



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



Oregon Department of Transportation

Rail Crossing Action Plan



Charter



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



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Rail Crossing Action Plan



Call for a Rail Crossing Action Plan



National Perspective

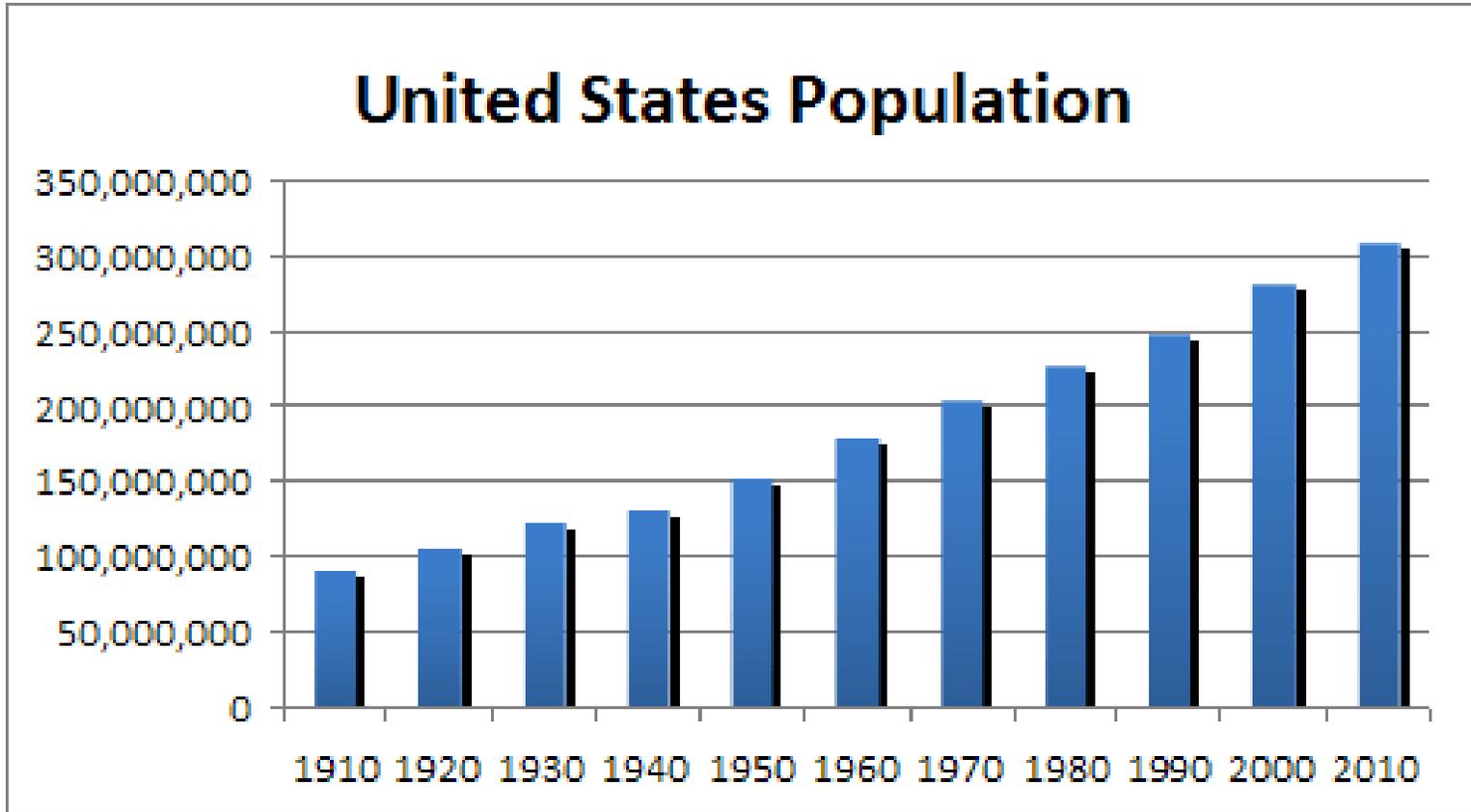
- Approximately 129,500 public at-grade crossings*
 - Down from 139,558 in 2008
- More than 50% have automatic (active) warning systems
 - But more than 60% of collisions occur at crossings with automatic warning systems *
- Population growth

* Source: Federal Rail Administration, "Highway-Rail Grade Crossing Resource Guide"



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* 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
 - California
 - Florida
 - Georgia
 - Illinois
 - Indiana
 - Iowa
 - Louisiana
 - Ohio
 - 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



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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.

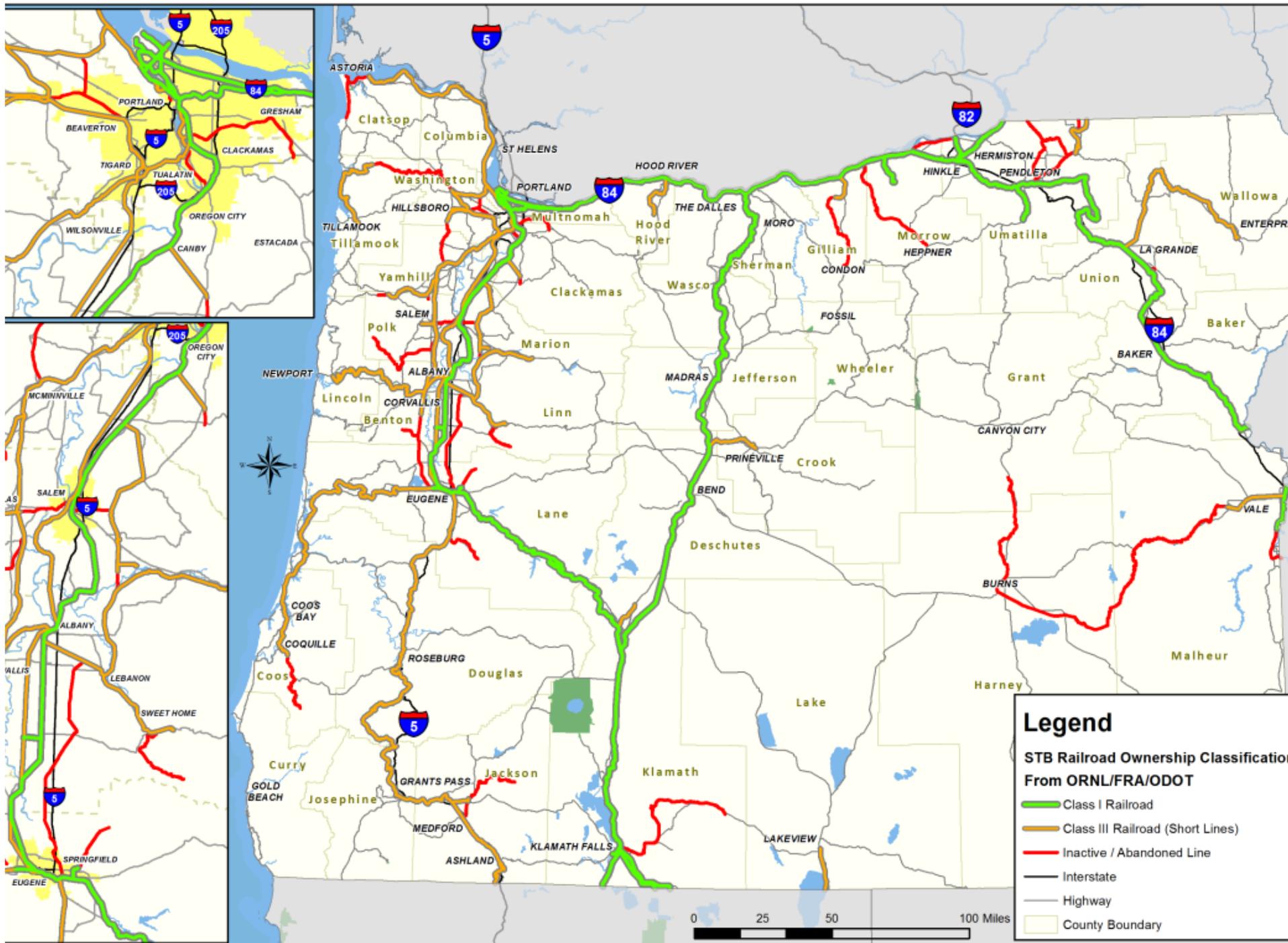


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Rail Crossing Action Plan



Oregon's Rail System, Programs and Trends



Source: Oregon State Rail Plan 2014



Oregon Rail System

Class I Railroad Operating Characteristics in Oregon State

| Name | Employees | Payroll (Millions of Dollars) | Miles Operated ^a | Originating Carloads | Terminating Carloads |
|------|-----------|-------------------------------|-----------------------------|----------------------|----------------------|
| UP | 1,592 | \$126.6 | 877.8 | 175,303 | 260,701 |
| BNSF | 290 | \$19.5 | 264.4 | 79,726 | 157,213 |

Source: UP statistics from UP Factsheet for Oregon, 2011; BNSF statistics from BNSF Factsheet for Oregon, 2010.

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



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Oregon Rail System – Short Line Railroads

Oregon Short Line Railroad Characteristics (Ranked by Revenue), 2011

| Name of Railroad | Standard Carrier Alpha Code (SCAC) | Classification | Route Miles | No. of Carloads | Revenue | Revenue/Mile | % Total Revenue | At Risk Segments ^a |
|--------------------------------------|------------------------------------|------------------------------|--------------------------|-----------------|--------------|--------------|-----------------|--|
| Portland & Western Railroad | PNWR | Regional (Jointly with WPRR) | 444.7 | 39,511 | \$20,348,641 | \$45,758 | 35% | Astoria District – no customer; Forest Grove District – Poor condition |
| Willamette & Pacific Railroad | WPRR | Regional (Jointly with PNWR) | Mileage included in PNWR | 24,327 | \$13,300,020 | - | 23% | Bailey District – Abandoned in 2011; Dallas District – no customer |
| Central Oregon & Pacific Railroad | CORP | Local | 241.3 | 16,113 | \$13,184,446 | \$54,639 | 23% | Ashland to Montague, CA – pricing actions |
| Mount Hood Railroad Co. | MH | Local | 21.1 | 448 | \$2,479,176 | \$117,496 | 4% | |
| Albany & Eastern Railroad Co. | AERC | Local | 74.5 | 3,011 | \$1,765,426 | \$23,697 | 3% | Sweet Home Branch – Little traffic |
| Peninsula Terminal Co. | PT | Switching & Terminal | 1.3 | 2,694 | \$1,346,328 | \$1,035,637 | 2% | |
| Idaho Northern & Pacific Railroad | INPR | Local | 20 | 2,367 | \$1,005,900 | \$50,295 | 2% | |
| Palouse River & Coulee City Railroad | PCC | Local | 31.8 | 20,816 | \$923,528 | \$29,042 | 2% | |
| Lake Railway (LRY LLC) | LRY | Local | 15.4 | 1,501 | \$826,459 | \$53,666 | 1% | Entire line – little traffic |
| Klamath Northern Railway Co. | KNOR | Local | 10.9 | 2,354 | \$794,228 | \$72,865 | 1% | |

Source: Oregon State Rail Plan, 2014



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Oregon Rail System – Short Line Railroads

| | | | | | | | | |
|--|------|----------------------|-----------------|----------------|---------------------|-----------------|-------------|---|
| Willamette Valley Railway Co. | WVR | Local | 33 | 923 | \$602,054 | \$18,244 | 1% | Entire line – little traffic |
| City of Prineville Railway | COPR | Local | 21.4 | 899 | \$436,287 | \$20,387 | 1% | |
| Wyoming & Colorado Railroad | WYCO | Local | 23.6 | 1,156 | \$396,050 | \$16,782 | 1% | Entire line – little traffic |
| Oregon Pacific Railroad Co. | OPR | Switching & Terminal | 13 | 1,038 | \$355,680 | \$27,360 | 1% | Liberal to Mollala – track removed |
| Wallowa Union Railroad | WURR | Local | 63.4 | - | \$213,724 | \$3,371 | 0% | Entire line – little traffic |
| White City Terminal Union Railway LLC ^b | WCTU | Switching & Terminal | 7.7 | 557 | \$202,677 | \$26,322 | 0% | |
| Port of Tillamook Bay Railroad | POTB | Switching & Terminal | 83.9 | 362 | \$186,483 | \$2,223 | 0% | Already abandoned part of line – storm damage |
| Coos Bay Rail Link | CBRL | Local | 135.9 | 194 | \$101,847 | \$749 | 0% | |
| Portland Terminal Railroad Co. | PTRC | Switching & Terminal | 2.9 | N/A | \$52,000 | \$17,931 | 0% | |
| Hampton Railway, Inc. | HLSC | Local | 5.3 | - | - | - | - | Entire Line – little traffic |
| Longview Portland & Northern Railway | LPN | Local | 3.5 | - | - | - | - | Entire Line – no traffic |
| | | Total | 1,245.80 | 118,271 | \$58,520,954 | \$46,975 | 100% | |

Source: Oregon State Rail Plan, 2014



Oregon's Rail System

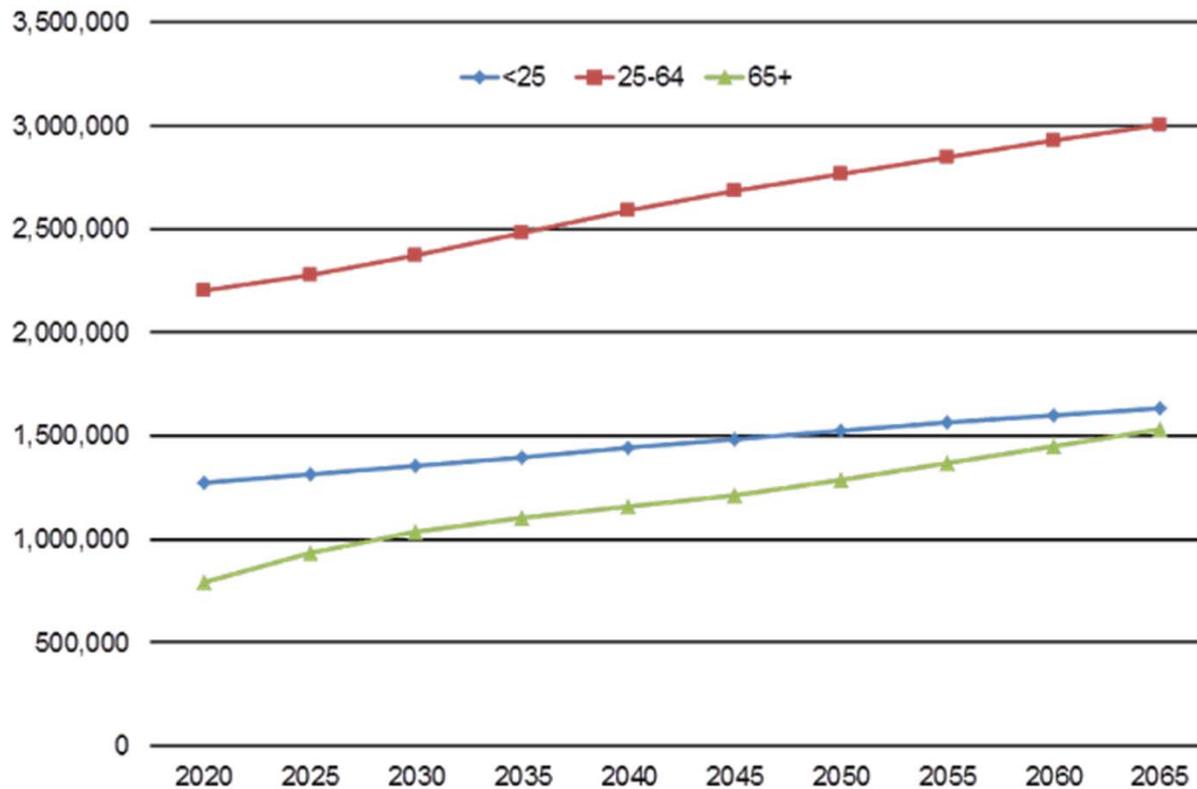
- 2011: 34,840 thousands of tons
- 2035 (forecast): 59,282 thousands of tons

