Oregon Rail Crossing Action Plan

Stakeholder Meeting 1

June 28, 2018
Wifi Password

Network: odot-guest
Password: LoadEffects

join.me/TDDPLANSEC
Welcome!

- Project Management Team
- Purpose of Today’s Meeting
- Agenda
- Parking Lot
Charter Overview

- Treat each other, staff and guests (if any) with respect
- Listen carefully, seek to understand each other
- Everyone participates
- Focus on the purpose and help stick to the agenda
- Discuss constructively
- Seek to find unity and common ground
- Minimize distractions during the meeting
Call for a Rail Crossing Action Plan
National Perspective

- Approximately 129,500 public at-grade crossings*
  - Down from 139,558 in 2008
- More than 50% have automatic (active) warning systems
  - But more than 60% of collisions occur at crossings with automatic warning systems *
- Population growth

* Source: Federal Rail Administration, “Highway-Rail Grade Crossing Resource Guide
United States Population

* Source: US Census
National Perspective

- Approximately 129,500 public at-grade crossings*
- More than 50% have automatic (active) warning systems
  - But more than 60% of collisions occur at crossings with automatic warning systems *
- Population growth
  - More drivers, trucks, pedestrians, bicyclists
  - More older drivers
  - More younger drivers
- Rail volumes also forecasted to grow

* Source: Federal Rail Administration, "Highway-Rail Grade Crossing Resource Guide"
Call for a Plan

• Nearly 130,000 public at-grade crossings **nationally**
  – Closing is best method but rarely viable
• 94% of train-vehicle collisions attributed to driver behavior or poor judgment
• FRA reports that in-car cameras show that nearly half of the time, drivers were engaged in secondary task (distraction) and that was in 2014
• Saw a trend down in collisions and fatalities but VMT is rising
Call for a Plan

• Section 202 of Rail Safety Improvement Act of 2008
  – First requirement of state highway-railway grade crossing action plan (State Action Plans)
  – For 10 states with highest number of highway-railway grade crossing collisions (over a specific 3 year period)
    – Alabama – Indiana
    – California – Iowa
    – Florida – Louisiana
    – Georgia – Ohio
    – Illinois – Texas

We will talk a bit more about these later
FRA Requirements

- Section 202 states State Action Plans must:
  - Identify specific solutions for improving safety at crossings, including highway-railway grade crossing closures or grade separations.
  - Focus on crossings that have experienced multiple accidents (crashes) or that were at high risk for such accidents.
  - Covers a 5-year time period
- FRA provides a model State Action Plan
  - But states have a fair amount of leeway in plan development and final product
FRA Requirements

• Section 11401 of the Fixing America’s Surface Transportation (FAST) Act requires each State to develop a State Action Plan
• FRA issued guidance in 2015
• ODOT’s plan will meet the needs of Oregon
• Update approximately every 3 years
Other States Crossing Action Plans
Highlights from Other State’s Plans

- Plans vary in complexity and approach
- California: aimed at improving data
- Florida: focus on high train-volumes corridors
- Georgia: ties multiple incidents locations to outreach strategies
- Iowa: identified role of stakeholders in various strategies
- Ohio: incorporated performance measures
- Texas: provided large array of specific strategies after detailed examination of multiple incident locations.
Oregon’s Rail System, Programs and Trends
## Oregon Rail System

### Class I Railroad Operating Characteristics in Oregon State

<table>
<thead>
<tr>
<th>Name</th>
<th>Employees</th>
<th>Payroll (Millions of Dollars)</th>
<th>Miles Operated&lt;sup&gt;a&lt;/sup&gt;</th>
<th>Originating Carloads</th>
<th>Terminating Carloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>UP</td>
<td>1,592</td>
<td>$126.6</td>
<td>877.8</td>
<td>175,303</td>
<td>260,701</td>
</tr>
<tr>
<td>BNSF</td>
<td>290</td>
<td>$19.5</td>
<td>264.4</td>
<td>79,726</td>
<td>157,213</td>
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</table>


<sup>a</sup>Mileage operated are the same as shown in Table 2.1, collected by Cambridge Systematics using ODOT GIS data.

