

Pedestrian Crossings of Public Transit Rail Services

Presentation by:

Kay Fitzpatrick
Jeff Warner

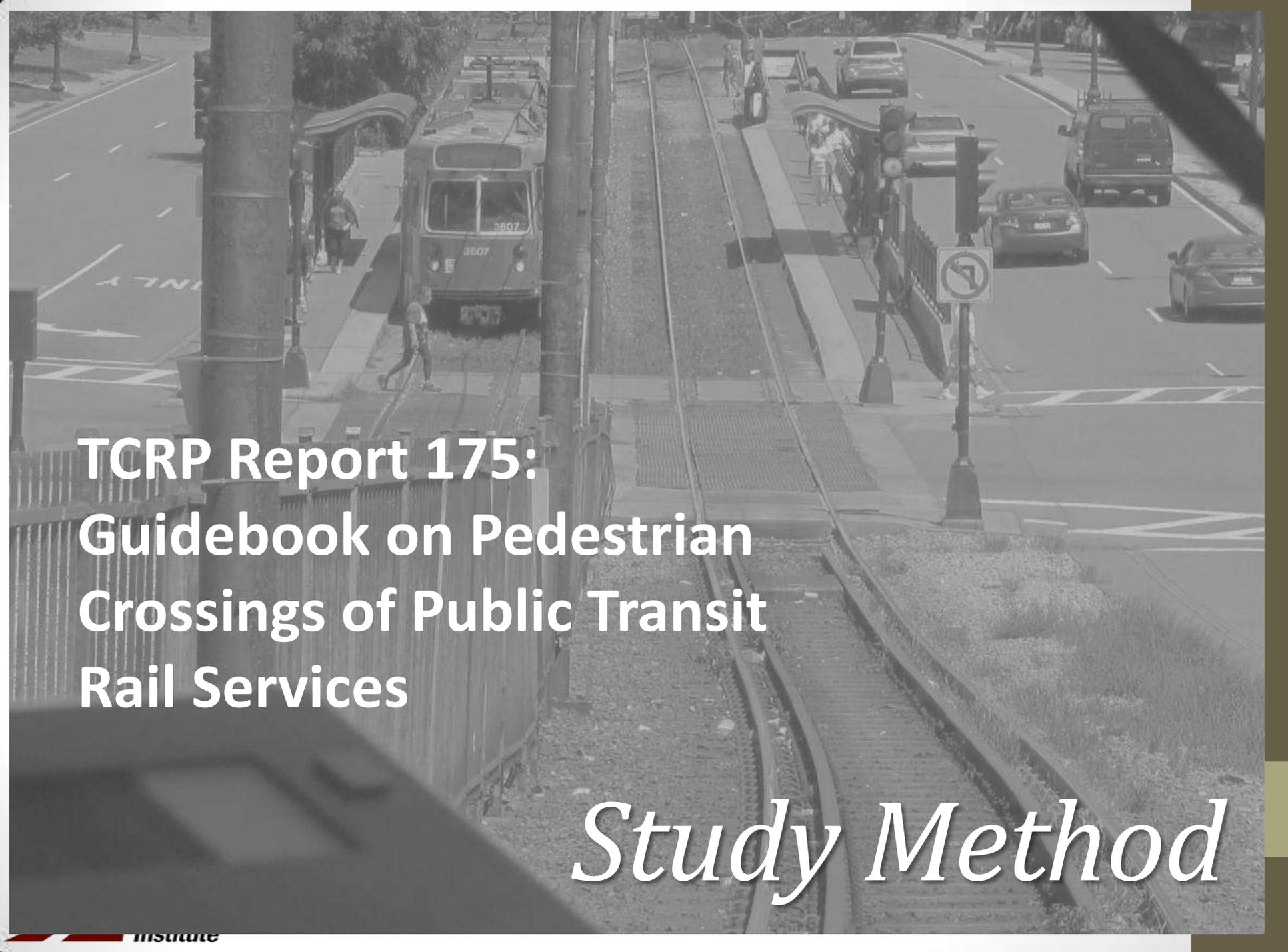
Texas A&M
Transportation
Institute



Overview

- Project sponsored by the Transit Cooperative Research Program (TCRP)
- Research objective = develop *Guidebook**
- Focus of this project was pedestrians at commuter rail, light rail, and streetcar crossings
- Research team included knowledge of roadway design/traffic control devices, rail, and pedestrian accessibility

**Guidebook* and Final Report are now available (links provided at end)



**TCRP Report 175:
Guidebook on Pedestrian
Crossings of Public Transit
Rail Services**

Study Method

Literature – Characteristics

- Pedestrian characteristics:
 - Pedestrians are slow.
 - Pedestrians are flexible.
 - Pedestrians are fragile.
 - Pedestrians are sensitive to their surroundings.
 - Pedestrians may be inattentive.
 - Pedestrians prefer direct paths.
 - Pedestrians may ignore warning signs.

Literature – Special Groups

- Pedestrians also include special groups:
 - Children pedestrians.
 - Older pedestrians.
 - Recent immigrants.
 - People with disabilities.

