Speed Limit Setting

RROMAC
July 9, 2020
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Outline

• Background
• Overview
• Authority
• New Methodology
• Compliance
• Questions & Discussion
Speed vs Speed Limit

• Legislation change (SB 558 – 2019)
Purpose of Speed Limits

• Inform motorists of the appropriate driving speed under favorable conditions
• Provides the legal basis for adjudication and fines for violations

(Derived from consistent and objective methods)
Speed Zoning Principles

• Not to be used for spot hazard mitigation

• Not a substitute for enforcement

• Not a substitute for speed management
Types of Speed Limits

- Statutory
- Designated (Engineering Study)

Statutory
- 15 MPH
- 20 MPH
- 25 MPH

Designated
- Need Investigation to Determine
- 55 MPH
- 65 MPH
- 70 MPH
Statutory Speeds - low

- **15 MPH** – alleys, narrow residential roadways
- **20 MPH** – business districts, school zones, some residential
- **25 MPH** – residential districts, public parks, ocean shores
Statutory Speeds - high

- **55 MPH** – most open rural highways, trucks on some interstate highways

- **60 MPH** – trucks on some open rural highways, (OAR designates trucks on most interstates)

- **65 MPH** – passenger vehicles, light trucks, motor homes and light duty commercial vehicles on most interstate highways; some open rural highways; trucks on some interstate and open rural highways

- **70 MPH** - passenger vehicles, light trucks, motor homes and light duty commercial vehicles on some interstates and open rural highways
Designated Speeds

• Established by a road authority when statutory speeds may not be reasonable or applicable.

• Statutes give ODOT the authority to establish almost all designated speeds
Basic Rule

• Motorists must drive at a speed that is reasonable and prudent
  – considering other traffic, road and weather conditions, dangers at intersections and any other conditions that affect safety and speed

• Drivers are expected to use good judgment in selecting their speed.

• The Basic Speed Rule does not allow a driver to exceed the posted speed.
Speed Setting Authority

- ORS 810.180 (1993)

- ODOT is the primary authority to designate speeds that may be different than the statutory speeds

- This authority applies to all public roadways in Oregon
Types of Speed Limits

- Statutory
- Designated (Engineering Study)
County Authority

- Statutory Speeds (by ORS)
- Speed Zone investigations (delegated)
- Low volume, paved roads (by request - delegated)
- Emergency (by ORS)
- Construction (by ORS)
- Temporary (by ORS)
  - New/rebuilt roads
Science of speed setting

**Solomon Curve**

![Graph showing accident involvement rate by variation from mean speed.](image)

**FIGURE 12** Accident involvement rate by variation from mean speed (10).
Science of speed setting

The graph illustrates the relationship between deviation from average speed and involvement rate per 100 million vehicle-miles. The x-axis represents the deviation from average speed (km/h), while the y-axis shows the involvement rate. The graph peaks at the average speed, with lower risk for deviations below the average speed and higher risk for deviations above it. The red line indicates the crash risk curve, with the lowest crash risk occurring at the 90th percentile of speed deviation.
Science of speed setting

Direction of Travel: N-S

85th Percentile Speed

50th Percentile Speed

Cumulative Percent

% of Veh.  Speed Limit  85th Percentile
Science of speed setting

- **20 MPH**: 13% Likelihood of fatality or severe injury
- **30 MPH**: 40% Likelihood of fatality or severe injury
- **40 MPH**: 73% Likelihood of fatality or severe injury

*Source: Impact Speed and a Pedestrian’s Risk of Severe Injury or Death, Brian Tefft, AAA Foundation for Traffic Safety, 2011*
Speed Zone Dilemma

Vulnerable User Survivability Approach

Posted Speed? (Regulatory)

Minimize Vehicular Crash Approach

Target Speed (Aspirational)

Operating Speed (Actual 85th %tile)

Built Environment
Current Research

• Research work and Surveys:
  – NCHRP 17-76:
    • Guidelines for Setting Speed Limits (research project)
  – NTSB Report on speed
  – TTI and AAA Survey
  – NCHRP Report 855:
    • Expanded Functional Classifications for Roads
NCHRP 855 - Context

Land use

Rural

Suburban

Urban

Urban Core
## NCHRP 855 – Road User Priority

<table>
<thead>
<tr>
<th>Context → Roadway ↓</th>
<th>Rural</th>
<th>Rural Town</th>
<th>Suburban</th>
<th>Urban</th>
<th>Urban Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Arterial</td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
<td><img src="image" alt="Pedestrian" /></td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
</tr>
<tr>
<td>Minor Arterial</td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
<td><img src="image" alt="Pedestrian" /></td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
</tr>
<tr>
<td>Collector</td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
<td><img src="image" alt="Pedestrian" /></td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
</tr>
<tr>
<td>Local</td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
<td><img src="image" alt="Pedestrian" /></td>
<td><img src="image" alt="Car" /></td>
<td><img src="image" alt="Bike" /></td>
</tr>
</tbody>
</table>

**User Priority:**
- High: ![Car](image) ![Bike](image) ![Pedestrian](image)
- Medium: ![Car](image) ![Bike](image) ![Pedestrian](image)
- Low: ![Car](image) ![Bike](image) ![Pedestrian](image)
## NCHRP 855 – Target Speeds

