



PacTrans Transportation Conference

University Transportation Center Newsletter

SPECIAL ISSUE

IN THIS ISSUE

- 01 Transportation Conference
Conference in Alaska
- 03 Agenda
- 05 PacTrans Awards
- 07 Welcome Remarks And Addresses
- 08 Keynote Address
- 09 Mobility Track Sessions
- 15 Safety Track Sessions
- 20 Poster Session
- 20 Closing Panel, Balancing Safety
And Mobility
- 21 Board Meeting
- 22 Student Conference

PacTrans Hosts Annual Transportation Conference in Alaska for the First Time

Last fall, the Pacific Northwest Transportation Consortium (PacTrans) held its sixth annual conference on Friday, October 12, 2018 at the University of Alaska Fairbanks (UAF). The conference focused on emerging mobility and safety issues in the Pacific Northwest, the theme being “North to the Future.”

PacTrans partnered with the Center for Safety Equity in Transportation (CSET) to put together this conference, which was the first of its kind to be held in a location outside of Seattle, Washington. In the past, this event has taken place solely at the University of Washington (UW), but PacTrans’ Board of Directors have decided to rotate the location of the event between our consortium’s universities, UAF being the first to take the reigns. This change in venue made it possible for a significant number of new attendees to join us which would not have been possible had it been held once again in Seattle.

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



continued from front

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 37 posters were presented at the conference's annual poster session by PacTrans members and participating students.

The planning committee chair, Dr. Nathan Belz, Assistant Professor of Civil and Environmental Engineering at UAF, was joined by UW Associate Professor, Jeff Ban; Oregon State University Associate Professor, Haizhong Wang; Washington State

University Assistant Professor, Ali Hajbabaie; University of Idaho Associate Professor, Mike Lowry; and University of Hawaii at Manoa Professor and Chair of Civil and Environmental Engineering, Panos Prevedouras.



SCHEDULE OF ACTIVITIES

8:00–8:30 AM **Registration and Check-in**

8:30–8:45 AM **Welcome + Opening Remarks**

Dr. Nathan Belz, *Planning Committee Chair, University of Alaska Fairbanks*

Dr. Yin Hai Wang, *PacTrans Director, University of Washington*

Billy Connor, *CSET Director, University of Alaska Fairbanks*

Senator Lisa Murkowski (Digital Welcome), *State of Alaska*

8:45–9:15 AM **Keynote Address: Moving Safer, Moving Smarter. Transportation in Alaska**

Ryan Anderson, *Assistant Commissioner, Alaska Department of Transportation and Public Facilities*

9:15–9:30 AM **Break**

9:30–10:30 AM **Mobility Track: Session 1** (Connected + Autonomous Mobility)

Concurrent with Safety Track: Session 1

Dr. Ali Hajbabaie, *Presiding, Washington State University*

Zhenning Li, *University of Hawaii at Manoa*

Dr. Ahmed Abdel-Rahim, *University of Idaho*

Dr. Brian Park, *University of Virginia*

9:30–10:30 AM **Safety Track: Session 1** (Rural + Context Sensitive Safety)

Concurrent with Mobility Track: Session 1

Dr. Mike Lowry, *Presiding, University of Idaho*

Brian Walsh, *Washington State DOT*

Glenn Miller, *Fairbanks North Star Borough*

Angel Gonzalez, *University of Idaho*

10:30–10:45 AM **Break**

10:45–11:45 AM **Mobility Track: Session 2** (The Controversy of Technology)

Concurrent with Safety Track: Session 2

Dr. Yin Hai Wang, *Presiding, University of Washington*

Dr. Sumit Roy, *University of Washington*

Dr. David Hurwitz, *Oregon State University*

Dr. Sameh Sorour, *University of Idaho*

10:45–11:45 AM **Safety Track: Session 2** (Traffic Safety in Tribal/Indigenous/Pacific Islander Communities)