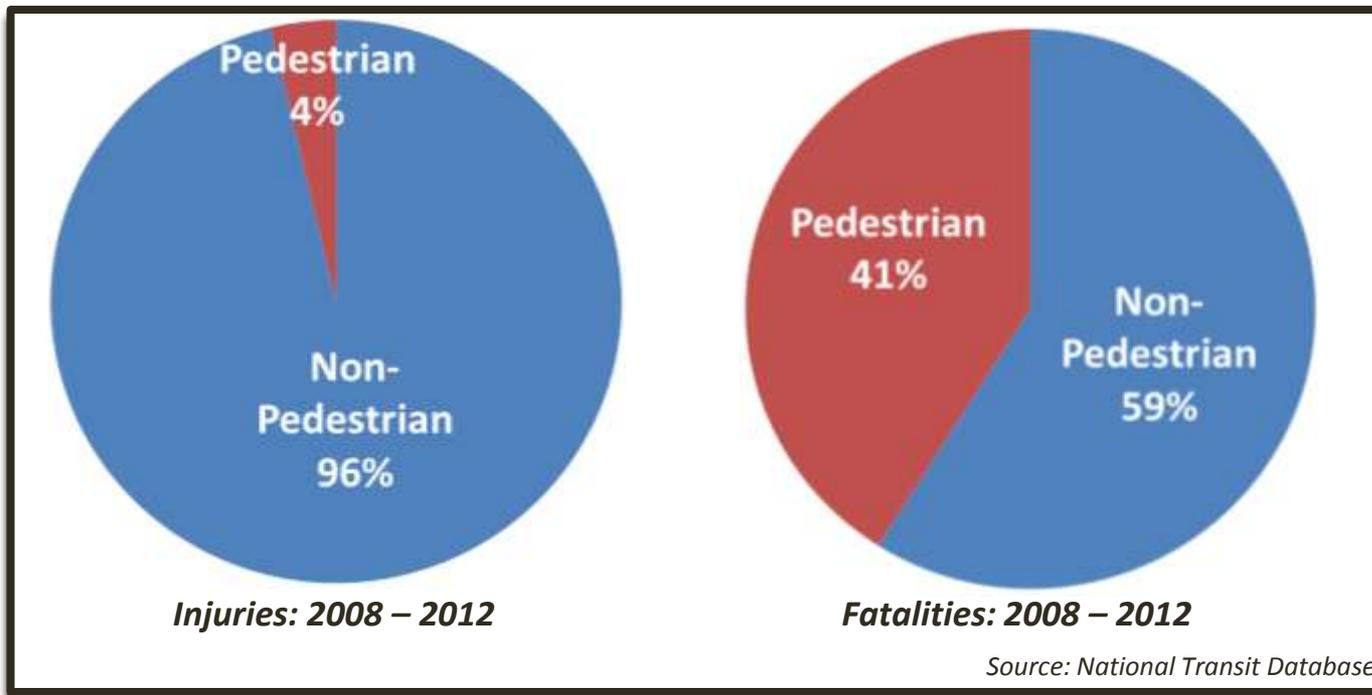


Literature – Crossing Locations

- Pedestrian-rail crossing types:
 - Adjacent to a motor vehicle crossing.
 - At stations adjacent to motor vehicle crossing.
 - At stations.
 - Not adjacent to motor vehicle crossing or in a station.
- Rail transit alignments:
 - Exclusive alignments.
 - Semi-exclusive alignments.
 - Non-exclusive alignments.

Crashes

- Collisions between rail & pedestrians are not common, but consequences are severe
 - 4% of all injuries BUT 41% of all fatalities.



Surveys – Online and Phone

- Gain more information on state of the practice
- Variety of crossing treatments currently in use – some in greater use than others
- Effectiveness of treatments – typically not known because...
 - Uniqueness of crossings.
 - Commonly implemented with other treatments (system of treatments are needed at a crossing).
 - Challenges with gathering effectiveness data.

Site Visits

- Observe in-field installation of range of treatments
- Observe pedestrian interaction with treatments
- Observe challenges faced by pedestrians at crossings
- Team of 3 – rail, design/devices, accessibility
- Site visit locations – Boston, Portland, Los Angeles

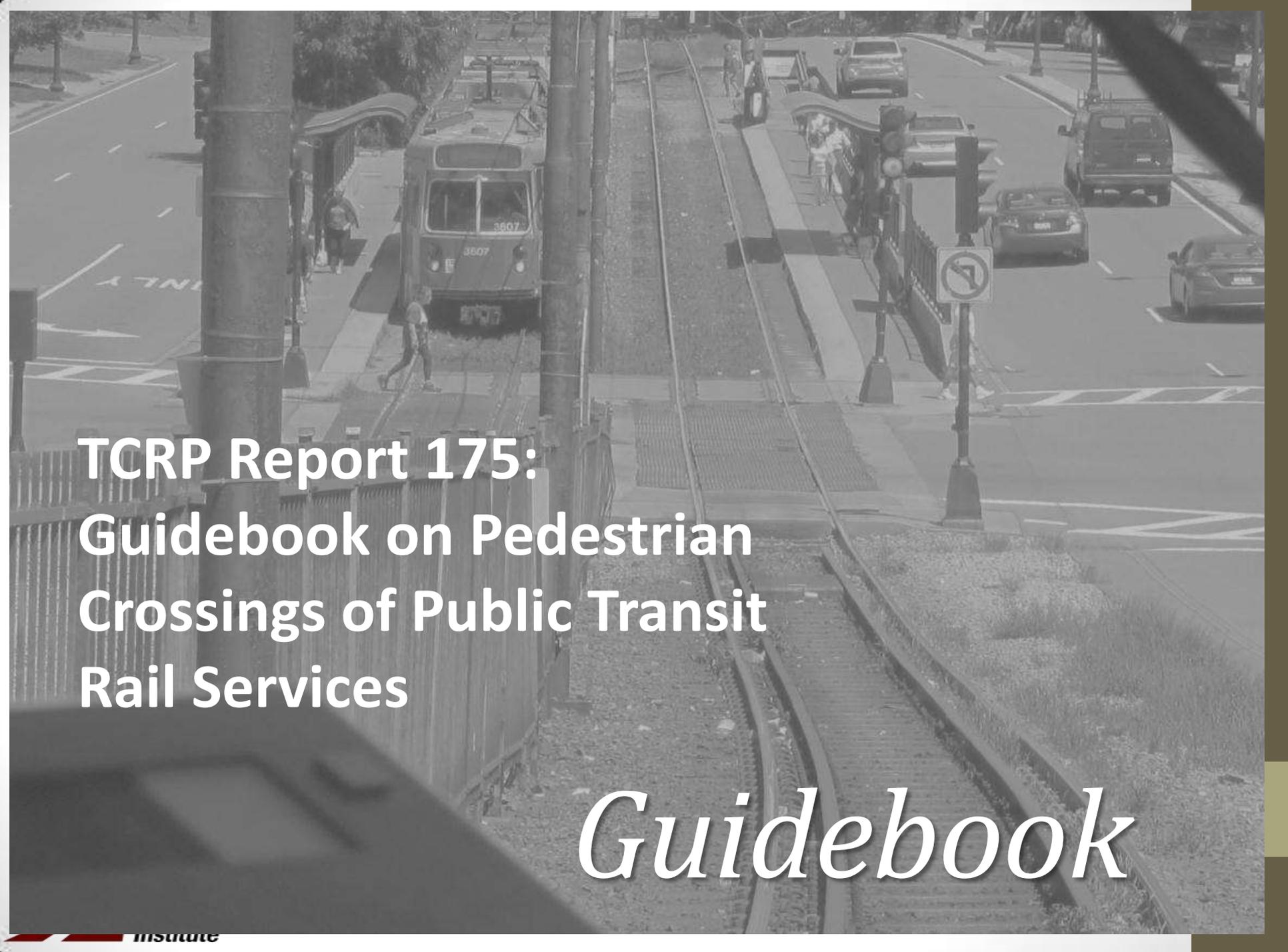
Documents

- TCRP Report 175: *Guidebook on Pedestrian Crossings of Public Transit Rail Services*

<http://www.trb.org/Main/Blurbs/172320.aspx>

- TCRP Web-Only Document 63, *Treatments Used at Pedestrian Crossings of Public Transit Rail Services*