Source: Oregon State Rail Plan, 2014
## Oregon Rail System - Short Line Railroads

<table>
<thead>
<tr>
<th>Name of Railroad</th>
<th>Standard Carrier Alpha Code (SCAC)</th>
<th>Classification</th>
<th>Route Miles</th>
<th>No. of Carloads</th>
<th>Revenue</th>
<th>Revenue/Mile</th>
<th>% Total Revenue</th>
<th>At Risk Segments⁹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland &amp; Western Railroad</td>
<td>PNWR</td>
<td>Regional (Jointly with WPRR)</td>
<td>444.7</td>
<td>39,511</td>
<td>$20,348,641</td>
<td>$45,758</td>
<td>35%</td>
<td>Astoria District – no customer; Forest Grove District – Poor condition</td>
</tr>
<tr>
<td>Willamette &amp; Pacific Railroad</td>
<td>WPRR</td>
<td>Regional (Jointly with PNWR)</td>
<td>Mileage included in PNWR</td>
<td>24,327</td>
<td>$13,300,020</td>
<td>-</td>
<td>23%</td>
<td>Bailey District – Abandoned in 2011; Dallas District – no customer</td>
</tr>
<tr>
<td>Central Oregon &amp; Pacific Railroad</td>
<td>CORP</td>
<td>Local</td>
<td>241.3</td>
<td>16,113</td>
<td>$13,184,446</td>
<td>$54,639</td>
<td>23%</td>
<td>Ashland to Montague, CA – pricing actions</td>
</tr>
<tr>
<td>Mount Hood Railroad Co.</td>
<td>MH</td>
<td>Local</td>
<td>21.1</td>
<td>448</td>
<td>$2,479,176</td>
<td>$117,496</td>
<td>4%</td>
<td>Sweet Home Branch – Little traffic</td>
</tr>
<tr>
<td>Albany &amp; Eastern Railroad Co.</td>
<td>AERC</td>
<td>Local</td>
<td>74.5</td>
<td>3,011</td>
<td>$1,765,426</td>
<td>$23,697</td>
<td>3%</td>
<td></td>
</tr>
<tr>
<td>Peninsula Terminal Co.</td>
<td>PT</td>
<td>Switching &amp; Terminal</td>
<td>1.3</td>
<td>2,694</td>
<td>$1,346,328</td>
<td>$1,035,637</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Idaho Northern &amp; Pacific Railroad</td>
<td>INPR</td>
<td>Local</td>
<td>20</td>
<td>2,367</td>
<td>$1,005,900</td>
<td>$50,295</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Palouse River &amp; Coulee City Railroad</td>
<td>PCC</td>
<td>Local</td>
<td>31.8</td>
<td>20,816</td>
<td>$923,528</td>
<td>$29,042</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Lake Railway (LRY LLC)</td>
<td>LRY</td>
<td>Local</td>
<td>15.4</td>
<td>1,501</td>
<td>$828,459</td>
<td>$53,666</td>
<td>1%</td>
<td>Entire line – little traffic</td>
</tr>
<tr>
<td>Klamath Northern Railway Co.</td>
<td>KNOR</td>
<td>Local</td>
<td>10.9</td>
<td>2,354</td>
<td>$794,228</td>
<td>$72,865</td>
<td>1%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Oregon State Rail Plan, 2014
# Oregon Rail System - Short Line Railroads

<table>
<thead>
<tr>
<th>Railroad Name</th>
<th>Code</th>
<th>Type</th>
<th>Mileage</th>
<th>Traffic</th>
<th>Annual Revenue</th>
<th>Annual Expenditure</th>
<th>Yearly Balance</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Willamette Valley Railway Co.</td>
<td>WWR</td>
<td>Local</td>
<td>33</td>
<td>923</td>
<td>$602,054</td>
<td>$18,244</td>
<td>1%</td>
<td>Entire line – little traffic</td>
</tr>
<tr>
<td>City of Prineville Railway</td>
<td>COPR</td>
<td>Local</td>
<td>21.4</td>
<td>899</td>
<td>$436,287</td>
<td>$20,387</td>
<td>1%</td>
<td>Entire line – little traffic</td>
</tr>
<tr>
<td>Wyoming &amp; Colorado Railroad</td>
<td>WYCO</td>
<td>Local</td>
<td>23.6</td>
<td>1,156</td>
<td>$396,050</td>
<td>$16,782</td>
<td>1%</td>
<td>Entire line – little traffic</td>
</tr>
<tr>
<td>Oregon Pacific Railroad Co.</td>
<td>OPR</td>
<td>Switching &amp; Terminal</td>
<td>13</td>
<td>1,038</td>
<td>$355,680</td>
<td>$27,360</td>
<td>1%</td>
<td>Liberal to Mollala – track removed</td>
</tr>
<tr>
<td>Wallowa Union Railroad</td>
<td>WURR</td>
<td>Local</td>
<td>63.4</td>
<td>-</td>
<td>$213,724</td>
<td>$3,371</td>
<td>0%</td>
<td>Entire line – little traffic</td>
</tr>
<tr>
<td>White City Terminal Union Railway LLC</td>
<td>WCTU</td>
<td>Switching &amp; Terminal</td>
<td>7.7</td>
<td>557</td>
<td>$202,677</td>
<td>$26,322</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Port of Tillamook Bay Railroad</td>
<td>POTB</td>
<td>Switching &amp; Terminal</td>
<td>83.9</td>
<td>362</td>
<td>$186,483</td>
<td>$2,223</td>
<td>0%</td>
<td>Already abandoned part of line – storm damage</td>
</tr>
<tr>
<td>Coos Bay Rail Link</td>
<td>CBRL</td>
<td>Local</td>
<td>135.9</td>
<td>194</td>
<td>$101,847</td>
<td>$7,49</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Portland Terminal Railroad Co.</td>
<td>PTRC</td>
<td>Switching &amp; Terminal</td>
<td>2.9</td>
<td>N/A</td>
<td>$52,000</td>
<td>$17,931</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Hampton Railway, Inc.</td>
<td>HLSC</td>
<td>Local</td>
<td>5.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Entire Line – little traffic</td>
</tr>
<tr>
<td>Longview Portland &amp; Northern Railway</td>
<td>LPN</td>
<td>Local</td>
<td>3.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Entire Line – no traffic</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td>1,245.80</td>
<td>18,271</td>
<td>$58,520,954</td>
<td>$46,975</td>
<td>100%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Oregon State Rail Plan, 2014
Oregon’s Rail System

