



Vulnerable Road User (VRU) Safety Assessment

OTSC Update, December 2023

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FHWA PRIORITIZING VRU SAFETY

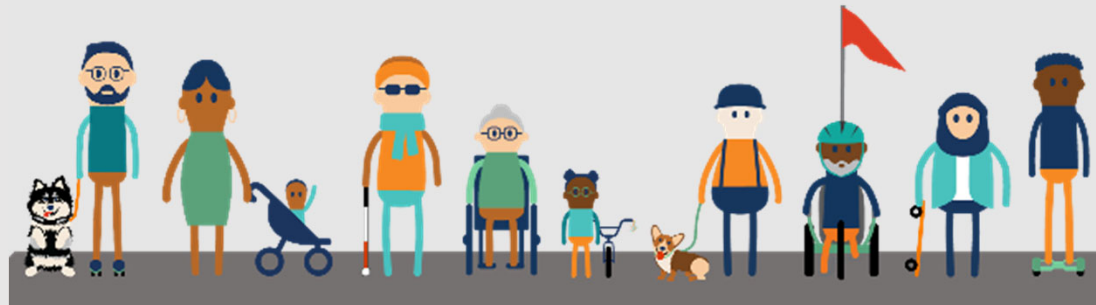
Vulnerable road user safety affects everyone on the roadway - no matter your age, gender, or socioeconomic status.

- Infrastructure Investment and Jobs Act (IIJA)
 - “All states are required to develop a Vulnerable Road User Safety Assessment as part of their Highway Safety Improvement Program (HSIP)”
 - Should be included in the Strategic Highway Safety Plan (known as TSAP in Oregon)
 - Plan must be data-driven and incorporate the Safe Systems Approach (SSA)

[VRU Safety Assessment Guidance \(dot.gov\)](#)

VULNERABLE ROAD USER ASSESSMENT

- What is a vulnerable road user (VRU)?
 - Definition can vary, but includes, at a minimum:
 - Pedestrians
 - Persons using wheelchairs
 - Bicyclists
- What is a VRU Assessment?
 - Statewide effort to increase VRU safety by:
 - Studying available data and crash trends
 - Identifying high-risk areas
 - Developing strategies and solutions that compliment other initiatives in Oregon