<http://www.trb.org/Main/Blurbs/172337.aspx>



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Guidebook

TCRP Report 175 *Guidebook*

1. Introduction
2. Rail Transit Services
3. Pedestrian Safety
4. NEPA-Related Issues
5. Accessibility/ADA Considerations
6. Treatment Selection
7. Treatment Considerations
8. Pedestrian Treatments (34 treatments)
9. Case Studies (4 case studies)



Pedestrian Treatment Layout

- Sections:
 - Description
 - Applications
 - Implementation
 - Benefits
 - Cost
- Photos or Diagrams

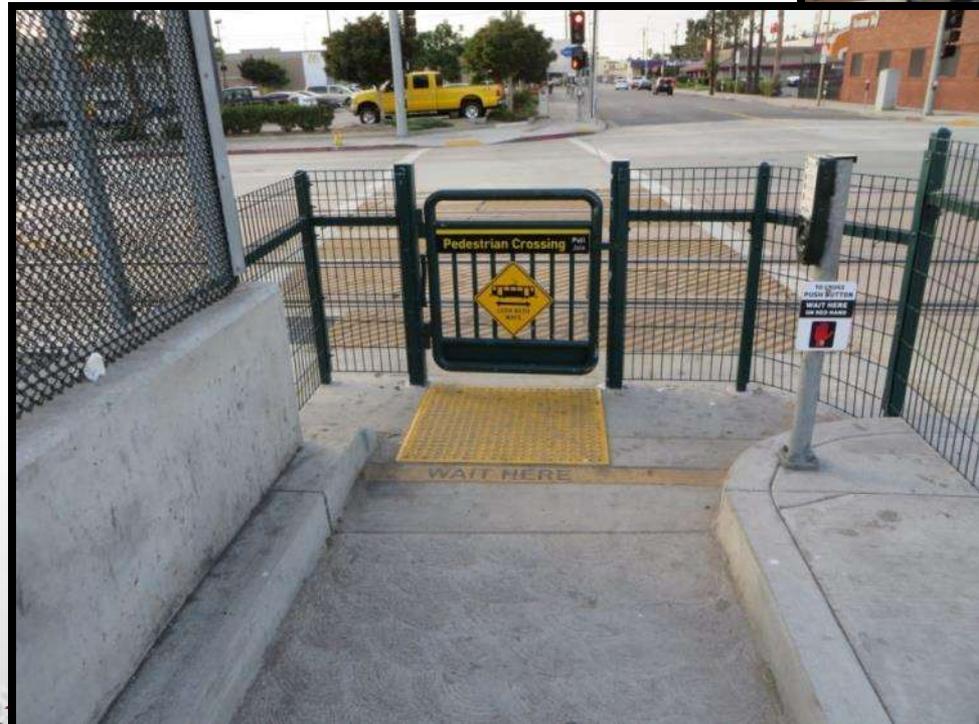


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Treatments

Channelization

- Guide pedestrians to appropriate crossing locations



Barriers

- General
- Offset pedestrian crossing
- Pedestrian fencing



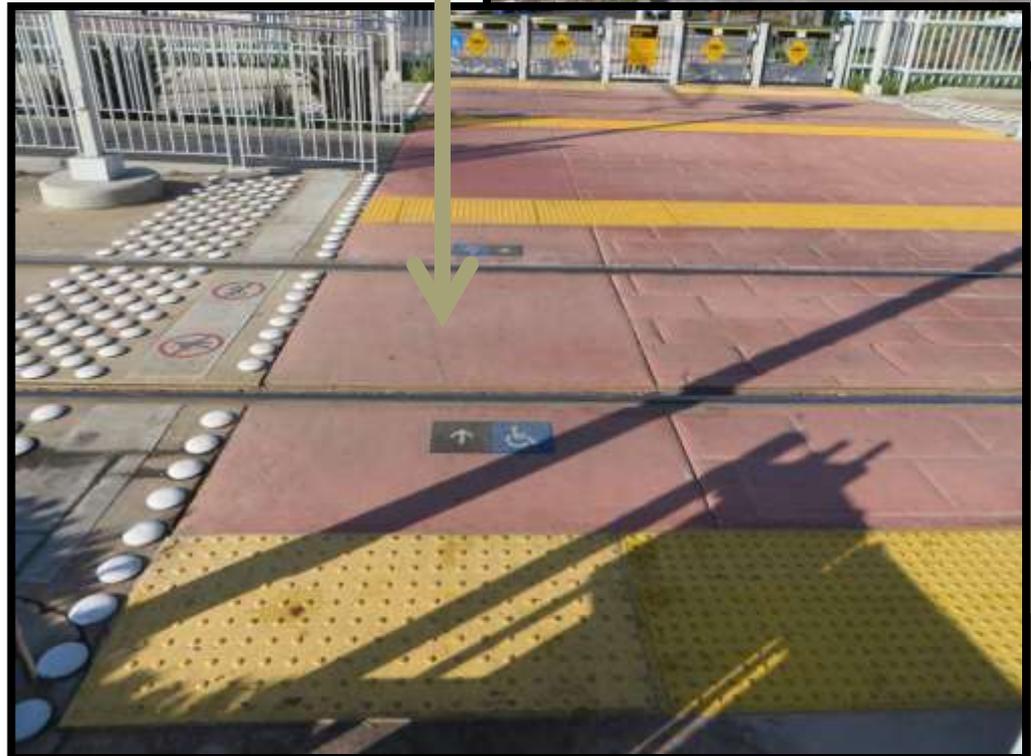
Barriers (con't)