Compound Annual Growth Rate
of 2.2%



Oregon's Population Forecast

Oregon's Population Forecast by Age Group

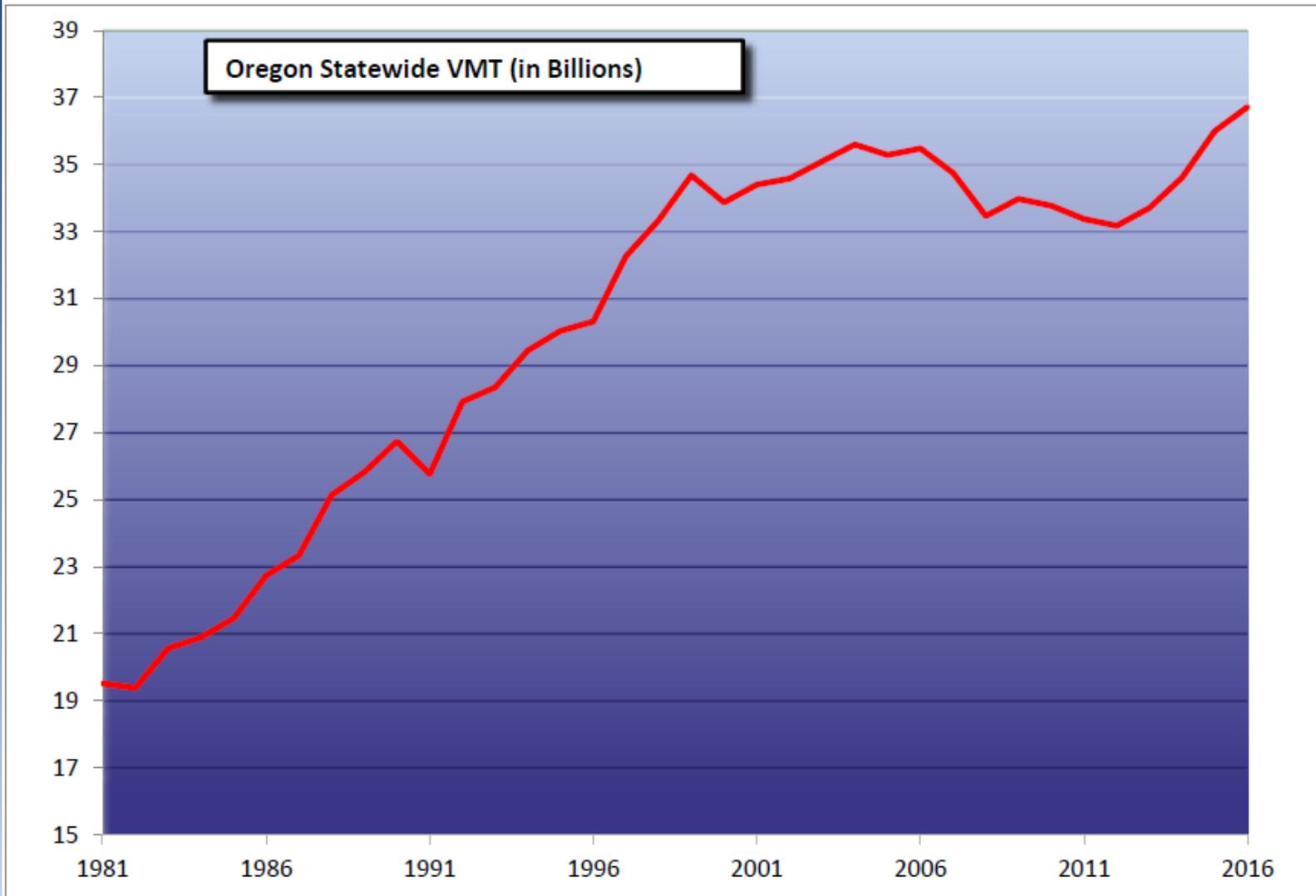


Source: Portland State University's Population Research Center



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Rail Crossing Action Plan



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

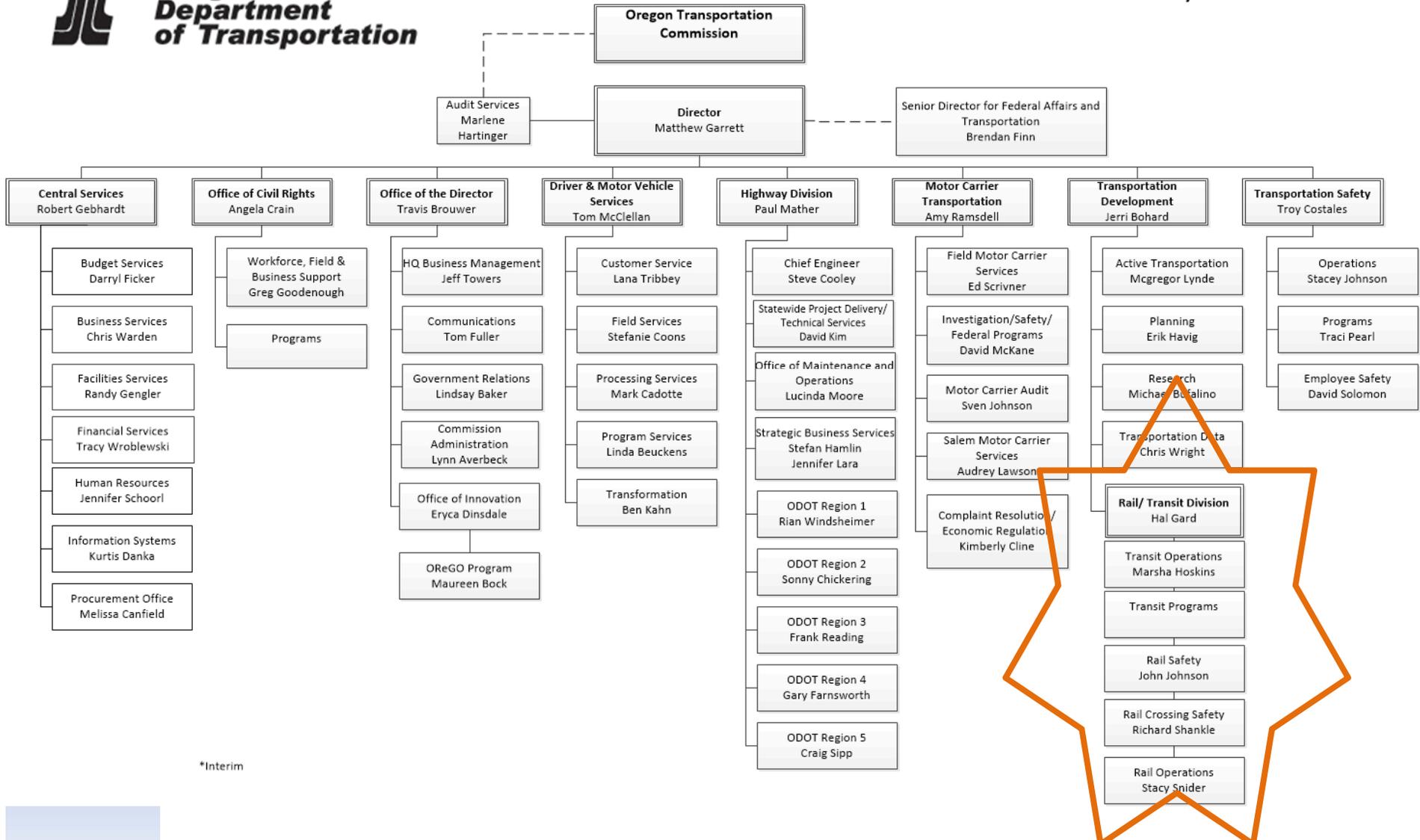


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May 2018



**Rail/Transit Division
Hal Gard**

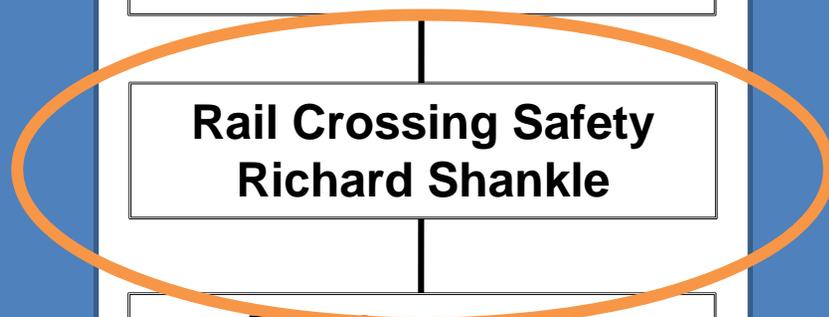
**Transit Operations
Marsha Hoskins**

Transit Programs

**Rail Safety
John Johnson**

**Rail Crossing Safety
Richard Shankle**

**Rail Operations
Stacy Snider**



ODOT Rail and Public Transit Division Crossing Safety Section



Richard Shankle
Crossing Safety Manager

Crossing Compliance Specialist



Zach Hunter
Crossing Compliance



Kurt Mohs
Crossing Compliance



Prescott Mann
Crossing Compliance



David Smith
Crossing Compliance



Carrie Martin
Crossing Compliance

Federal Railroad Inspector



John Brown
Signal and Train Control
Compliance



Bryon Alger
Signal and Train Control
Compliance

Employee Safety Specialist



Robyn Pfahler
Employee Safety

Vacant
Employee Safety



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

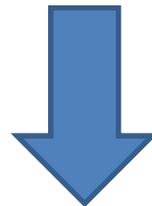
ODOT

FHWA

FRA

Railroads

Local Jurisdictions



*Safer railroad crossings for
traveling public*



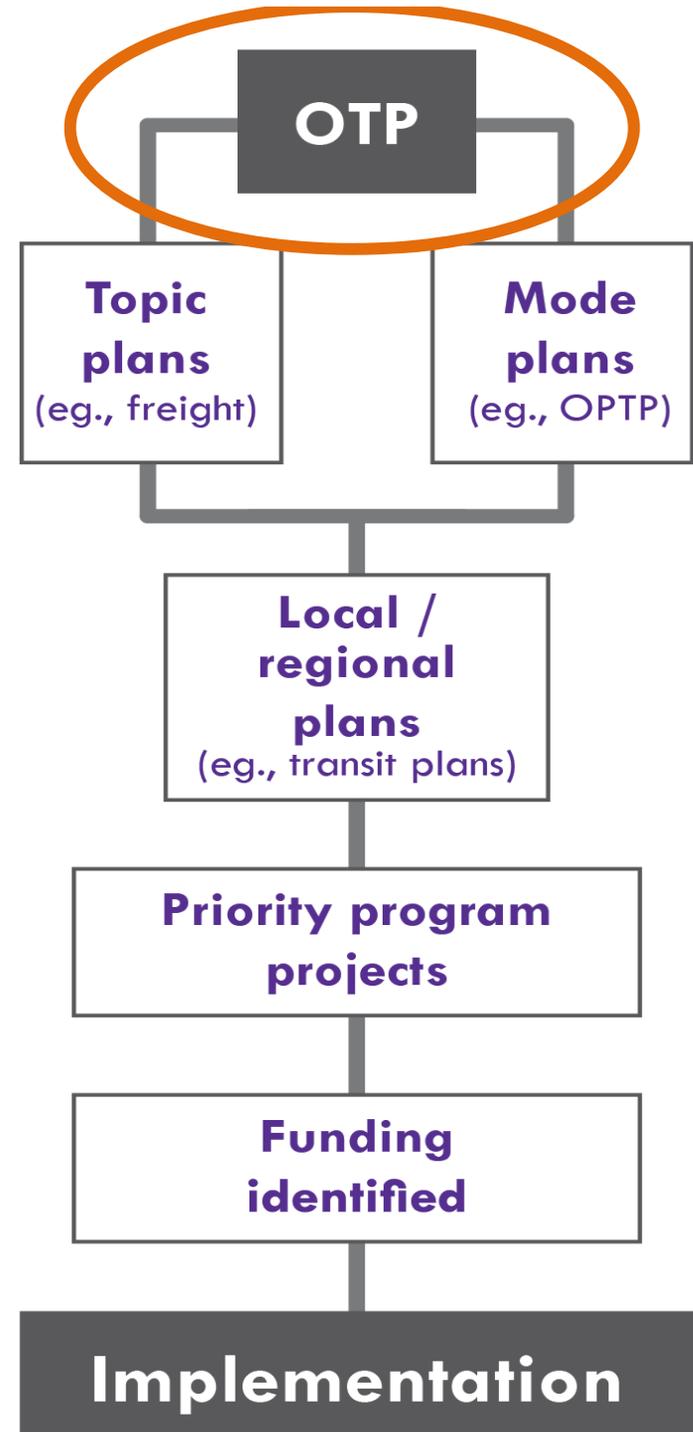
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Oregon Transportation Plans

- *Oregon Transportation Plan Goals (sampling)*

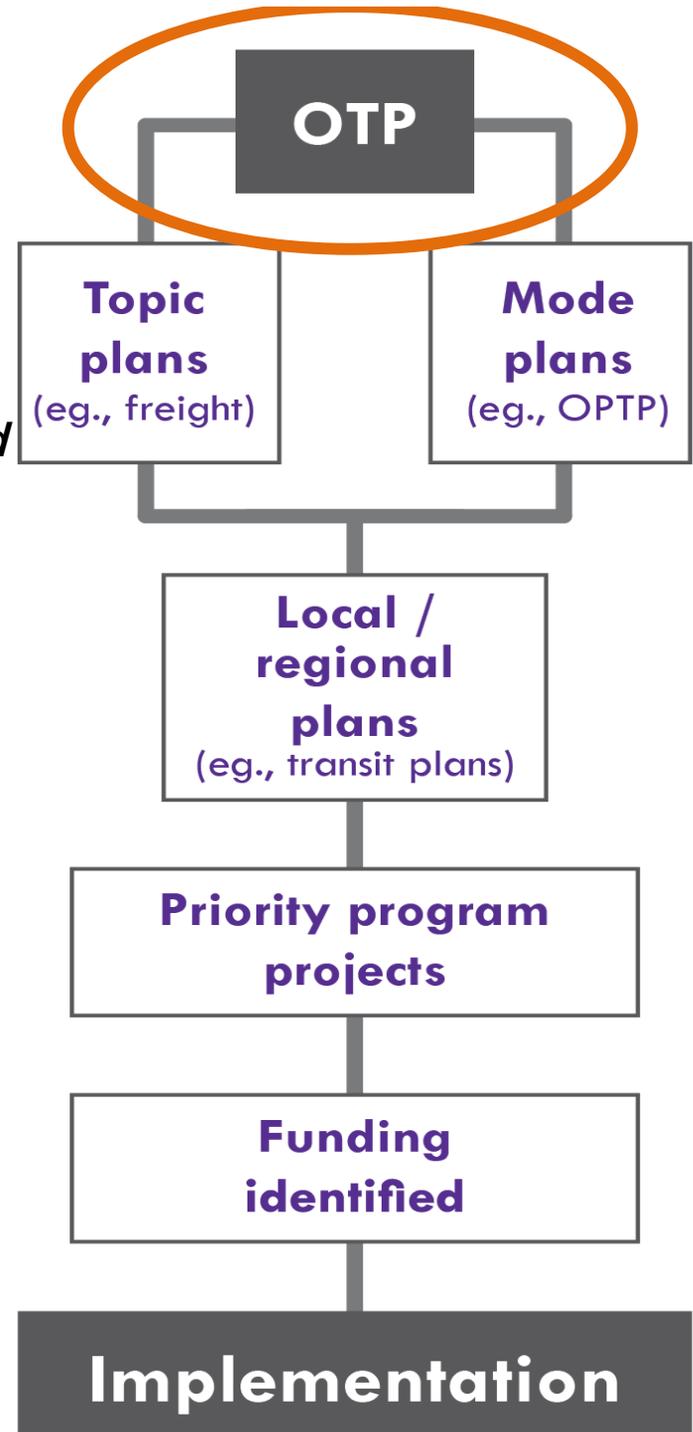
- **Goal 2:**
- To improve the **efficiency** of the **transportation system** by optimizing the existing transportation infrastructure capacity **with improved operations and management**.
- **Goal 3:**
- To promote the expansion and diversification of Oregon's economy through the **efficient and effective 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**.



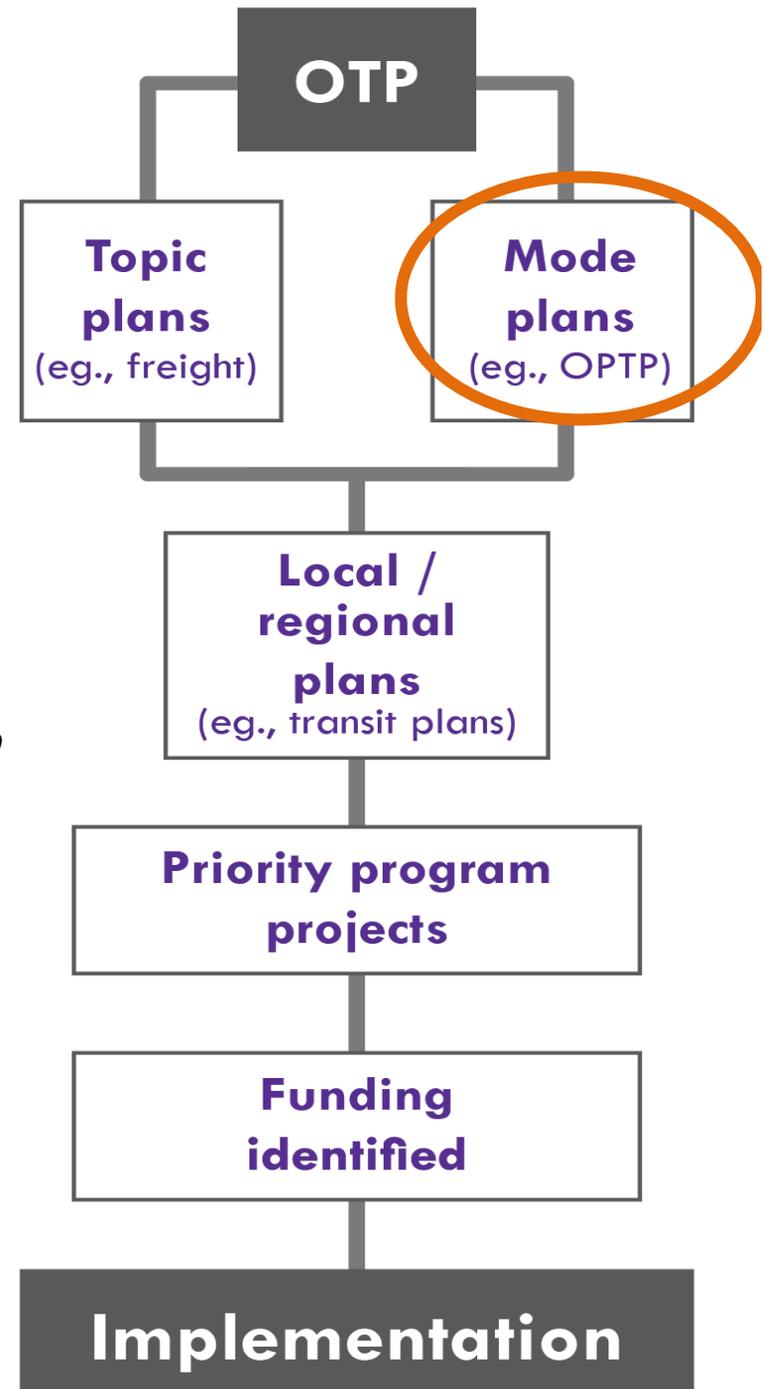
- ***Oregon Transportation Plan***

- ***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.***

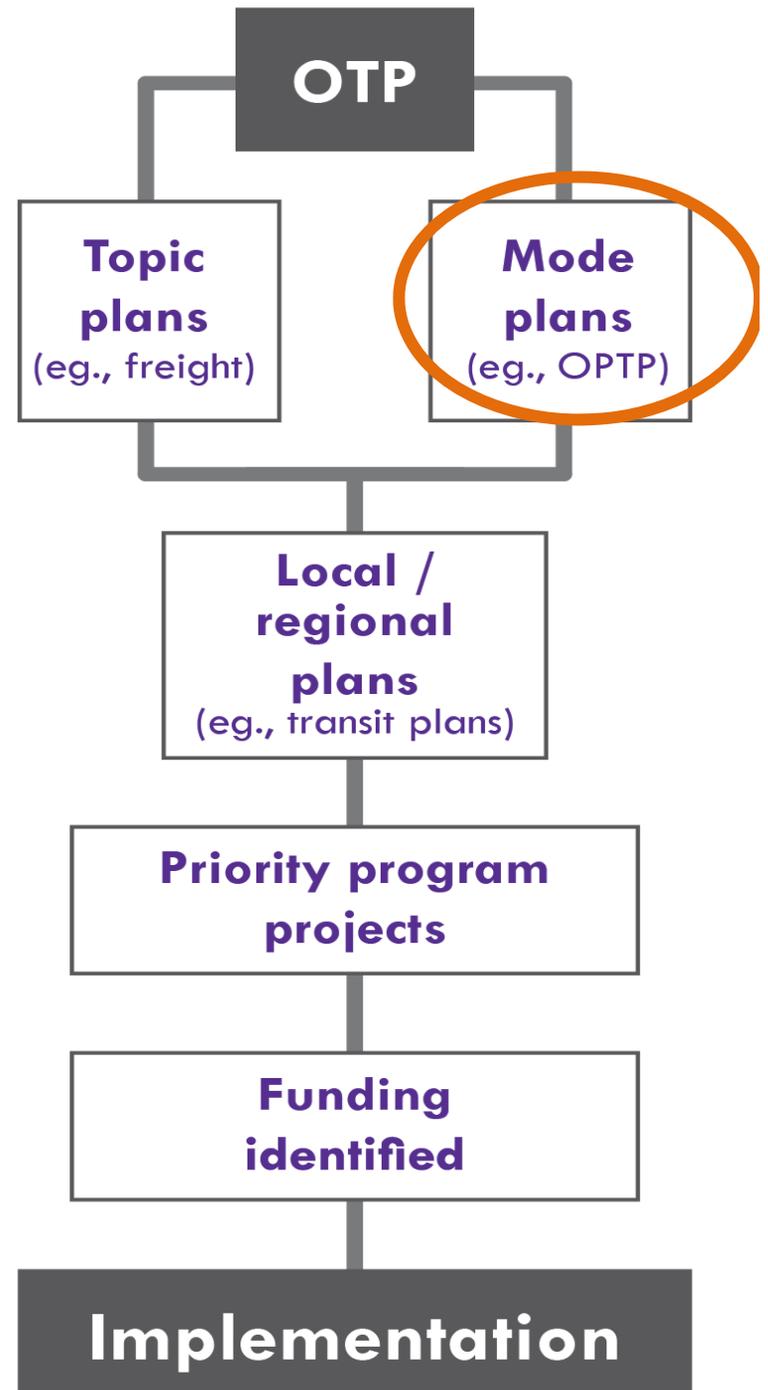
Provide for a network of arterials and highways to efficiently move goods and services while enhancing safety and community movements on local streets. Provide for signal prioritization and road patterns that support public transit. Support rail reconfiguration and additional tracks that benefit passenger 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.***

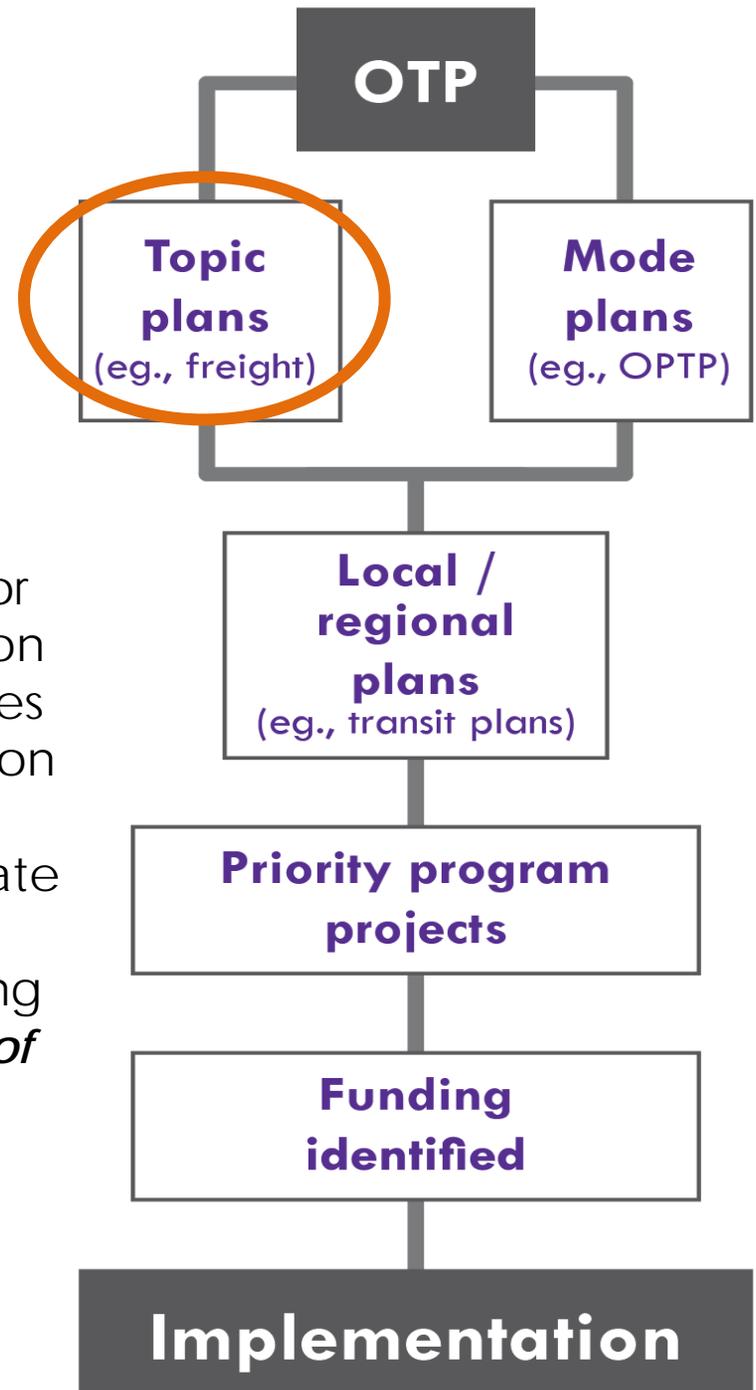


- **Oregon State Rail Plan**
- **Strategy 3d:** As required by statute (ORS 824.202), eliminate at-grade crossings wherever possible. *Give priority for closing crossings with the greatest potential for train conflicts with other modes, and redundant crossings.* Where rail grade crossings provide an 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.*