- 2011: 34,840 thousands of tons
- 2035 (forecast): 59,282 thousands of tons

Compound Annual Growth Rate of 2.2%

Source: Oregon State Rail Plan, 2014
Oregon’s Population Forecast

Oregon’s Population Forecast by Age Group

Source: Portland State University’s Population Research Center
Oregon Statewide VMT (in Billions)

Source: Oregon Transportation Safety Division
Oregon’s Rail System

- Highway – Rail Grade Crossings
  - 1,889 Public
  - ~2,200 Private
- 2,397 miles of railroad track
- Regulated crossings
  - 30 railroads
  - Over 200 road authorities
Funding Rail Crossing Improvements in Oregon

- Section 130 and Oregon Highway Funds
- Safety Upgrades
- Projects Selection Criteria
  - 1:1 Crossing Closure
  - JAQUA risk analysis results
  - Coordination with ODOT region staff
  - On-site diagnostics
  - Partnership with local road authority
- Other Federal Grants
Role of DOT and Partners

- ODOT
- FHWA
- FRA
- Railroads
- Local Jurisdictions

Safer railroad crossings for traveling public
Oregon Transportation Plans
• Oregon Transportation Plan Goals (sampling)

• Goal 2:
  • To improve the **efficiency** of the **transportation system** by optimizing the existing transportation infrastructure capacity with improved operations and management.

• Goal 3:
  • To promote the expansion and diversification of Oregon’s economy through the **efficient and effective movement of people, goods, services and information in a safe, energy-efficient and environmentally sound manner**.

• Goal 5:
  • To plan, build, operate and maintain the **transportation system so that it is safe and secure**.
• **Oregon Transportation Plan**

• **Strategy 2.1.4: Enhance efficiency and reduce conflicts among transportation users, for example, by reducing bottlenecks and geometric constraints, and improving or removing modal crossings.** Provide for a network of arterials and highways to efficiently move goods and services while enhancing safety and community movements on local streets. Provide for signal prioritization and road patterns that support public transit. Support rail reconfiguration and additional tracks that benefit passenger and freight movements.
• **Oregon Highway Plan**

  • **Strategy 2G.1** Eliminate crossings at grade wherever possible. **Give priority to closing those crossings with the greatest potential for train-vehicle conflicts.** Where rail grade crossings provide an important route for local pedestrian, bicycle, or vehicle circulation, the needs of these local movements should be considered.

  • **Strategy 2G.3:** In cooperation with railroads and local governments, target resources to increase safety through automated devices and enforcement at specific crossings.
• **Oregon State Rail Plan**
  - **Strategy 3d**: As required by statute (ORS 824.202), eliminate at-grade crossings wherever possible. **Give priority for closing crossings with the greatest potential for train conflicts with other modes, and redundant crossings.** Where rail grade crossings provide an important route for local pedestrian, bicycle or vehicle circulation, the needs of these local movements must be considered in decisions for closing or modifying existing crossings or adding new crossings.

  - **Strategy 6d**: Work with railroads to provide efficient intercity mobility through and near urban areas in a manner which minimizes adverse effects on urban land use and travel patterns, including noise mitigation where appropriate and **rail crossing considerations**.
• **Oregon Freight Plan**

• **Strategy 6.1.1:** Work with the ODOT Motor Carrier Transportation Division, Rail Division and other programs within state agencies to advance freight issues for consideration in safety plans. This should include continued monitoring of locations on state highways for high incidence of truck-involved crashes to identify any emerging safety issues and continued evaluation of *rail grade crossing safety* through the Oregon Operation Lifesaver program.
• **Oregon Transportation Safety Action Plan**

