



University Transportation Center Newsletter

SPECIAL ISSUE

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Last October, the Pacific Northwest Transportation Consortium (PacTrans) held its seventh annual conference on Friday, October 11, 2019 at the University of Washington (UW). The conference focused on emerging mobility and safety issues in the Pacific Northwest, the theme being “Bridging Innovations and Practice for Enhanced Mobility and Safety”.

PacTrans partnered with the Center for Safety Equity in Transportation (CSET) again to put together this conference, which returned to Seattle, Washington after being held at the University of Alaska Fairbanks last year. A special thanks this year goes out to the Washington State Department of Transportation for generously sponsoring the event.

A variety of transportation-focused topics were discussed, with the sessions being split into two different tracks: mobility and safety. The mobility track sessions covered research that works towards the improvement of connected and autonomous mobility, controversies surrounding technology in transportation, and recent advancements in shared mobility. The safety track sessions explored research dedicated to improving transportation in rural areas, issues surrounding traffic safety in indigenous communities, and a workshop for defining isolation in a transportation context. Guided by this year’s theme, a total of 22 posters were presented at the conference’s annual poster session by PacTrans members and participating students.

The planning committee chair, Dr. Jeff Ban, Associate Professor of Civil and Environmental Engineering at UW, was joined by UAF Associate Professor, Nathan Belz; Oregon State University Associate Professor, Haizhong Wang; Washington State University Assistant Professor, Tommy Tafazzoli; University of Idaho Associate Professor, Mike Lowry; and University of Hawaii at Manoa Professor and Chair of Civil and Environmental Engineering, Panos Prevedourous.



SCHEDULE OF ACTIVITIES

- 8:00 – 8:30 AM **Registration/Check-In**
- 8:30 – 8:35 AM **Introduction**
Xuegang Ban, PhD,
Associate Professor, Civil & Environmental Engineering, University of Washington
Associate Director of Research, Pacific Northwest Transportation Consortium
Chair, Conference Planning Committee
- 8:35 – 8:45 AM **Welcome Address**
Yinhai Wang, PhD, PE
Professor, Civil & Environmental Engineering, University of Washington
Director, Pacific Northwest Transportation Consortium
Associate Director, Center for Safety Equity in Transportation (CSET)
Billy Connor, MS
Director, Center for Safety Equity in Transportation (CSET)
Director, Alaska University Transportation Center
Associate Director, PacTrans, University of Alaska Fairbanks
- 8:45 – 9:15 AM **Keynote Address**
Hon. Roger Millar, PE, AICP, *Secretary of Transportation, Washington State Department of Transportation (WSDOT)*
- 9:30 – 10:30 AM **Plenary Session**
Ransford S. McCourt, PE, PTOE, *Principal, DKS Associates; International President, Institute of Transportation Engineers (ITE)*
Philip Stephenson, PhD, *General Manager, PACCAR Technical Center*
- 10:30 – 10:45 AM **Break**
- 10:45 – 11:45 AM **MOBILITY TRACK: SESSION 1** *Concurrent with Safety Track: Session 1*
TOPIC: Travel Demand Management in the Era of Automation, Connectivity, and Sharing
MODERATORS: **Anne Vernez-Moudon**, PhD, *Professor Emeritus of Urban Design and Planning, Architecture, and Landscape, University of Washington*
Qing Shen, PhD, *Professor of Urban Design and Planning and Adjunct Professor of Civil & Environmental Engineering, University of Washington*
Brian H. Y. Lee, PhD, *Principal Planner, Puget Sound Regional Council (PSRC)*
Michael Wandler, *Public Transportation Data Analyst, Washington State Department of Transportation (WSDOT)*
Michael Lowry, PhD, *Associate Professor, Civil Engineering, University of Idaho*
Interim Director, National Institute for Advanced Transportation Technology (NIATT)
Charles Knuth, *Marketing and Insights, Scoop Technologies*
Feiyang Sun, *Research Assistant, Urban Infrastructure Lab, Urban Form Lab, University of Washington*
Yiyuan Wang, *Research Assistant, Urban Infrastructure Lab, Urban Form Lab, University of Washington*
- 10:45 – 11:45 AM **SAFETY TRACK: SESSION 1** *Concurrent with Mobility Track: Session 1*
TOPIC: Traffic Safety for Rural, Isolated, Tribal, and Indigenous Communities (RITI)
MODERATORS: **Nathan P. Belz**, PhD, *Associate Professor, Civil & Environmental Engineering, University of Alaska Fairbanks; Assistant Director, CSET*
Panos Prevedouros, PhD, *Professor and Chair, Civil & Environmental Engineering, University of Hawaii at Manoa*
Richard Rolland, MURP, *Owner, Rolland Associates; Adjunct Faculty, Eastern Washington University*
Mohammadreza (Pasha) Hashemi, *Research Assistant, Civil & Environmental Engineering, University of Hawaii at Manoa*
Ananna Ahmed, *Research Assistant, Civil & Construction Engineering, Oregon State University*