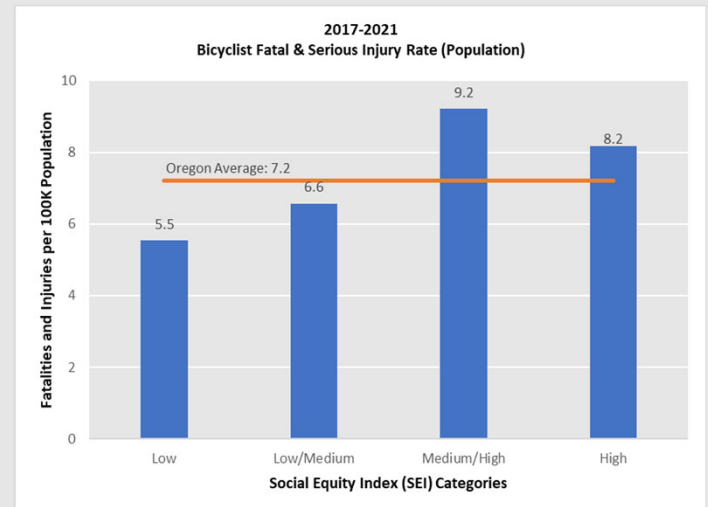
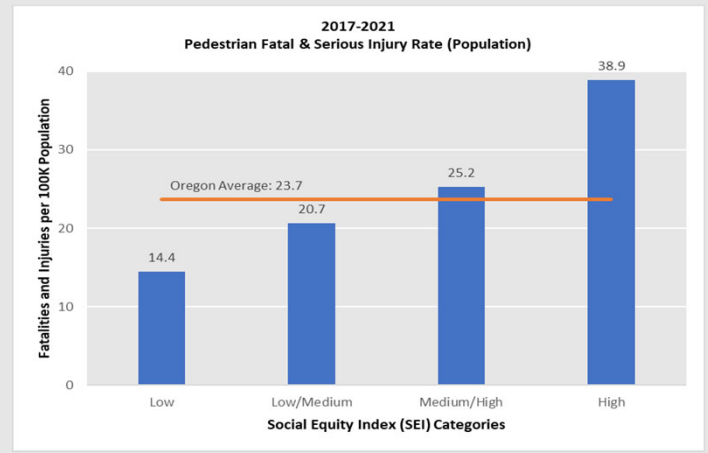
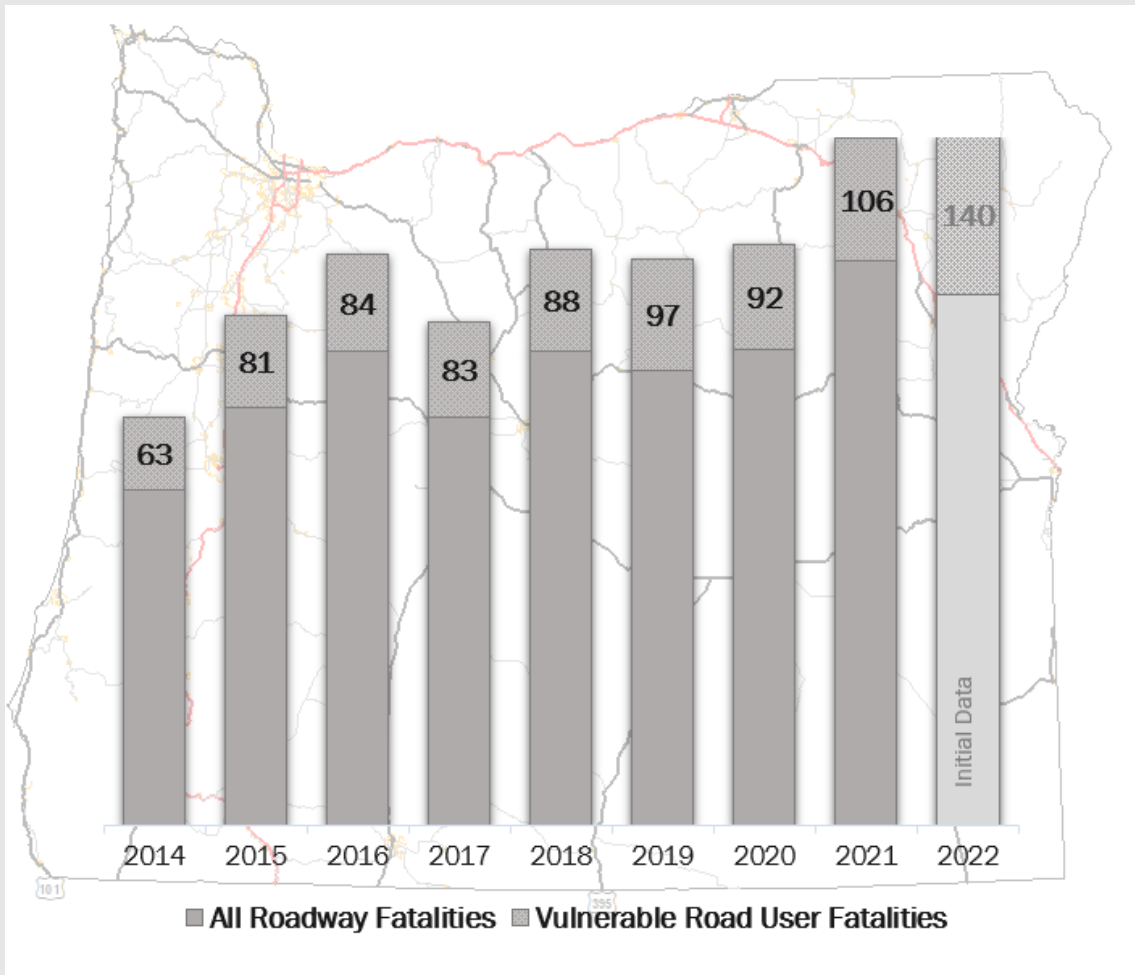


VRU ASSESSMENT MUST INCLUDE:

- The Safe System Approach (SSA)
- Data-driven analysis of VRU fatalities and serious injuries statewide
- Consideration of community demographics near crash locations, including race, ethnicity, income, and age
- Identification of ‘high-risk’ areas for VRUs
- consult with local governments, MPOs, and regional transportation planning organizations that represent a high-risk area.
- Projects and strategies to reduce safety risks in ‘high-risk’ areas