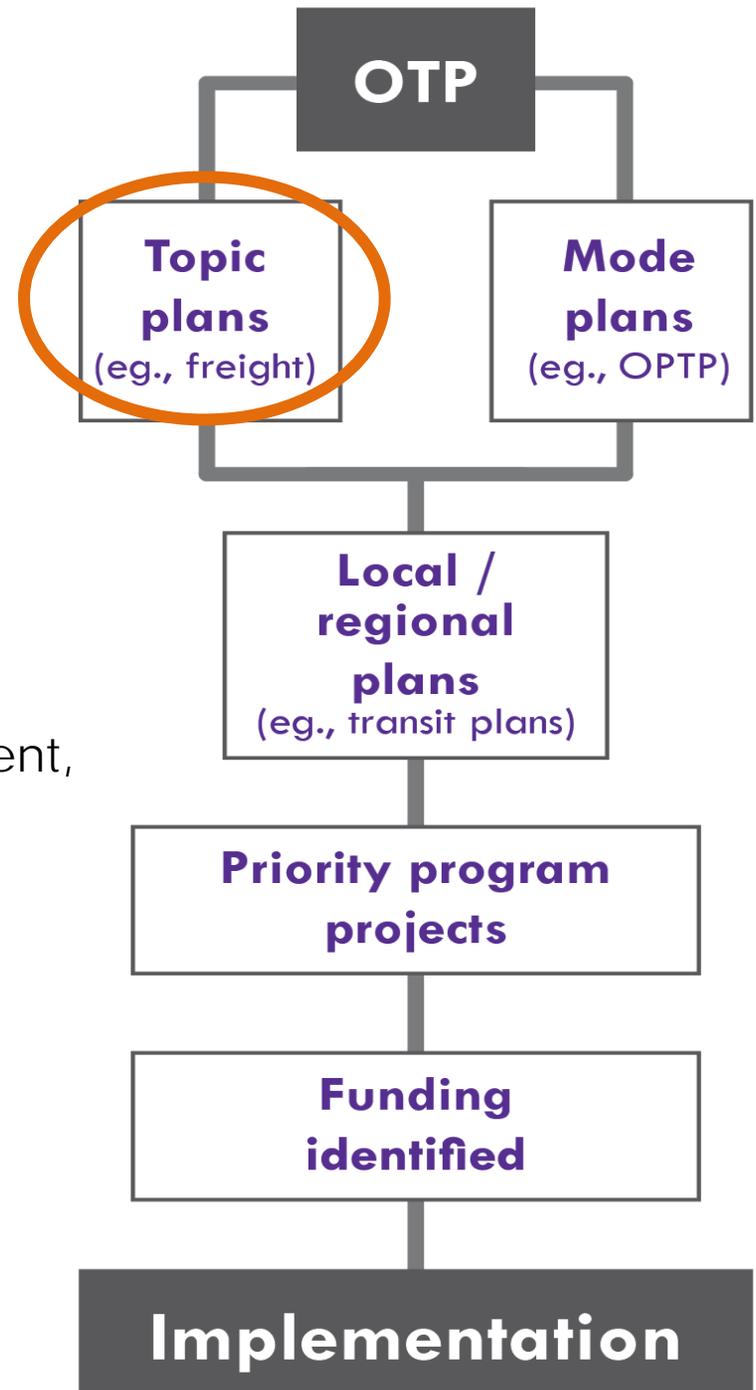


- ***Oregon Freight Plan***

- **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.

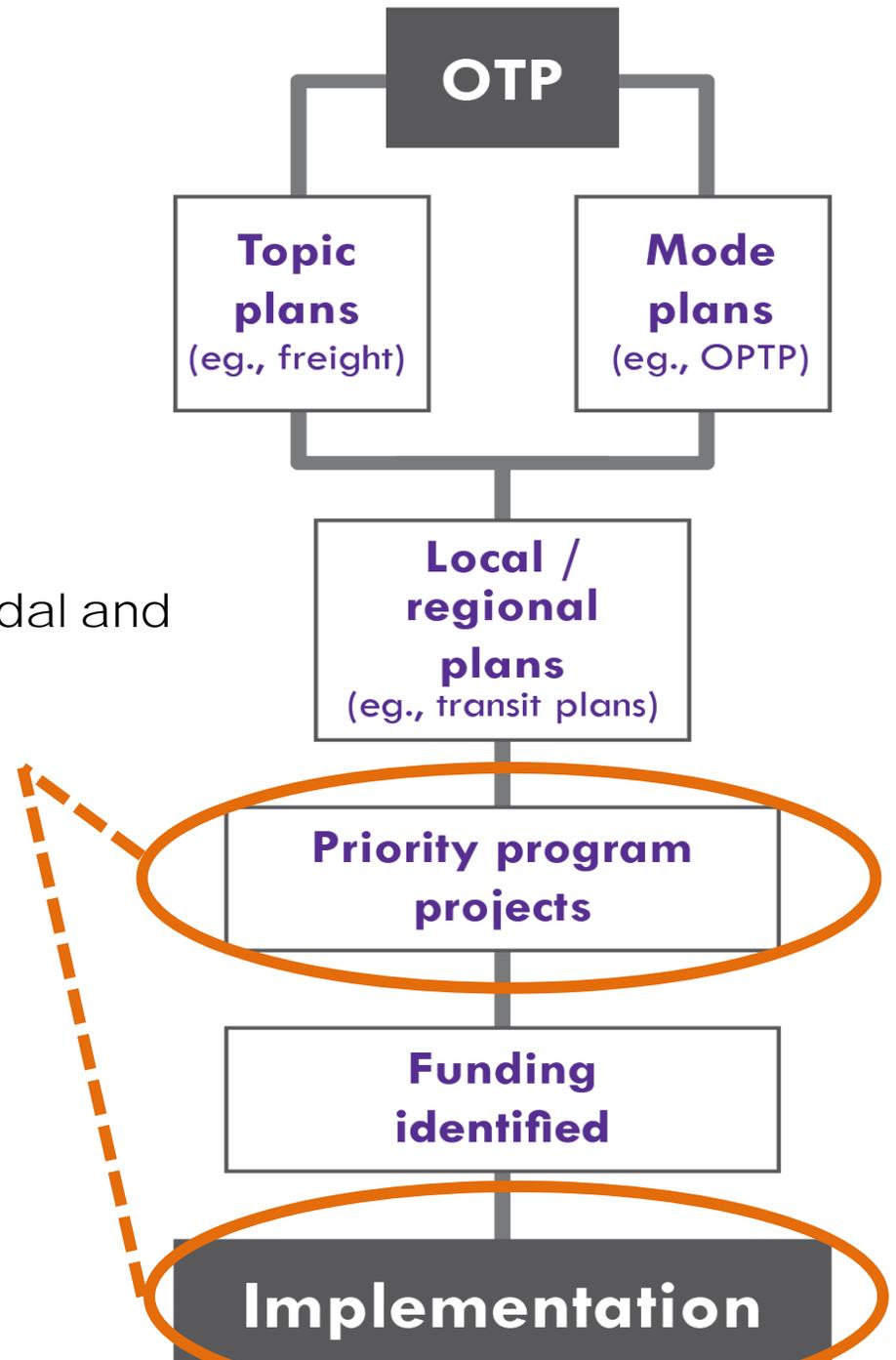


- *Oregon Transportation Safety Action Plan*
- **Strategy 2.3.8:** Continue to plan, design and implement best practices for rail safety program and systems management, *particularly rail crossings.*



- *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



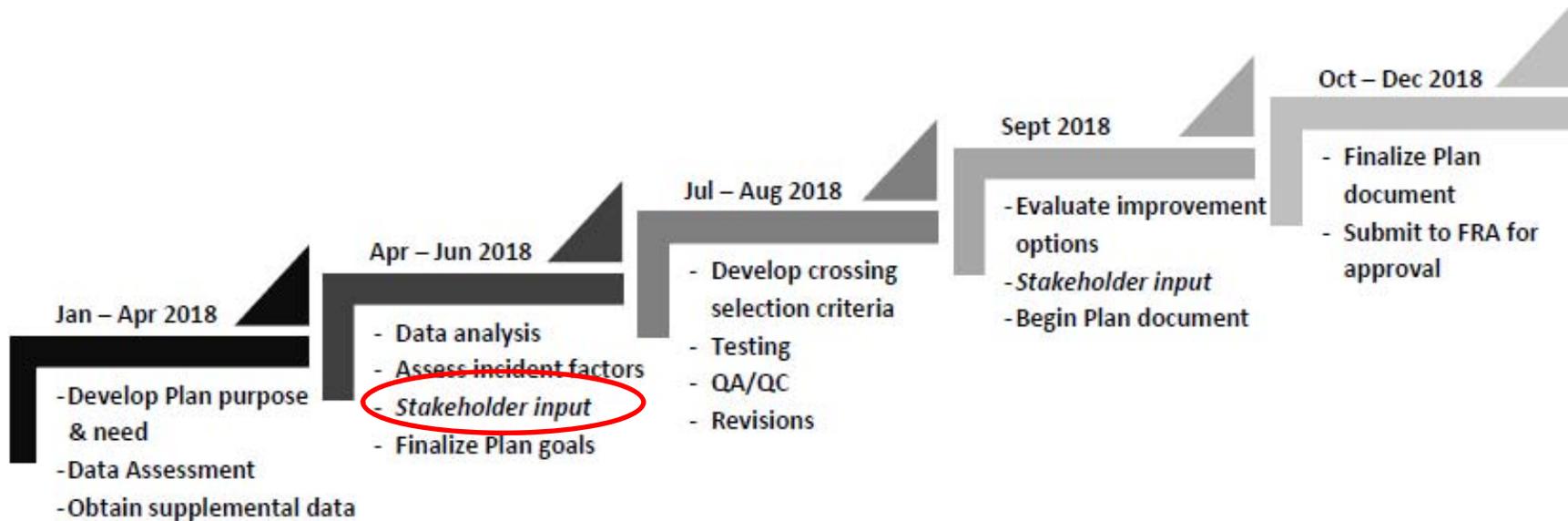
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Schedule & Key Milestones



Project Schedule





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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



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Rail Crossing Action Plan



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



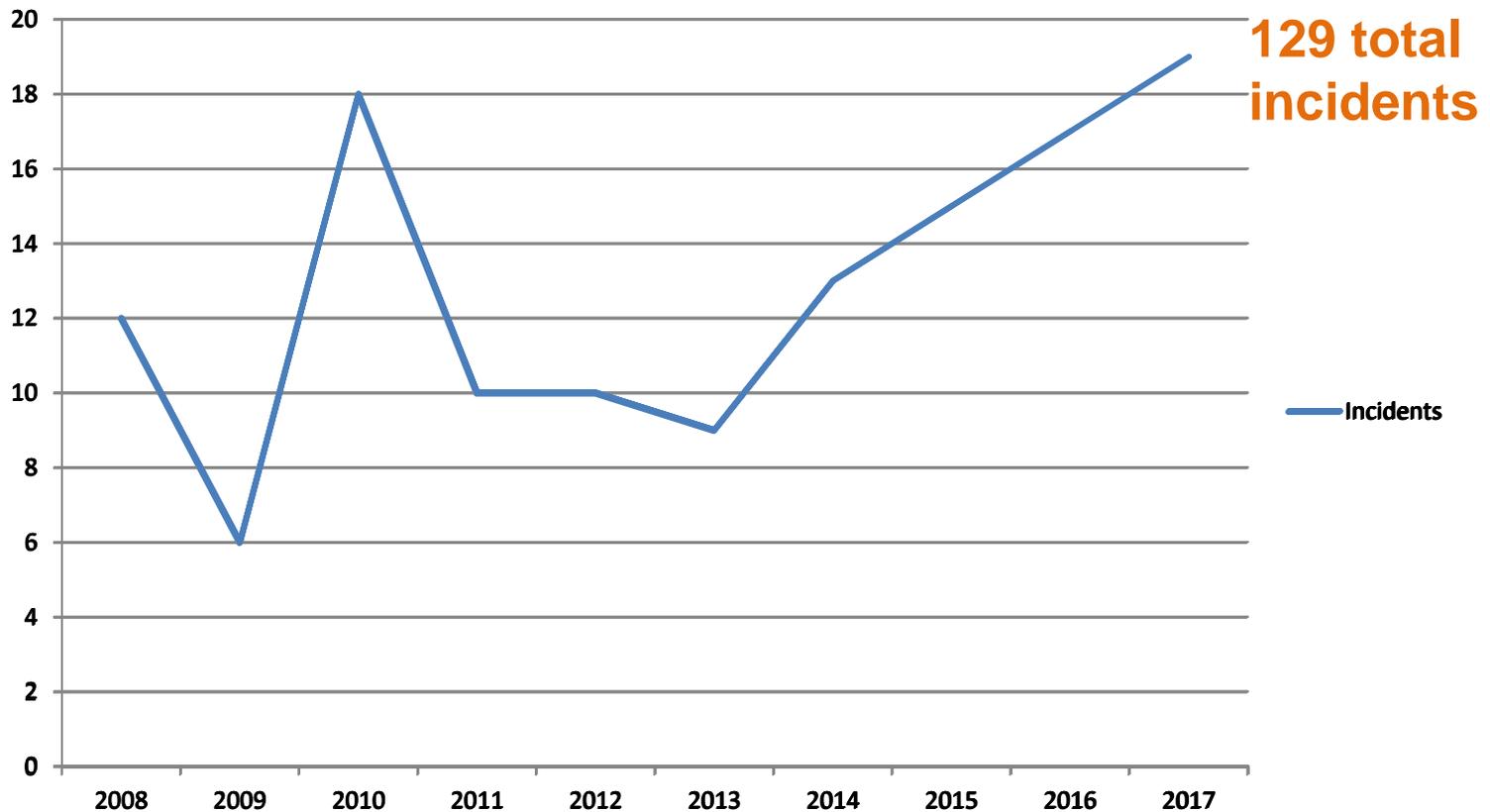
Working with Data

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



Oregon Annual Incidents

Annual Crossing Incidents



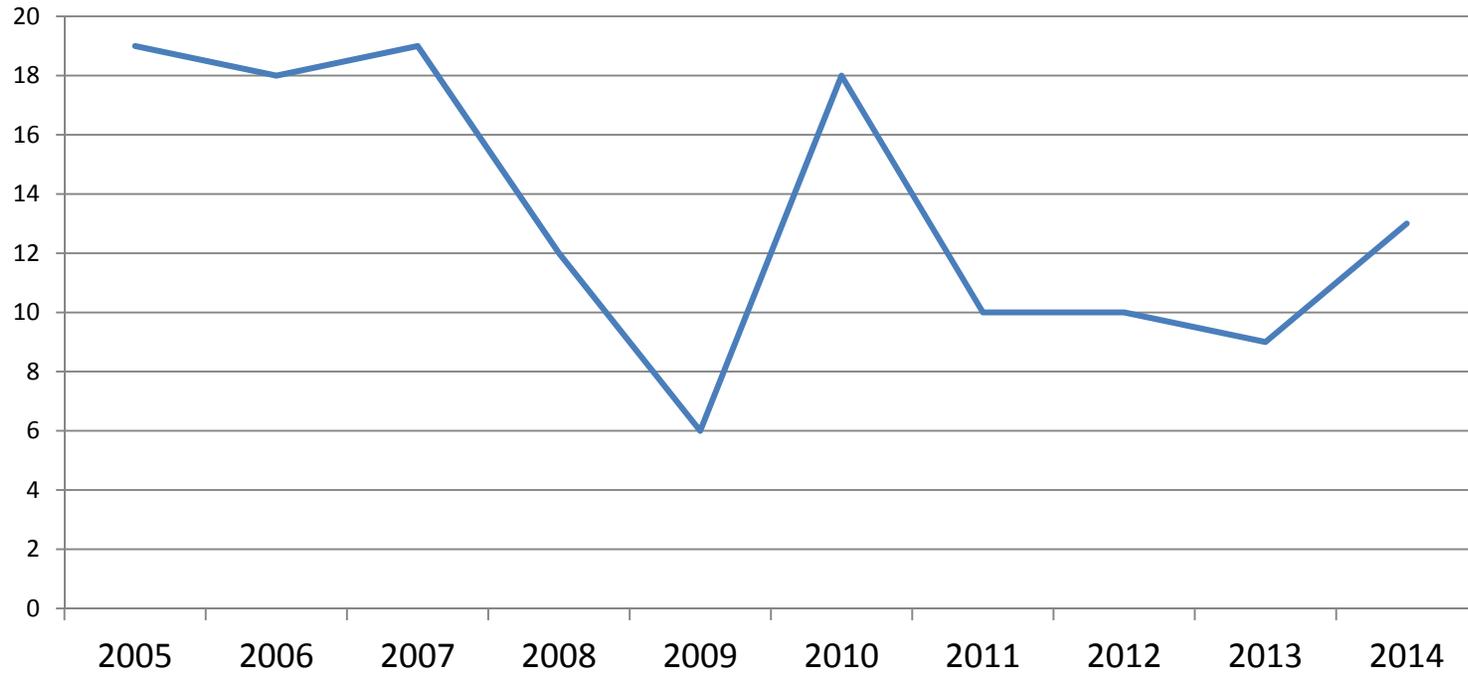


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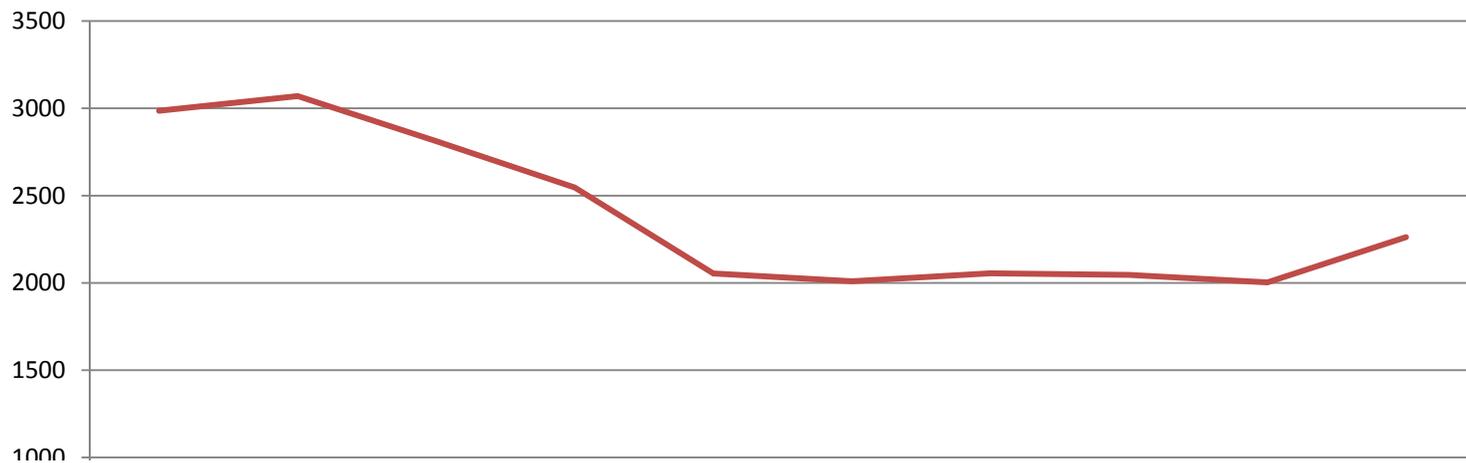
Rail Crossing Action Plan