SCHEDULE OF ACTIVITIES

continued

11:45 AM – 1:00 PM **Lunch and PacTrans Awards**

1:00 – 1:30 PM **Poster Session Elevator Pitches**

1:30 – 2:30 PM **Poster Session**

2:30 – 3:30 PM **MOBILITY TRACK: SESSION 2** *Concurrent with Safety Track: Session 2*

TOPIC: Micro-mobility Opportunities and Challenges in the Pacific Northwest

MODERATORS: **Haizhong Wong**, PhD, Associate Professor, Civil & Construction Engineering, Oregon State University

Casey Bergh, PE, Manager, Transportation & Sustainability, Oregon State University – Cascades

Alex Pazuchanics, MPM, Manager, Mobility Services, Transit & Mobility Division, Seattle Department of Transportation (SDOT)

Jonathan Hopkins, MA, Director, Strategic Development - NW, Lime

2:30 – 3:30 PM **SAFETY TRACK: SESSION 2** *Concurrent with Safety Track: Session 2*

TOPIC: Safety Analysis Tools

MODERATORS: **Guohui Zhang**, PhD, Associate Professor, Civil & Environmental Engineering, University of Hawaii at Manoa

Ida Van Schalkwyk, PhD, Safety, Asset, and Innovations Engineer, Washington State Department of Transportation (WSDOT)

Ronald Faller, PhD, PE, Director, Midwest Roadside Safety Facility (MwRSF), Research Full Professor, Civil & Environmental Engineering, University of Nebraska – Lincoln

Franz Loewenherz, MUP, Principal Transportation Planner, City of Bellevue, Washington

Hisham Jashami, Research Assistant, Civil and Construction Engineering, Oregon State University

3:30 – 3:45 PM **Break**

3:45 – 4:45 PM **CLOSING PANEL**

TOPIC: Smart Mobility for Underserved Populations: Opportunities and Barriers

MODERATORS: **Ahmed Abdel-Rahim**, PhD, PE, Professor, Civil & Environmental Engineering; Associate Director, Pacific Northwest Transportation Consortium, University of Idaho

Mary Beth Clark, MURP, Transportation Manager, Nez Perce Tribe (NPT) Transportation Program

Cathy Bisailon, President/CEO, Easter Seals Washington

Kim Zentz, MSEM, Director, Engineering and Technology Management + Smart Cities Initiative, Washington State University

Briana Lovell, MUP, Transportation Planner, King County Metro

4:45 – 5:00 PM **Closing Remarks**

Prof. Xuegang Ban, Chair, 2019 PacTrans/CSET Regional Transportation Conference

PACTRANS AWARDS

This year, PacTrans presented four awards to individuals that have displayed excellence and professionalism in the realm of transportation: the Educator of the Year Award; the Excellence in Technology Transfer Award; the Researcher of the Year Award; and the Lifetime Achievement Award.



Educator of the Year

The Educator of the Year Award is presented annually to a PacTrans faculty member in recognition of sustained outstanding teaching, including mentoring, advising, and innovative teaching techniques.

Shane Brown, PhD, PE

Associate Professor, Civil and Construction Engineering
Oregon State University



Excellence in Technology Transfer

This Excellence in Technology Transfer Award is presented annually to investigators for effective partnerships and collaboration with outside industry, innovative marketing of newly developed techniques and technologies, or successful implementation of research results.

Michael Lowry, PhD, PE

Associate Professor, Civil and Environmental Engineering
University of Idaho



Researcher of the Year

The Researcher of the Year Award is presented annually to investigators for outstanding research with significant outcomes, incorporating meaningful student contributions, and robust community service and leadership.

Xuegang Ban, PhD

Associate Professor, Civil and Environmental Engineering
University of Washington



Lifetime Achievement Award

This is the highest and most prestigious award given by PacTrans. It is presented in recognition of individuals who have had distinguished careers in transportation education in the Pacific Northwest.

Robert D. Layton, PhD, PE

Professor Emeritus, Civil and Construction Engineering
Oregon State University

WELCOME ADDRESSES



Yinhai Wang, PhD, PE

Professor, Civil & Environmental Engineering
Adjunct Professor, Electrical Engineering
Director, Pacific Northwest Transportation Consortium (PacTrans)
Director and Founder, Smart Transportation Applications and Research (STAR) Laboratory
University of Washington

To kick off the 2019 PacTrans | CSET Region 10 Transportation Conference, PacTrans director and professor of Civil and Environmental Engineering at the University of Washington, Yinhai Wang, welcomed representatives of public agencies, private industries, elected officials, and academic institutions, and thanked them for their participation while expressing his excitement for this year's conference.

