or nature of breaks)
Trackbuckle
Placement of speed restriction
Electrification System:
Failure of insulators and/or contactors resulting in electrical arcing
Failure of other system components resulting in electrical arcing, burning or smoke
Live wires; loose wires
Vehicle Conditions:
Broken or loose wheels
Broken axle
Operating Issues:
Incapacitated train operator in revenue service
Failure of train operator to recognize flagging/work zone (as evidenced by portable trip stop overrun, shunt device, etc.)
Failure of employee to appropriately place or remove precautionary safety devices (derails, trip stops, other items)
General Order/Track Right violation (unauthorized train movement near or through work zone)
Train speeding through work zones in revenue service
Train uncoupling in revenue service
Leaving equipment or materials that fouls or obstructs train movements on an adjacent track

Going Forward

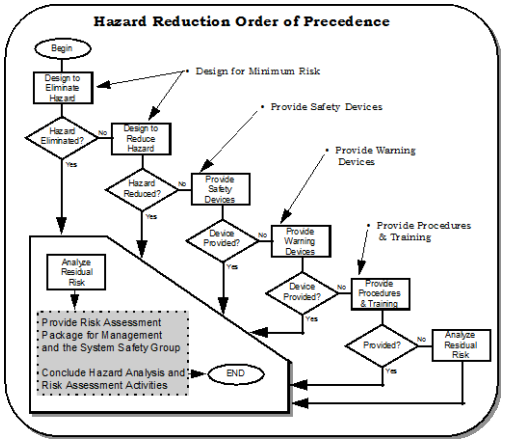
- **Better implementation of Hazard Precedence Model**
- **Grade Crossing Example**

1. Eliminate Crossing Hazard
- Remove / Grade Separate crossing

2. Provide Safety Devices
- Gates, Barriers, Channelization

3. Provide Warning Devices
- Signs, Flashing Lights, Bells

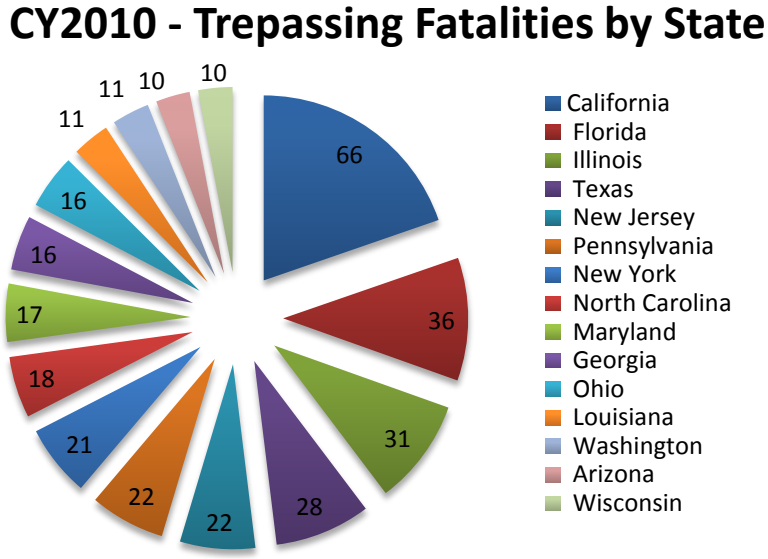
4. Procedures
- Enforcement, Operations



Need for Increased Pedestrian Safety

Trespassing Incidents:

- Alignments with adequately treated pedestrian pathways and such as curb, pavement markings and channelization, can reduce illegal trespassing on the right-of-way



- 451 Trespassing Fatalities in 2010

Trespassing: Learning Lessons

- Pedestrians will take most direct route
- Need to channelize (fencing, barriers)
- Continual observation along ROW is the most effective mitigation to trespassing
- The most convenient route should be the safest route
- Safety must not be compromised based on aesthetics or convenience

Trespassing: Learning Lessons

- San Clemente Pedestrian Trail Trespassing Hazard Mitigations
  - Fencing
  - Landscaping
  - Crossings
  - Channelization

- Determined by Multiple Team Diagnostic Reviews

Trespassing Measures

Trespassing Signage

- Approved MUTCD pedestrian signage includes:
  - Pedestrian Crossing
  - “Look” Both ways
  - Light Rail Blank-Out
  - Light Rail Station

- Signs not yet in MUTCD must request permission from FHWA

Questions

Contact Info

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CPUC web site

http://www.cpuc.ca.gov/crossings