Concurrent with Mobility Track: Session 2

Dr. Panos Prevedouros, *Presiding, University of Hawaii at Manoa*

Dr. Margo Hill, *Eastern Washington University*

Scott Waller, *Washington Traffic Safety Commission*

Adison Spafford, *Dowl Inc.*

Kishor Bhatta, *University of Hawaii at Manoa*

11:45 AM – 1 PM **Lunch and Awards**

Sessions 3 & closing on next page

SCHEDULE OF ACTIVITIES

continued

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

1:30–2:20 PM **Poster Session**

2:20–2:30 PM **Break**

2:30–3:30 PM **Mobility Track: Session 3** (Shared Mobility/MaaS)

Concurrent with Safety Track: Session 3

Dr. Haizhong Wang, *Presiding, Oregon State University*

Ali Lohman, *Oregon Department of Transportation*

Anne Eskridge, *University of Washington*

Dr. Hao Yu, *University of Hawaii Manoa*

2:30–3:30 PM **Safety Track: Session 3** (Workshop: Defining Isolation in a Transportation Context)

Concurrent with Mobility Track: Session 3

Billy Connor, *Presiding, CSET+AUTC Director*

Dr. Cary de Wit, *University of Alaska Fairbanks, Expertise: Cultural Geography*

Hillary Strayer, *Alaska Native Tribal Health Consortium, Expertise: Injury Prevention*

Panos Prevedourous, *University of Hawaii at Manoa, Expertise: Transportation Engineering*

Dr. Sveta Yamin-Pasternak and Dr. Igor Pasternak, *University of Alaska Fairbanks, Expertise: Cultural Anthropology/Built-Environment*

3:45 PM **Closing Panel** (Balancing Safety and Mobility)

Dr. Jeff Ban, *Presiding, University of Washington*

Annie Chang, *Program Manager, SAE International*

Dan Schacher, *Director, AKDOT&PF Northern Region M&O*

Dr. David Yang, *Executive Director, AAA*

Dr. Daniel Work, *Associate Professor, Vanderbilt University*

4:45 PM **Closing Remarks**

5:00–6 PM **Social Hour + Networking**

PACTRANS AWARDS

This year, PacTrans gave out five awards to individuals and partners that have displayed excellence and professionalism in the transportation realm.



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.

Dr. Kenneth Casavant
Professor, Washington 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.

Dr. Burkan Isgor
Professor, Oregon State University



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.

Dr. Nathan Belz
Assistant Professor, University of Alaska Fairbanks

PACTRANS AWARDS



Educator of the Year

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

Dr. Kevin Chang, PE
Associate Professor, University of Idaho



Partner of the Year

The Partner of the Year Award is presented annually to partners for outstanding collaboration in research, sponsorships, mentor/internship opportunities, event participation/facilitation, and technology transfer.

Idaho Transportation Department & the City of Moscow, ID

WELCOME REMARKS AND ADDRESSES

Dr. Yinhai Wang *PacTrans Director*

Dr. Nathan Belz, assistant professor at UAF, introduced PacTrans director, Dr. Yinhai Wang, who kicked off the conference with his opening remarks. In his opening remarks, Wang welcomed all those in attendance and expressed his excitement for the 2018 Region 10 Transportation Conference, an event which annually serves as the premier forum for issues related to transportation in the Pacific Northwest. The conference's three major goals were: for participants to learn about PacTrans' great dedication to solving mobility challenges of people and goods in the Pacific Northwest, to hear from other contributors about their views on the mobility challenges of the PNW, and to network and share ideas on how together, we can make advancements to our transportation system and move forward into the future.



Billy Connor, P.E. *CSET Director*

CSET director, Billy Connor, welcomed everyone to Alaska, a culturally diverse state that some had never before visited, and to the first Region 10 Transportation Conference held in a location other than the University of Washington. The goal of this year's joint PacTrans/CSET conference was to bring the themes of mobility and rural safety together. Connor emphasized the conference's intention to inform, challenge, and create a lasting dialogue revolving around transportation, as well as leave participants with new ideas on how to navigate and problem solve issues in the transportation field, making way for an improved transportation system.