This event is put together annually with three specific goals:

1. To bring awareness to the efforts PacTrans is making to solve the diverse mobility challenges experienced in the Pacific Northwest,
2. To hear from conference participants about their views on these mobility challenges, and
3. To network and share ideas on the future of our transportation systems.



Billy Connor, MS

Director, Center for Safety Equity in Transportation (CSET)
Director, Alaska University Transportation Center
Associate Director, Pacific Northwest Transportation Consortium (PacTrans)
University of Alaska - Fairbanks

CSET director and PacTrans associate director at the University of Alaska – Fairbanks, Billy Connor, also offered conference participants a warm welcome. The synergy between our two centers allows attendees more to explore, making the decision to partner with PacTrans again for this event was an easy one.

The Pacific Northwest is an incredibly diverse region, where the highly urbanized Seattle shares the same territory as the most rural and isolated parts of Alaska. It's where climates range from temperate to high arctic. It's where we witness one of the fastest growing economies in the nation and one of the poorest within the confines of the same area. Each of these elements present their own unique issues, and are the reason why the PNW is diverse in both region and transportation demands. That being said, Connor invited this year's participants to share their own experiences and ideas, and, of course, enjoy the conference.

WELCOME ADDRESSES

Moving Washington Forward in an Automated and Connected World

Roger Millar, PE, AICP

Secretary, Washington State Department of Transportation (WSDOT)

Roger Millar, the secretary of the Washington State Department of Transportation, opened the conference with the keynote speech, titled “Transportation Matters – Moving Washington Forward in an Automated and Connected World.”

He began speaking on the importance of transportation and touched on several topics, including social equity, asset management, congestion, and traffic safety among others. Often, transportation professionals may focus on only one or a couple of the aforementioned areas, those that are directly related to their work. Millar’s comments on the scope of the field’s importance, however, put things into a different perspective and highlighted the connections between these areas.

The focus of the conversation then shifted to trends in the transportation field, of which Millar pointed out resilience, alternative energy, technology, and alternate funding sources as the key areas.

In terms of solutions that address several of these trends, he emphasized cooperative automated transportation (CAT), which includes several components such as connected and autonomous vehicles, mobility on demand, etc. A key idea of



CAT, he noted, was focusing on the system, not the car. Thus, accessibility can be increased for all and potential gains in efficiency can be experienced as well.

Overall, Mr. Millar gave an interesting perspective on the problems faced by transportation agencies, as well as several novel solutions, all within the context of an approach focusing on people who use the system and practical solutions.

Plenary Session

This year’s conference introduced a plenary session, which featured Randy McCourt, principal at DKS and ITE International President; and Philip Stephenson, general manager at PACCAR Technical Center.

McCourt’s talk was entitled, “Bridging Innovations and Practice for Enhanced Mobility and Safety,” and focused on key issues, including equity and vision zero, as a direction for safety improvement.

With regard to equity, McCourt emphasized how equity in policy, funding, and ideas can help improve safety and mobility for all. Besides legislative matters, newer practices such as data sharing were emphasized as ways to improve equity in research as well.

In terms of enhancing safety, the main discussion was on vision zero as a goal to work towards despite one’s perception of how realistic it might seem, and how important it is to have a goal to work towards. A variety of ideas and technologies to help achieve vision zero were also presented including interlock systems on vehicles, national uniformity standards for state seat belt usage, how to allocate federal funds on safety improvements and preservation of interstate facilities, and many more.

McCourt presented a variety of novel solutions that have different applications and different effectiveness based on context. What rings clear, though, is that some combination of these novel solutions will help us get closer to realizing vision zero.



MOBILITY TRACK SESSIONS

Travel Demand Management in the Era of Automation, Connectivity, and Sharing



Anne Vernez-Moudon, PhD

Professor Emeritus of Urban Design and Planning, Architecture, and Landscape Architecture
University of Washington

Qing Shen, PhD

Professor of Urban Design and Planning and
Adjunct Professor of Civil & Environmental Engineering
University of Washington

How can new technologies, especially mobility services, be leveraged to better manage travel demand? Anne Vernez-Moudon and Qing Shen moderated this session discussing how they can be used to help develop new Commute Trip Reduction programs and strategies in the state of Washington and the Pacific Northwest.

Do Ride-Hailing and Car Sharing Substitute for or Complement More Traditional Travel Modes?

Feiyang Sun

Research Assistant, Urban Infrastructure Lab, Urban Form Lab
University of Washington

Researchers at UW wondered whether shared mobility services, like car sharing and ride hailing, are a complement to or a substitute for traditional travel options.

In his presentation, UW Research Assistant, Feiyang Sun, focused on the characteristics of trips made by car sharing and ride hailing using data from the 2017 Puget Sound Regional Council Travel Survey.