Oregon



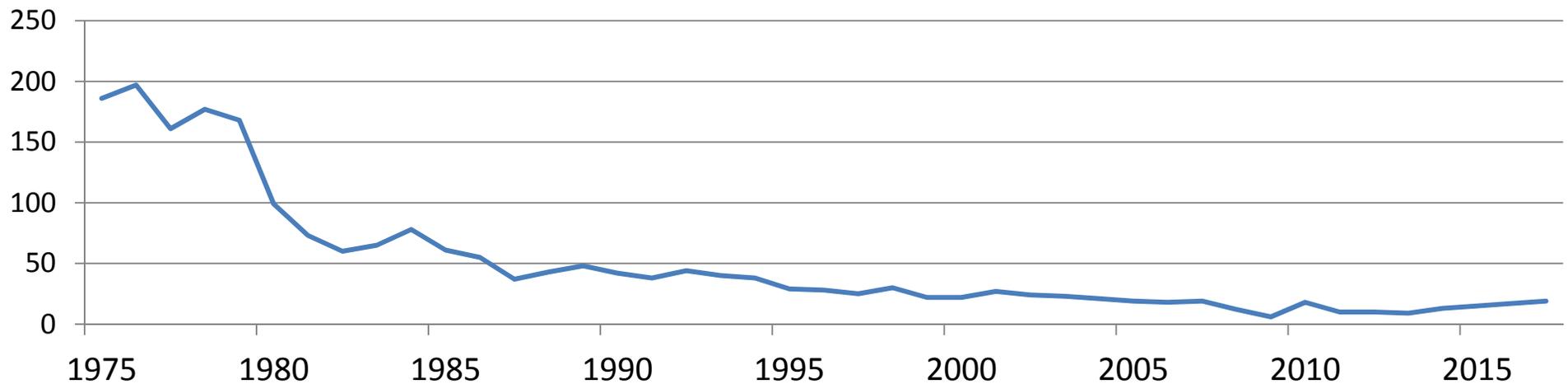
National





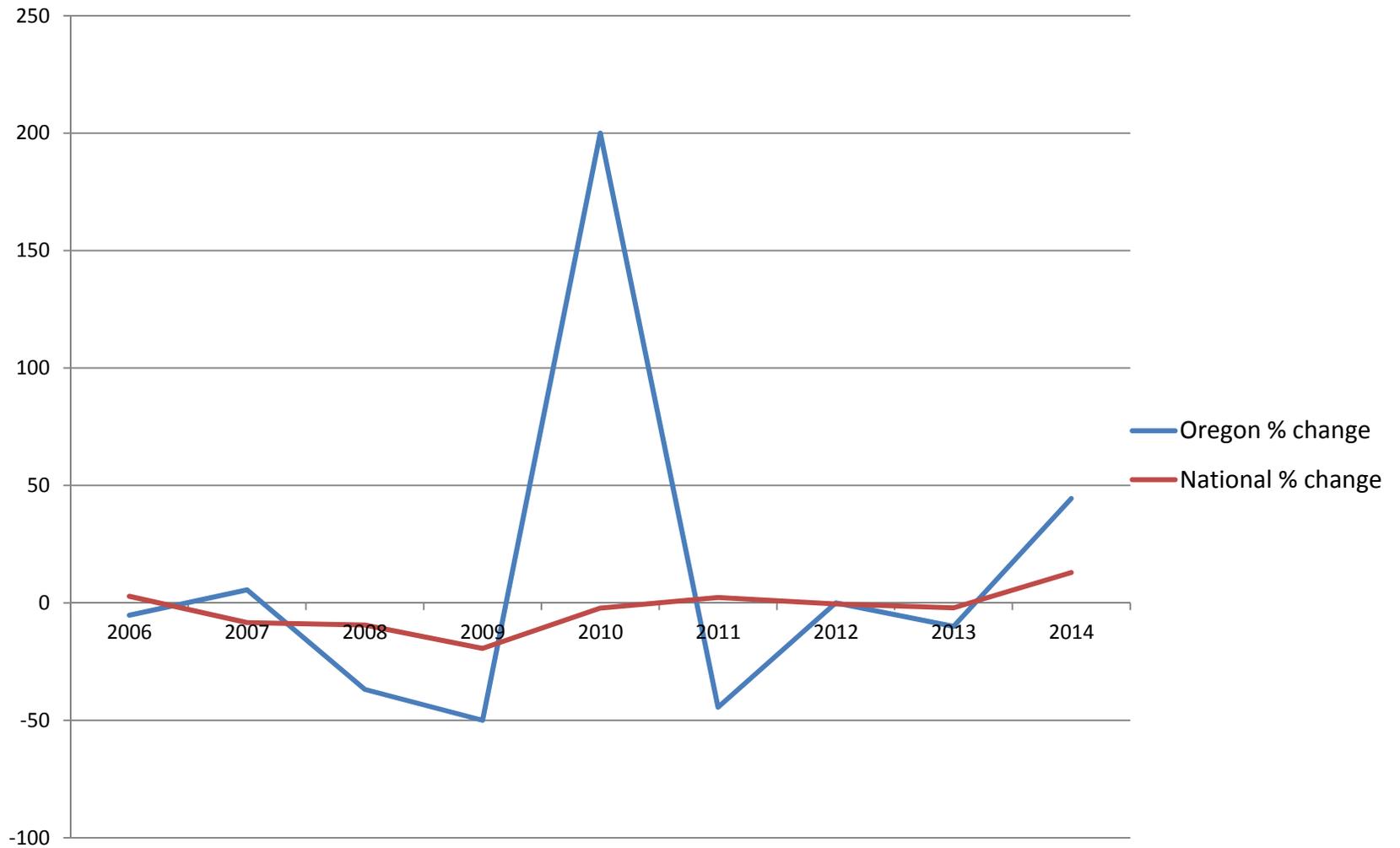
Oregon Annual Incidents

Oregon Total Rail Crossing Incidents - 1975-2017





Incidents Trend





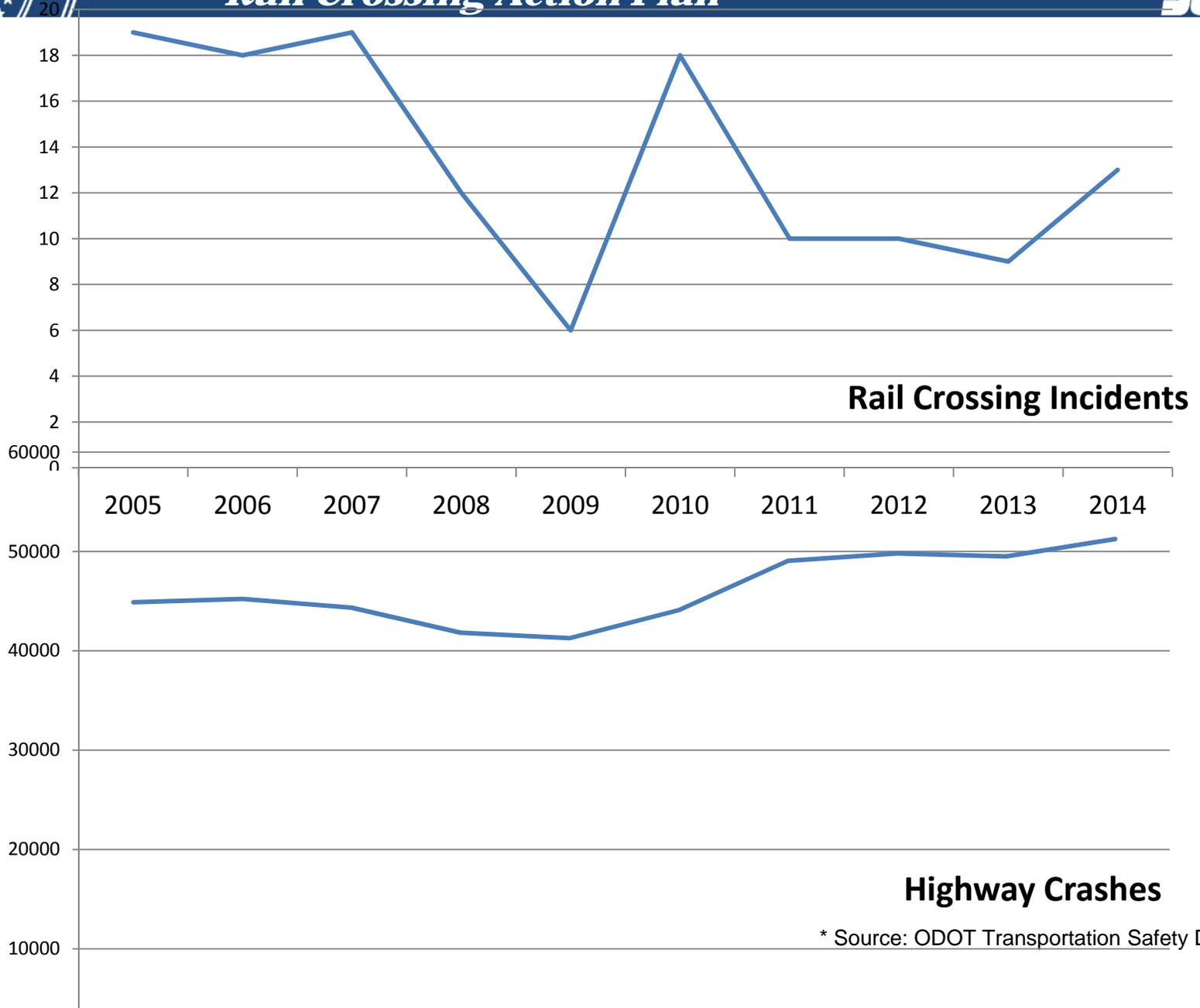
Incidents Trend

| Year | National Annual Total | National % change | Oregon Total without Max | Oregon % change |
|------|-----------------------|-------------------|--------------------------|-----------------|
| 2005 | 2986 | | 19 | |
| 2006 | 3070 | 2.81312793 | 18 | -5.263157895 |
| 2007 | 2812 | -8.403908795 | 19 | 5.555555556 |
| 2008 | 2547 | -9.423897582 | 12 | -36.84210526 |
| 2009 | 2054 | -19.35610522 | 6 | -50 |
| 2010 | 2009 | -2.190847123 | 18 | 200 |
| 2011 | 2055 | 2.289696366 | 10 | -44.44444444 |
| 2012 | 2046 | -0.437956204 | 10 | 0 |
| 2013 | 2003 | -2.101661779 | 9 | -10 |
| 2014 | 2262 | 12.93060409 | 13 | 44.44444444 |



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Rail Crossing Action Plan

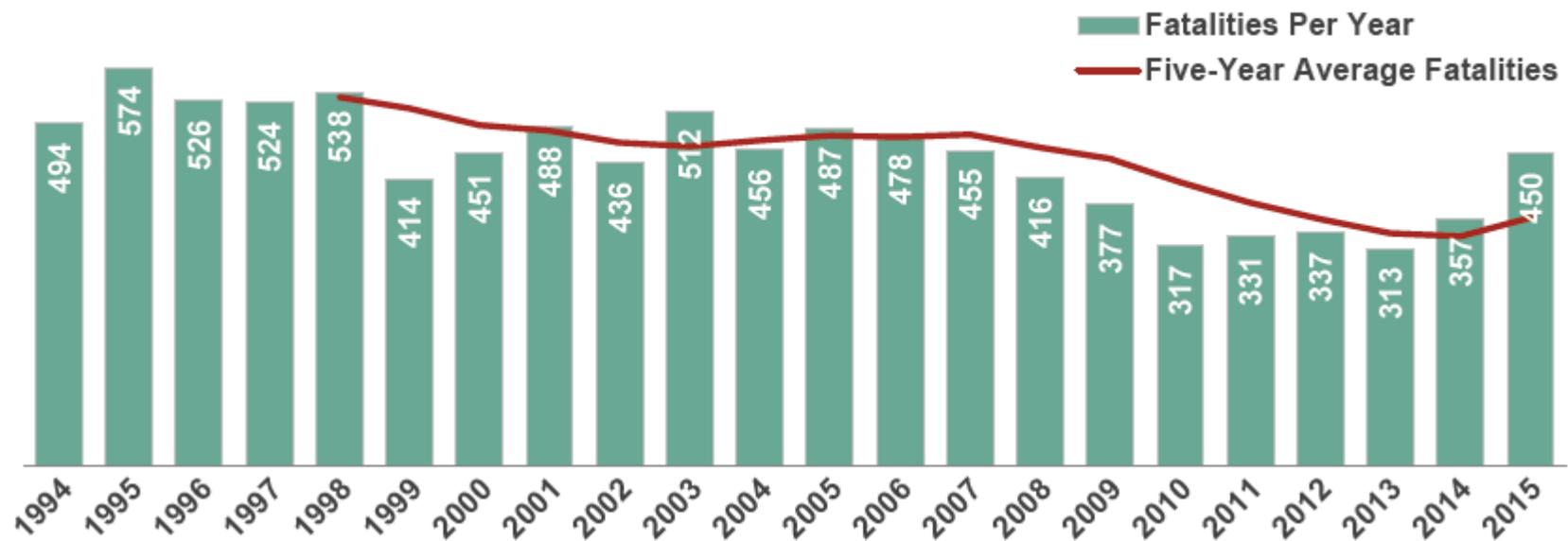


* Source: ODOT Transportation Safety Division



Highway Crash Trend

Figure ES.1 Oregon Transportation Fatalities
1994 to 2015

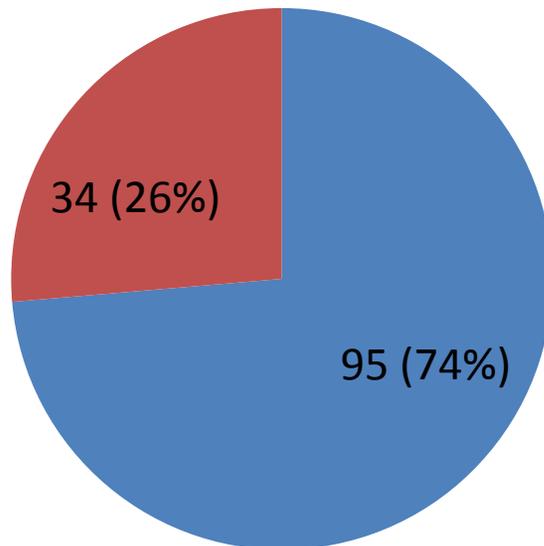


* Excerpt from the 2016 *Oregon Transportation Safety Action Plan*

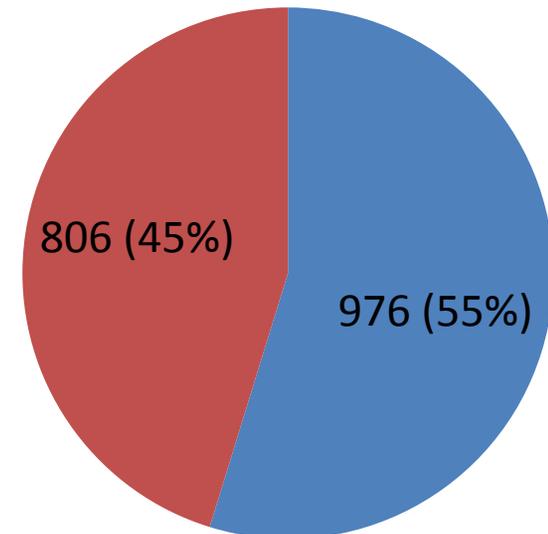


Oregon Rail Crossing Incidents Overview

**Incident Location Crossing Type
(2008-2017)**



Oregon Crossing Type (No TriMet)

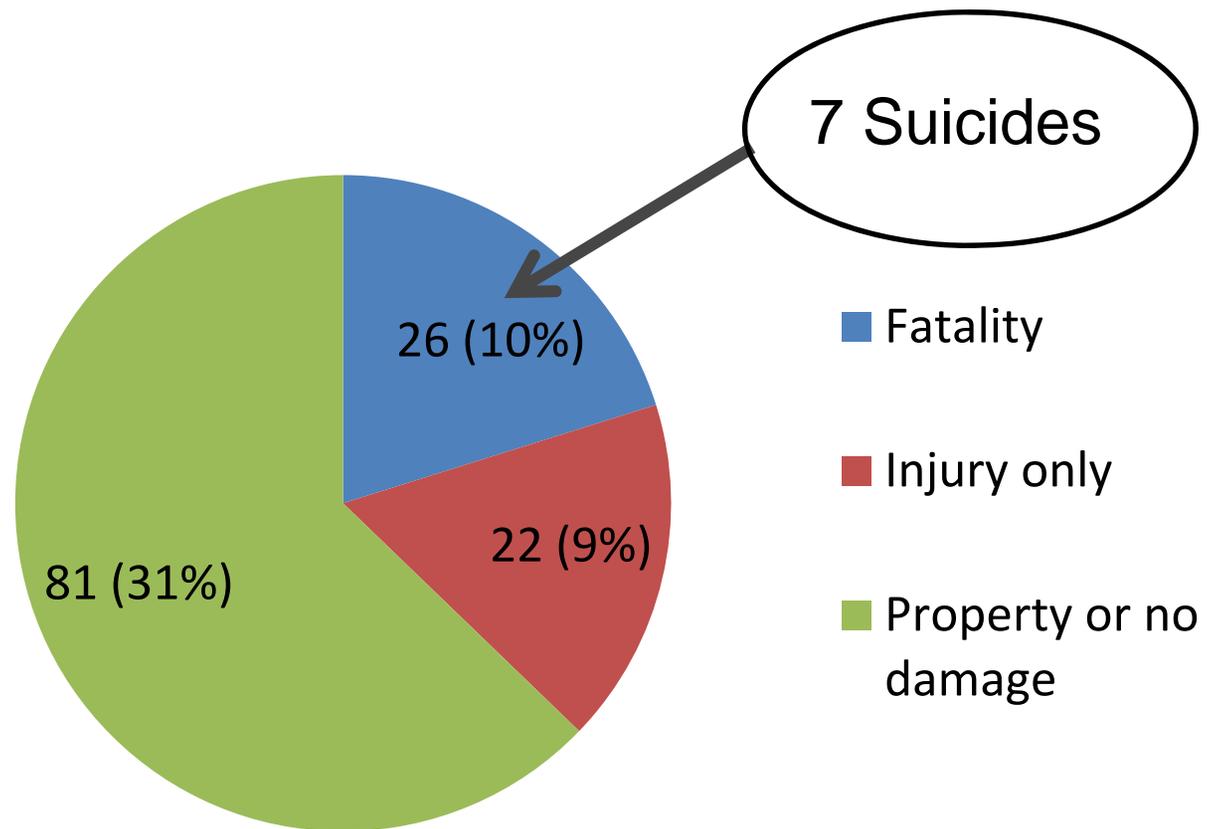


■ Urban
■ Rural

* 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

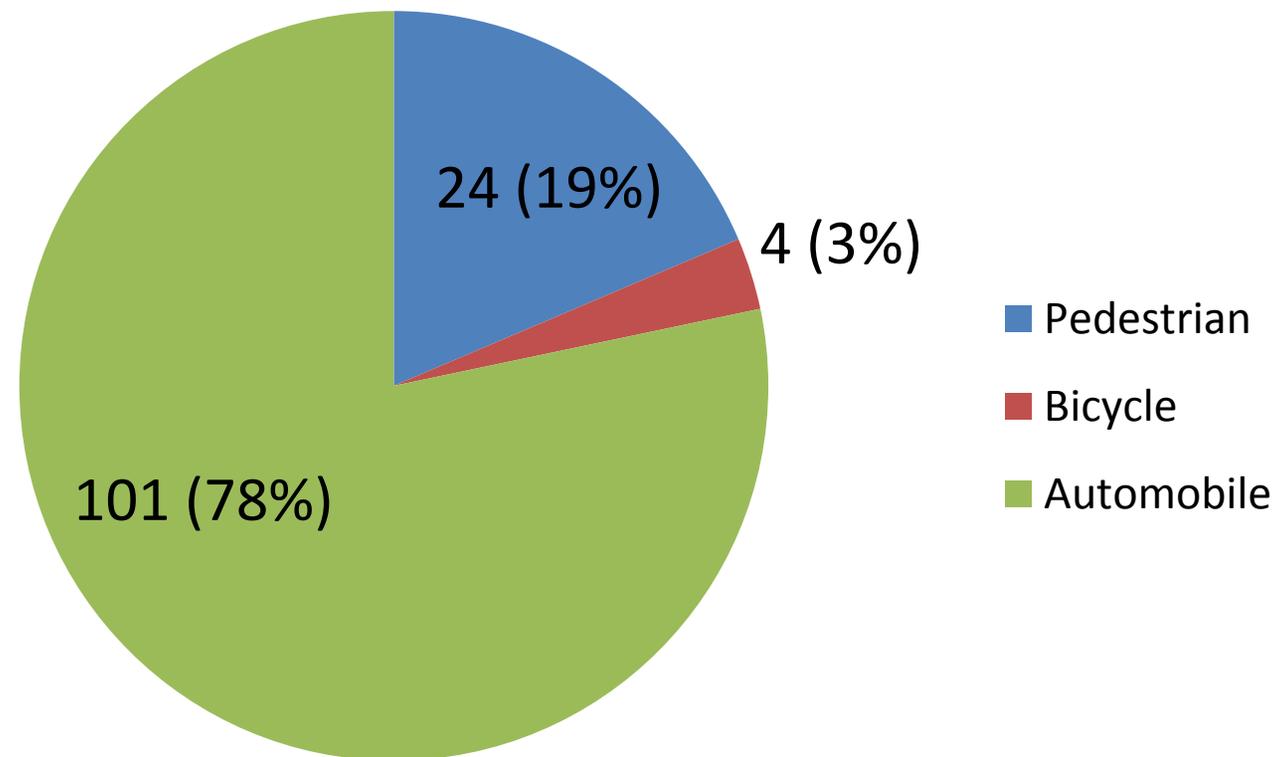


* Years 2008-2017



Oregon Incidents & Trends

Incidents - Mode of Traveler

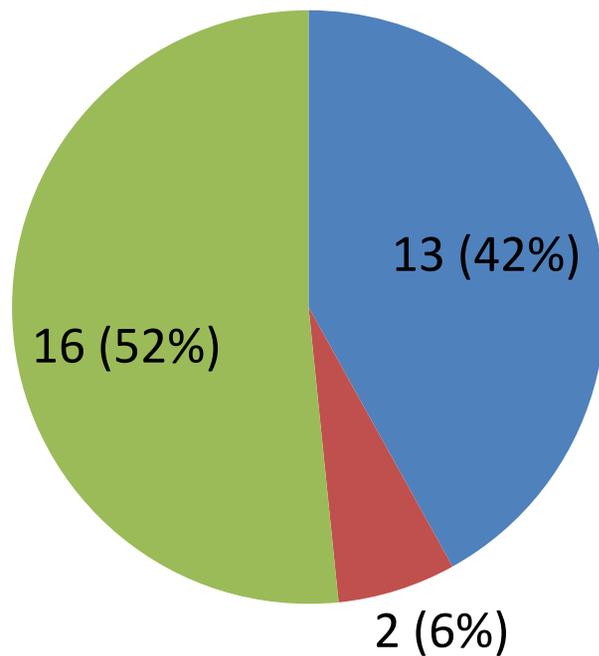


* Years 2008-2017



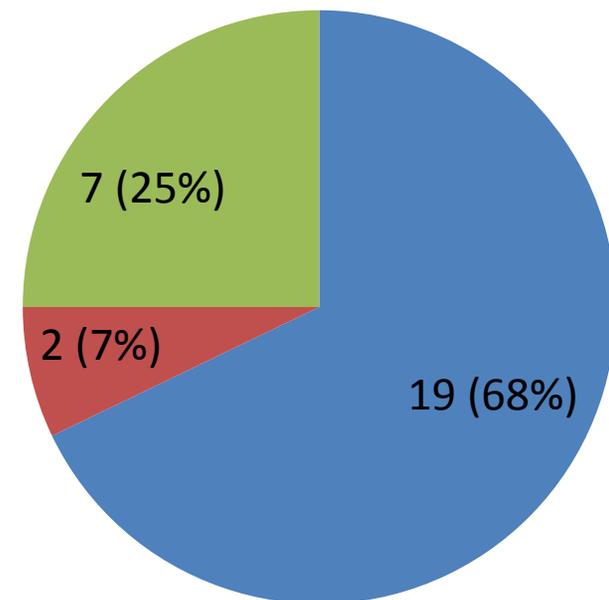
Crossing Incidents – Fatalities & Injuries by Mode

