Factors Influencing Crossing Safety Treatments

• Sight Lines of pedestrians and LRV Operators
  • Site Triangle
• Track Geometry
• Speed of trains and stopping distances
• Usage of crossing
• Demographics of area users of the crossing
Figure 4. PEDESTRIAN SIGHT TRIANGLE

CASE: LRV Approaching Crossing at 35 mph

Figure 4 illustrates sight distance required for pedestrian to safely cross two tracks, covering a distance of 34.5 feet.

Assumptions:
1. Two track configuration
2. LRV approaching from left to right on first track
3. Time required by pedestrian to travel 34.5 feet, based on
   - 3.5 feet per second walking speed = 9.86 seconds
4. Fence 10 feet from centerline of near track

Minimum Crossing Distance, 34.5 feet, where:
1. 7.0 ft is the distance traveled at 3.5 feet per second during decision/reaction period of 2 seconds
2. 5.5 ft is the distance from the centerline of the near track to the outer edge of the dynamic envelope of the near track
3. 14.0 ft is the distance between the centerlines of the two tracks
4. 5.5 ft is the distance from the centerline of the far track to the outer edge of the dynamic envelope of the far track
5. 2.5 ft is the width of the buffer/clearance zone beyond the track and dynamic envelope

LRV Braking Distances for Unanticipated Stops

<table>
<thead>
<tr>
<th>LRV Speed (mph)</th>
<th>LRV Traveled Distance (ft) in 9.86 sec.</th>
<th>Full Service Braking Distance (ft)</th>
<th>Emergency Braking Distance (ft)</th>
<th>Distance of Low or Open Fence</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
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<td>942</td>
<td>654</td>
<td>159</td>
</tr>
</tbody>
</table>

Fence Height
Based on distance of 506 feet covered in 9.86 seconds and 7 second reaction time, fence height should not obstruct view 101 feet from crossing.

Korve Engineering, Inc.

March 6, 2000
Pedestrian Grade Crossing Treatments
Generic Concept – Angled Crossings
Orenco
Bedsted Barriers and Active Warning
Active Warning
Elam Young
Work in Progress – Beaverton Creek

NOTE:
1. Verify X-ing widths (SCL to IWM)
2. Prepare 16' TPO and 10' Approach (as is shown)
   or 10' TPO and 16' Approach?
Closing Remarks

• Pedestrian safety is paramount
• Crossings designed to channel pedestrians through crossing
• Provide audible and visual warning of approaching trains
• Monitor and evaluate pedestrian behaviors
• Revise crossing strategies as warranted