Considering data concerned with both trip duration and trip count in order to evaluate the impact of shared mobility services, the findings were examined and researchers were able to determine whether these new travel options are a replacement for trips made by more traditional modes, while also describing the users' sociodemographic profiles.

Results showed that shared mobility has not only reduced private vehicle trips, but also increased walking, and researchers urge policy makers to be aware of the differences between car sharing and ride hailing, as well as the influence of travel time on their impact.



MOBILITY TRACK SESSIONS

Can Washington State CTR Program Benefit From New Shared Mobility Options?

Yiyuan Wang

Research Assistant, Urban Infrastructure Lab, Urban Form Lab
University of Washington

In his discussion, UW Research Assistant, Yiyuan Wang, reviewed current data from employers and employees involved in the Washington State Commute Trip Reduction (CTR) program in an attempt to better understand how CTR policies and programs could benefit from the increase in new shared mobility travel options.

Based on their findings, researchers recommend that the CTR employee survey should better differentiate between traditional carpooling, taxi use, and app-based car sharing. The survey should also offer users ride hailing as an option to choose from and include other new shared mobility options, such as bike sharing, according to researchers.



Bike and Scooter Share Travel Demand Modeling

Mike Lowry, PhD

Associate Professor, Civil Engineering
University of Idaho
Interim Director, National Institute for Advanced Transportation Technology (NIATT)

At this year's conference, Associate Professor at the University of Idaho, Mike Lowry, presented work reviewing ways that the origins and destination of bike share trips can be mapped and analyzed to predict future travel patterns using these modes.

One way this was achieved was by creating an online database to archive bike and scooter share data. GIS Tools that planners can use for forecasting were also developed.

Station-based bike share, hub-incentive bike share, and dockless bike share are all bike share systems that have been introduced into Idaho communities over the past 10 years, all of which using a check in/check out system. A scooter sharing system was recently introduced in 2018.

In addition, a Bikeshare Live Feed was also presented and, using the data that is collected, generates a prediction for every zone the number of trips it will observe.



MOBILITY TRACK SESSIONS

Scoop, a New Approach to Carpooling

Charles Knuth

Marketing and Insights, Scoop Technologies

Charles Knuth from Scoop Technologies joined us at this year's conference to present to us how and where Scoop is being used and how it affects commute travel patterns.

Scoop is a company dedicated to making your carpooling experience more convenient and enjoyable. It's mission is to enrich millions of lives by helping employees and employers choose to make the commute a more meaningful part of the day.

One of America's largest fastest growing employer carpooling programs, Scoop was developed for the modern commuter, with the relationship between the commuter and employer in mind.

In his presentation, Knuth outlined three barriers to traditional carpooling from a commuter's perspective: flexibility constraints, matching challenges, and ongoing management. This is further complicated by the traditional hurdles that shift workers often face, such as trying to meet attendance policies, lengthy commutes, and lack of accessible public transportation. Scoop was built to serve customers with these problems.



Micro-mobility Opportunities and Challenges in the Pacific Northwest



Haizhong Wang, PhD

Associate Professor, Civil & Construction Engineering
Oregon State University

As micromobility solutions continue to emerge as legitimate alternative modes of transportation many questions remain. How do we intelligently leverage these new opportunities to support existing modes and infrastructure? What can municipalities do to ensure they work well for all people? These questions and others are explored within this session.

MOBILITY TRACK SESSIONS

Evaluation of Micro Transit in Bend, OR



Casey Bergh, PE

Manager, Transportation & Sustainability
Oregon State University – Cascades

In Deschutes County, Oregon, 0.4 percent of work-based commute trips were by bus from 2013 to 2017, representing a decline of 50 percent from the five-year period ending in 2012.

In his presentation, Casey Bergh discusses how the City of Bend, one of the fastest growing cities in the US, is now updating their 20-year Transportation System Plan and looking to public transit to manage single-occupancy travel.

The Mobility Lab at OSU-Cascades is collaborating with the City of Bend, Cascades East Transit, the Ben Metropolitan Planning Organization, and private entities to test more innovative forms of transportation in Bend.

The first of the Mobility Lab's tests, a 6-month pilot study of on-demand transit service, began on July 1, 2019. Service data collected through September will be compared to fixed route services offered by Cascades East Transit for the previous two summers.

Innovating at the Speed of Government: Expanding Mobility in Seattle



Alex Pazuchanics, MPM

Manager, Mobility Services
Transit & Mobility Division, Seattle Department of Transportation (SDOT)

Alex Pazuchanics, manager of mobile services in the Transit & Mobility Division at the Seattle Department of Transportation was present at this year's conference to lead a discussion on "Innovating at the Speed of Government" and expanding mobility in the city of Seattle.

He noted that at SDOT, they "believe transportation choices are critical to access opportunity", with their goal being to "build, operate, and maintain an accessible transportation system that reliably connects people, places, and goods".