Additionally, Senator Lisa Murkowski for the state of Alaska gave a digital welcome.



KEYNOTE ADDRESS



Ryan F. Anderson, P.E.

Northern Region Director

Alaska Department of Transportation and Public Facilities

Ryan Anderson is the Northern Region Director for the Alaska Department of Transportation and Public Facilities (AKDOT&PF), a UAF alumni of the Geological Engineering program, and currently provides transportation leadership to northern Alaskan communities that encompass a vast and geographically diverse region that run from the Gulf of Alaska to the Bering Sea. Anderson believes that a sound transportation system is the foundation for community vitality, and that connecting people and cultures through infrastructure provides economic opportunities that improve people's lives.

Anderson's address primarily discussed Alaska's regions and how, collectively, we can keep the state moving forward through better service and improved infrastructure. Alaska's highway system poses some of the region's biggest transportation challenges. Anderson made specific references to the earthquake residents experienced in November of 2017, the avalanche that dammed a river near Keystone Canyon (the "damalanche"), and Dalton Highway, one of the most isolated, and dangerous, roads in the world. All instances resulted in highway closures.

Luckily, Anderson was able to produce some possible solutions for these transportation issues. He cited a trenching program, developed to tackle the off-ice problem along the Dalton Highway during the colder months, drones used to monitor the Copper River Highway and Alaska's Million Dollar Bridge, and general ideas that would surely aid Alaska's current transportation system, like adopting a Road Weather Information System (RWIS), having truck sensors, and implementing a rural transportation plan. All of which are ultimately meant to improve the quality and safety of both Alaska's transportation system and the lives of state residents.

MOBILITY TRACK SESSIONS



Connected + Autonomous Mobility

Dr. Ali Hajbabaie, Presiding, *Washington State University*

This session focused on innovative research activities that improve mobility by utilizing connected vehicle, autonomous vehicle, and the “internet of things” technologies. Mobility strategies in both urban and rural areas and traffic control strategies that aim at improving mobility in urban street networks were discussed. Lessons learned from early deployment projects were shared.



Autonomous Intersection Control Formulation and Optimization Enabled by CV + AV

Zhenning Li, *University of Hawaii at Manoa*

Advancements in Connected and Autonomous Vehicle (CAV) technology are paving the way for more efficient and safe traffic control systems. Autonomous vehicles’ ability to monitor surroundings, react to situations, and judge distances and velocities has never been better, giving transportation agencies the chance to utilize these technologies to improve intersection control, arterial management efficiency, and safety performance.

Li presents a study featuring a CAV-enabled Intersection Management Mechanism (CAV-IMM) that is designed to produce CAV trajectories and optimize safe and efficient directional traffic movement coordination through intersections. When possible trajectories are formulated, a temporal-spatial dimension extension-based collision avoidance model is created, allowing for better use of intersection resources and increasing intersection operation efficiency.

Because of differences in the way in which intersections are controlled, microscopic traffic simulation models have been developed to observe traffic operations’ efficiency and safety performance in different locations. These models are inspired by VISSIM, a standard simulation tool. A comparison was made between the CAV-IMM system and traditional signal control systems. The results show that the CAV-IMM system performed better in reducing traffic delays.

MOBILITY TRACK SESSIONS



Connected Vehicle Deployment in Ada County, Idaho: Lessons Learned

Dr. Ahmed Abdel-Rahim, *University of Idaho*

Work is being done towards giving vehicles the ability to communicate with users through controllers and the use of Signal Performance and Timing Data (SPAT). Once this is achieved, it can greatly improve intersection safety and operations.

The first step in this is developing the communication between vehicles and controllers, which in itself would provide an immense amount of data that can be used in a database of turning movements at eight different signalized intersections in Ada County, Idaho. This database could fulfill a need and replace highway agencies in collecting data related to turning movement at intersections.