Number of Fatalities



Number of Injuries

- Vehicle
- Bicycle
- Pedestrian



* Years 2008-2017



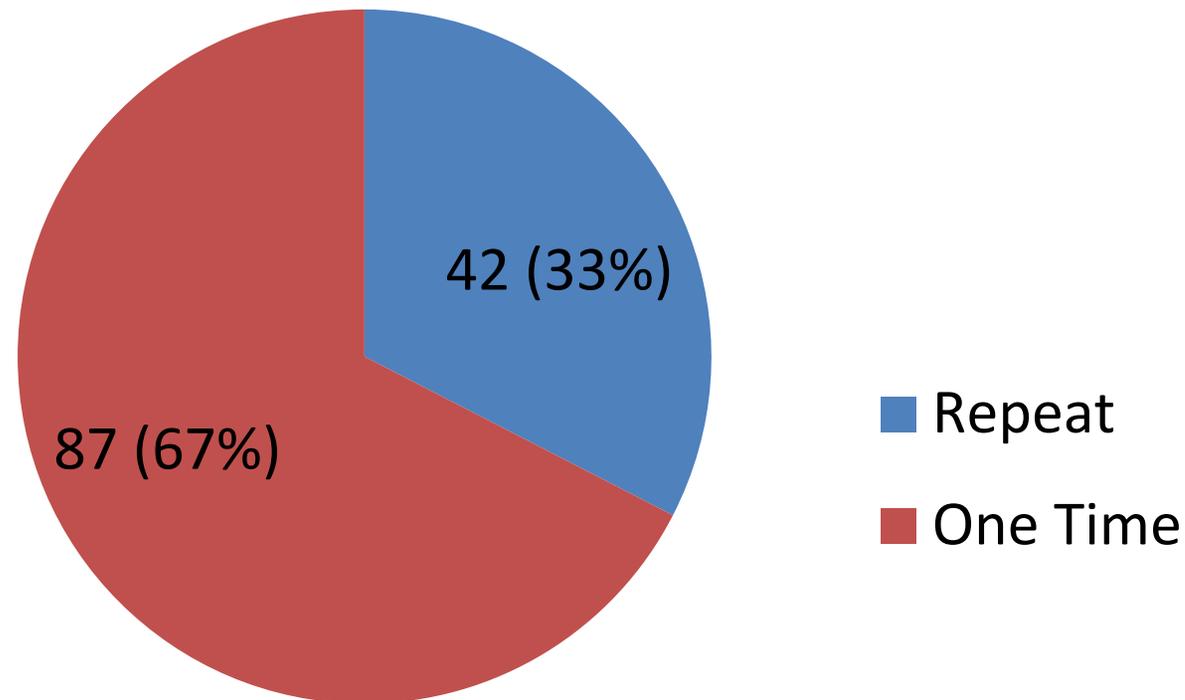
Oregon Rail Crossing Incidents Summary

- 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)



* 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

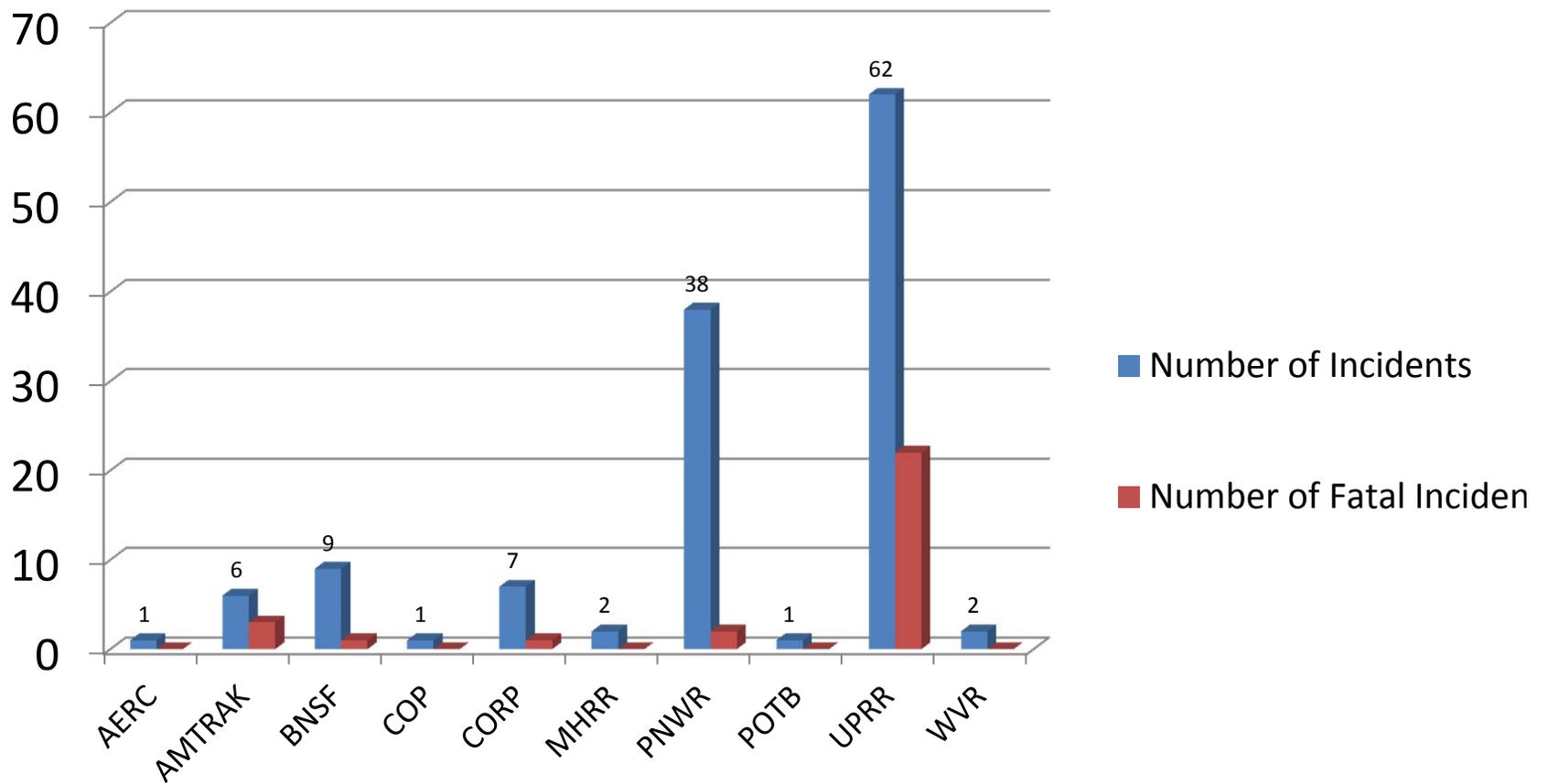


Oregon Incidents – Repeat Locations

- 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





Oregon – Trackage for Railroads with Incidents

| Railroad | Miles of Track |
|-----------------|-----------------------|
| AERC | 72 |
| AMTRAK | 349 |
| BNSF | 230 |
| COP | 18 |
| CORP | 247 |
| MHRR | 21 |
| PNWR | 447 |
| POTB | 84 |
| UPRR | 881 |
| WVR | 33 |
| Total | 2382 |



* Years 2008-2017



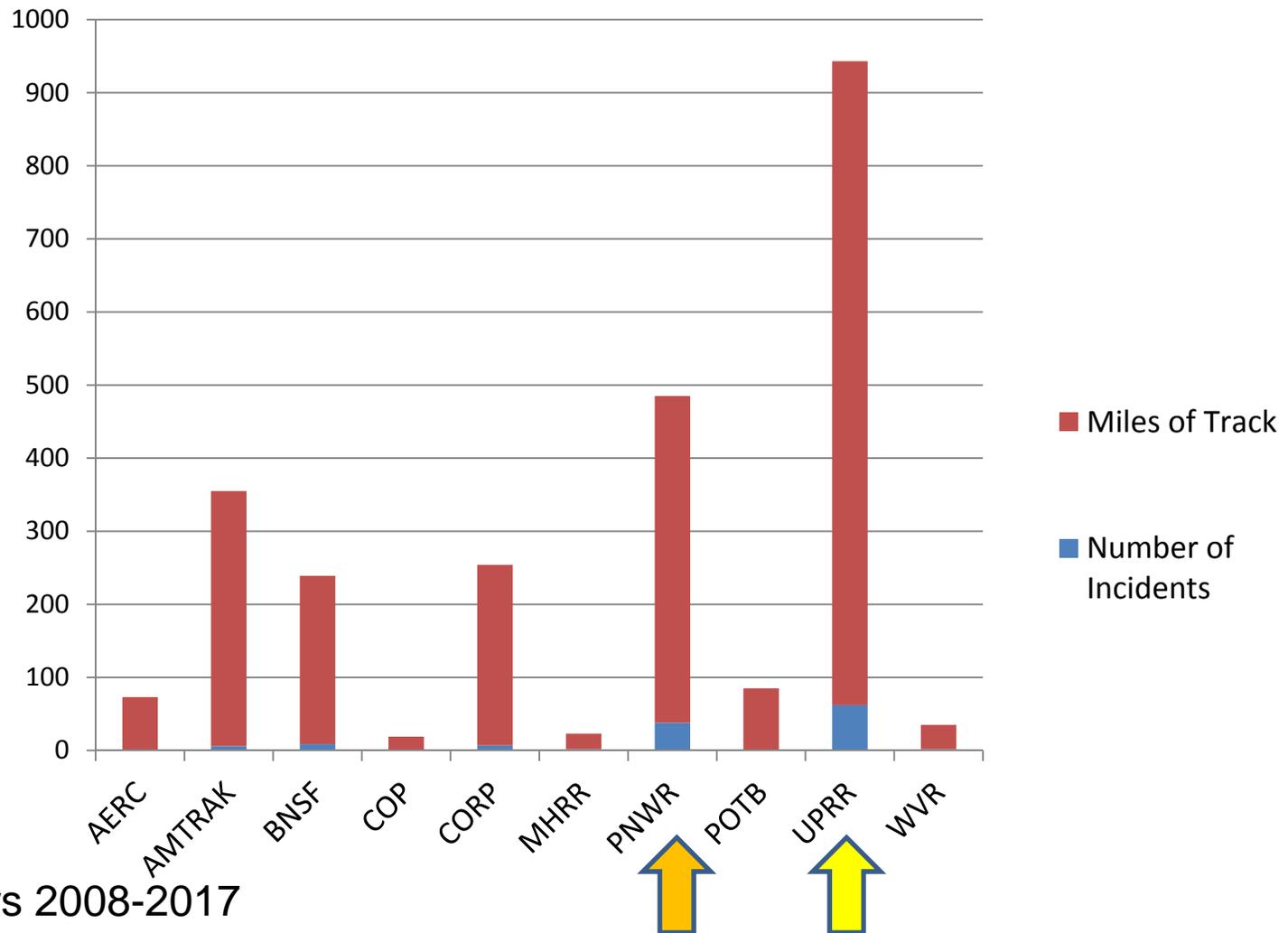
Oregon Railroad Trackage and Incidents

| Railroad | Number of Incidents | Number of Fatal Incidents | Number of Injuries from Incidents | Miles of Track | Rate Incidents/Track Mile |
|----------|---------------------|---------------------------|-----------------------------------|----------------|---------------------------|
| AERC | 1 | 0 | 0 | 72 | 0.013888889 |
| AMTRAK | 6 | 3 | 0 | 349 | 0.017191977 |
| BNSF | 9 | 1 | 5 | 230 | 0.039130435 |
| COP | 1 | 0 | 0 | 18 | 0.055555556 |
| CORP | 7 | 1 | 0 | 247 | 0.028340081 |
| MHRR | 2 | 0 | 0 | 21 | 0.095238095 |
| PNWR | 38 | 2 | 8 | 447 | 0.085011186 |
| POTB | 1 | 0 | 0 | 84 | 0.011904762 |
| UPRR | 62 | 22 | 15 | 881 | 0.070374574 |
| WVR | 2 | 0 | 1 | 33 | 0.060606061 |
| Total | 129 | 29 | 29 | 2382 | 0.477241615 |

* Years 2008-2017

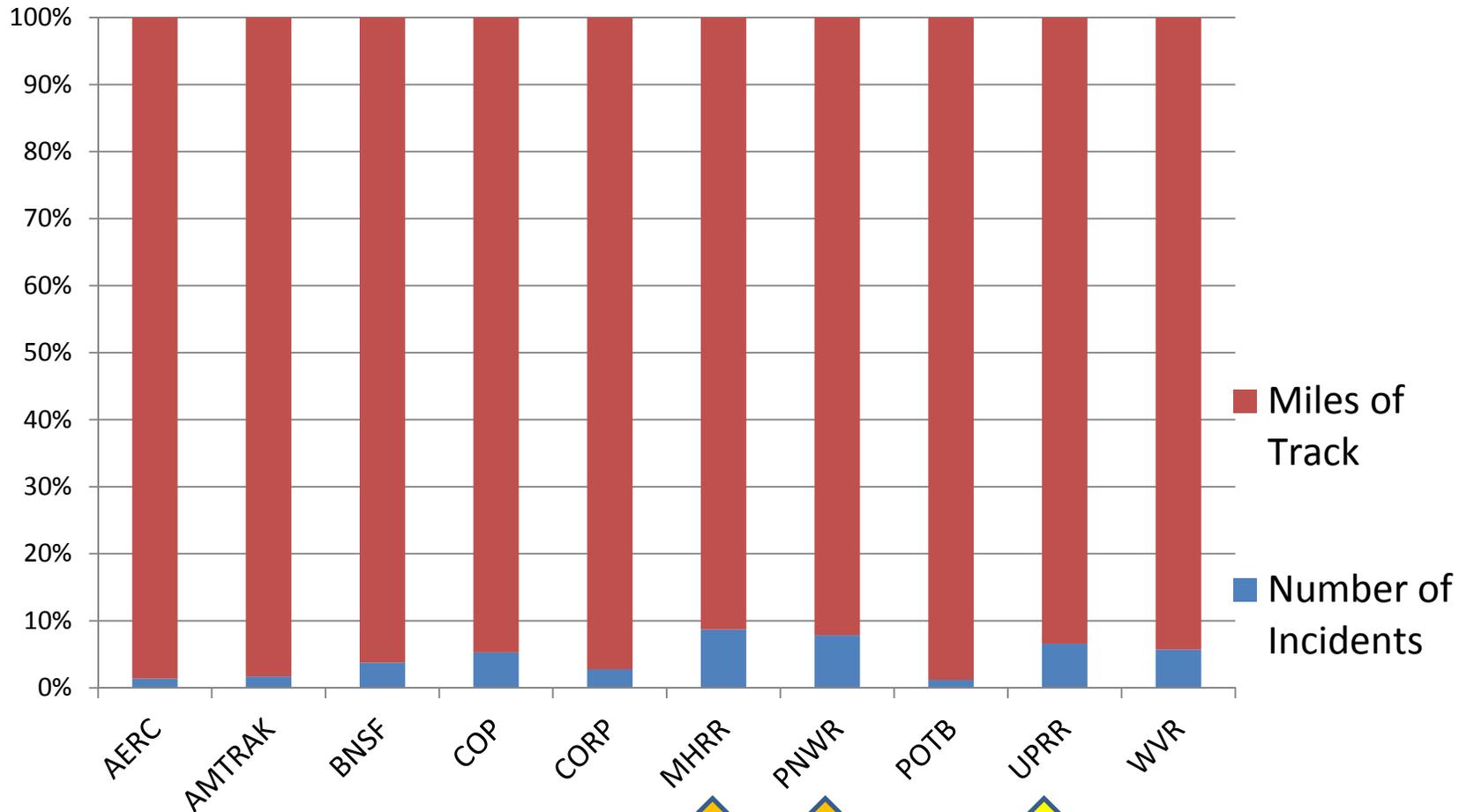


Oregon Railroad Incident Ratio





Oregon Railroad Incident/Track Ratio



* Years 2008-2017





Oregon Department of Transportation

Rail Crossing Action Plan



Oregon Railroad Crossings and Incidents

| Railroad | Number of Incidents | Number of Fatal Incidents | Number of Injuries from Incidents | Miles of Track | Public At-Grade Crossings |
|----------|---------------------|---------------------------|-----------------------------------|----------------|---------------------------|
| AERC | 1 | 0 | 0 | 72 | 92 |
| AMTRAK | 6 | 3 | 0 | 349 | N/A |
| BNSF | 9 | 1 | 5 | 230 | 128 |
| COP | 1 | 0 | 0 | 18 | 13 |
| CORP | 7 | 1 | 0 | 247 | 169 |
| MHRR | 2 | 0 | 0 | 21 | 18 |
| PNWR | 38 | 2 | 8 | 447 | 571 |
| POTB | 1 | 0 | 0 | 84 | 7 |
| UPRR | 62 | 22 | 15 | 881 | 427 |
| WVR | 2 | 0 | 1 | 33 | 45 |

* Years 2008-2017

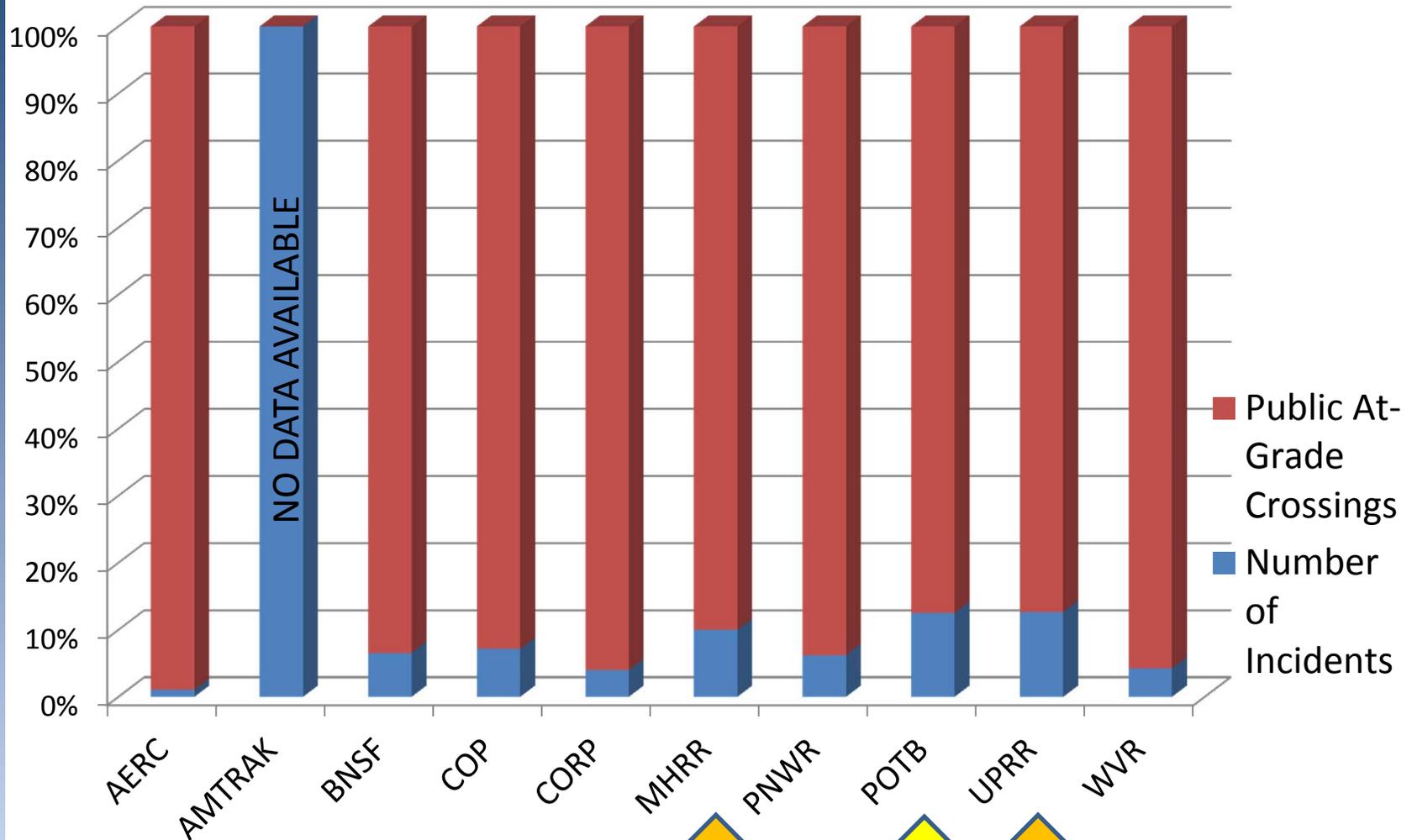


Oregon Department of Transportation

Rail Crossing Action Plan



Oregon Railroad Incident/Crossing Ratio



* Years 2008-2017





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Rail Crossing Action Plan



Plan Objectives Development



Plan Objectives - Categories

- Prevention
- Strategic Investment
- Coordination and Collaboration



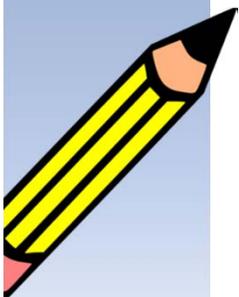
Plan Objectives - Categories

- 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?