  • **Strategy 2.3.8:** Continue to plan, design and implement best practices for rail safety program and systems management, particularly rail crossings.
• Oregon Rail Crossing Action Plan
  • Supports implementation of the modal and topic plans
  • Partnership with local jurisdictions
The Role of the State Action Plan

Currently

ODOT selects appropriate devices (Rail unit) and provides crash analysis (Transportation Data)

&

Examines licensing, training, education programs and coordinates enforcement (DMV, Safety Division) in separate programs

- This plan seeks to bring these together
- Stakeholders play an important role in crossing safety improvements
- Your input is important for this plan
The Role of the State Action Plan

- FAST ACT Required
- This Action Plan will
  - Include clear goals for 5 year horizon
  - Serve as a model for future iterations (about every 3 years)
  - Be consistent with Oregon State Rail Plan
  - Guide ODOT crossing improvement projects
    - Provide statewide framework
    - Connect to other plans
    - Meet ODOT’s mission
- The process will seek stakeholder input
Schedule & Key Milestones
**Project Schedule**

**Jan – Apr 2018**
- Develop Plan purpose & need
- Data Assessment
- Obtain supplemental data

**Apr – Jun 2018**
- Data analysis
- Assess incident factors
- **Stakeholder input**
- Finalize Plan goals

**Jul – Aug 2018**
- Develop crossing selection criteria
- Testing
- QA/QC
- Revisions

**Sept 2018**
- Evaluate improvement options
- **Stakeholder input**
- Begin Plan document

**Oct – Dec 2018**
- Finalize Plan document
- Submit to FRA for approval
Stakeholders
Stakeholder Role and Charge

- Provide a broad range of perspectives to ensure plan reflects needs
- Provide expertise
- Support the action plan in your day-to-day role
Incorporating Your Input

Stakeholder input on:

– Objectives

– Contributing factors to incidents
Who is here

• Name
• Organization
• Your top issue, key concern or comment
Overview Rail Crossing Incidents
A Word About This Data

• Sources include FRA, ODOT Rail Division, ODOT Transportation Data Section, Oregon State Rail Plan
• TriMet incidents not included
• Suicides included (for now)
• Some information is missing
Working with Data

- Determine range years, assumptions and needs
- Gather data
- Clean and sort data
- Highlight anomalies, errors and inconsistencies
Oregon Annual Incidents

Annual Crossing Incidents

129 total incidents
Oregon Annual Incidents

Oregon Total Rail Crossing Incidents - 1975-2017
Oregon Department of Transportation
Rail Crossing Action Plan

Incidents Trend

Oregon % change

National % change

2006 2007 2008 2009 2010 2011 2012 2013 2014
0 50 100 150 200 250
-100 -50 0
<table>
<thead>
<tr>
<th>Year</th>
<th>National Annual Total</th>
<th>National % change</th>
<th>Oregon Total without Max</th>
<th>Oregon % change</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>2986</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>3070</td>
<td>2.81312793</td>
<td>18</td>
<td>-5.263157895</td>
</tr>
<tr>
<td>2007</td>
<td>2812</td>
<td>-8.403908796</td>
<td>19</td>
<td>5.555555556</td>
</tr>
<tr>
<td>2008</td>
<td>2547</td>
<td>-9.423897582</td>
<td>12</td>
<td>-36.84210526</td>
</tr>
<tr>
<td>2009</td>
<td>2054</td>
<td>-19.35610522</td>
<td>6</td>
<td>-50</td>
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<tr>
<td>2010</td>
<td>2009</td>
<td>-2.190847123</td>
<td>18</td>
<td>200</td>
</tr>
<tr>
<td>2011</td>
<td>2055</td>
<td>2.289696366</td>
<td>10</td>
<td>44.4444444444</td>
</tr>
<tr>
<td>2012</td>
<td>2046</td>
<td>-0.437956204</td>
<td>10</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>2003</td>
<td>-2.101661779</td>
<td>9</td>
<td>-10</td>
</tr>
<tr>
<td>2014</td>
<td>2262</td>
<td>12.93060409</td>
<td>13</td>
<td>44.4444444444</td>
</tr>
</tbody>
</table>
Oregon Department of Transportation

Rail Crossing Action Plan

Rail Crossing Incidents

Highway Crashes

* Source: ODOT Transportation Safety Division
Highway Crash Trend

Figure ES.1 Oregon Transportation Fatalities
1994 to 2015

* Excerpt from the 2016 Oregon Transportation Safety Action Plan
Oregon Rail Crossing Incidents Overview

Incident Location Crossing Type (2008-2017)

- Urban: 95 (74%)
- Rural: 34 (26%)

Oregon Crossing Type (No TriMet)

- Urban: 976 (55%)
- Rural: 806 (45%)