Currently, highway agencies in our country are required to invest a lot of time and money into planning and collecting this data from all the intersections within their limits every few years. Dr. Abdel-Rahim's presentation goes over the lessons they've learned from assessing a field evaluation of a V2I connected vehicle deployment in Ada County. The project was mainly concerned with validating the readiness of communication and control technologies for implementation.



Cooperative Adaptive Cruise Control: Assessing Implementation Challenges and Solutions

Dr. Brian Park, *University of Virginia*

One of major benefits of Cooperative Adaptive Cruise Control (a.k.a, automated vehicle platoon) is its potential to improve transportation system mobility. For example, if CACC vehicles maintain 0.6-second time headway, it will increase the capacity by three times (assuming typical vehicles maintain 1.8 seconds). However, except for dictated lane for CACC, it is not likely to see such benefit under mixed traffic environment.

Dr. Brian Park's presentation discussed challenges in the CACC algorithm development, evaluation, and implementation, and share some early findings on how to improve CACC, especially under mixed vehicle environment.

Firstly, Park shared an integrated simulation platform, consisting of a vehicle dynamics model, sensor error model, and communication latency model, which is needed to adequately evaluate CACC in a simulation environment. Secondly, Park discussed how to assure string stability under mixed traffic environment when CACC vehicle travels with connected vehicle or human driven vehicle using two examples. One was CACC with unconnected vehicle and the other was human CACC. Both approaches outperform the state of the art approach under CACC in terms of string stability.

MOBILITY TRACK SESSIONS



The Controversy of Technology

Dr. Yin Hai Wang, Presiding, *University of Washington*

A disconnect exists between those designing emerging technologies and those who use them. Advancements in supporting hardware and technologies must be grounded in practical applications and vice versa. Three leading experts discussed the challenges of emerging technologies and their implementation issues including adoption, reluctance of business/manufacturers to change without mandates, and cross-platform compatibility.



Vehicular Networking for Connected Vehicles: Prospects & Challenges for Mobility & Safety

Dr. Sumit Roy, *University of Washington*

Dr. Roy is a faculty member in Electrical & Computer Engineering at the University of Washington. His current research interests include: wireless communications/networking; emerging applications (smart grid, vehicular networks, cognitive and sensor networks). He has also spent several years at Intel Wireless Technology Lab as a Senior Researcher engaged in systems architecture and standards development for ultra-wideband systems (Wireless PANs) and next generation high-speed wireless LANs. Dr. Roy's presentation explored the mechanics of DSRC and 5G. He discussed the use of each type of communication within the context of connected vehicles and infrastructure as well as some of the gaps that still exist with regard to their implementation.

MOBILITY TRACK SESSIONS



Can drone operations near roadways contribute to driver distraction?

Dr. David Hurwitz, Oregon State University

Unmanned Aerial Systems (UASs), commonly known as drones, are a rapidly emerging technology with many applications across various commercial, government, and recreational users. Many of these applications have the potential to interact with roadway infrastructure, resulting in a potentially risky conflict between UAS operations and drivers on the roadway. In the United States, policy regulating UAS operations exists at the federal, state, and local levels, but there is no regulation specifically related to UAS operations near roadways that might cause a visual distraction to drivers.

To understand how UAS operations near roadways influence the visual attention of drivers, an experiment was designed and conducted in a high-fidelity driving simulator. Thirty participants completed the experiment in the driving simulator and their visual attention was recorded. Analysis of the visual attention results showed that UAS operations draw more visual attention from drivers when they are directly adjacent to the roadside or in a rural environment. Based on the results, a recommended policy to improve safety of UASs for operators and drivers would be to, at a minimum, restrict UAS operations within 7.6 meters (25 ft) of the edge of the lane. A procedural overview for implementing legal and effective UAS policy in the United States was developed to navigate the complexities of the evolving UAS policy landscape.



Opportunities and Barrier of Smart Vehicles and Cities for RITI Communities

Dr. Sameh Sorour, University of Idaho

A major factor in achieving transportation equity is fair distribution of travel-related benefits and costs. Advancements in connected and autonomous vehicles, and smart-city technologies promise benefits in regard to safety and mobility to all communities, including rural, isolated, tribal, and indigenous (RITI) communities.