- Maze fencing
- Between-car barriers at transit platform edges
- Temporary



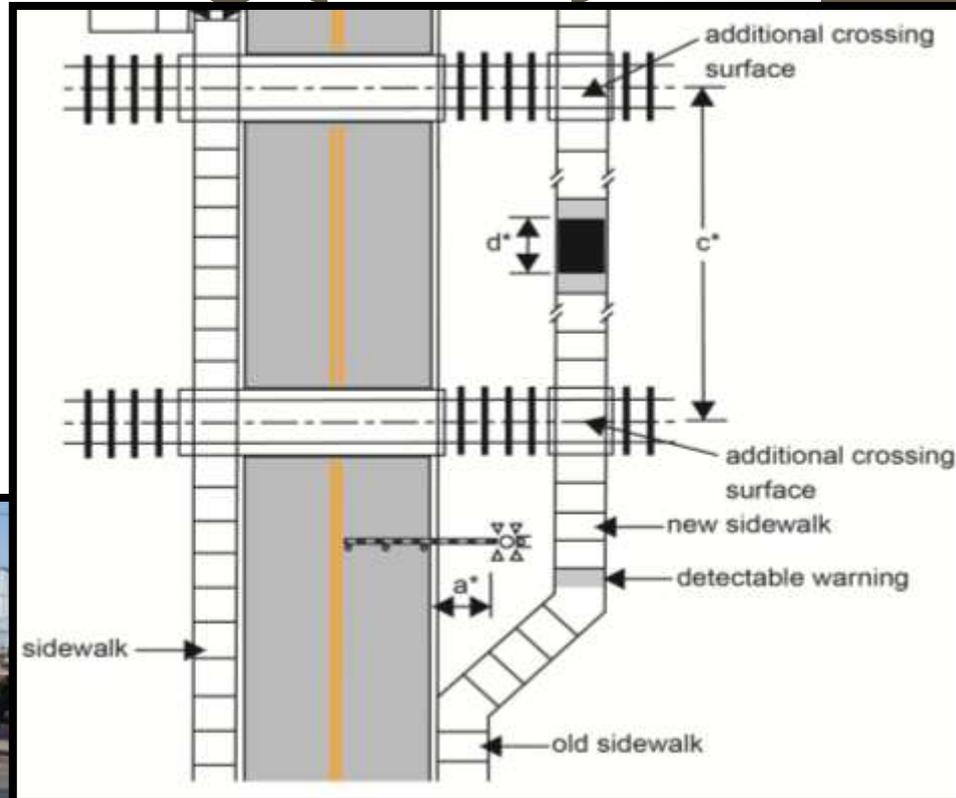
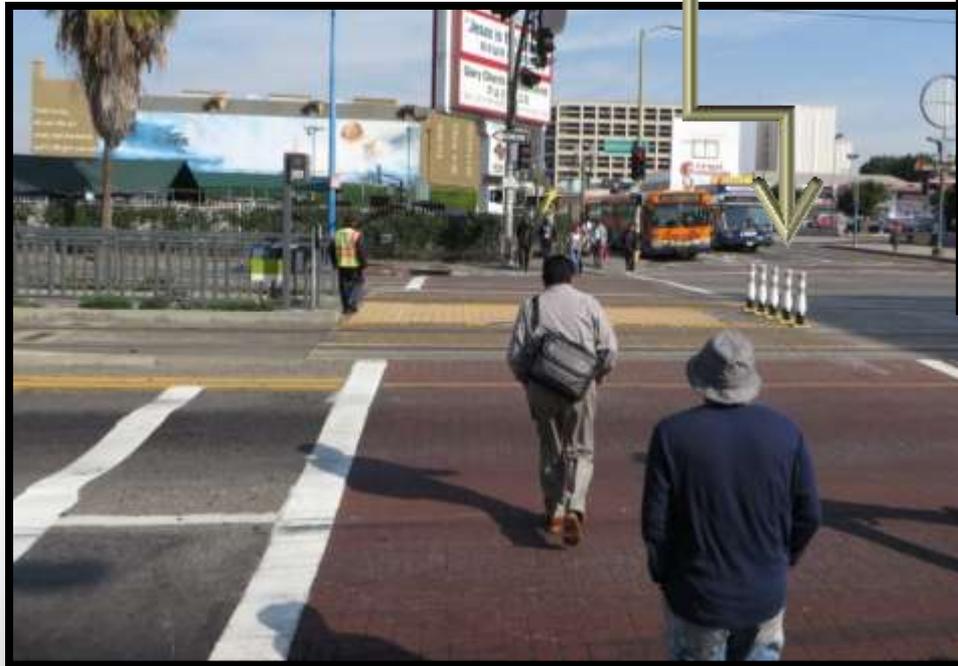
Design of the Crossing

- Clearly define pedestrian crossing
- Smooth and level surface
- Sight distance improvements
- Stop and terminal
- Illumination



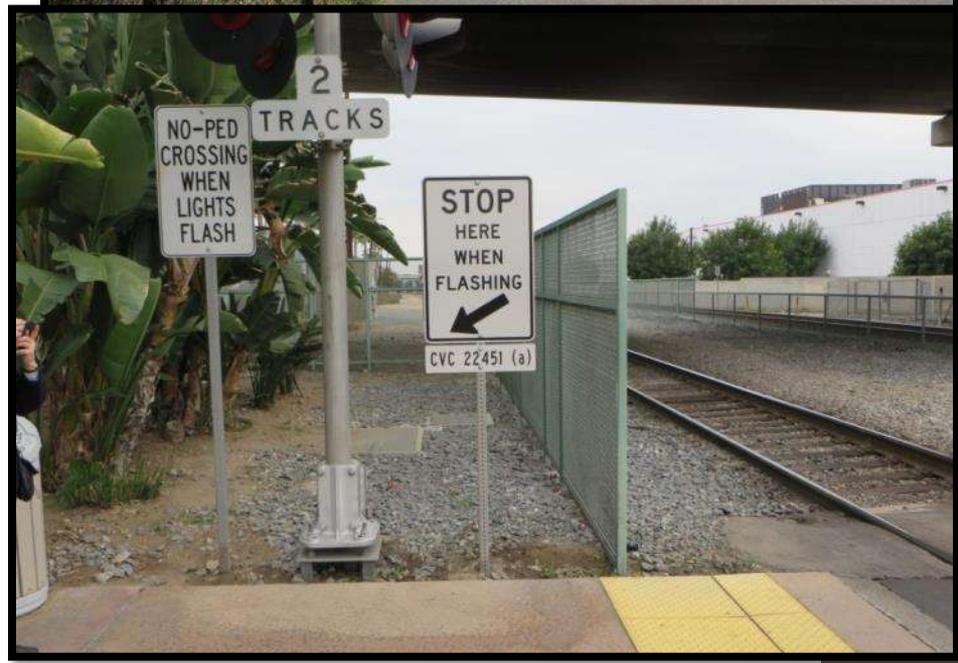
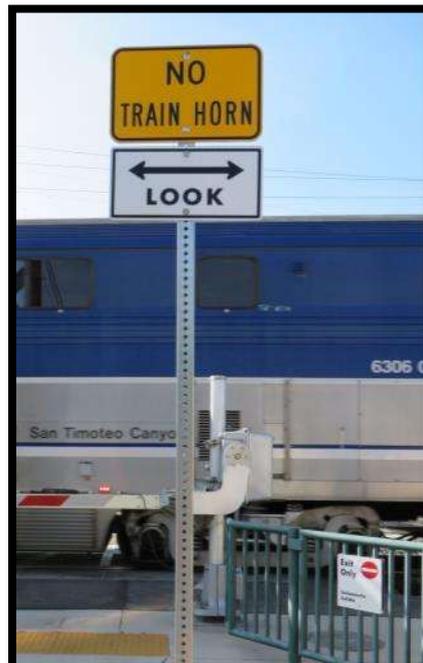
Design of the Crossing (con't)

- Flangeway filler
- Pedestrian refuge
- Sidewalk relocation
- On-road bollards



Signs

- Passive signs
- Unique warning messages
- Signs for enforcement
- Blank-out warning