According to Pazuchanics, mobility is created through infrastructure, policies, programs, and engagement, heavily relying on not only the needs of a community, but also its choices.

Some of the biggest questions SDOT asks are in regard to the good being created, how a system is built, and how to balance speed with sustainability.

Some of the goals SDOT is currently focusing on are building a shared micro mobility network, which includes finding a balance between bikes and scooters with use cases and spillover effects, and creating a long-term sustainability strategy.

MOBILITY TRACK SESSIONS

Reimagining Urban Life Through the Wonder of Mobility

Jonathan Hopkins, MA

Director, Strategic Development - NW, Lime

Jonathan Hopkins, director of strategic development at NW Lime, was in attendance at the conference and spoke to the audience about recent mobility insights.

Hopkins explained that Lime's primary purpose was to "reimagine urban life through the wonder of mobility." He presented an overview of congestion insights which noted that people spend approximately 109 hours in traffic per year, according to the Inrix 2018 Congestion Scorecard and a UCLA Research conducted after the election found that traffic congestion was the top issue followed by improving transit.

With Lime trying to introduce scooters as a main method of transportation, Hopkins discussed their capacity, citing a NACTO finding which stated that protected bikeways moves 3x more people per hour than mixed traffic lanes provided that same amount of space, mentioning that scooters operate at speeds similar to bikes.

Hopkins also claimed that around 50% of Lime riders opt for scooters because they find them faster or more convenient with statistics showing that 82% of riders are local and 37% of users utilize Lime devices for commuting to/from work/school.



SAFETY TRACK SESSIONS

Traffic Safety for Rural, Isolated, Tribal and Indigenous Communities (RITI)

Nathan P. Belz, PhD

Associate Professor, Civil & Environmental Engineering
University of Alaska Fairbanks
Assistant Director, CSET

The morning session for the safety track involved a series of four presentations focused on the topic of traffic safety in rural, isolated, tribal, and indigenous (RITI) communities and was moderated by Dr. Nathan Belz.



Equity in Transportation Safety and Preliminary Assessment in Hawaii

Panos Prevedouros, PhD

Professor and Chair, Civil & Environmental Engineering
University of Hawaii at Manoa

Dr. Panos Prevedouros discussed the findings of the first phase of a survey conducted on equity in transportation in Hawaii. The main idea was to examine how safety was perceived across different demographic groups in RITI communities in Hawaii on topics such as EMS response time, etc.

A survey was created in order to reach minority groups in Hawaii and understand what they think about transportation equity and rural safety transportation in the state.

Five transportation equity-related questions were chosen from the big survey and an additional eight questions on rural safety were selected for in-depth analysis. The outcome of the data analysis for the equity-related questions shows that people's perception in EMS response between rural and urban areas is that it is about the same.

The respondents disagreed with (1) paying more taxes in order to improve EMS response in rural areas, (2) having the government convert rural roads into high standard roads to make them safer, and (3) paying more taxes so the government can raise the standard on rural roads.

The results for the rural safety perception analysis was that the participants consider that the following are not a problem at all in rural Hawaii: (1) cell phone reception for emergency calls, (2) access to public transportation, and (3) absence of signalized intersections.

Ambulance response to emergencies in rural roadways, and hidden, missing, or defaced traffic signs were perceived as moderately problematic. Faded or worn out lane markings and lighting at night were also perceived as problematic.



SAFETY TRACK SESSIONS

Effect of Tribal Road Conditions on School Attendance

Richard Rolland, MURP

Owner, Rolland Associates
Adjunct Faculty, Eastern Washington University

Dr. Richard Rolland, owner of Rolland Associates, spoke on safety culture in tribal communities, especially those he has worked with in Eastern Washington. He noted a disparity in tribal transportation planning and emphasized how important building strong relationships with tribal communities is for improving safety and mobility.

In his discussion, he focused on the fact that American Indian and Alaska Natives (AI/ANs) are severely impacted by motor vehicle crash (MVC) injuries. Preventing MVC-related injuries and fatalities is a priority for tribes throughout the United States.

Despite our best intentions, motor vehicle crash rates for the AI/AN population have failed to come down. Recent studies by the U.S. Civil Rights Commission and the Government Accountability Office (GAO) have shed light on potential causes for this failure and targets for our interventions that can increase AI/AN access to a more safe and equitable tribal transportation system. This presentation provided a brief overview of the studies and recommendations for tribal transportation practitioners and their partners.



