Pacific Northwest Transportation Consortium
University Transportation Center For Region 10

PacTrans Safety Research and Education Overviews

Universities in PacTrans:

University of Washington
Oregon State University
University of Idaho
University of Alaska Fairbanks
Washington State University

Presenter: Zhibin Li, Ph.D.
University of Washington

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Current Safety Projects:

Major Projects: 1 Education, 4 Multi, and 1 Outreach (with close collaboration between different universities)

Small projects: 11 projects (mainly conducted by each university)

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Safety Data Management and Analysis: Addressing the continuing Education Needs for the Pacific Northwest

Education, UI-lead, PI: Kevin Chang

Goal: To provide transportation workforce with resources needed to effectively understand, manage and analyze safety data. Safety data **collection, management, integration, improvement, and activities** are integral to developing a robust data program.

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Bicycle Safety Analysis: Crowdsourcing Bicycle Travel Data to Estimate Risk Exposure and Create Safety Performance Functions

Multi, OSU-lead, PI: Haizhong Wang, Co-: UW, UI

Goal: to create tools, guidelines, and repeatable processes to analyze **crowd sourced bicycle data**, calculate bicycle **exposures** to dangerous situations, and create and analyze **safety performance functions** for bicyclists.

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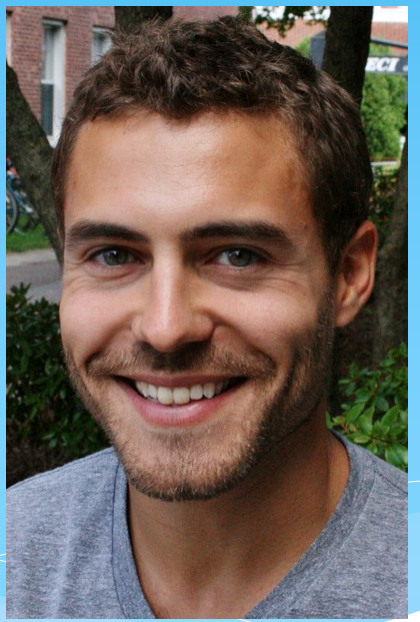
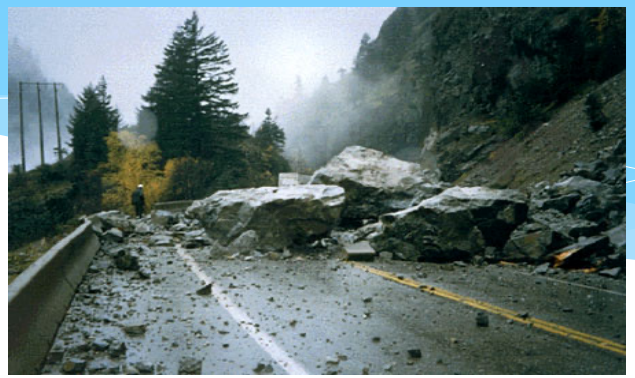
Mixed Use Safety on Rural Facilities in the Pacific Northwest

Multi, UAF-lead, PI: Nathan Belz, Co-: UAF, UI

Goal: to assist to make informed decisions regarding **resource allocation** with respect to **rock slopes**. Provide a tool for identifying which rock slopes pose the **greatest risk** to a transportation corridor and the customers that use it.





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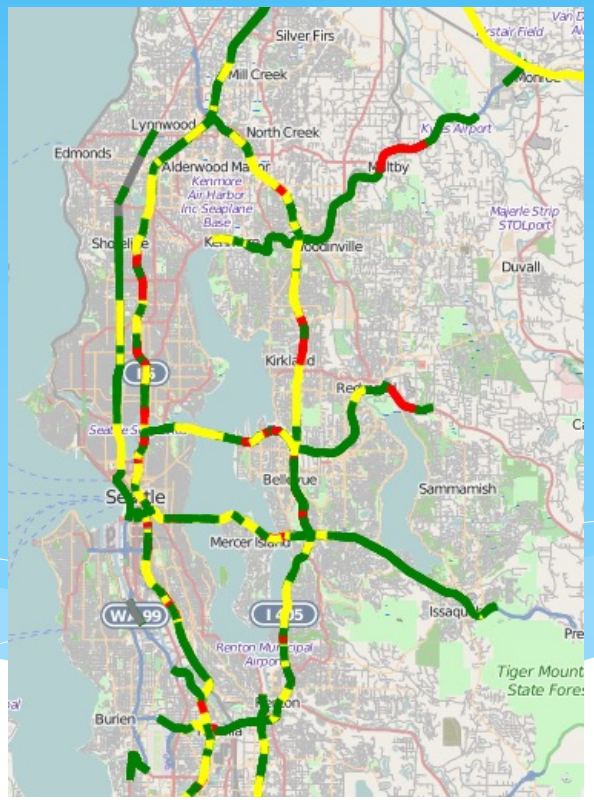
Regional Map Based Analytical Platform for State-Wide Highway Safety Performance Assessment