Signals

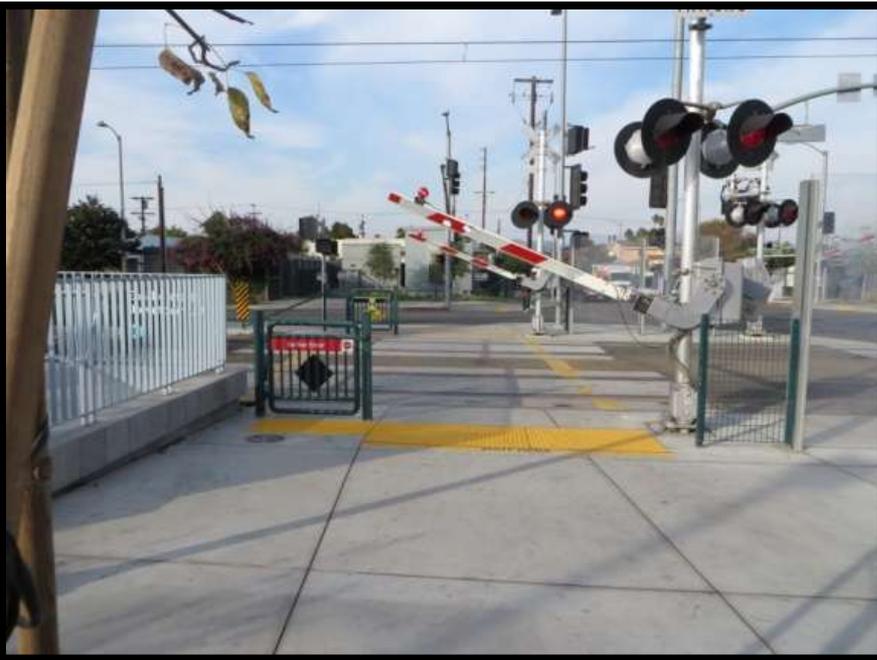


- Timing considerations near railroad crossings
- Flashing light signals assembly
- In-pavement flashing lights



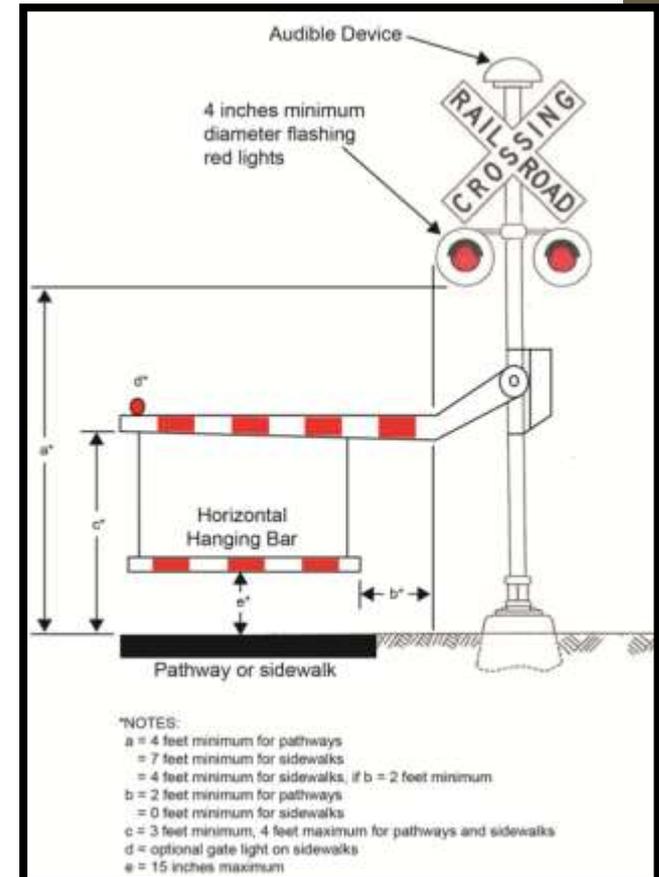
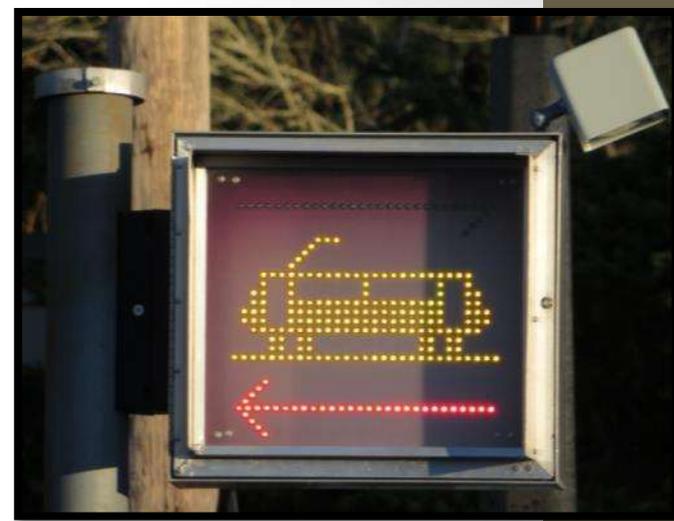
Pavement Markings

- Pedestrian stop line
- Detectable warnings
- Word or symbol
- Dynamic envelope markings



