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
• **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

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

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

• Better implementation of Hazard Precedence Model
• Grade Crossing Example
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