However, the opportunities and impacts coming out of these changes in our transportation system and policies related to our transportation system must be understood if we want to ensure a fair-share of benefits for RITI communities. This includes identifying any barriers that could potentially hinder them from fully receiving these benefits.

Sorour discusses how we can reach this level of understanding by identifying safety and mobility challenges RITI communities encounter, assessing their heritage, infrastructure, and resource constraints, and determining solutions to these challenges through the use of connected and autonomous vehicles, and smart-city technologies.

MOBILITY TRACK SESSIONS



Shared Mobility / MaaS

Dr. Haizhong Wang, Presiding, *Oregon State University*

This session presented research and developments focusing on current paradigm shifts of Mobility as a service (MaaS) from public State DOT, research domain, and industry perspectives. The goal of this session was to present the current development, concerns, issues, and identify the future research opportunities and challenges associated with innovative mobility services like Uber/Lyft and the “micro-mobility revolution”.



Emerging Mobility and Automated Vehicle Trends

Ali Lohman, *Oregon Department of Transportation*

Ali Lohman presented on four efforts the Oregon Department of Transportation has undertaken to better understand and prepare for emerging transportation technologies and trends, including automated vehicles, connected vehicles, new mobility options, and road pricing.

She discussed *The Drive Toward Change: Use Cases for Automated Vehicles*, a guidebook for policymakers that describes different applications for automated vehicle technology; the Oregon Task Force on Autonomous Vehicles, which made recommendations to the Oregon Legislature for statutory changes regarding automated vehicle testing; the Emerging Technology Impact Assessment, a research effort into the impacts of emerging technologies on agency operations and the transportation system as a whole; and the intersection between automated vehicles, electric vehicles, and the future of road usage charging.

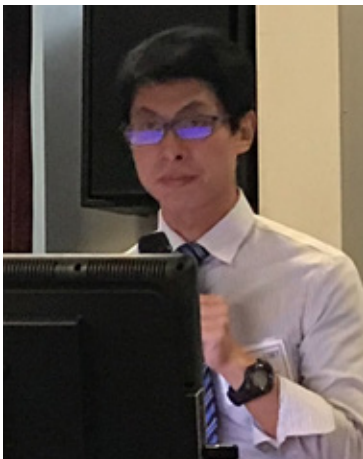
MOBILITY TRACK SESSIONS



Shared Mobility is like Airbnb on Wheels

Anne Eskridge, *University of Washington*

Anne Eskridge is the director of Transportation Services at the University of Washington. Her presentation focused on UW strategy with regard to shared mobility. She highlighted many of the innovative ways they've been working with Transportation Networking Companies as well as bike sharing companies to offer more transportation choices to the students, faculty, and staff on campus.



Exploring Factors Affecting Young Travelers' Mode Choice Considering E-hailing Service

Dr. Hao Yu, *University of Hawaii at Manoa*

The growth of ride-sourcing services have begun to push traditional modes of transportation, such as buses, metros, and taxis, out of their share of the market. Dr. Yu presents a study that compares choice of travel method by users from the ages of 16 to 30 with and without the option to select e-hailing modes using a cross-nested logit (CNL) model.

Researchers received 314 responses to a state preference (SP) survey that was sent out to young interviewees in Nanjing, China. The survey took into account personal information in relation to transportation accessibility and made use of two nested logit models that were calibrated for travel mode choice with e-hailing services.

From the comparison, researchers learned that some of the common factors between mode choice without e-hailing versus mode choice with e-hailing were gender, income, trip purpose, and travel cost. The comparison also proved the CNL model to be statistically more superior to the nested logit model.