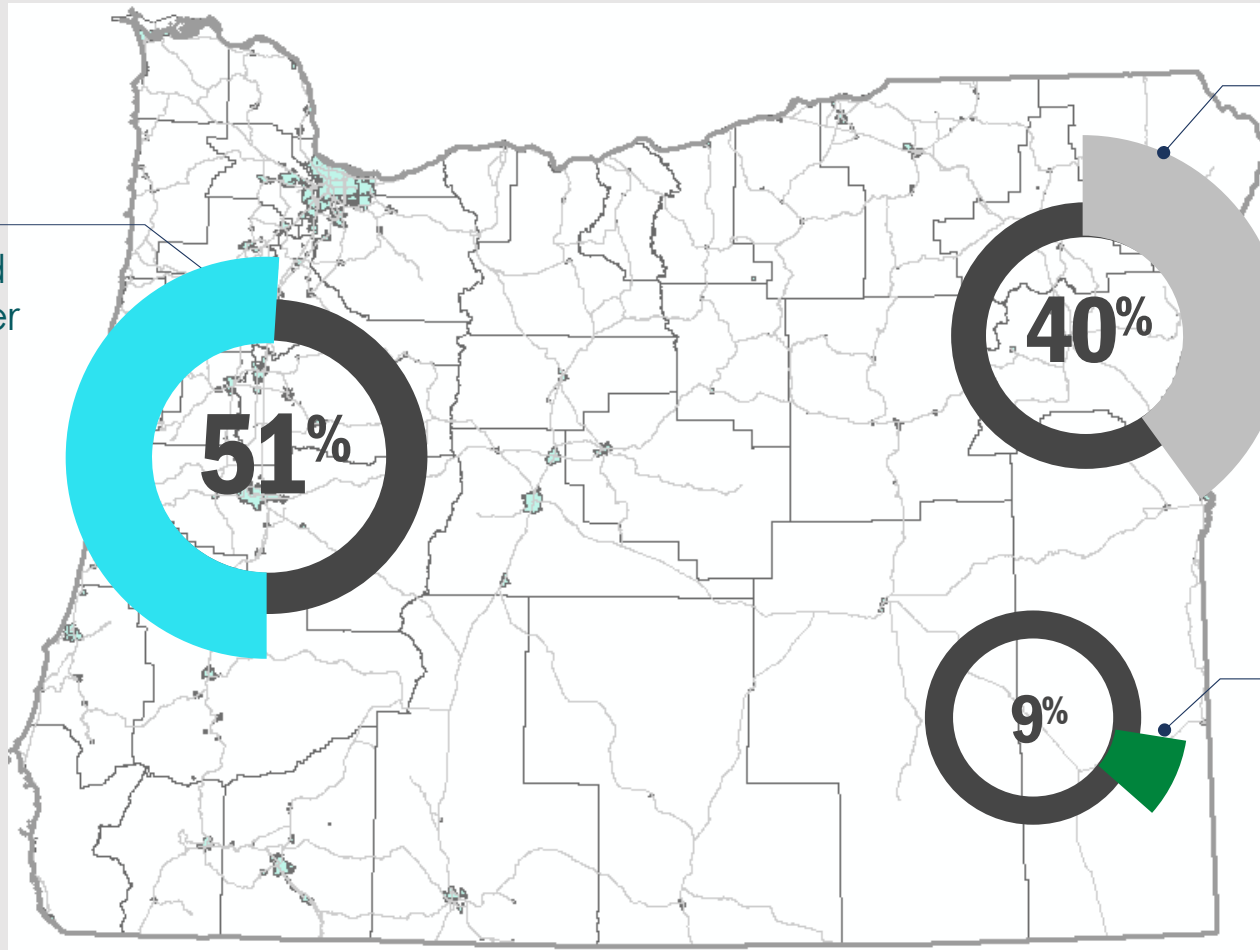


VULNERABLE ROAD USER SAFETY IN OREGON



City Streets

- 132 fatalities and serious injuries per year;
- ~11,000 miles of roadway



State Highways

- 105 fatalities and serious injuries per year;
- ~8,000 miles of roadway

County Roads

- 23 fatalities and serious injuries per year;
- ~33,000 miles of roadway

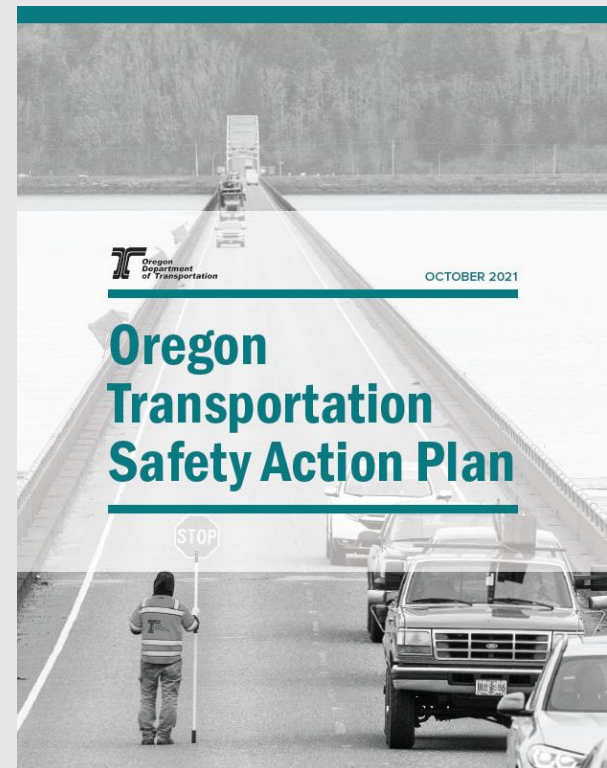
2017 – 2021 Pedestrian & Bicyclist Fatalities and Serious Injuries, participant level data



COORDINATION WITH OTHER VRU-RELATED EFFORTS IN OREGON

RELATED PLANS/PROGRAMS:

- 2013 Statewide Transportation Strategy
- 2015 Transportation Options Plan
- 2016 Bicycle & Pedestrian Plan
- 2021 Strategic Highway Safety Plan
- 2023 Transportation Plan
- 2023 Strategic Action Plan
- 2023 Public Transportation Plan
- 2023 Highway Plan
- 2023 Highway Safety Plan
- 2023 Highway Safety Improvement Program



ALIGNMENT WITH CURRENT EFFORTS:

- 2021 Oregon Bicycle & Pedestrian Safety Implementation Plan
 - Risk factors
 - High risk locations
 - Countermeasures to address both
- 2023 Highway Safety Improvement Program Bicycle-Pedestrian Risk Rating
 - Revision to previous Bike-Ped Risk Tool
 - Support HSIP projects for VRUs
- 2021 SHSP (TSAP) Implementation



DATA ANALYSIS METHODOLOGY

A LOT OF DATA ANALYSIS:

- **Crash History**
 - Trends, contributing factors, errors my mode
 - Looked at all severities; focused on fatalities and serious injuries
 - 2017-2021 data set, state and local roadways
- **Overrepresented Risk Factors**
 - Align with Current Efforts
 - Overrepresentation Analysis – what is **really** overrepresented in the data?
 - Considered roadway characteristics, traffic volume, demographics

OTHER SYSTEMIC FACTORS:

- 2 or more lanes per direction
- High traffic volume
- Posted speed 35+ mph
- Arterial or Major Collector
- Within 1 mile of a school