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Rail Crossing Action Plan



Break



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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

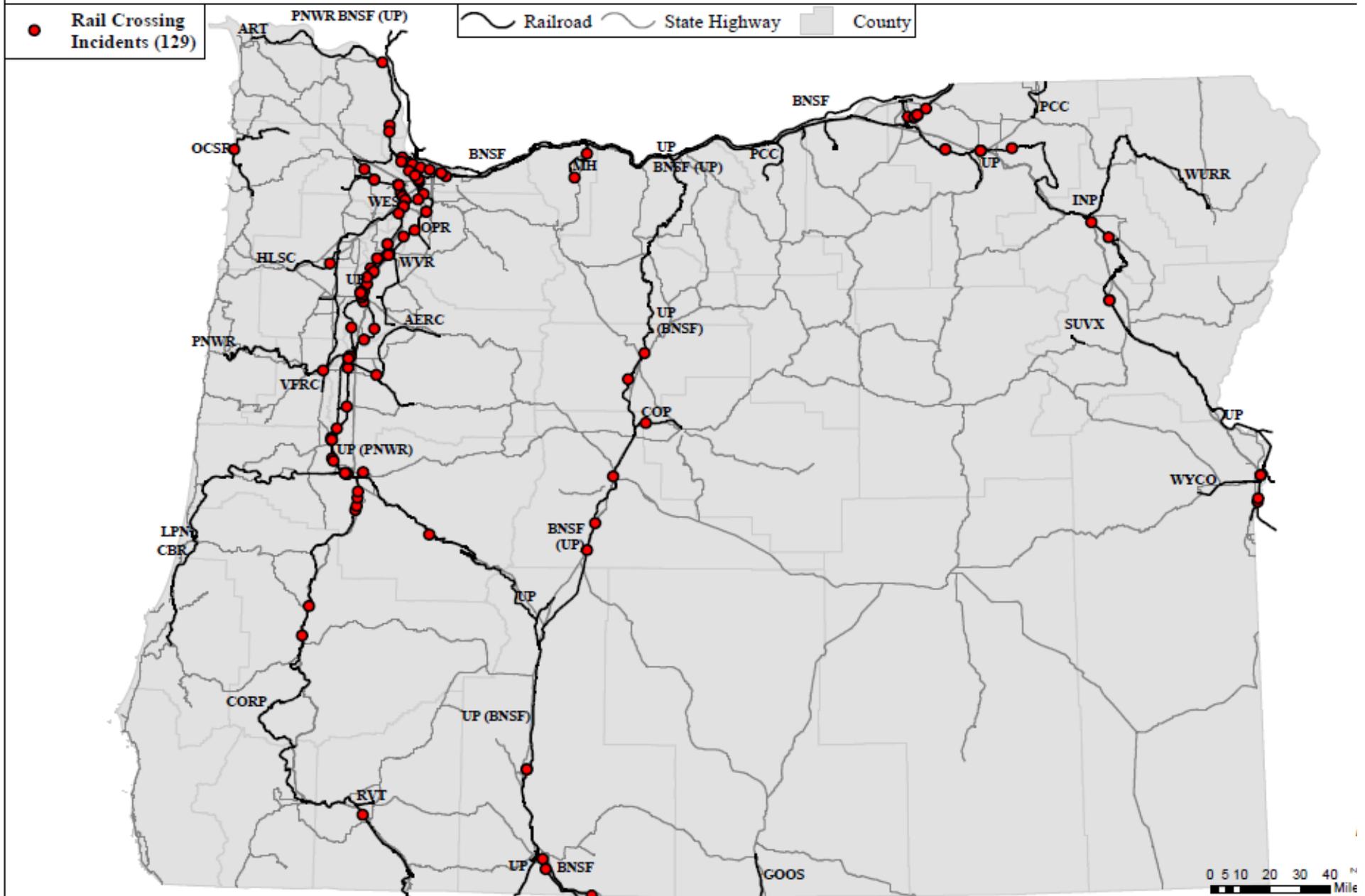


Oregon Department of Transportation
Rail Crossing Action Plan



Physical

Rail Crossing Safety Study - Statewide Crossing Incidents 2008 to 2017

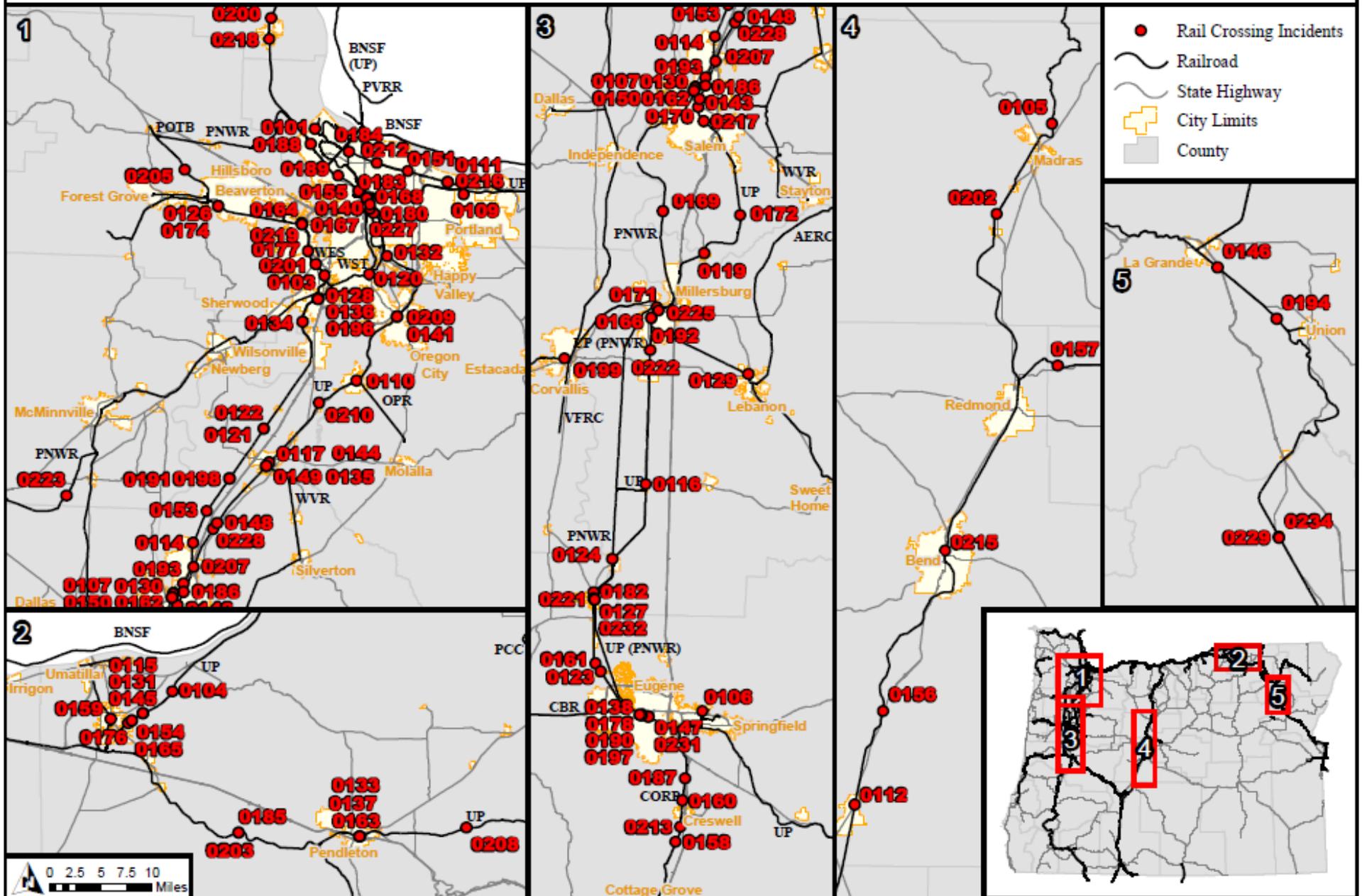


T Produced by ODOT - GIS Unit
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DISCLAIMER: This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.

\\gis_resources\giswork\GIS23_98_TPAU_Planning_General_Support\GIS23_98_03_RailCrossingSafetyPlan\MXDs\RailSafety_Incidents_2008thru2017.mxd

Rail Crossing Safety Study - Statewide Crossing Incidents 2008 to 2017 - Inset Maps



Produced by ODOT - GIS Unit (503) 986-3154 - JUNE 2018

DISCLAIMER: This product is for informational purposes only and may not have been prepared for or be suitable for legal, engineering or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.



Crossing Incidents County

| County | Total Incident | Total Fatals | Total Injury or Property Damage Only | % |
|--------------|----------------|--------------|--------------------------------------|---------------|
| Marion | 26 | 5 | 6 | 20.2% |
| Lane | 17 | 5 | 3 | 13.2% |
| Multnomah | 15 | 2 | 2 | 11.6% |
| Umatilla | 14 | 3 | 2 | 10.9% |
| Washington | 13 | 1 | 6 | 10.1% |
| Linn | 9 | 4 | 0 | 7.0% |
| Clackamas | 5 | 3 | 1 | 3.9% |
| Klamath | 5 | 0 | 1 | 3.9% |
| Malheur | 4 | 0 | 1 | 3.1% |
| Columbia | 3 | 1 | 0 | 2.3% |
| Deschutes | 3 | 0 | 0 | 2.3% |
| Baker | 2 | 0 | 4 | 1.6% |
| Douglas | 2 | 1 | 0 | 1.6% |
| Hood River | 2 | 0 | 0 | 1.6% |
| Jefferson | 2 | 1 | 3 | 1.6% |
| Union | 2 | 3 | 0 | 1.6% |
| Benton | 1 | 0 | 0 | 0.8% |
| Crook | 1 | 0 | 0 | 0.8% |
| Jackson | 1 | 0 | 0 | 0.8% |
| Tillamook | 1 | 0 | 0 | 0.8% |
| Yamhill | 1 | 0 | 0 | 0.8% |
| Total | 129 | 29 | 29 | 100.0% |

} 65.9%

* Years 2008-2017



Crossing Incidents - City

| City | Total Incidents | Total Fatalis | Total Injury |
|---------------|-----------------|---------------|--------------|
| *--- | 6 | 2 | 2 |
| Albany | 4 | 3 | 0 |
| Beaverton | 4 | 0 | 2 |
| Chiloquin | 2 | 0 | 0 |
| Creswell | 3 | 0 | 0 |
| Culver | 1 | 1 | 3 |
| Donald | 2 | 0 | 0 |
| Eugene | 8 | 3 | 2 |
| Haines | 2 | 0 | 4 |
| Hermiston | 4 | 0 | 0 |
| Hillsboro | 3 | 1 | 1 |
| Jefferson | 1 | 1 | 0 |
| Junction City | 5 | 2 | 0 |
| Nyssa | 2 | 0 | 1 |
| Ontario | 2 | 0 | 0 |
| Oregon City | 2 | 0 | 1 |
| Pendleton | 3 | 1 | 0 |
| Portland | 14 | 2 | 2 |
| Salem | 10 | 3 | 2 |
| Scappoose | 2 | 1 | 0 |
| St. Louis | 2 | 0 | 0 |
| Tigard | 2 | 0 | 1 |
| Tualatin | 4 | 0 | 2 |
| Union | 1 | 3 | 0 |
| Woodburn | 4 | 1 | 1 |

* Years 2008-2017



Crossing Incidents - City

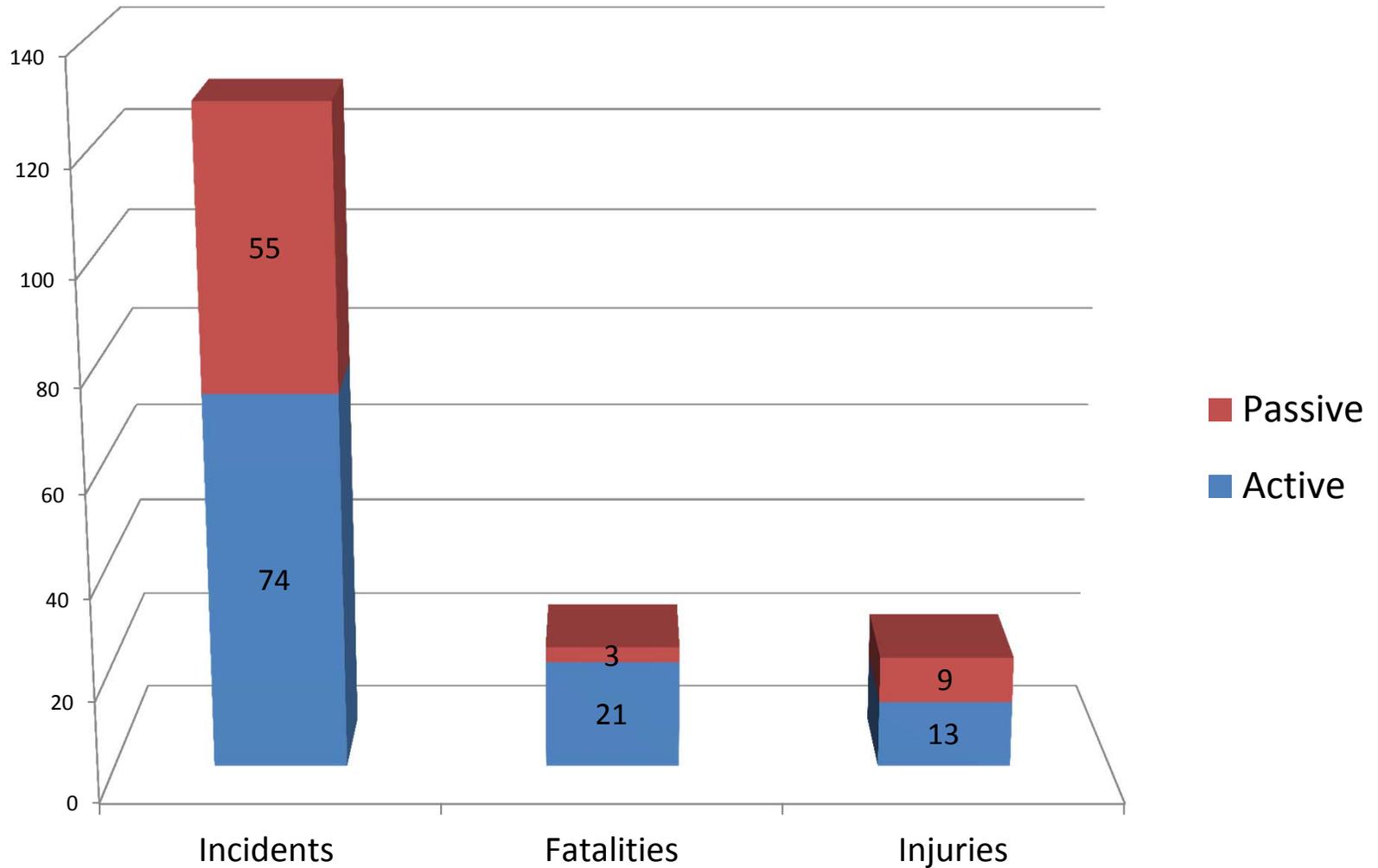
| City | Total Incidents | Total Fatals | Total Injury |
|---------------|-----------------|--------------|--------------|
| *--- | 6 | 2 | 2 |
| Albany | 4 | 3 | 0 |
| Beaverton | 4 | 0 | 2 |
| Chiloquin | 2 | 0 | 0 |
| Creswell | 3 | 0 | 0 |
| Culver | 1 | 1 | 3 |
| Donald | 2 | 0 | 0 |
| Eugene | 8 | 3 | 2 |
| Haines | 2 | 0 | 4 |
| Hermiston | 4 | 0 | 0 |
| Hillsboro | 3 | 1 | 1 |
| Jefferson | 1 | 1 | 0 |
| Junction City | 5 | 2 | 0 |
| Nyssa | 2 | 0 | 1 |
| Ontario | 2 | 0 | 0 |
| Oregon City | 2 | 0 | 1 |
| Pendleton | 3 | 1 | 0 |
| Portland | 14 | 2 | 2 |
| Salem | 10 | 3 | 2 |
| Scappoose | 2 | 1 | 0 |
| St. Louis | 2 | 0 | 0 |
| Tigard | 2 | 0 | 1 |
| Tualatin | 4 | 0 | 2 |
| Union | 1 | 3 | 0 |
| Woodburn | 4 | 1 | 1 |