* Urban is defined as any crossing within the Federal Aid Urban Boundary, Urban Growth Boundary, or City Limits is Urban. Everywhere else is Rural.
Oregon Incidents - Severity

- 81 (31%) Property or no damage
- 22 (9%) Injury only
- 26 (10%) Fatality
- 7 Suicides

* Years 2008-2017
Oregon Incidents & Trends

Incidents - Mode of Traveler

- 101 (78%) Automobiles
- 24 (19%) Pedestrians
- 4 (3%) Bicycles

* Years 2008-2017
Crossing Incidents - Fatalities & Injuries by Mode

Number of Fatalities
- Vehicle: 13 (42%)
- Bicycle: 2 (6%)
- Pedestrian: 16 (52%)

Number of Injuries
- Vehicle: 7 (25%)
- Bicycle: 2 (7%)
- Pedestrian: 19 (68%)

* Years 2008-2017
Oregon Rail Crossing Incidents

Summary

• Between 2008 and 2017: 135 rail crossings recorded incidents
  – 6 involved TriMet max
• 24 incidents involved pedestrians
• 16 pedestrian fatalities (7 identified as suicide)
  – 1 pedestrian reported to have fallen off the train (injured)
• 7 pedestrian injury incidents
• 2 bicyclist fatality; 2 bicyclist injury incidents
• 0 incidents from malfunction
• 1 incident involved a second train
Oregon Incidents - Repeat Locations

- 42 incidents at repeat locations (2 or more incidents)

- 87 incidents (67%) at one time

- 42 incidents (33%)

* Years 2008-2017
Oregon Incidents - Repeat Locations

Of the incidents at repeat locations (2 or more incidents)

• 7 crossing locations had separate incidents with injuries and/or fatalities
• 2 locations have 2 separate fatal incidents
• 2 locations had 3 incidents (both in Umatilla)
  – Umatilla has 3 separate crossings with 2 or more incidents
Oregon Incidents - Repeat Locations

- Albany and Junction City – multiple fatality incidents
- Portland, Beaverton, Eugene, Umatilla Co. – 1 fatality incident
- Other Incidents
  - Donald, St. Louis, Salem, Chiloquin, Hillsboro, Woodburn, Oregon City, Pendleton, Hermiston, Umatilla, Ontario
Oregon Incidents - Railroad Involved

- AERC: 1 incident, 1 fatal
- AMTRAK: 6 incidents, 6 fatal
- BNSF: 9 incidents, 9 fatal
- COP: 1 incident, 1 fatal
- CORP: 7 incidents, 7 fatal
- MHRR: 2 incidents, 2 fatal
- PNWR: 38 incidents, 38 fatal
- POTB: 1 incident, 1 fatal
- UPRR: 62 incidents, 62 fatal
- WVR: 2 incidents, 2 fatal

Legend:
- Blue bar: Number of Incidents
- Red bar: Number of Fatal Incidents
## Oregon - Trackage for Railroads with Incidents

<table>
<thead>
<tr>
<th>Railroad</th>
<th>Miles of Track</th>
</tr>
</thead>
<tbody>
<tr>
<td>AERC</td>
<td>72</td>
</tr>
<tr>
<td>AMTRAK</td>
<td>349</td>
</tr>
<tr>
<td>BNSF</td>
<td>230</td>
</tr>
<tr>
<td>COP</td>
<td>18</td>
</tr>
<tr>
<td>CORP</td>
<td>247</td>
</tr>
<tr>
<td>MHRR</td>
<td>21</td>
</tr>
<tr>
<td>PNWR</td>
<td>447</td>
</tr>
<tr>
<td>POTB</td>
<td>84</td>
</tr>
<tr>
<td>UPRR</td>
<td>881</td>
</tr>
<tr>
<td>WVR</td>
<td>33</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2382</strong></td>
</tr>
</tbody>
</table>

* Years 2008-2017
## Oregon Railroad Trackage and Incidents

<table>
<thead>
<tr>
<th>Railroad</th>
<th>Number of Incidents</th>
<th>Number of Fatal Incidents</th>
<th>Number of Injuries from Incidents</th>
<th>Miles of Track</th>
<th>Rate Incidents/Track Mile</th>
</tr>
</thead>
<tbody>
<tr>
<td>AERC</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>72</td>
<td>0.013888889</td>
</tr>
<tr>
<td>AMTRAK</td>
<td>6</td>
<td>3</td>
<td>0</td>
<td>349</td>
<td>0.017191977</td>
</tr>
<tr>
<td>BNSF</td>
<td>9</td>
<td>1</td>
<td>5</td>
<td>230</td>
<td>0.039130435</td>
</tr>
<tr>
<td>COP</td>
<td>1</td>
<td>0</td>
<td>0</td>
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<td>CORP</td>
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<td>29</td>
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</table>

