Local Road Safety Planning

Washington State

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October, 2019
Agenda

• Current Performance
• Planning History
• DIY Local Road Safety Plans
• Results
Safety Video

Source: Jimmy Kimmel Live, URL https://www.youtube.com/watch?v=CQLBaTa4hAU
Safety Program Results

Fatal / Suspected Serious Injury Crashes

2018
494 fatalities
1936 serious injuries
County Roads Results

Fatal / Suspected Serious Injury Crashes

- State
- County
- City
- Misc

29% decrease from 2008 to 2018
County Roads Results

- Lane Departure: 35%
- Impairment: 35%
- Motorcycles: 20%
- Pedestrian: 7%
Washington State Safety Planning History

- 2000
- 2007
- 2010
- 2013
- 2016
- 2019

www.targetzero.com
Local Road HSIP Program

Data Driven Process

70% of HSIP Funds to Local Agencies

Over $270 million awarded to local agencies since 2006

Percent Fatal & Serious Crashes by Agency

State 30%
County 30%
City 40%

“Our recent progress has been impressive. Washington traffic fatalities have fallen every year since 2005 - down to 437 in 2012 - still, too many people dying on our roadways. To continue this decline, we will need to implement new strategies and more breakthrough programs in the next five years.”
-Governor Jay Inslee, 2013
Local Road HSIP Funding

City Safety Program
2012 $50 Million

Quick Response Program
2013 $28 Million

City Safety Program
2014 $23.1 Million

County Safety Program
2016 $26.5 Million

Innovative Safety Program
2016 $24.8 Million

County Safety Program
2017 $28.1 Million

Since 2006 Washington State has invested almost $300 million for local road safety.

$274 million
DIY County Road Safety Plans

Thurston County
Transportation Safety Plan

Okanogan County
Local Road Safety Plan

Garfield County
Road Improvement Safety Plan
2017 update

Lewis County
Local Road Safety Plan

Franklin County
Local Roads Safety Plan
2017

Resolution No. 1977-69A

Okanogan County Department of Public Works
236A East Avenue South, Okanogan WA 98840

May 2017

Lewis County Public Works
Local Road Safety Plan

Updated May 2017
County Safety Facts

Counties maintain **47%** of the road miles in Washington State.

**16%** of the total vehicle miles traveled occur on County roads.

The fatal crash rate is **two** times higher on county roads than on state highways.
Data Challenges

“...low-density crash situation is often viewed as a rural issue, but similar situations can exist in urban areas, such as crashes involving motorized vehicles and vulnerable road users (e.g., pedestrians, bicyclists, and motorcyclists).”

-Systemic Safety Project Selection Tool, FHWA

Source: Thurston County, WA
2014 & 2017 County Road HSIP Program

**Required** Data Driven Safety Plan

**Focus** on fatal & severe crashes

**Emphasized** use of Systemic Safety

“*The community specific data will help local and regional agencies prioritize safety projects and programs, as well as assist them in developing localized Target Zero plans. Using data-driven approaches to problem identification and prioritization provides local-level justification for allocating funds and resources.*” - Washington Strategic Highway Safety Plan
LRSP Expectations

1. Analyze Safety Data
2. Description of Risk Factors
3. Prioritized list of roadway locations
4. Countermeasure selection
5. Prioritized list of projects
Data Analysis
## Safety Information

<table>
<thead>
<tr>
<th>2013-2017 County X Data</th>
<th>Fatal/Serious Injury Crashes Only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Roads</td>
</tr>
<tr>
<td>Overall Numbers</td>
<td></td>
</tr>
<tr>
<td>Total # of Collisions</td>
<td>11,313</td>
</tr>
<tr>
<td># of Fatal Collisions</td>
<td>2,402</td>
</tr>
<tr>
<td># of Serious Injury Collisions</td>
<td>8,911</td>
</tr>
<tr>
<td># of Alcohol-Related Collisions</td>
<td>2,482</td>
</tr>
<tr>
<td>Total # of Fatalities</td>
<td>2,587</td>
</tr>
<tr>
<td>Total # of Injuries</td>
<td>15,651</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>By Collision Type</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Hit Fixed Object</td>
<td>3,192</td>
<td>1,164</td>
<td>282</td>
<td>825</td>
<td>42.9%</td>
<td>23</td>
</tr>
<tr>
<td>Angle (T)</td>
<td>1,311</td>
<td>282</td>
<td>197</td>
<td>144</td>
<td>10.3%</td>
<td>8</td>
</tr>
<tr>
<td>Overturn</td>
<td>849</td>
<td>237</td>
<td>144</td>
<td>123</td>
<td>10.2%</td>
<td>4</td>
</tr>
<tr>
<td>Head On</td>
<td>590</td>
<td>160</td>
<td>123</td>
<td>4</td>
<td>10.2%</td>
<td>4</td>
</tr>
<tr>
<td>Hit Cyclist</td>
<td>628</td>
<td>87</td>
<td>73</td>
<td>4</td>
<td>3.3%</td>
<td>4</td>
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<tr>
<td>Angle (Left Turn)</td>
<td>686</td>
<td>124</td>
<td>102</td>
<td>2</td>
<td>4.6%</td>
<td>10</td>
</tr>
<tr>
<td>Wildlife</td>
<td>102</td>
<td>47</td>
<td>26</td>
<td>1</td>
<td>1.8%</td>
<td>3</td>
</tr>
</tbody>
</table>

“Assisting, working with, and sometimes being led by local partners is most effective when guided by state and local data.”
- Washington Highway Strategic Safety Plan