Influence of Roadway Characteristics in the Modeling of the Frequency of Roadway Departure Crashes on Two-Lane Two-Way State Roads in Hawaii

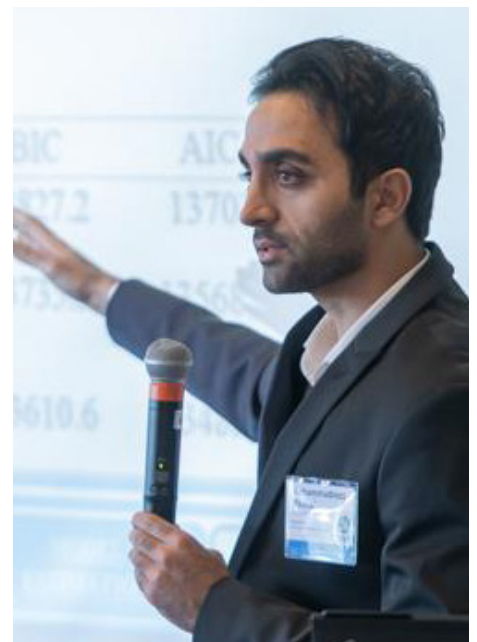
Mohammadreza (Pasha) Hashemi

Research Assistant, Civil & Environmental Engineering
University of Hawaii at Manoa

Mohammadreza (Pasha) Hashemi, a research assistant at the University of Hawaii, spoke on his work related to modeling of crash frequency for roadway departure crashes on 2-lane, two-way state roads. Emphasis was placed on the impacts of roadway characteristics and the issue of roadway segmentation.

Roadway Departure (RwD) crashes account for approximately 54 percent of traffic fatalities in Hawaii. Using ten years of crash data, this research explores the effect of roadway characteristics (e.g., traffic, geometry, etc.) in the modeling of the frequency of RwD crashes on Two-Lane Two-Way (TLTW) state roads in Hawaii.

The results show that segment length as well as consideration of directional analysis improve the model's estimations. Moreover, the results indicate that the general geometric environment of the roadway portion where the segment was located affects the frequency of RwD crashes, which means that, for example, for two similar segments, the frequency of RwD crashes are not equal if one is located on a winding road and the other segment is located right after a tangent road. In practice, decision-makers may consider the results to prioritize the location and type of countermeasures to mitigate RwD on TLTW state roads in Hawaii.



SAFETY TRACK SESSIONS

Blue Lights in Work Zones

Ananna Ahmed

Research Assistant, Civil & Construction Engineering
Oregon State University

Ananna Ahmed, a research assistant at Oregon State University, spoke on the results of the first phase of a study investigating the usage of blue lights on paving equipment in work zones as a means to encourage drivers to comply with work-zone speed and traffic regulations.

She outlined how the blue lights could capture drivers' attention in a similar way to those used by law enforcement and discussed compliance in terms of speed in the work zones before/after the usage of the lights.

Vehicle speed in work zones is a significant concern. Prior research shows that law enforcement vehicles located within a work zone with active flashing blue lights result in reduced vehicle speeds.

Placement of flashing blue lights on construction equipment has been identified as a potential control measure to further reduce speeds. The goal of this study was to evaluate the impact of flashing blue lights located on construction equipment on the speed compliance in work zones.

Flashing blue lights mounted on the rear of the paver during mainline paving operations on three case study projects on high speed roadways in Oregon were studied.

Vehicle speed data was collected with flashing blue lights on and off. The experimental results reveal that vehicle speed is affected by the presence of flashing blue lights. Speed differentials between the road work ahead sign and the first exposure to the paver resulted in greater speed reductions in all three case studies when the flashing blue lights were on.

Additionally, within the active work area at distances upstream of the paver where the driver can see and react to the blue lights, mean vehicle speeds tended to be lower when the blue lights were on.



Safety Analysis Tools

Guohui Zhang, PhD

Associate Professor, Civil & Environmental Engineering
University of Hawaii at Manoa

Dr. Guohui Zhang moderated the afternoon session for the safety track which focused on safety analysis tools. This session concentrated on practical safety performance improvement based on data-driven approaches and tools. It consisted of four interesting presentations covering intersection safety investigation, right-turn issues, roadside safety research, and video analytics tool applications.

SAFETY TRACK SESSIONS

At the Intersection of Practice and Research – Saving Lives and Reducing Serious Injuries

Ida Van Schalkwyk, PhD

Safety, Asset, and Innovations Engineer
Washington State Department of Transportation (WSDOT)

Dr. Ida Van Schalkwyk began with a presentation discussing many issues surrounding the validity of studies and the need for data-driven approaches. She highlighted the importance of reproducible research, performance-based approaches, and collaboration as methods to improve the quality and validity of research moving forward.

The science of safety is rapidly evolving. Our charge to public agencies is to serve our public in a manner that supports different modes of transportation and consider the consequences of our actions towards improving safety performance on our roads. But this must be weighed against other areas of performance, such as: the environment, preservation, mobility, asset management, and life cycle costs.

These tradeoffs bring additional complexity in how we approach the application of safety, and how we put research into practice. With the implementation of practical solutions: a performance-based approach, our reliance on research becomes even greater. The need to develop new methods, standards, and criteria based on repeatable, defensible, and data-driven results is critical.