* Years 2008-2017
Oregon Railroad Incident Ratio

* Years 2008-2017

Miles of Track
Number of Incidents

* Oregon Department of Transportation
Rail Crossing Action Plan
Oregon Department of Transportation
Rail Crossing Action Plan

Oregon Railroad Incident/Track Ratio

* Years 2008-2017
# Oregon Railroad Crossings and Incidents

<table>
<thead>
<tr>
<th>Railroad</th>
<th>Number of Incidents</th>
<th>Number of Fatal Incidents</th>
<th>Number of Injuries from Incidents</th>
<th>Miles of Track</th>
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</tbody>
</table>

* Years 2008-2017
Oregon Railroad Incident/Crossing Ratio

* Years 2008-2017

* Public At-Grade Crossings
* Number of Incidents

NO DATA AVAILABLE
Plan Objectives Development
Plan Objectives - Categories

- Prevention
- Strategic Investment
- Coordination and Collaboration
Plan Objectives - Categories

• Engineering
• Education
• Enforcement
• Encouragement
• Enthusiasm
Plan Objectives

• Coordinate and collaborate with railroads, road authorities and other stakeholders to improve rail crossing safety.
• Reduce the number and rate of crossing incidents, injuries and fatalities.
• Apply engineering solutions for improvements.
• Strengthen education and outreach about rail crossing safety.
• Leverage opportunities for rail crossing improvements.
• Reduce number of rail crossings.
• Strengthen enforcement of illegal and dangerous behavior near rail crossings.
• Others?
• Others?
Break
Incidents Analysis
Preliminary Data Analysis Categories

• Physical
• Temporal
• Environmental
• Driver Info & Behavior
Crossing Incidents

- Years analyzed 2008-2017
- No TriMet Max (6 incidents excluded)
- Public crossings only
- Reported incidents only
- “Near Misses” not included
Physical
# Oregon Department of Transportation

## Rail Crossing Action Plan

### Crossing Incidents County

<table>
<thead>
<tr>
<th>County</th>
<th>Total Incident</th>
<th>Total Fatal</th>
<th>Total Injury or Property Damage Only</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marion</td>
<td>26</td>
<td>5</td>
<td>6</td>
<td>20.2%</td>
</tr>
<tr>
<td>Lane</td>
<td>17</td>
<td>5</td>
<td>3</td>
<td>13.2%</td>
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<tr>
<td>Multnomah</td>
<td>15</td>
<td>2</td>
<td>2</td>
<td>11.6%</td>
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<tr>
<td>Umatilla</td>
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<td>2</td>
<td>10.9%</td>
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<tr>
<td>Washington</td>
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<td>1</td>
<td>6</td>
<td>10.1%</td>
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<tr>
<td>Linn</td>
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<td>0</td>
<td>7.0%</td>
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<tr>
<td>Clackamas</td>
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<tr>
<td>Klamath</td>
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<td>1</td>
<td>3.9%</td>
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<tr>
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<tr>
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<td>Baker</td>
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<td>Douglas</td>
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<td>1.6%</td>
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<tr>
<td>Hood River</td>
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<td>0</td>
<td>1.6%</td>
</tr>
<tr>
<td>Jefferson</td>
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<td>1</td>
<td>3</td>
<td>1.6%</td>
</tr>
<tr>
<td>Union</td>
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<td>0</td>
<td>1.6%</td>
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<td>Benton</td>
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<td>29</td>
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* Percentages are based on years 2008-2017. The total percentage may exceed 100% due to rounding.
## Crossing Incidents - City

<table>
<thead>
<tr>
<th>City</th>
<th>Total Incidents</th>
<th>Total Fatal</th>
<th>Total Injury</th>
</tr>
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<tbody>
<tr>
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</tr>
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<tr>
<td>Beaverton</td>
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<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Chiloquin</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Creswell</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Culver</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Donald</td>
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<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Eugene</td>
<td>8</td>
<td>3</td>
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<tr>
<td>Haines</td>
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<tr>
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<td>St. Louis</td>
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<td>Tigard</td>
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</tr>
<tr>
<td>Tualatin</td>
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<tr>
<td>Woodburn</td>
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</table>

* Years 2008-2017
# Oregon Department of Transportation

## Rail Crossing Action Plan

### Crossing Incidents - City

<table>
<thead>
<tr>
<th>City</th>
<th>Total Incidents</th>
<th>Total Fatal</th>
<th>Total Injury</th>
</tr>
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<tbody>
<tr>
<td><em>--</em></td>
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<td>2</td>
<td>2</td>
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<td>Chiloquin</td>
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<td>0</td>
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</tr>
<tr>
<td>Creswell</td>
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<td>0</td>
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<tr>
<td>Culver</td>
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<td>3</td>
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<tr>
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<tr>
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<tr>
<td>Haines</td>
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<tr>
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<tr>
<td>Jefferson</td>
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<td>Ontario</td>
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<tr>
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<tr>
<td>Pendleton</td>
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</tr>
<tr>
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<tr>
<td>Scappoose</td>
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<tr>
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<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Woodburn</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* Years 2008-2017

30%
Crossing Incidents - Warning Devices

- Incidents: 74, of which 55 are Passive and 19 are Active.
- Fatalities: 3, all Passive.
- Injuries: 9, of which 13 are Active.