30%

* Years 2008-2017



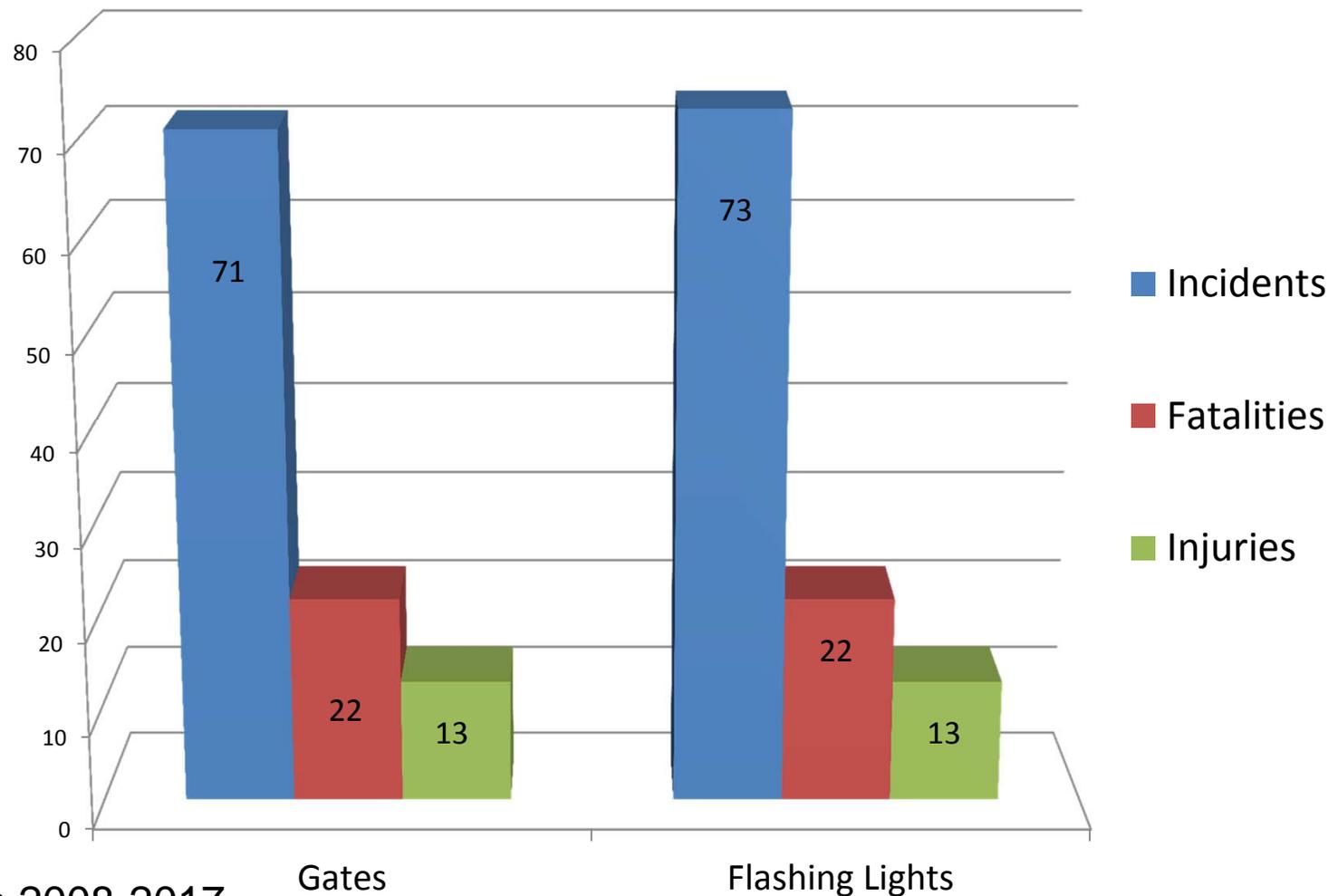
Crossing Incidents – Warning Devices



* Years 2008-2017



Crossing Incidents – Warning Devices



* Years 2008-2017



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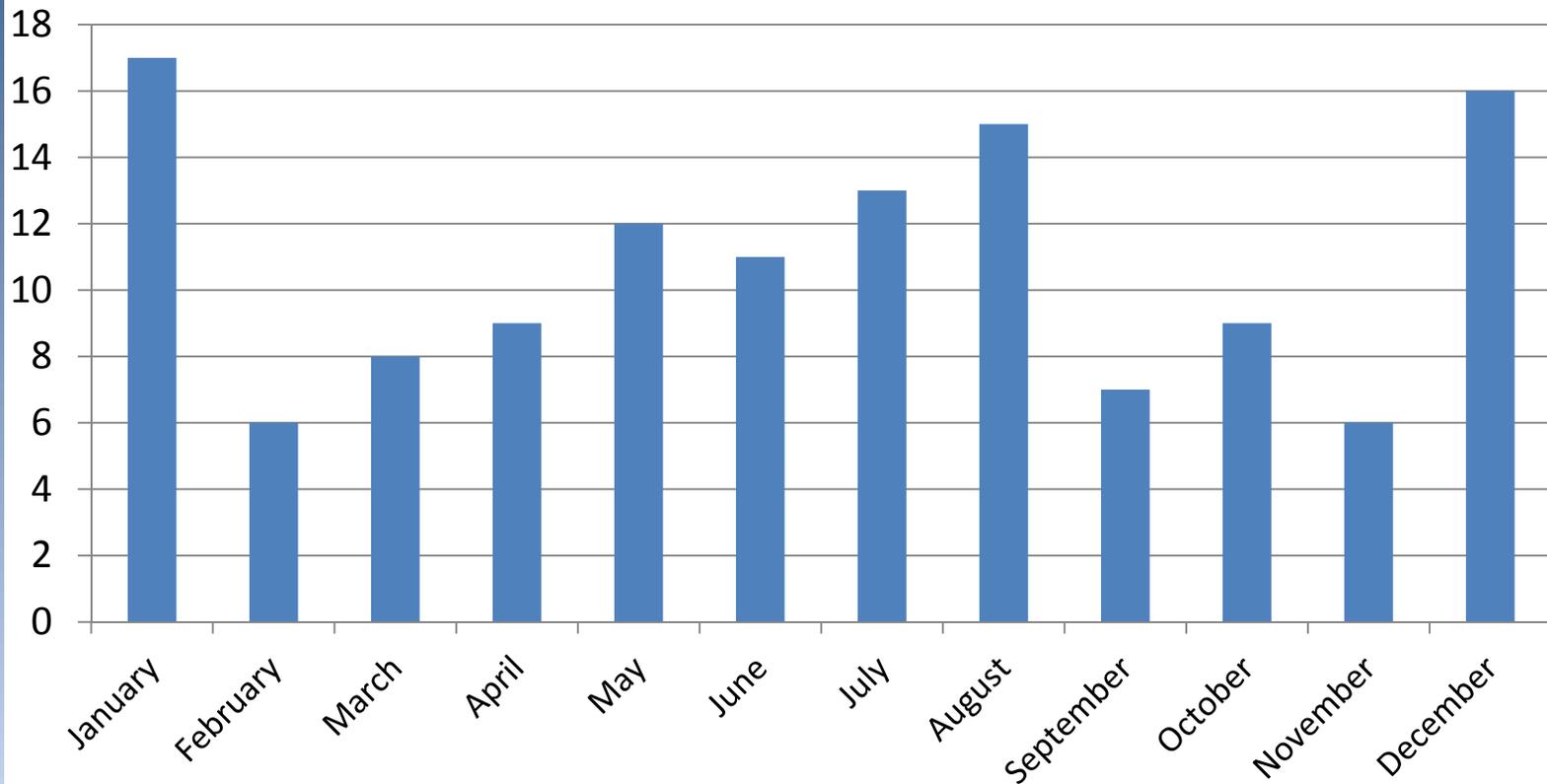


Temporal



Crossing Incidents – Time of Year

Incidents by Month

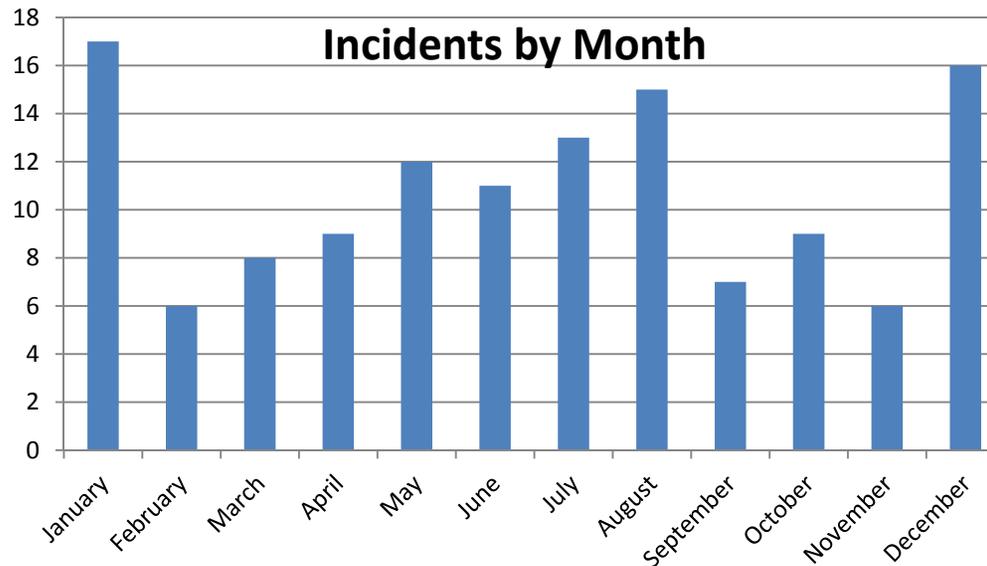


* Years 2008-2017

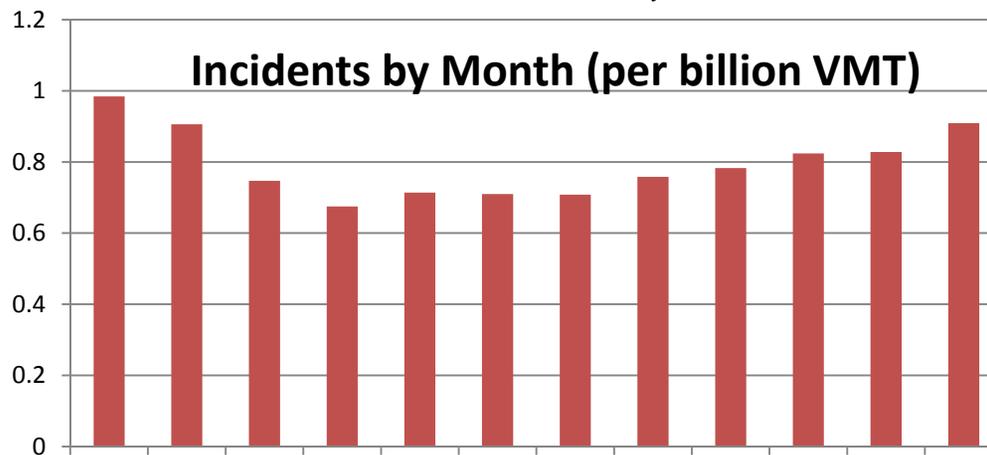


Crossing Incidents – Time of Year

Oregon



National



* ODOT Years
2008-2017,
National Years
2005-2014



Crossing Incidents – Time of Year

| Winter | | Spring | | Summer | | Fall | |
|----------|----|--------|----|--------|----|-----------|---|
| 39 | | 29 | | 39 | | 22 | |
| Month | | | | | | | |
| December | 16 | March | 8 | June | 11 | September | 7 |
| January | 17 | April | 9 | July | 13 | October | 9 |
| February | 6 | May | 12 | August | 15 | November | 6 |

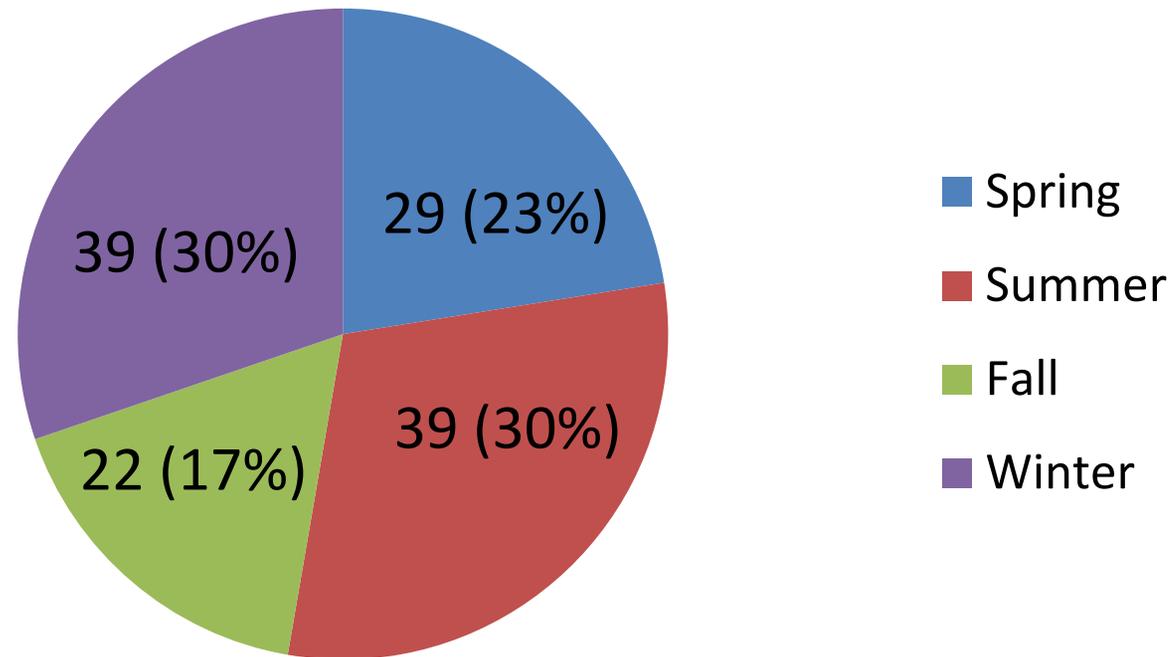
19 of 29 fatalities occurred in winter months

* Years 2008-2017



Crossing Incidents – Time of Year

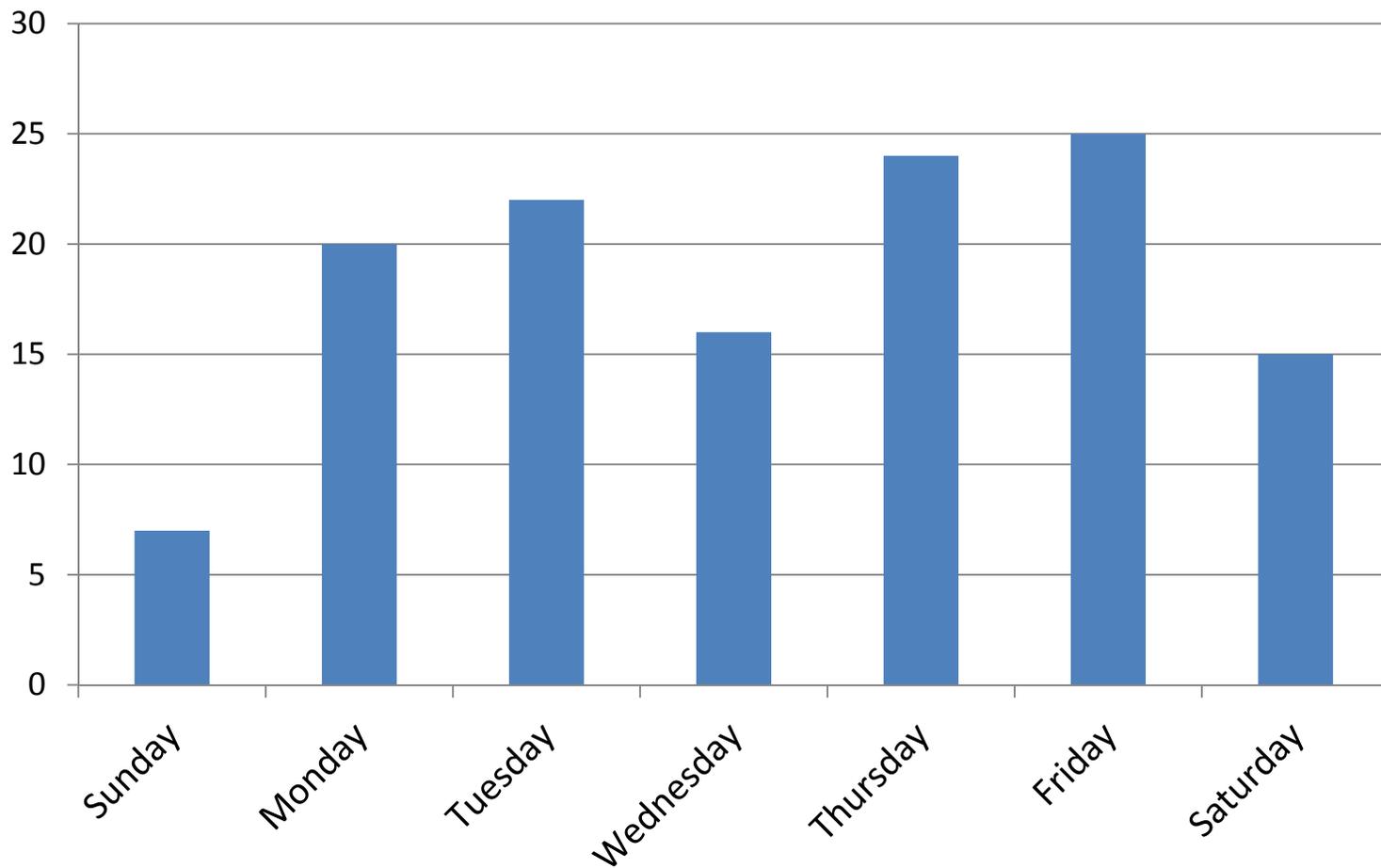
Incidents by Season



* Years 2008-2017



Crossing Incidents – Day of the Week



* Years 2008-2017



Crossing Incidents – Time of Day

| 12a-6a | | 6a-12p | | 12p-6p | | 6p-12a | |
|--------------|---|---------|----|---------|----|---------|---|
| 18 | | 35 | | 45 | | 31 | |
| Highest Hour | | | | | | | |
| 12:00am | 3 | 6:00am | 3 | 12:00pm | 12 | 6:00pm | 4 |
| 1:00am | 3 | 7:00am | 7 | 1:00pm | 7 | 7:00pm | 8 |
| 2:00am | 4 | 8:00am | 6 | 2:00pm | 8 | 8:00pm | 2 |
| 3:00am | 2 | 9:00am | 1 | 3:00pm | 5 | 9:00pm | 8 |
| 4:00am | 2 | 10:00am | 5 | 4:00pm | 2 | 10:00pm | 4 |
| 5:00am | 4 | 11:00am | 13 | 5:00pm | 11 | 11:00pm | 5 |

* Years 2008-2017



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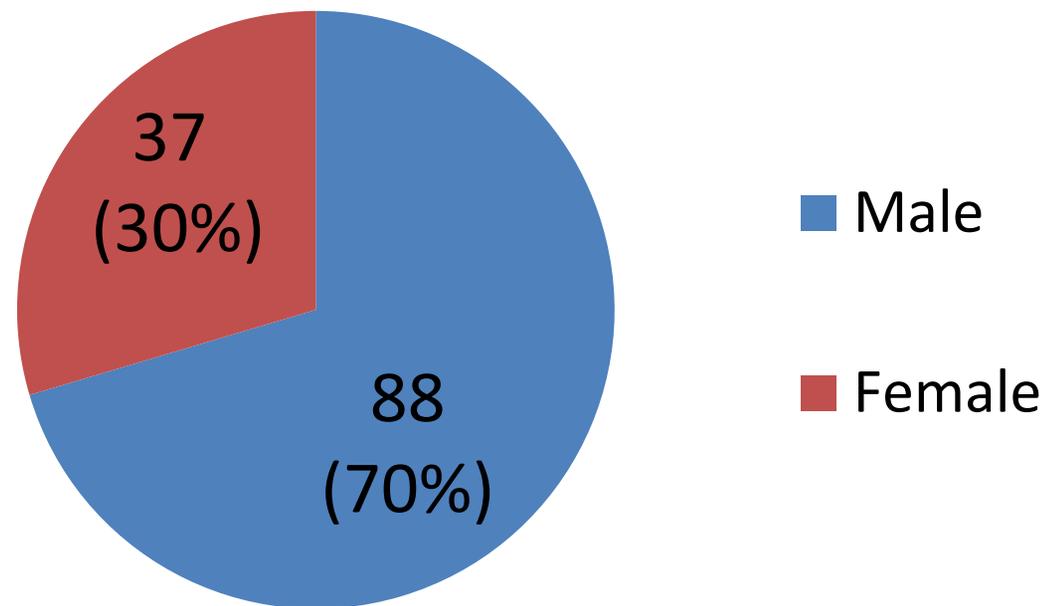


Driver Info & Behavior



Crossing Incidents – Traveler Gender

Oregon Incidents by Gender (2008-2017)



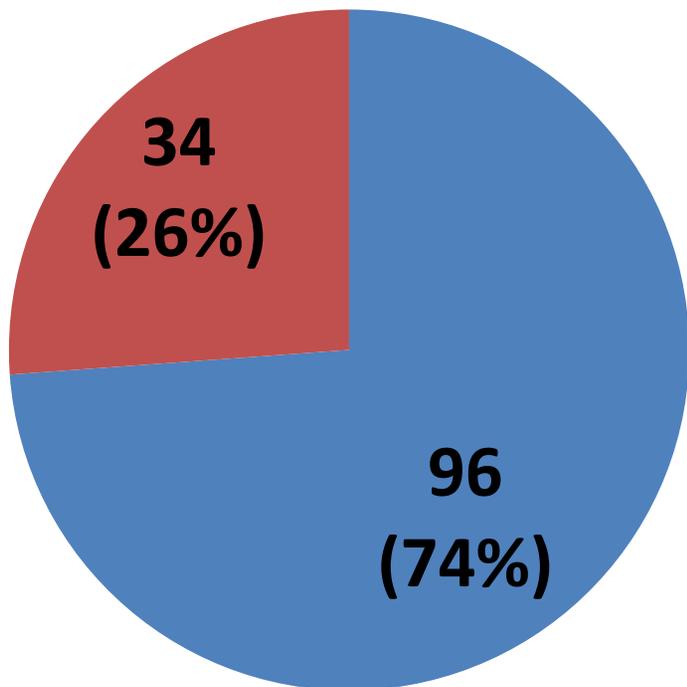
* Years 2008-2017



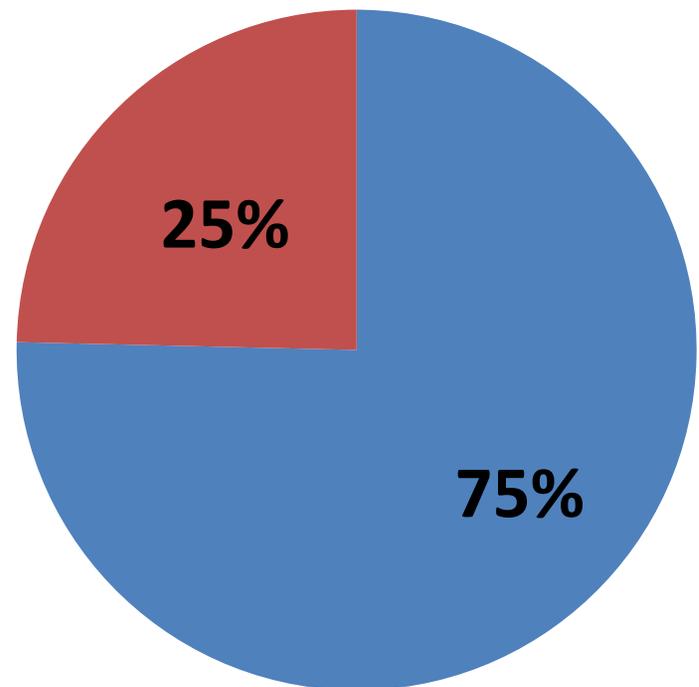
Crossing Incidents – Traveler Gender – Comparison Nationally