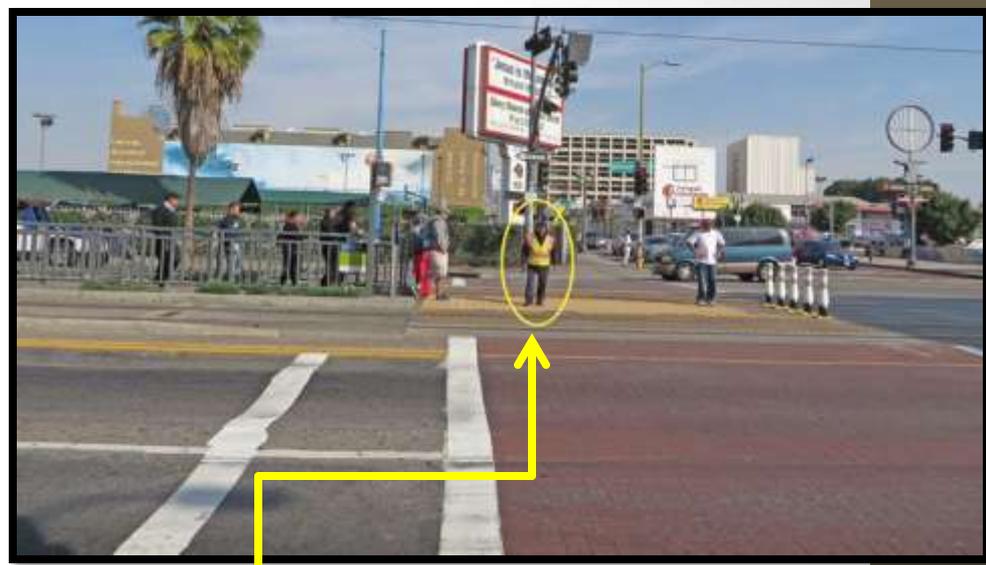
Infrastructure

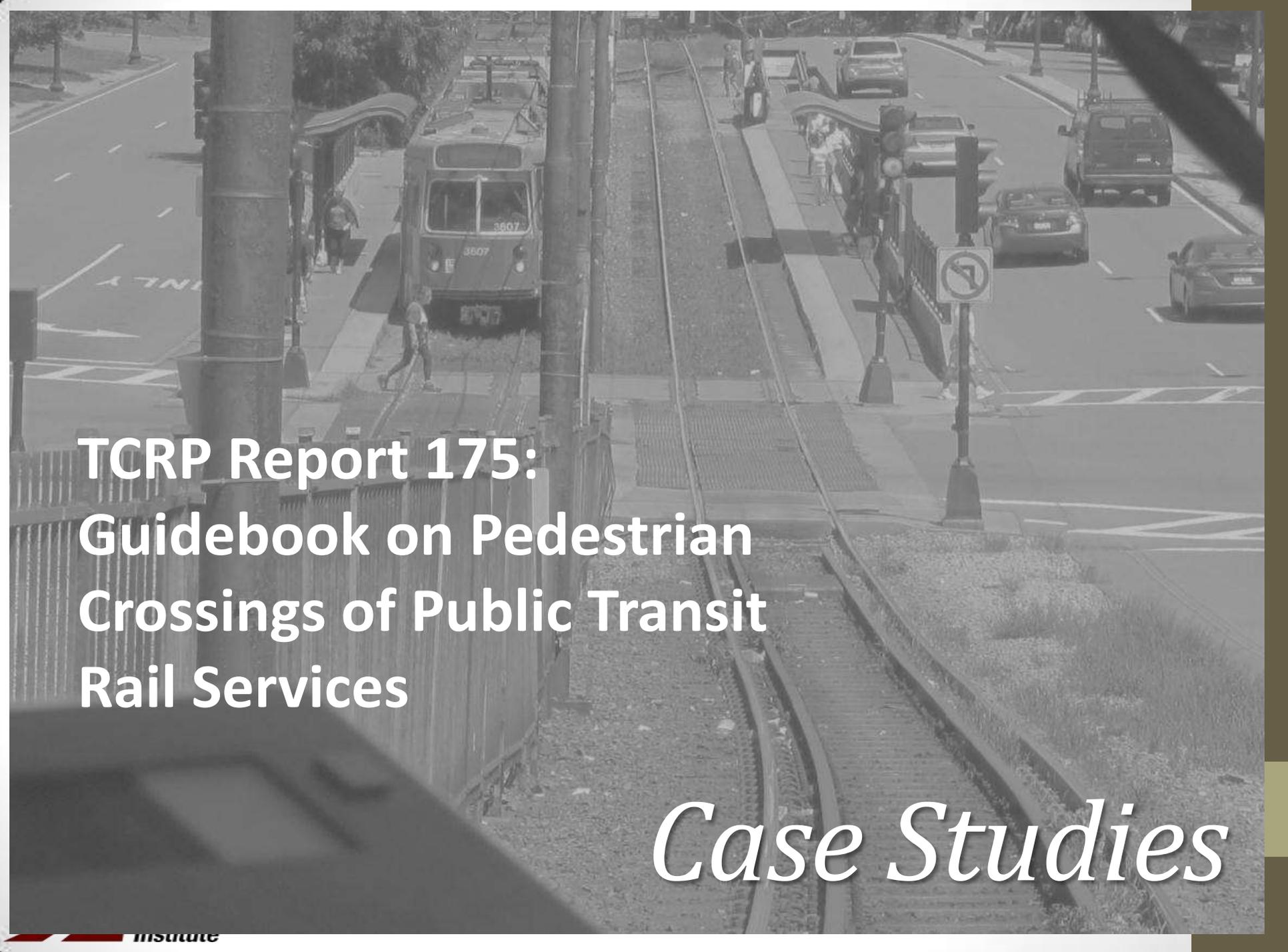
- Audible crossing warning devices
- Pedestrian automatic gates
- Pedestrian automatic gate with horizontal hanging bar
- Pedestrian swing gates