* Years 2008-2017
Crossing Incidents - Warning Devices

* Years 2008-2017

- Gates: 71 incidents, 22 fatalities, 13 injuries
- Flashing Lights: 73 incidents, 22 fatalities, 13 injuries
Temporal
Crossing Incidents - Time of Year

Incidents by Month

* Years 2008-2017
Oregon Department of Transportation

Rail Crossing Action Plan

**Crossing Incidents – Time of Year**

Oregon

National

* ODOT Years 2008-2017, National Years 2005-2014
## Crossing Incidents - Time of Year

* Years 2008-2017

<table>
<thead>
<tr>
<th></th>
<th>Winter</th>
<th>Spring</th>
<th>Summer</th>
<th>Fall</th>
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</thead>
<tbody>
<tr>
<td>November</td>
<td>16</td>
<td>March</td>
<td>June</td>
<td>11</td>
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<tr>
<td>December</td>
<td>17</td>
<td>April</td>
<td>July</td>
<td>13</td>
</tr>
<tr>
<td>January</td>
<td>6</td>
<td>May</td>
<td>August</td>
<td>15</td>
</tr>
</tbody>
</table>

19 of 29 fatalities occurred in winter months
Oregon Department of Transportation
Rail Crossing Action Plan

Crossing Incidents - Time of Year

Incidents by Season

* Years 2008-2017

- Spring: 39 (30%)
- Summer: 39 (30%)
- Fall: 22 (17%)
- Winter: 29 (23%)

Legend:
- Blue: Spring
- Red: Summer
- Green: Fall
- Purple: Winter
Oregon Department of Transportation
Rail Crossing Action Plan

Crossing Incidents - Day of the Week

* Years 2008-2017
## Crossing Incidents - Time of Day

<table>
<thead>
<tr>
<th>Time Period</th>
<th>12a-6a</th>
<th>6a-12p</th>
<th>12p-6p</th>
<th>6p-12a</th>
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<tbody>
<tr>
<td></td>
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<td>35</td>
<td>45</td>
<td>31</td>
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</table>

### Highest Hour

<table>
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<tr>
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<th>12a-6a</th>
<th>6a-12p</th>
<th>12p-6p</th>
<th>6p-12a</th>
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</thead>
<tbody>
<tr>
<td>12:00am</td>
<td>3</td>
<td>6:00am</td>
<td>3</td>
<td>12:00pm</td>
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<tr>
<td>1:00am</td>
<td>3</td>
<td>7:00am</td>
<td>7</td>
<td>1:00pm</td>
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<tr>
<td>2:00am</td>
<td>4</td>
<td>8:00am</td>
<td>6</td>
<td>2:00pm</td>
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<td>3:00am</td>
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<td>3:00pm</td>
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<tr>
<td>5:00am</td>
<td>4</td>
<td>11:00am</td>
<td>13</td>
<td>5:00pm</td>
</tr>
</tbody>
</table>

* Years 2008-2017
Driver Info & Behavior
Oregon Incidents by Gender (2008-2017)

- Male: 88 (70%)
- Female: 37 (30%)

* Years 2008-2017
Crossing Incidents - Traveler Gender - Comparison Nationally

Oregon Incidents by Gender (2005-2014)

- Male: 96 (74%)
- Female: 34 (26%)

National Incidents by Gender (2005-2014)

- Male: 75%
- Female: 25%

Source: Federal Rail Administration, “In Depth Analysis of Grade Crossing Accidents Resulting in Injuries and Fatalities; ODOT Rail Division
Crossing Incidents - Traveler Age

Oregon Total 2005-2014:
- 34 (32%) <29
- 17 (16%) 30-39
- 16 (15%) 40-49
- 9 (8%) 50-59
- 5 (5%) 60-69
- 2 (2%) 70-79
- 1 (1%) 80-89
- 1 (1%) 90+

Oregon Total 2008-2017:
- 23 (21%) <29
- 23 (21%) 30-39
- 28 (25%) 40-49
- 18 (16%) 50-59
- 13 (12%) 60-69
- 3 (3%) 70-79
- 0 (0%) 80-89
- 2 (2%) 90+
Crossing Incidents - Traveler Age