Roadside Safety Research – Development, Testing, and Implementation

Ronald Faller, PhD, PE

Director, Midwest Roadside Safety Facility (MsRSF)
Research Full Professor, Civil & Environmental Engineering
University of Nebraska - Lincoln

Dr. Ronald Faller gave the second presentation and discussed the roadside safety research process from development to implementation. He presented background on roadside safety research in terms of the key drivers, and then highlighted a number of R&D examples from the Midwest Roadside Safety Facility including several different types of barriers and guardrails.

Faller serves as Director of the Midwest Roadside Safety Facility (MwRSF) within the Nebraska Transportation Center (NTC) and Research Professor within the Department of Civil Engineering at the University of Nebraska-Lincoln (UNL).

Dr. Faller highlighted a sampling of this research program, including the three beam bullnose median barrier system, the Midwest Guardrail System and its design variations, approach guardrail transitions, innovative and aesthetic bridge railing systems for use on low-volume roads as well as high-speed and high-volume freeways.



SAFETY TRACK SESSIONS

Video Analytics for Smart Cities: Generating Better Data to Make Our Intersections Smarter and Safer

Franz Loewenherz, MUP

Principal Transportation Planner
City of Bellevue, Washington

Franz Loewenherz, Principal Transportation Planner for the City of Bellevue, discussed Bellevue's smart mobility plan and their new video-based traffic conflict detection work as part of their vision zero goal.

He discussed how Bellevue has equipped intersections with cameras that can monitor and record traffic to detect conflicts via AI and video image processing in an effort to monitor safety without waiting for crashes to happen. Digital transformation is fundamentally reshaping transportation analytics thanks to the rise of cloud computing, machine vision systems, and deep neural networks.

The City of Bellevue (Transportation Department) – in partnership with multiple technology development companies and research institutes – is developing a video analytics platform that leverages these systems to convert raw video footage from its network of traffic cameras into detailed data on traffic flow, speeds, and other vehicle conditions.



Do Drivers Correctly Interpret Signal Displays for an Exclusive Right-Turn Bay?

Hisham Jashami

Research Assistant, Civil and Construction Engineering
Oregon State University

Hisham Jashami, a research assistant at Oregon State University, presented the results of his study which considers if drivers correctly interpret signal displays for an exclusive left-turn bay. He discussed the driving simulator study design and comprehension rates from his experiment.

In 2016, the U.S. recorded the highest number of pedestrian fatalities since 1990. Turning vehicles pose a collision risk for non-motorized road users. To improve traffic safety and efficiency at signalized intersections, driver behavior associated with right-of-way transitions at signalized intersections must be understood more comprehensively.

This research explored driver comprehension and responses with respect to right-turn signal displays with a focus on the Flashing Yellow Arrow (FYA) in a driving simulator. Driver decision making and visual attention were collected and analyzed. Data were obtained from 46 participants (25 male, 21 female) turning right 736 times in 16 experimental scenarios.

The findings suggest that transportation agencies could potentially improve driver yielding behavior and pedestrian safety at signalized intersections with high volumes of permissive right turns from exclusive right-turn lanes by using the FYA display in lieu of a steady circular green display.



CLOSING PANEL



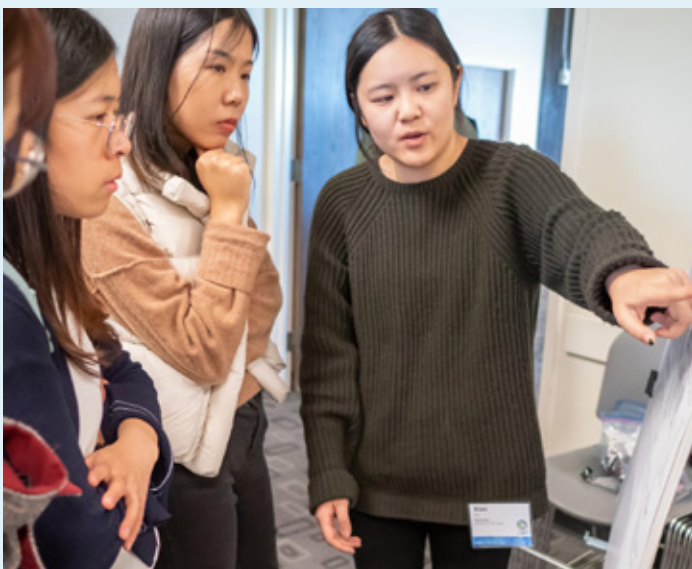
Smart Mobility for Underserved Populations: Opportunities and Barriers