Multi, WSU-lead, PI: Ali Hajbabaie, Co-: UW

Goal: Improve **analytical method** for highway safety; Computational methods using the **eScience transportation** platform; regional map based analytical **platform** for state-wide highway safety performance assessment; list of underperformed segments and suggested improvement solutions



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Unmanned Aircraft System Assessments of Landslide Safety for Transportation Corridors

Multi, UAF-lead, PI: Keith Cunningham, Co-: OSU, UW

Goal: UAS is an optimal research tool for **close-range imaging and digital surface modeling** using structure-from-motion (sfM) algorithms. The system also provide significant safety benefits for surveying work because they don't have footprint on road.

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Mitigation of Lane Departure Crashes in the Pacific Northwest through Coordinated Outreach

Outreach, OSU-lead, PI: David Hurwitz

Goal: to raise the awareness of the traveling public in the Pacific Northwest about the risks regarding **lane departure crashes** and how behaviors can **mitigate** their occurrence.

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Small Projects

Can be classified into two types according to contents

Type 1: Facility Safety

1. Safe Main Street Highways (SMSH)
2. Determination of Creep Compliance and Indirect Tensile Strength for Mechanistic-Empirical Pavement Design Guide (MEPDG)
3. Development of Low-Cost Wireless Sensors for Real-Time Lifeline Condition Assessment
4. Cost-effective bridge safety inspections using unmanned aerial vehicles (UAVs)
5. Relationships among Worker Gender, Communication Patterns, and Safety Performance in Work Zones
6. Fault Tree Analysis for Accident Prevention in Transportation Infrastructure Projects

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Small Projects
Can be classified into two types according to contents

Type 2: Safety Evaluation & Analysis

1. Evaluation of the Social Cost of Modal Diversion: A Multi-Modal Safety Analysis
2. Modeling Passing Behavior on Two-Lane Rural Highways: Evaluating Crash Risk under Different Geometric Conditions - Year 3
3. Evaluation of Ultra-wideband Radio for Improved Pedestrian Safety at Signalized Intersections
4. An Evaluation of Safety Impacts of Seattle's Commercial Delivery Parking Pricing Project
5. Small Project: 3D Virtual Sight Distance Analysis using Mobile LIDAR data

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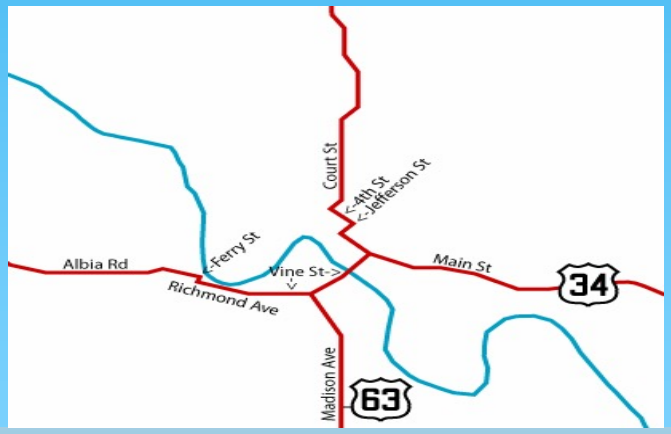
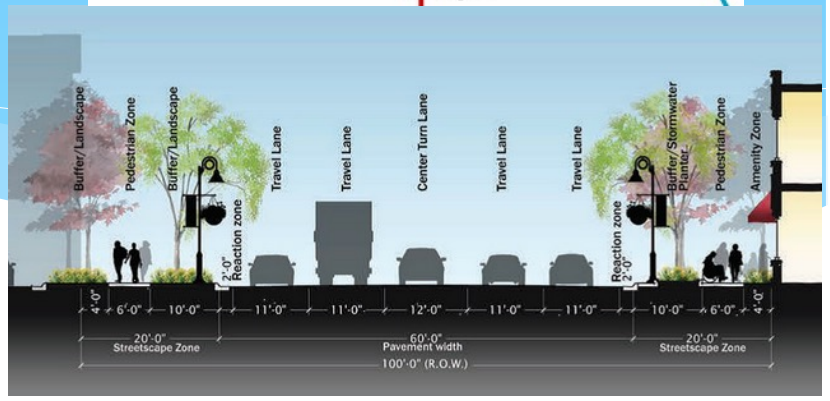
Safe Main Street Highways (SMSH)

Small, UW-lead, PI: Anne Vernez Moudon

Goal: to assist in complying with Washington State Strategic **Highway Safety Plan** of zero fatality and serious injury by 2030, and in reducing the number of **pedestrian and bicyclists involved** in motor-vehicle collisions on state highways .





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THANK YOU!