- Within 0.1 mile of a transit stop
- Shoulder \leq 6 feet (rural)
- No street lighting
- Signalized intersection spacing



OUTREACH AND HIGH RISK AREAS

EXTERNAL PARTNER COORDINATION

- **Safety Conference, March 2023-** venue for a trial run of the consultation questions and to gather preliminary input on vulnerable road user safety challenges and opportunities in Oregon.
- **ODOT Partnership Workshop, June 2023-** opportunity to inform partners about the VRU Assessment's progress and gather input on their priorities and experiences. Attendees emphasized the importance of using the Safe System Approach (i.e., addressing increasing vehicle weight/size), considering equity, and using a data-driven approach to safety.
- **Tribal Engagement, August 2023-** The Tribal Partners workshop provided a valuable opportunity for ODOT to inform representatives about the VRU SA process and gather their feedback on this effort and VRU safety concerns in general.
- **Committee Updates:**
 - **Oregon Bicycle and Pedestrian Advisory Committee (OBPAC) , July 25th and September 26th-** OBPAC members shared support for the additional focus on vulnerable road user safety and hope that the assessment would result in additional actions from ODOT and partners to address negative trends. Members emphasized the need to focus on addressing crash risk factors.
 - **Oregon Transportation Safety Committee (OTSC),** updates on progress at recurring meetings

METHODOLOGY FOR HIGH-RISK AREAS:

- **20% VRU-involved Crash History**
 - Locations with highest number of VRU crashes per mile
 - All crash severities
- **80% Risk Factors**
 - Roadways with highest number of risk factors
 - All factors received same weight (all weighting is arbitrary)
 - Proportion of available risk factors (5-13 data elements)
- **Split State Highways from non-State Highways**
- **Split Pedestrians from Bicyclists**