Operations

- Required stop
- Reduced speed
- Rail safety ambassador program



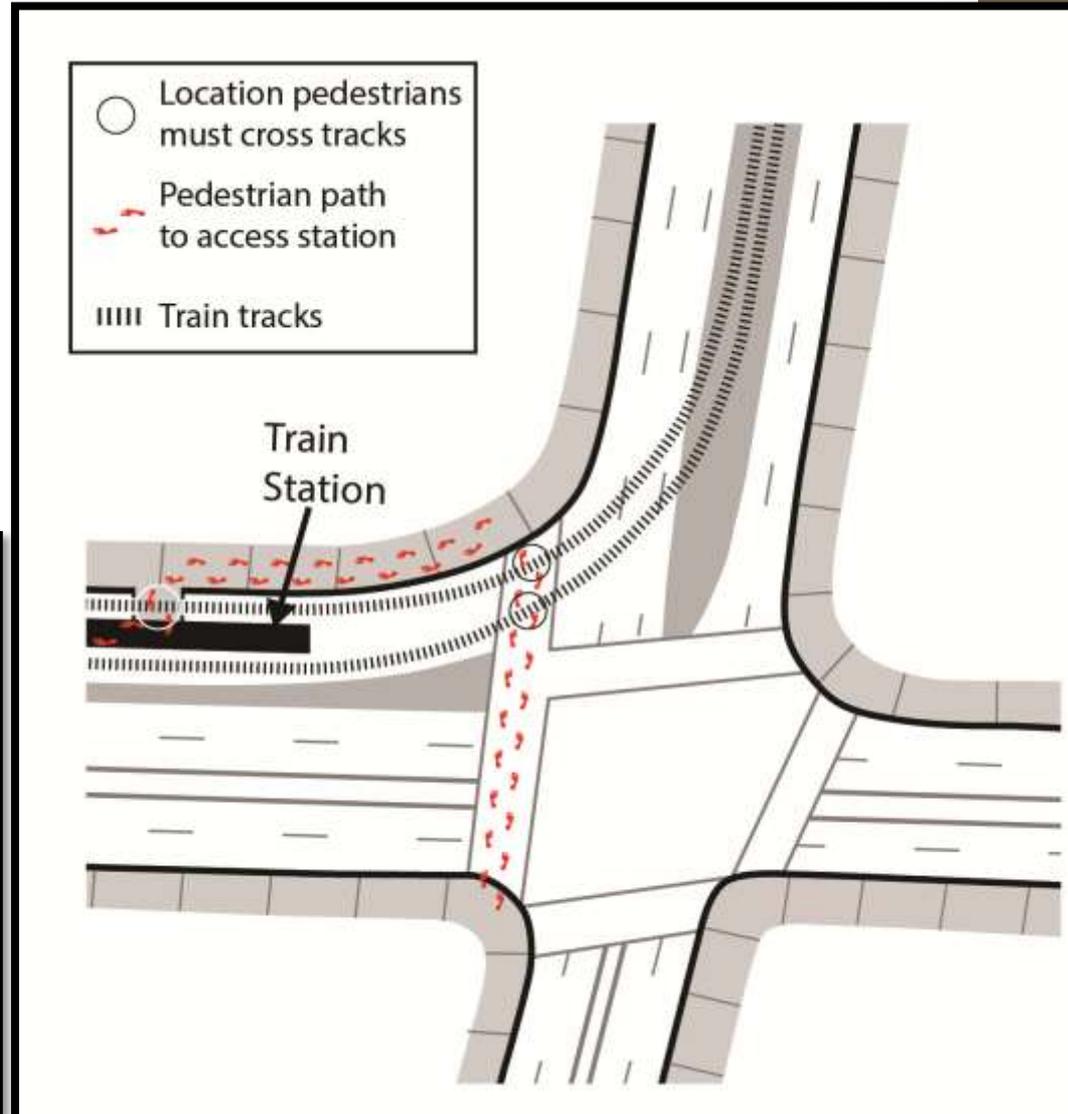
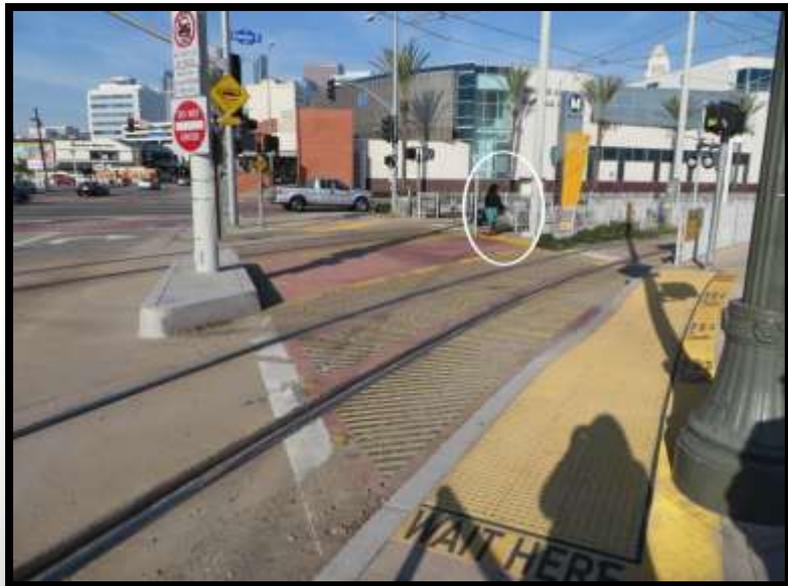


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Case Studies

Example – Station Entrance

- Before –
 - NB cross 3 tracks
 - SB cross 1 track
- After –
 - all cross 1 track