SAFETY TRACK SESSIONS



Rural + Context Sensitive Safety

Dr. Mike Lowry, Presiding, *University of Idaho*

This session presented projects and research focused on improving transportation in rural areas. Transportation improvements and operations in rural communities require specialized strategies that are cognizant of local conditions, constraints, and needs. Projects, experiences, and research related to context-sensitive solutions were discussed with a focus on local outreach and engagement.



Rural Safety Case Studies that Fit a Need as well as a Context

Brian Walsh, *Washington State DOT*

Brian Walsh from Washington State DOT, discussed High Friction Surface Treatments (HFST) in depth and the cost reduction it's recently seen. According to the Federal Highway Administration, a HFST is a treatment that improves pavement quality so that there is a reduction in crashes, injuries, and fatalities caused by issues related to pavement friction, such as reduced friction during wet conditions or high vehicle speeds and roadway geometrics that demand a greater level of friction.

Walsh cited a Texas A&M study from 2016 that outlined the proper use of materials for HSFT: the aggregate should be uniform in color and spread evenly over the resin binder, completely covering it and leaving no "wet" spots.

Walsh also made an example out of SR 243 and Road 24, which make up an intersection in Mattawa, Washington. This intersection was previously on the High Collision (IAL) Statewide List, being the location of a few serious, sometimes fatal, crashes every year prior to 2014. Originally, one solution was to implement a grade separation, which would've been far more costly. A HFST on the intersection was used instead, which reduced the number of serious accidents that happened yearly at this intersection, as well as saved WSDOT from spending too much.

SAFETY TRACK SESSIONS



Ongoing Challenges of Providing Transit Service in Northern Climates

Glenn Miller, *Fairbanks North Star Borough*

In his presentation, Glenn Miller from Fairbanks North Star Borough (FNSB) addressed transportation challenges that Alaska experiences in the colder months. Miller mainly spoke about the difficulties buses have reaching individuals, especially those with disabilities, because of high accumulations of snow fall and lack of daylight, which makes riders waiting for buses harder to see.

MACS is FNSB's fixed route bus system currently operates 10 routes serving areas in and around Fairbanks, North Pole, and Fort Wainwright. However, not all MACS busses are able to accommodate for disabled people, an issue that becomes even harder to deal with when there is so much snow, that riders, disabled or not, can't even reach the stops. This poses as a huge safety hazard because riders have to resort to either waiting in the middle of the street to ensure that they are seen by bus drivers or climb over piles of snow in order to catch the bus. This is even more dangerous, or just flat out impossible, for wheelchair users, which is where Van Tran comes in.

Van Tran is a door-to-door service for qualifying patrons and was implemented as a demand response ADA service. The paratransit service was designed based off of the Americans with Disabilities Act (ADA). Van Tran provides services specifically to those with physical, cognitive, or sensory disabilities, and cannot use the MACS Transit System. It is available within $\frac{3}{4}$ of a mile of normal fixed bus routes and operates Monday through Friday, from 5:45 a.m. until 9:45 p.m., with reduced operational hours on Saturdays and no service on Sundays.



Safety of Rural Unpaved Two-way Roads in Idaho

Angel Gonzalez, *University of Idaho*

Angel Gonzalez, a graduate research assistant from the University of Idaho, presented findings on the characteristics of fatal and severe injury crashes on low-volume, unpaved, rural roads in Idaho. Fatal and severe injury crash data on unpaved roads showed that all-terrain vehicles (ATVs) and pickup trucks are the two most common vehicle types involved in fatal and severe injury crashes on unpaved roads in Idaho.

An investigation was done in the state of Idaho regarding fatal and severe injury crashes between the years of 2006 and 2017. During the study, it was revealed that there was an average of 214 traffic related fatalities per year and that 6% of these fatalities happened on unpaved roads.

During the presentation, Gonzalez cited no trends in yearly fatalities and incapacitating injuries based on the findings. However, it was shown that ATV/UTVs are the second most common vehicle type involved in these injuries, with individuals aged 15 to 24 years old being the most vulnerable. There is also a lower use of protection devices on these types of vehicles. In this study, the top three circumstances contributing to these crashes were revealed to be speeding, inattention, and alcohol impairment. In addition, it was concluded that enforcement and education efforts that target impaired and inattention drivers was needed in order to improve safety on unpaved roads in Idaho.