Oregon Total 2005-2014
- <29: 2 (2%)
- 30-39: 9 (8%)
- 40-49: 17 (16%)
- 50-59: 16 (15%)
- 60-69: 23 (21%)
- 70-79: 1 (1%)
- 80-89: 5 (5%)
- 90+: 1 (1%)

Total: 34 (32%)

Oregon Total 2008-2017
- <29: 2 (2%)
- 30-39: 13 (12%)
- 40-49: 23 (21%)
- 50-59: 2 (2%)
- 60-69: 18 (16%)
- 70-79: 3 (3%)
- 80-89: 0 (0%)
- 90+: 28 (25%)

Total: 23 (21%)
Oregon Total 2005-2014
- <29: 17 (16%)
- 30-39: 16 (15%)
- 40-49: 34 (32%)
- 50-59: 23 (21%)
- 60-69: 2 (2%)
- 70-79: 9 (8%)
- 80-89: 1 (1%)
- 90+: 5 (5%)

National Total 2005-2014
- <29: 3326 (17%)
- 30-39: 3800 (19%)
- 40-49: 5563 (28%)
- 50-59: 3873 (19%)
- 60-69: 1722 (9%)
- 70-79: 540 (3%)
- 80-89: 84 (0%)
- 90+: 986 (5%)

Source: Federal Rail Administration, “In Depth Analysis of Grade Crossing Accidents Resulting in Injuries and Fatalities; ODOT Rail Division
Oregon Department of Transportation
Rail Crossing Action Plan

Crossing Incidents - Weather

Weather at Time of Incident

- Clear: 78 (61%)
- Cloudy: 31 (24%)
- Foggy: 12 (9%)
- Raining: 3 (2%)
- Snowing: 3 (2%)
- Undefined: 2 (2%)

* Years 2008-2017
Oregon Department of Transportation
Rail Crossing Action Plan

Crossing Incidents - Traveler Behavior

* Years 2008-2017

- Stop and Go/Didn't Stop: 47 incidents
- Stall / Stuck on Tracks: 41 incidents
- Went Around Gates: 18 incidents

* Number of incidents
Crossing Incidents - Other

- 1 incidents - some type of obstruction
- 2 incidents - vehicle “high centering” on tracks
- Stall a known factor in 5 incidents
- 1 incident – pedestrian climbed over railcars
- 4 incidents – snow/ice noted
- 38 incidents involved a vehicle stuck on tracks
Oregon Rail Crossing Incidents

• Behavior a factor in most incidents
  – 95 incidents traveler reported not to have stopped or stopped then proceeded
  – 13 incidents results of driving around activated gates
• 2 incidents - traveler on phone or wearing headphones
• Traffic queuing factor in at least 2 incidents
• 7 incidents involved DUII
Contributing Factors - Group Discussion
What are some of the key factors or trends that may be contributing to rail crossing incidents?

- 
- 
- 
- 
- 
- 
- 
-
Dot Voting

• Consider your perspective on these factors:
• Vote with dots for factors you feel are critical to address, important to understand, emerging trends or important for your community, etc.
Dot Voting

RECAP Results
Crossing Prioritization
Crossing Prioritization Criteria

C1: FILL IN – RESULTS OF DOTS

C2:

C3:

Alternative C1: Anything missing?
Plan Objectives

• Coordinate and collaborate with railroads, road authorities and other stakeholders to improve rail crossing safety.
• Reduce the number and rate of crossing incidents, injuries and fatalities.
• Apply engineering solutions for improvements.
• Strengthen education and outreach about rail crossing safety.
• Leverage opportunities for rail crossing improvements.
• Reduce number of rail crossings.
• Strengthen enforcement of illegal and dangerous behavior near rail crossings.
• Others?
• Others?
Oregon Department of Transportation
Rail Crossing Action Plan

Plan Objectives - NEW

• Balance safety with quality of life
• Maintain rail crossing equipment inventory and make easily available
• Add multimodal considerations to rail crossings
• Encourage early coordination between road jurisdictions and railroads
• Evaluate system risk for rail crossings closures
• Encourage education and outreach to prevent crossing incidents
• Develop grade separations
• Develop asset management system for crossings (similar to bridge and pavement)
Objectives - REVISIT

Based on our discussion – revisions or additions needed?
Tools

• GradeDec.NET – web based benefit cost application decision support tool
• JAUQUE – risk assessment tool
Next Steps

- Parking Lot
- Synthesize what we heard today
- Meeting 2 - September
For More Information

- FHWA Rail Crossing Program Overview
  https://safety.fhwa.dot.gov/hsip/xings/

- FRA Highway-Rail Grade Crossings Overview
  https://www.fra.dot.gov/Page/P0156

- ODOT Rail and Public Transit Division
  https://www.oregon.gov/ODOT/RPTD

- ODOT Planning Unit
  https://www.oregon.gov/ODOT/Planning/Pages/SPR.aspx
Thank you!

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