**Oregon Incidents by Gender
(2005-2014)**

**National Incidents by
Gender (2005-2014)**



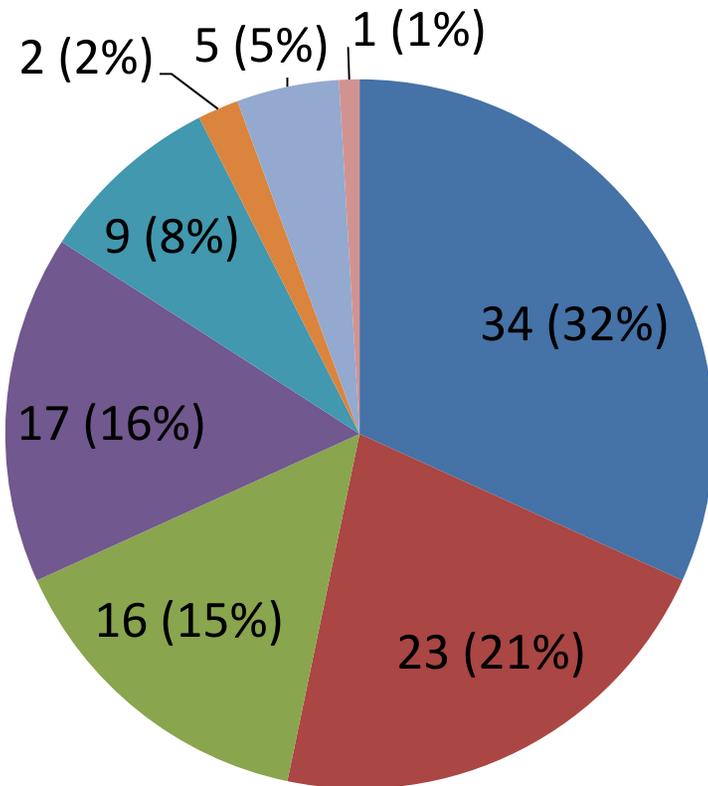
■ Male
■ Female



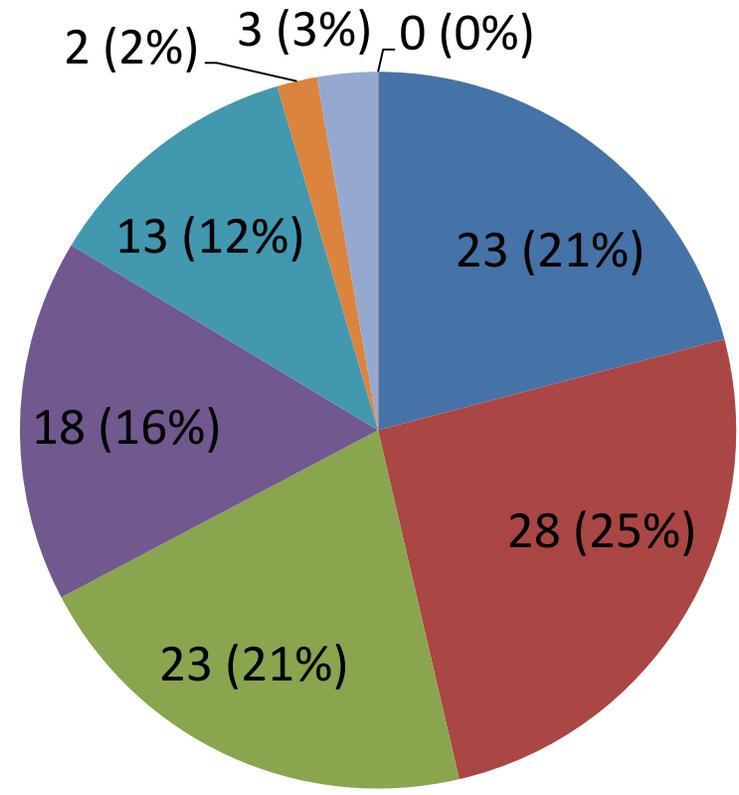


Crossing Incidents – Traveler Age

Oregon Total 2005-2014



Oregon Total 2008-2017

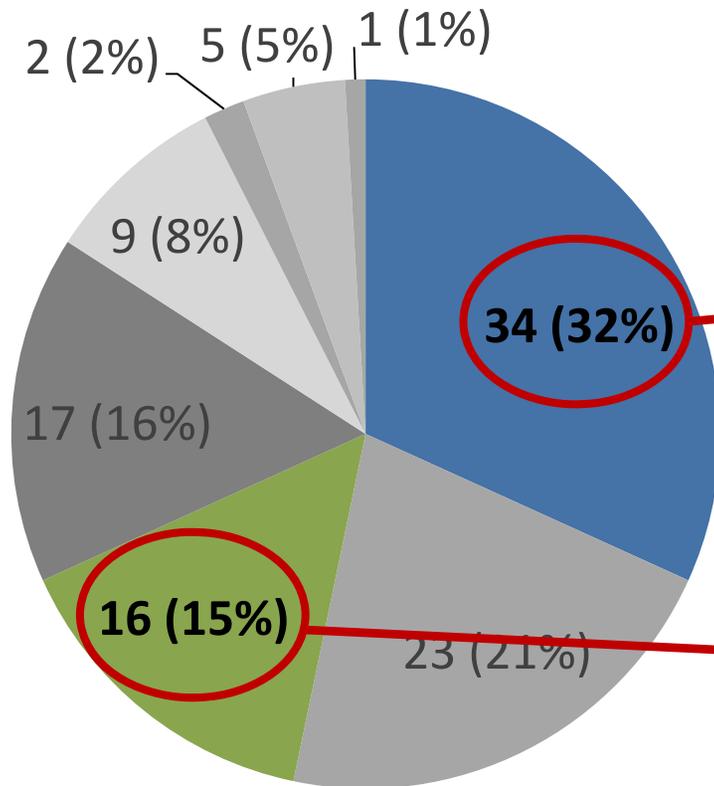


- <29
- 30-39
- 40-49
- 50-59
- 60-69
- 70-79
- 80-89
- 90+

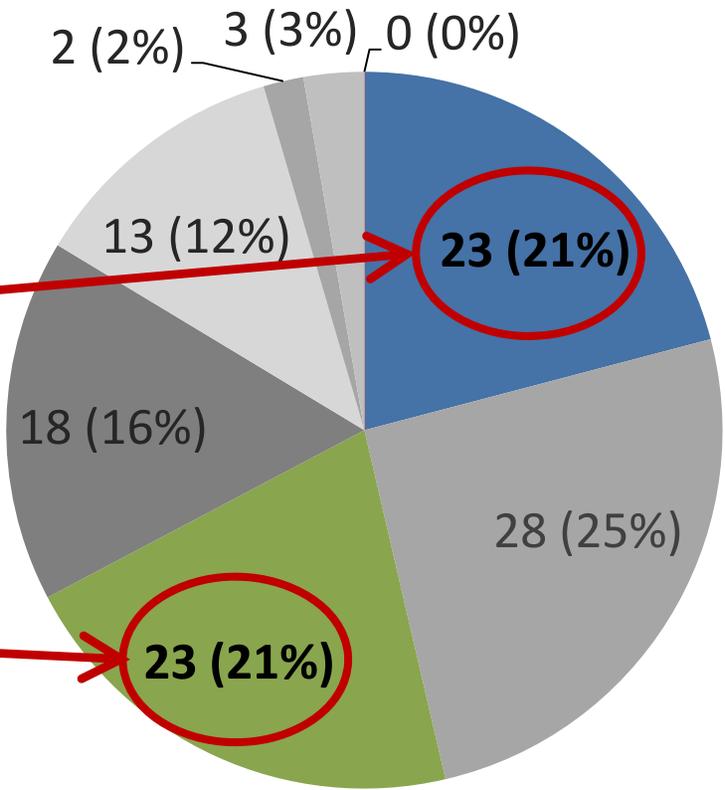


Crossing Incidents – Traveler Age

Oregon Total 2005-2014



Oregon Total 2008-2017

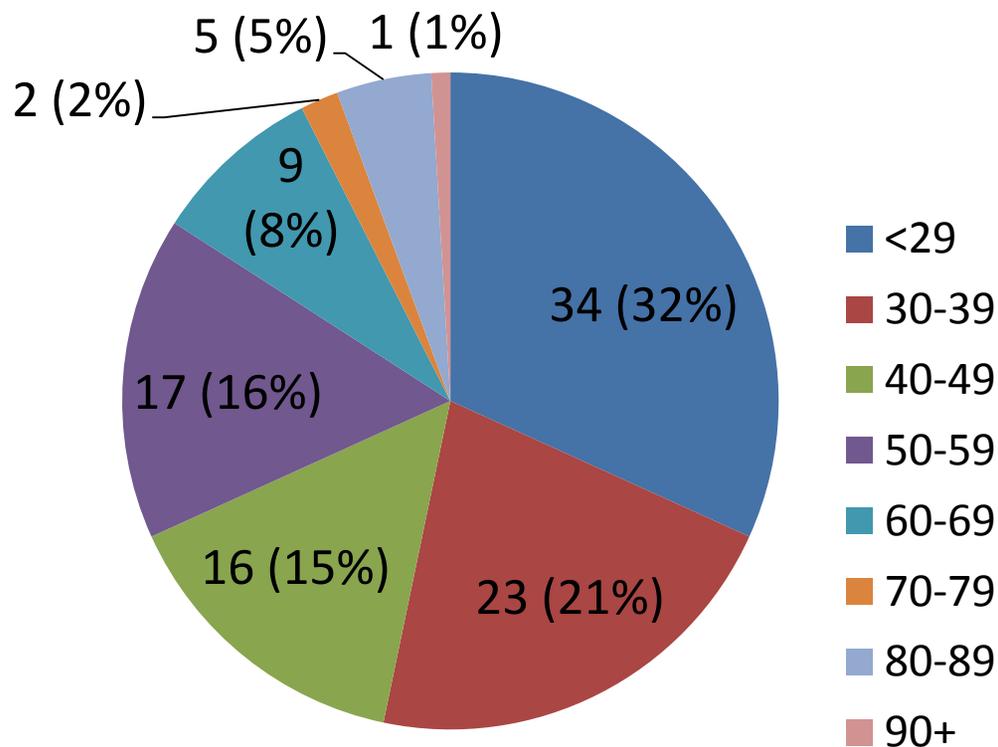


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- 50-59
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- 80-89
- 90+

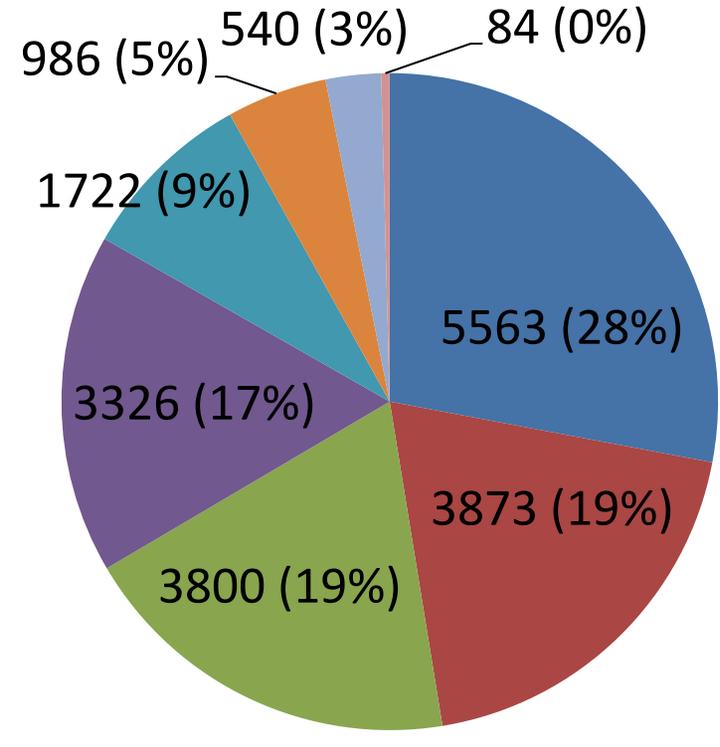


Crossing Incidents – Traveler Age

Oregon Total 2005-2014



National Total 2005-2014





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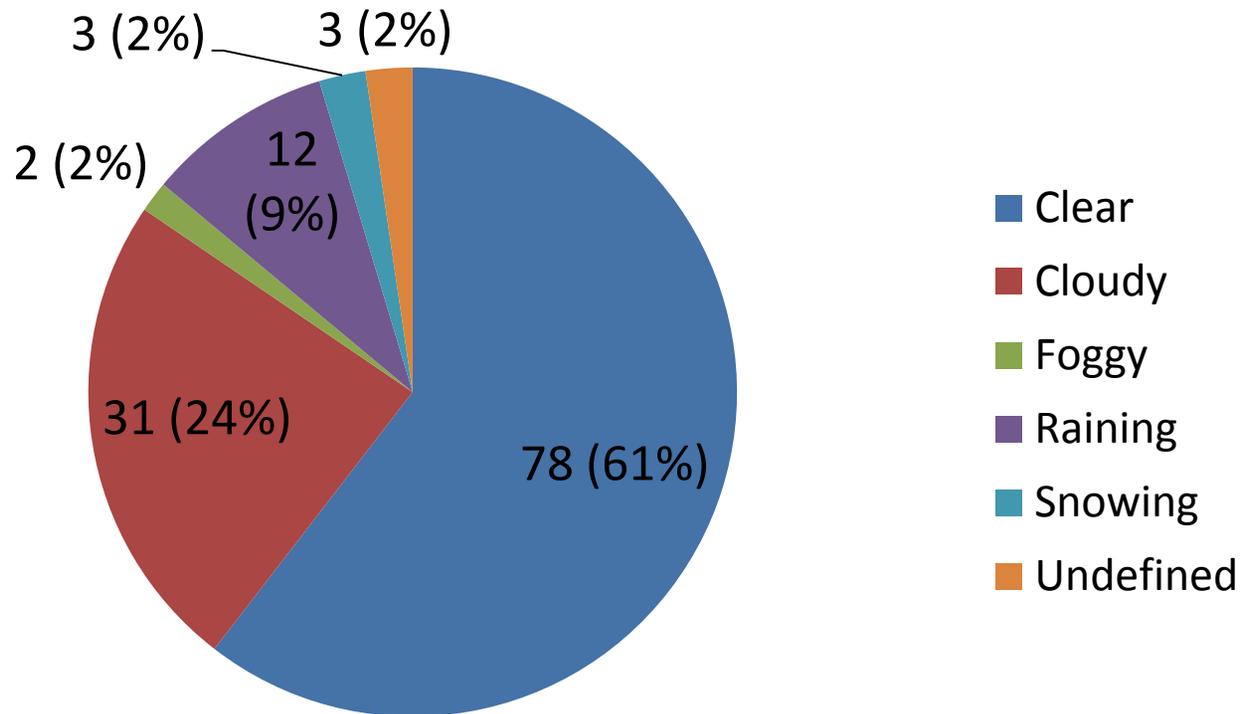


Environmental



Crossing Incidents – Weather

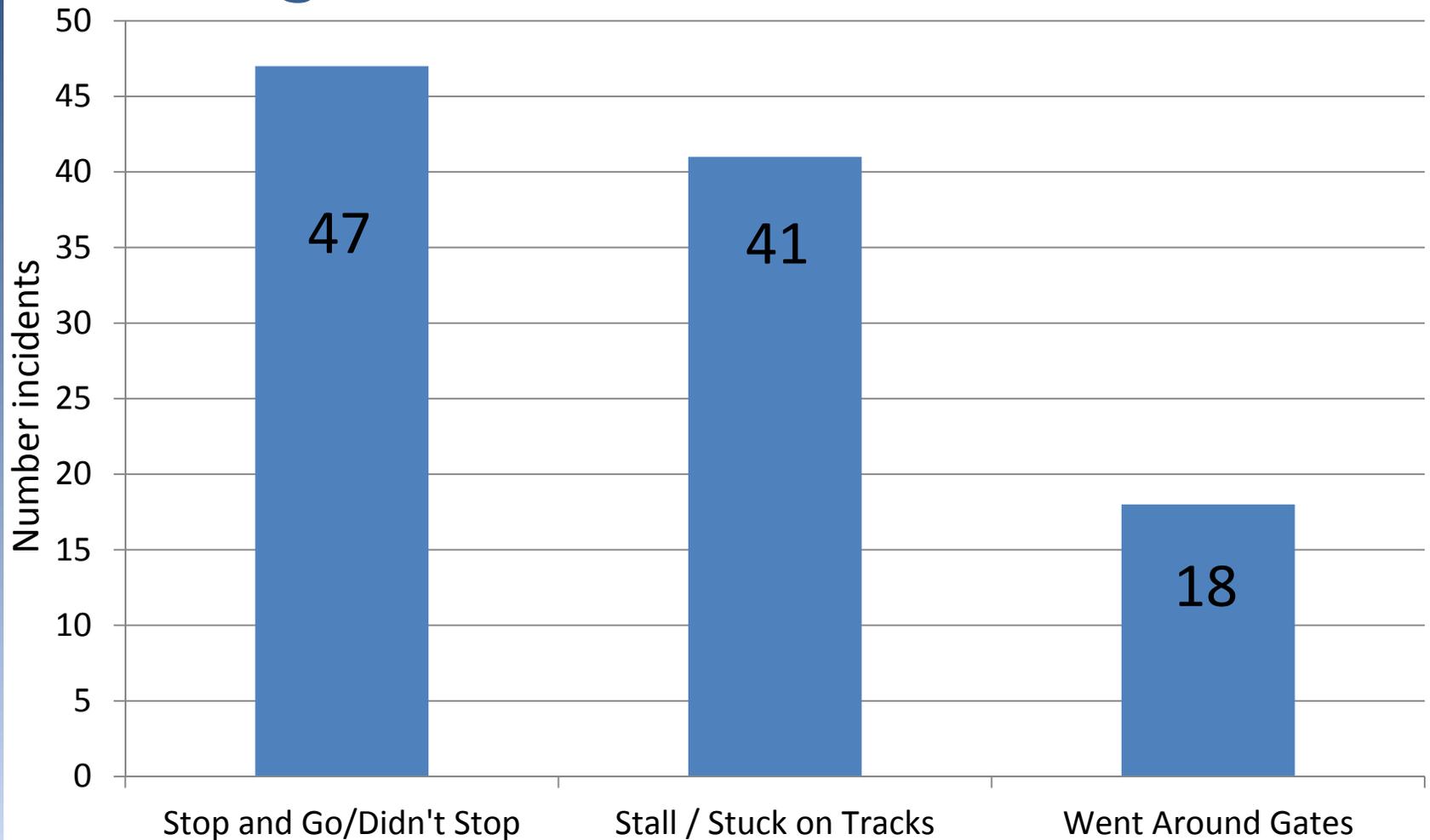
Weather at Time of Incident



* Years 2008-2017



Crossing Incidents – Traveler Behavior



* Years 2008-2017



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



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Contributing Factors – Group Discussion



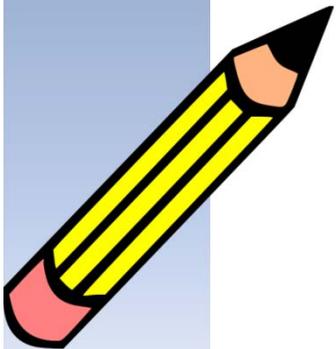
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Rail Crossing Action Plan



What are some of the key factors or trends that may be contributing to rail crossing incidents?

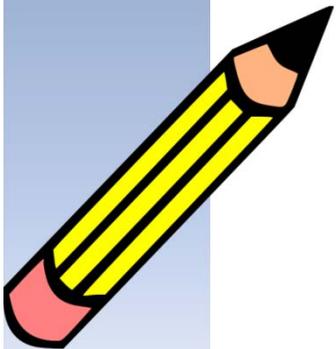
- -
- -
- -
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- -





Dot Voting

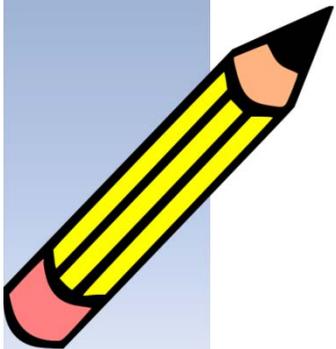
- Consider your perspective on these factors:
- Vote with dots for factors you feel are critical to address, important to understand, emerging trends or important for your community, etc.





Dot Voting

RECAP Results





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Rail Crossing Action Plan



Crossing Prioritization



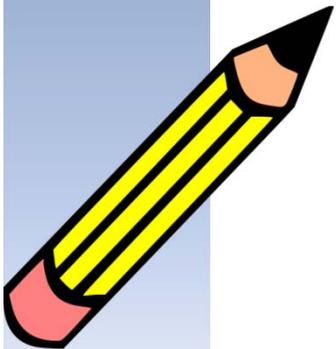
Crossing Prioritization Criteria

C1: FILL IN – RESULTS OF DOTS

C2:

C3:

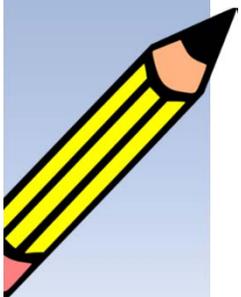
Alternative C1: Anything missing?





Plan Objectives

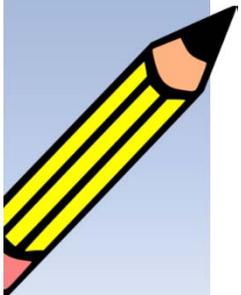
- Coordinate and collaborate with railroads, road authorities and other stakeholders to improve rail crossing safety.
- Reduce the number and rate of crossing incidents, injuries and fatalities.
- Apply engineering solutions for improvements.
- Strengthen education and outreach about rail crossing safety.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





Plan Objectives - NEW

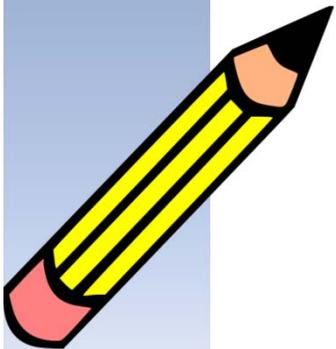
- Balance safety with quality of life
- Maintain rail crossing equipment inventory and make easily available
- Add multimodal considerations to rail crossings
- Encourage early coordination between road jurisdictions and railroads
- Evaluate system risk for rail crossings closures
- Encourage education 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
- JAQUE – 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>



Oregon Department of Transportation
Rail Crossing Action Plan



Thank you!

Roseann O'Laughlin, Project Manager
503-986-3525

Richard Shankle, Rail Crossing Safety Section Manager
503-986-4273

Michael Rock, Planning Unit Manager
503-986-3179