SAFETY TRACK SESSIONS



Traffic Safety in Tribal/Indigenous/Pacific Islander Communities

Dr. Panos Prevedouros, Presiding, *University of Hawaii at Manoa*

Equity concerns have considerable influence on transportation and policy decisions, and most practitioners and decision-makers genuinely attempt to address these concerns. However, designs and planning decisions may seem equitable when evaluated in one context but inequitable when evaluated in another. There is little guidance on considering transport equity comprehensively. It is imperative that safety strategies and solutions for tribal, indigenous, and Pacific Islander communities consider all modes and all user types as to not diminish the mobility, right to access, and basic needs of these individuals.



A Culture of Traffic Safety on Reservation Roads

Dr. Margo Hill, *Eastern Washington University*

We are seeing a continuous amount of fatalities on Reservation roads, the causes of which range from unsafe behavior on part of vehicle users, like drinking and driving, to problems with the way rural roads are engineered, resulting in varied topographies and poor road conditions. One of the biggest contributors to these fatalities is drinking and driving.

Dr. Margo Hill joined us at the conference to present Eastern Washington University's Tribal Traffic Safety Model. The model provides a visual representation of the biggest traffic safety issues rural areas face and outlines who and what to focus on while addressing and trying to solve those issues.

The model is designed around five key concepts: Leadership and Policy,

Engineering, Education, Enforcement, and Emergency Medical Services (EMS). These five concepts are applied to nine different categories: Tribal Member Behavioral Choices, Tribal Law Enforcement, Tribal Planning, Tribal Courts, Health and Social Services, EMS, Tribal Transportation, Tribal Council, and Relationships within the Tribal Council. Within each of the nine categories, Hill has identified the areas in need of the most attention and improvement.

During her talk, Hill put a major emphasis on our needing to ignite a firestorm of concern. The poor driving culture that lives within tribal communities is killing those communities' members. However, that fact is being overlooked because years of drug and alcohol problems have lead tribal community members to believe that the fatalities that result from drunk driving, according to Hill. The solutions she presents are to implement anti-drinking and drugging forces, as well as a scientifically sound public policy and a variety of environmental and social interventions. An additional goal to all this is to reduce, and eventually end, early drinking by tribal youth.

On February 7, 2018, the Yakama Tribal Council revealed that they had passed a resolution meant to lay out harsher punishment in an attempt to prevent crime in tribal communities. The Yakama Nation also established a curfew for juveniles aged 17 years or younger. Furthermore, they were also able to increase penalties and imposed mandatory sentences for a number of offenses, including theft, crimes relating to drugs, breaking and entering, assault and battery, sexual assault, and driving under the influence. A \$500 reward is also offered for information that could lead to the conviction of the listed crimes.

SAFETY TRACK SESSIONS

Building Traffic Safety Capacity Among Washington State Tribes

Scott Waller, *Washington Traffic Safety Commission*

Washington State is one of a handful of states to have a formal contract that recognizes a government-to-government relationship between the state and the 29 Federally recognized tribes within its borders. Each year attendees at an annual meeting reaffirm commitments to the Centennial Accord between Federally Recognized Indian Tribes in Washington State and the State of Washington first signed in 1989.

The Washington State Governor then asks each Washington State agency to identify specific actions for further development of effective relationships with tribes. The Washington Traffic Safety Commission's (WTSC) Centennial Accord mission is to work proactively with tribal governments statewide to reduce deaths and injuries of Native Americans resulting from traffic crashes. Native Americans in Washington die at a rate 2.4 times higher than that of all other racial groups combined. The primary causes for those deaths is impaired driving, lack of seat belt use and speeding. Younger Native Americans are disproportionately involved, jeopardizing the future of tribal cultures. In order to change this trend the WTSC Centennial Accord Plan supports a Tribal Traffic Safety Advisory Board (TTSAB) to assist both the tribes and the WTSC in efforts to reduce traffic related deaths of Native Americans in Washington. The TTSAB develops an annual operating plan and then provides direct input to WTSC about funding projects. In his presentation, Scott Waller from the WTSC discusses the organization and operation of the TTSAB, as well as overviewing the projects that the WTSC has provided financial support for at the recommendation of the TTSAB.