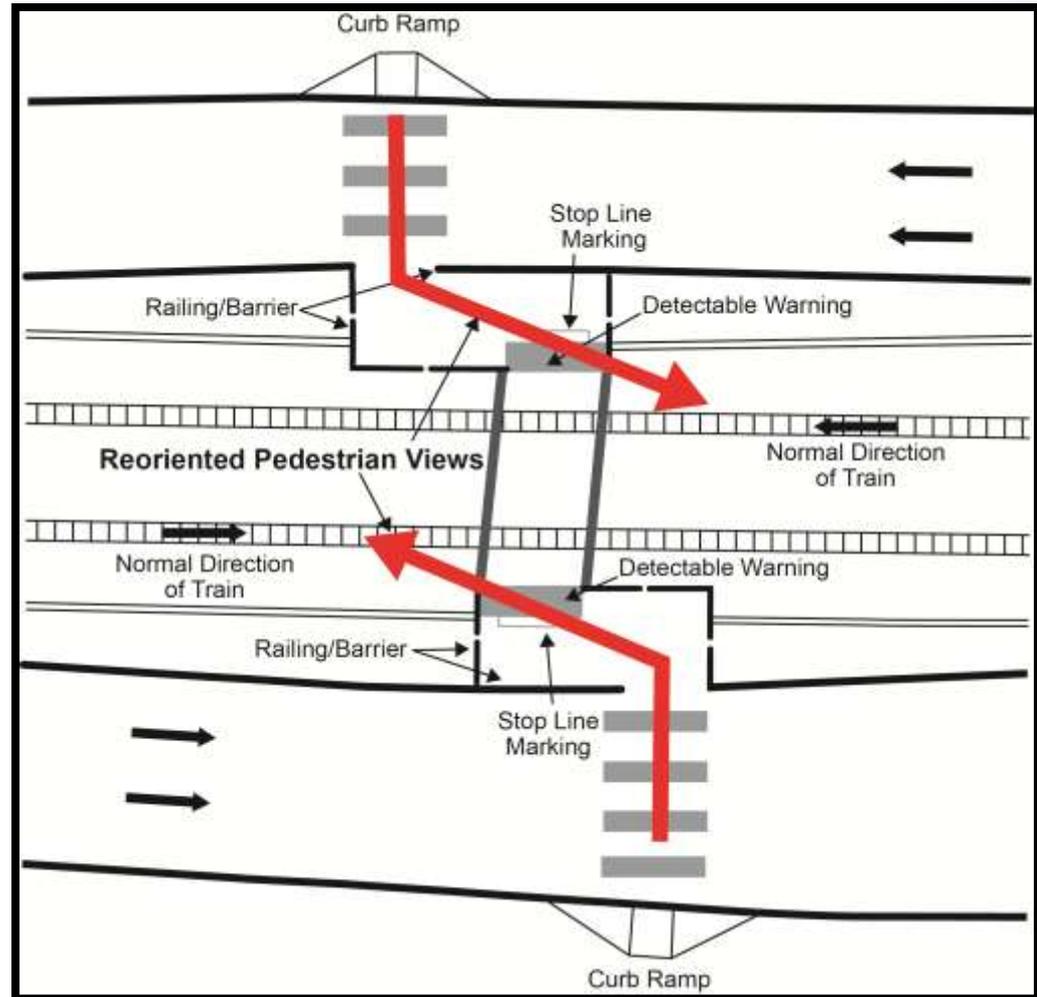


Example – Pedestrian Path

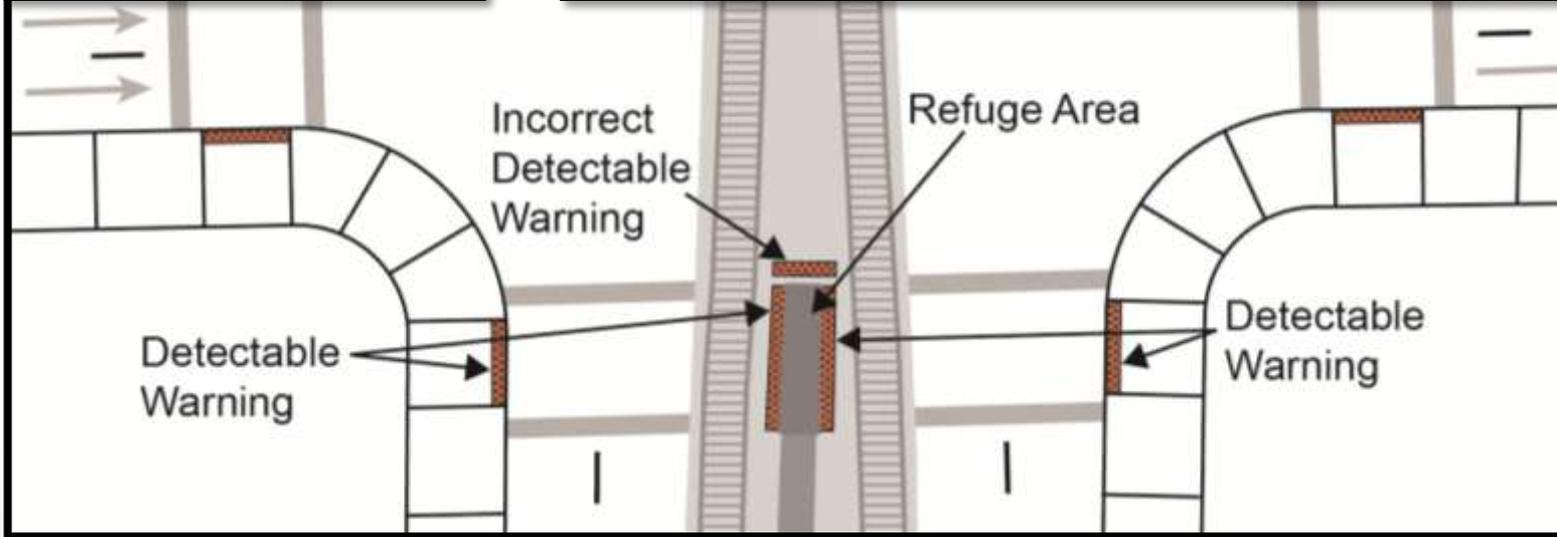
- Before



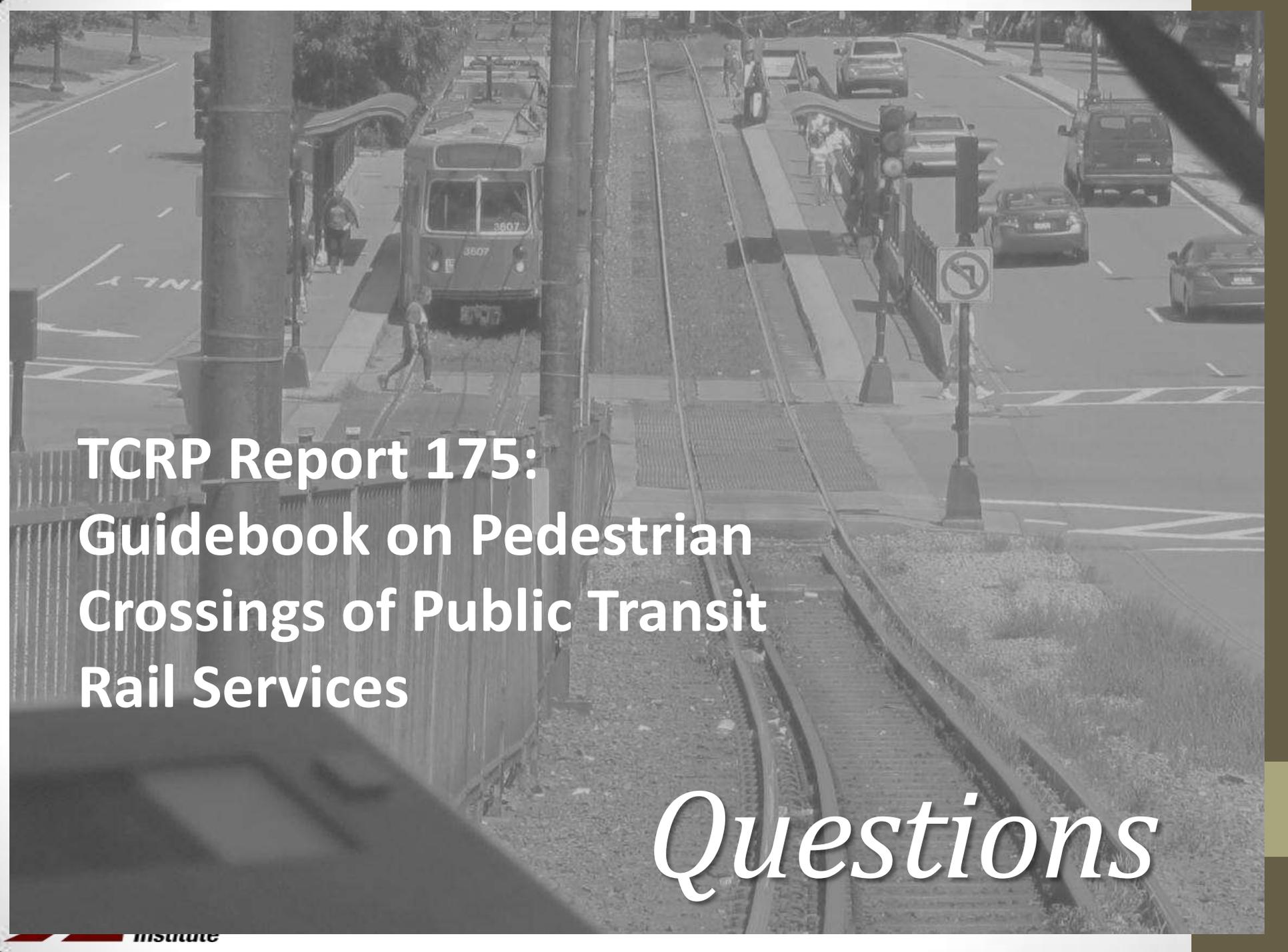
- After



Example – Detectable Warning



↓ To station



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Questions

Reports

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For Additional Information Concerning this
Presentation.

Please contact Dr. Kay Fitzpatrick @
k-fitzpatrick@tamu.edu

Or

Jeff Warner @ J-Warner@tamu.edu