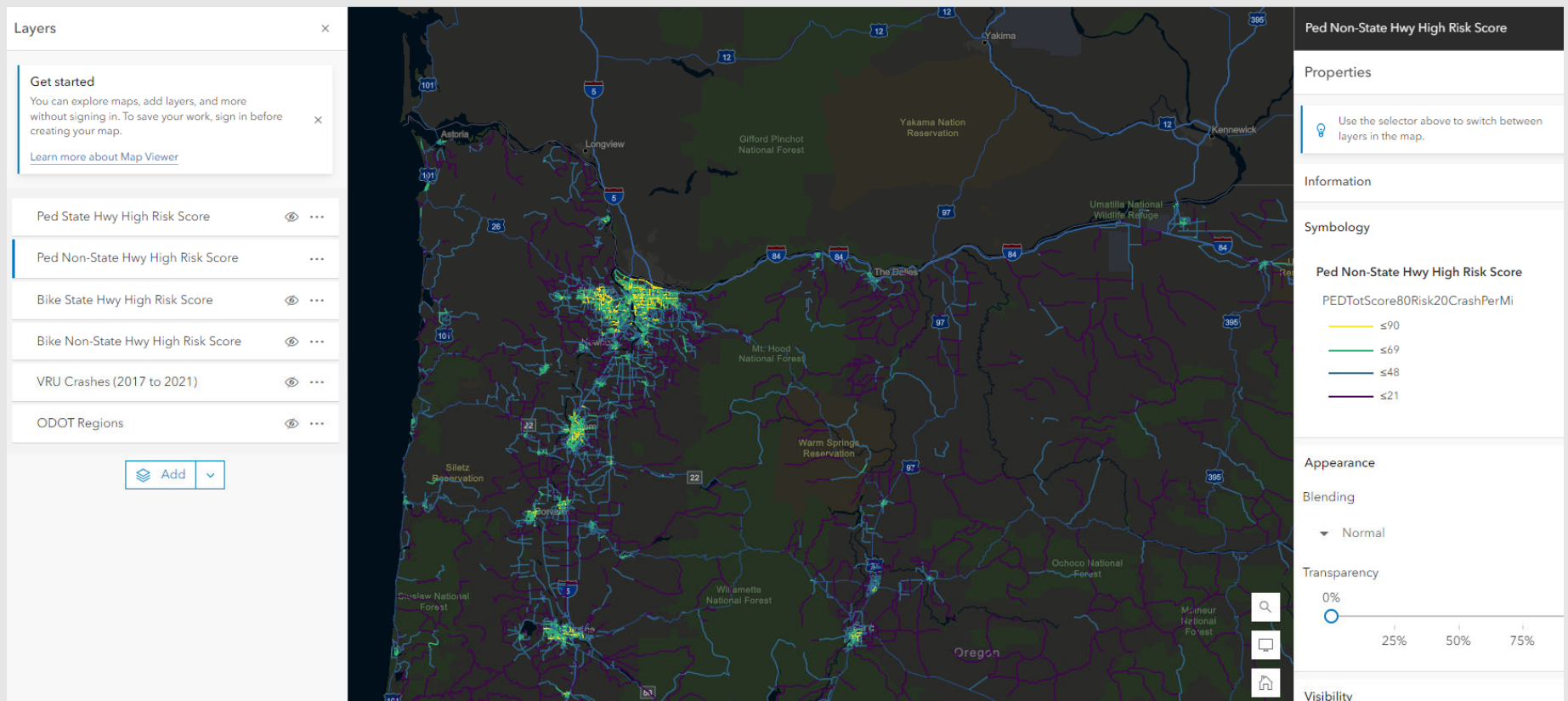
HIGH-RISK AREA FACTORS:

1. Social Equity Index
2. Functional Classification
3. Motor Vehicle Traffic Volume
4. School Proximity
5. Transit Stop Proximity
6. Posted Speed Limit
7. Number of Lanes
8. Traffic Signal Spacing
9. Access Density
10. Bike Lane Presence
11. Sidewalk Presence
12. Shoulder Width
13. Street Lighting

HIGH-RISK AREA AREAS:

4 ArcGIS Maps

- Split State Highways from non-State Highways
- Split Pedestrians from Bicyclists