Our crash data is fairly limited, so we use information from our maintenance division to augment our crash data
-anonymous, County Engineer or designee
## Finding Emphasis Areas

### 2006-2010 Collision Data

<table>
<thead>
<tr>
<th></th>
<th>All Roads</th>
<th>All Counties</th>
<th>Thurston County</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Angle (left-Turn)</strong></td>
<td>16% (2175)</td>
<td>13% (468)</td>
<td>9% (16)</td>
</tr>
<tr>
<td><strong>Intersection-Related</strong></td>
<td>33% (4557)</td>
<td>22% (812)</td>
<td>19% (34)</td>
</tr>
<tr>
<td><strong>Horizontal Curve</strong></td>
<td>26% (3674)</td>
<td>39% (1419)</td>
<td>45% (80)</td>
</tr>
</tbody>
</table>

Source: Thurston County, WA
Network Screening (Risk Analysis)
Common Risk Factors Used

“Don't reinvent the wheel; use the assets that are available and customize them to meet your needs.”
-Anonymous, County Engineer or designee

Keep it simple, find your target area and make your case.
-Anonymous, County Engineer or designee
Risk Factors by the Numbers

- Illumination Present: 5
- Embankment/Slope Height: 5
- Surface Type: 5
- Shoulder Width: 9
- Road/Lane Width: 11
- Clear Zone & Fixed Objects: 12
- Posted Speed: 12
- Functional Classification: 14
- Horizontal Curves: 16
- Traffic Volume: 19
- Crash Rate/Severity: 23
Risk Factor Selection Example

Included as priority risk factor:
- Rural Minor Arterial (06): 75% (49)
- Rural Major Collector (07): 67% (289)
- Rural Minor Collector (08): 58% (209)
- Urban Principal Arterial (14): 15% (54)
- Urban Minor Arterial (16): 8% (34)
- Urban Major Collector (17): 9% (6)

Not Included as priority risk factor:
- Rural Minor Arterial (06): 14% (6)
- Rural Major Collector (07): 75% (49)
- Rural Minor Collector (08): 67% (289)
- Urban Principal Arterial (14): 16% (17)
- Urban Minor Arterial (16): 17% (14)
- Urban Major Collector (17): 14% (4)

Source: Thurston County, WA
Use of Qualitative Data

Use the data that you have

Use qualitative ratings when needed for

Density, frequency, or conditions

It is important to include the risk factors that are key to your roadway network
Scoring or Ranking System

Simple Scoring System

Higher Confidence in results resulted in highest score

Lower Confidence in results resulted in lowest score

Systemic analysis approaches might weigh risk factors equally, which simply means the more risk factors present, the higher the location’s priority. However, risk factors also can be given relative weights... The values for relative weights may be high/medium/low or based on integers that infer a higher level of confidence in the weights.

Systemic Safety Project Selection Tool, FHWA
## Risk Scoring Example

<table>
<thead>
<tr>
<th>Curve_ID</th>
<th>Corridor</th>
<th>Start</th>
<th>End</th>
<th>Length</th>
<th>Systemic Score</th>
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</thead>
<tbody>
<tr>
<td>12945.01.03</td>
<td>LITTLEOCK RD SW</td>
<td>4.35</td>
<td>4.44</td>
<td>0.09</td>
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<tr>
<td>12945.01.02</td>
<td>LITTLEOCK RD SW</td>
<td>4.48</td>
<td>4.54</td>
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<tr>
<td>14820.01.04</td>
<td>STEDMAN RD SE</td>
<td>1.55</td>
<td>1.66</td>
<td>0.11</td>
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<td>14820.01.03</td>
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<td>1.8</td>
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<td>10241.01.07</td>
<td>BALD HILL RD SE</td>
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<td>5.06</td>
<td>0.06</td>
<td>4.5</td>
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<tr>
<td>10241.01.09</td>
<td>BALD HILL RD SE</td>
<td>7.77</td>
<td>7.87</td>
<td>0.1</td>
<td>4.5</td>
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</table>

Source: Thurston County, WA
## Risk Scoring Example

<table>
<thead>
<tr>
<th>Rank</th>
<th>Corridor</th>
<th>ADT Range</th>
<th>Road Departure Density</th>
<th>Access Density</th>
<th>Curve Critical Radius Density</th>
<th>Edge Risk</th>
<th>Totals</th>
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<tr>
<td>1</td>
<td>144.01</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td>2</td>
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<td>★</td>
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<td>4</td>
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<td>★</td>
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<td>★★★</td>
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<td>6</td>
<td>31.02</td>
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<td>★</td>
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</table>

*This table represents 19 of the 77 segments.*

Source: VHB
Risk Mapping Example

Map courtesy of City of Tacoma, WA
Focus Facility Scoring Distribution

- 5-6: 8 locations
- 4-5: 21 locations
- 3-4: 65 locations
- 2-3: 94 locations
- 1-2: 64 locations
- 0-1: 19 locations

Source: Thurston County, WA
Countermeasures
Most Common Countermeasures Used

- Rumble Strips
- Enhanced crosswalks
- High Friction Surfacing
- Roundabouts
- Guardrail
- Traffic Signs
HSIP Program Results
HSIP Program Results

Almost 90% of Washington State Counties have LRSP’s now.

25 Cities in Washington State have LRSP’s now.

29% reduction in severe crashes on County roads.
HSIP Program Future

Call for projects every 2 years

Counties must submit a LRSP (since 2014)

Cities will be required to submit LRSP (2020)
Local Road Safety Planning
Washington State

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