Ahmed Abdel-Rahim, PhD, PE

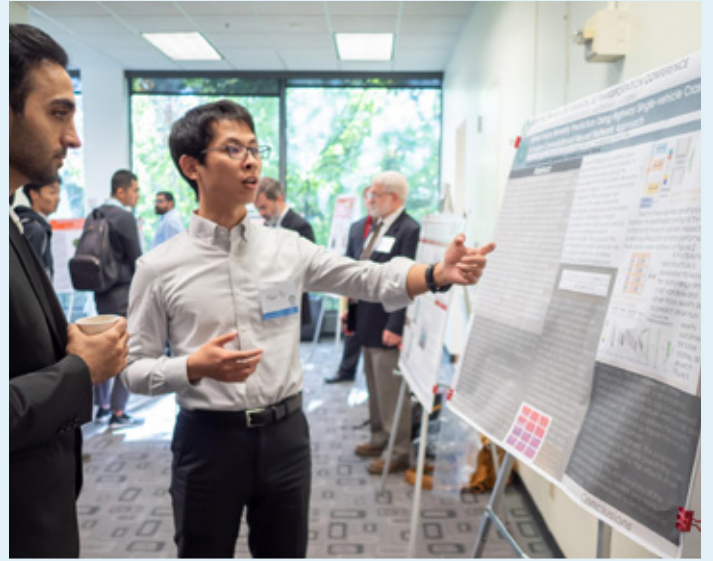
Professor, Civil & Environmental Engineering
Associate Director, Pacific Northwest Transportation Consortium
University of Idaho

The final panel was intended to provide an opportunity for discussion and engagement with three experts in the areas of mobility and safety: Cathy Bisailon, President and CEO of Easter Seals Washington; Kim Zents, Director of the Engineering and Technology Management + Smart Cities Initiative at WSU; Briana Lovell, transportation planner at King County Metro; and Richard Rolland, owner of Rolland Associates and adjunct faculty member at Eastern Washington University. A keen focus was on identifying smart mobility opportunities and barriers for underserved populations, such as tribal communities, disabled, and low income groups. This panel was moderated by Ahmed Abdel-Rahim, professor of Civil & Environmental Engineering and Associate Director for PacTrans at the University of Idaho.

POSTER SESSION



POSTER SESSION



BOARD MEETING

The PacTrans Board of Directors (BOD) and the External Advisory Board (EAB) convened a meeting on Thursday, October 10, 2019. The EAB and the BOD normally hold an annual meeting on the day prior to the Regional Transportation Conference. The Board discussed research activities of the five consortium-member universities, the administrative structure of PacTrans, education and workforce developments, and the 2018-2019 implementation plan, with a focus on partnerships, strategic planning, and operations.

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*Research Manager Oregon
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Anne Freeman

*Program Administrator of
Research and Library Services,
Washington State Department
Of Transportation
Faces of the Conference*

FACES OF THE CONFERENCE



FACES OF THE CONFERENCE



STUDENT CONFERENCE

The 2019 PacTrans Student Conference was held October 12 in the Husky Union Building (HUB), on the University of Washington campus. The year the student conference had four gracious sponsors in WSDOT, DKS Associates, Transpo Group, and HDR Engineering.

PacTrans Annual Student Conference aligns well with the goals of an educational organization, and at a more personal level, the student conference provides students with a more comfortable opportunity to share their research and network. The event featured speakers from WSDOT and City of Bellevue, as well as a panel with four UW alums and our annual student poster competition.

Our first speaker, Sayuri Koyamatsu, TMC Manager for the NW Region, was present to discuss ATDM in Washington State. Our next speaker, Darcy Akers, transportation engineer for City of Bellevue, made a presentation on video analytics towards Vision Zero and the next steps to get there.

Our panel featured Polina Butrina, transportation planner for Transpo Group; Jessica Kim, associate-multi model engineer for the Seattle Department of Transportation; Kris Hendrickson, data scientist at INRIX; and Yuzhu Huang, transportation and traffic engineer at Jacobs. The panelists discussed their experience in the industry since graduating and shared their tips on landing a job and starting a career.



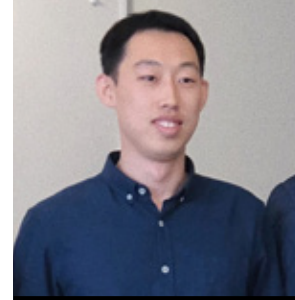
The student research poster competition featured over 12 posters showing a great mix of exciting research and passionate students.

Attendees learned from the presenters and asked them lots of questions. Based on the attendees' votes, the winners of the 2019 PacTrans Annual Student Conference were Ziyuan Pu in third place, Zhiyong Chi in second place, and Andrew Chen in first place. Each of the winners received a monetary prize of \$100, \$200, and \$300, respectively.

A special thanks goes out to all the participants for their interest and making the conference a great knowledge-sharing experience!



1ST PLACE:
Andrew Chen



2ND PLACE:
Zhiyong Chi



3RD PLACE:
Ziyuan Pu