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<th>Urban Core</th>
</tr>
</thead>
<tbody>
<tr>
<td>Principal Arterial</td>
<td>High</td>
<td>Medium to Low</td>
<td>High to Medium</td>
<td>Medium to Low</td>
<td>Low</td>
</tr>
<tr>
<td>Minor Arterial</td>
<td>High</td>
<td>Medium to Low</td>
<td>Medium</td>
<td>Medium to Low</td>
<td>Low</td>
</tr>
<tr>
<td>Collector</td>
<td>Medium</td>
<td>Low</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Local</td>
<td>Medium</td>
<td>Low</td>
<td>Low</td>
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</tr>
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</table>

**Target Speed:**
- Low < 30 mph
- Medium 30—45 mph
- High > 45 mph
Research Summary

• The use of 85\textsuperscript{th} percentile is different for rural roads than for urban roads
  – More flexibility on urban roads

• Rural type roadways / Freeways
  – Recommend speed within 5 MPH of the 85\textsuperscript{th} percentile speed

• Developed areas
  – Consideration given to recommending speeds within 5 MPH of the 50\textsuperscript{th} percentile speed
Updated Speed Setting Methods

• ODOT using a more context based approach for setting speeds
  – NCHRP 855 (Context)
  – NCHRP 17-76 (Speed Setting Guidance)

• Blend engineering (85\textsuperscript{th} percentile) and Risk (vulnerable users)

• Add flexibility to the current system, especially in urban areas
## New Process - Inside City Limits

<table>
<thead>
<tr>
<th>Context &gt;</th>
<th>Urban Core/CBD</th>
<th>Urban Mix</th>
<th>Suburban Commercial and Residential</th>
<th>Suburban Fringe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roadway Class</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 50th% Speed used if:
- 50th percentile is more than 35 mph
- Context is inconsistent
- Limited Access Facility

### Speed can vary 10 mph below 50th if:
- Average Crash rate exceeds 1.5 times average
- More than one Fatal or Serious Injury in the last 3 years
- Meets definition of residence district
Speed Zone Dilemma

Vulnerable User Survivability Approach

Posted Speed? (Regulatory)

Minimize Vehicular Crash Approach

Speed

20 25 30 35 40 45 50 55

Target Speed (Aspirational)
Operating Speed (Actual 50th%tile)
Operating Speed (Actual 85th%tile)

Built Environment (City Limits)
New Process - Outside City Limits

<table>
<thead>
<tr>
<th>Roadway</th>
<th>Rural Highways</th>
<th>Rural Communities</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Highways</td>
<td>85&lt;sup&gt;th&lt;/sup&gt; percentile +/-5 mph</td>
<td>50&lt;sup&gt;th&lt;/sup&gt; percentile +/-10 mph</td>
</tr>
<tr>
<td>Non-state Arterials</td>
<td>85&lt;sup&gt;th&lt;/sup&gt; percentile +/-5 mph</td>
<td>50&lt;sup&gt;th&lt;/sup&gt; percentile +/-10 mph</td>
</tr>
<tr>
<td>Non-State collectors or locals</td>
<td>50&lt;sup&gt;th&lt;/sup&gt; percentile +/-5 mph</td>
<td>50&lt;sup&gt;th&lt;/sup&gt; percentile +/-10 mph</td>
</tr>
</tbody>
</table>

Rural Highways - speed can go 10 mph below 85<sup>th</sup> if:
- Average Crash rate exceeds 1.5 times average
- More than one Fatal or Serious Injury in the last 3 years
- Limited sight distance crashes

Speeds can vary 10 mph below 50<sup>th</sup> if:
- Continuous to business or residence district
- DLDC Unincorporated Community
- Urban character
Change Summary

• Oregon’s speed law changes are in alignment with national research
• Still requires an engineering study be completed
  – All studies require speeds, crash data and roadway data
• Context based or 50th percentile speeds in urban areas with greater range flexibility
• 85th percentile speeds will still be used on rural high speed roadways and limited access hwys
  – Only 15% of the drivers are exceeding this speed
• Still have special provisions for lowering speeds if there is a higher than usual crash history
Speed Zone Request Process

• Local Jurisdiction then ODOT
  – State Hwy, outside of a city, then the public can request directly
• 4 to 6 months for an investigation
  – Investigations halted during the early part of the pandemic.
• Speed Zone Review Panel
  – Review contested cases
Speed Compliance

• Design
• Enforcement
• Congestion
Related Items

- Gravel Road speed limits
  - Discouraged but allowed by ODOT
    - Crash history, enforcement, maintenance
- Rural, Local Road posted speeds
  - Normally the County doesn’t request to post
    - Considerations for cut-through, agritourism, special cases
- Road Standards
  - Update in process
    - Trend towards slower and narrower
- Next Steps
Questions and Discussion

If you have questions about speed zoning, please contact:
Oregon Department of Transportation
State Traffic Engineer
4040 Fairview Industrial Drive SE
Salem, OR 97302-1142
Phone: (503) 986-3568
Fax: (503) 986-3749
Or visit our Web site at:
www.oregon.gov/ODOT/HWY/TRAFFIC-ROADWAY/speed_zone_program.shtml

Setting speed zones on Oregon's highways and streets is often a controversial and emotional issue.