REPORT AND MAP

- Submitted (complete and on time) November 15th

<https://www.oregon.gov/odot/safety/pages/tsap.aspx>

The screenshot shows the Oregon DOT website's Transportation Safety Action Plan (TSAP) page. The navigation menu includes: OREGON.GOV, ODOT Home, Programs, Planning & Technical Guidance, Drivers & Vehicles, Doing Business, Data & Maps, Local Governments, Get Involved, and About Us. The sidebar contains: Performance Plans and Annual Reports, Transportation Safety Action Plan (highlighted), Grantee Resources, and Transportation Safety Public Participation and Engagement. The main content area lists several expandable sections: 'Why this plan is important', 'How this plan is used', 'Oregon TSAP Implementation Work Program', 'Project Deliverables and Resources', 'How you can stay informed and engaged', '2016 TSAP and TSAP Acronyms and Definitions', and 'Vulnerable Road User Assessment' (highlighted with a blue border and a close button). The 'Vulnerable Road User Assessment' section contains the following text:

The Vulnerable Road User Assessment assesses the safety performance with respect to vulnerable road users and outlines the state's plan to improve the safety of vulnerable road users. It must be data-driven, incorporate the Safe System Approach, and comply with guidance issued by FHWA. The assessment is due November 15, 2023.

All States are required to develop a Vulnerable Road User Safety Assessment as part of their Highway Safety Improvement Program (HSIP) in accordance with 23 U.S.C. 148(j). As defined by FHWA, vulnerable road users include people who walk, bike, and use personal conveyances.

2023 Vulnerable Road User Assessment

Oregon's [Vulnerable Road User Assessment](#) describes the current state of safety for people walking and bicycling in the state and assesses the safety in high risk areas by considering crash history and risk factors associated with an increase in crashes. It encourages safety partners and the public to implement a program of projects and strategies – based on the Safe System Approach – to reduce the frequency and severity of crashes involving vulnerable road users.

The [2023 interactive web mapping tool](#) identifies risk areas (from low to high) for target facilities, statewide, within a specified jurisdiction or geographic region. Link scores represent a blend of crash history (20%) and risk factors (80%) related to pedestrian and bicyclist safety as outlined in the Vulnerable Road User Assessment. Users can filter results based on area type, functional classification, county, city, specific risk factors, and crash history. For further information on how the link risk scores were developed, please see the 2023 Vulnerable Road User Assessment.

Report →

Interactive Map →

Next Steps

- Engagement and outreach to local jurisdictions and Tribal governments to bring awareness of how these methods can be used locally for their own focused VRU safety assessment.
- Expand community engagement and meetings to gain better partnerships across agencies, jurisdictions, and organizations to better understand and address safety issues through an equity lens.
 - Particularly with non-traditional partners
- Provide training and outreach to disseminate the Safe System approach more broadly.
- Work towards completion of roadway inventory data for all public roads (State highways and non-State highways), including shared use path presence, cycling facilities presence, and presence of lighting.
- Incorporate land use and zoning data in future activities relating to VRU safety assessment
- Analyze the extent of underreporting and consider other data sources

VRU ASSESSMENT TEAM

DKS Team

- Brian Chandler, Project Manager
- Lacy Brown, Lead Safety Analyst
- Houssam Ghandour, Safety Analyst

FHWA

- Nick Fortey

Oregon DOT

- Amy Joyce
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- Jessica Horning
- Heidi Manlove
- Robin Wilcox
- Traci Pearl
- Miguel Lopez
- Walt McAllister
- John Bonnet
- Theresa Heyn

OTHER VRU ASSESSMENTS

- California: <https://dot.ca.gov/programs/safety-programs/shsp>
- Nevada: <https://zerofatalitiesnv.com/vulnerable-road-users/>
- Hawaii: https://hidot.hawaii.gov/highways/files/2023/11/Final_VRUSA_2023.pdf
- Montana: <https://www.mdt.mt.gov/visionzero/plans/vrusa.aspx>
- Utah: <https://zerofatalities.com/safety-plan/>
- Minnesota: <https://www.dot.state.mn.us/trafficeng/safety/vrusa.html>
- Massachusetts: <https://storymaps.arcgis.com/stories/8b36ed2f1f3749b7ac085c0ca5b8efa7>
- Arizona: <https://azdot.gov/about/transportation-safety/arizona-strategic-traffic-safety-plan-stsp>
- Georgia: https://www.dot.ga.gov/DriveSmart/Travel/BikePed/Vulnerable_Roadway_Use_r_Safety_Assessment.pdf
- Texas: <https://www.texasshsp.com/texas-shsp/>
- Iowa: <https://iowadot.gov/traffic/shsp/home>
- Google “state” VRU Assessment to view additional





Questions?