The TTSAB was created so Tribes and the Washington Traffic Safety Commission could work proactively to reduce deaths and injuries of American Indians and Alaskan Natives in transportation fatalities. The TTSAB has been meeting monthly since 2012. They've invested their financial resources into tried and true countermeasures in order to prevent injuries and ensure safety for the lives of individuals in tribal lands. A grant has been given to the Northwest Association of Tribal Enforcement Officers (NATEO) to be used on law enforcement training and equipment, and there has been a movement to improve crash data on tribal lands.

Best Practices for Planning and Developing Transportation Safety Projects in Rural Communities



Adison Spafford, *Dowl Inc.*

Rural Alaska faces many unique transportation concerns. From multiple layers of government in these rural areas, to maintenance issues, to planning, design, and construction challenges. Winter brings more than just below freezing temperatures to Alaska, rural areas are subjected to face issues regarding winter trail marking and safety, and lack of attention to four wheeler and snow machine safety among a plethora of transportation difficulties that already affect these communities all year round.

Adison Spafford from Dowl Inc. joined us at this year's conference to talk about the best practices for planning and developing transportation safety projects in rural communities. One of the solutions she proposed was the Yukon-Kuskokwim Delta Transportation Plan. This plan will act as a guide over the next 20 years for transportation professions as they navigate the transportation realm and make decisions that will benefit the region, making it a safer, more livable, economically developed, and connected place. The plan is designed around aviation, surface and marine, and multimodal methods of transportation.

SAFETY TRACK SESSIONS



Fatality Analysis of Native Hawaiians in the State of Hawaii: 2007-2016

Kishor Bhatta, *University of Hawaii at Manoa*

In the 2010 Census, 527,077 people in United States reported that they were Native-Hawaiian or of a mixed race that includes Native-Hawaiian, out of which 289,970 (55%) lived in the state of Hawaii. During a period of ten years between 2007 and 2016, the percentage of Native-Hawaiian traffic fatalities was much higher than the percentage of Native-Hawaiian population in the state of Hawaii for each year. Speeding, impaired driving, and lack of restraint usage were the contributing factors for these deaths.

During this presentation, a comparative fatality analysis between Native-Hawaiians and others was done to understand the differences in behavioral and operating characteristics of these two groups, based on involvement of

speeding, alcohol use, and restraint use while driving. This analysis was further stratified based on age, gender, seating positions (driver, passenger, pedestrian, motorcyclist, and others), and location of traffic crash (urban or rural areas). The data used for this analysis was taken from the Fatality Analysis and Prevention System (FARS) database.

Kishor Bhatta from the University of Hawaii at Manoa shared some of the major findings of the study during his presentation. In the state of Hawaii, almost 60% of the individuals involved in Native-Hawaiian fatalities were younger than 35 years old, and 40% were younger than 25 years old. When taking a closer look at alcohol impaired fatalities in Hawaii, 69% of Native-Hawaiians were younger than 35 years old, and 46% were younger than 25. There is also a high percentage of young Native-Hawaiian fatalities due to speeding, with 75% of fatalities occurring among individuals below the age of 35, and 50% being below the age of 25. In the Native-Hawaiian community, 50% of the deaths caused by failure to use restraints happen to those under the age of 25, but that percentage drops to 25% in other races. Female fatalities caused by alcohol use and speeding is significantly higher among the Native-Hawaiian community than in any other. Finally, the study found that in an age group of 50 years or older, fatal accidents were occurring far less in Native-Hawaiian communities at 20%, while other races saw that percent spike up to 43%.



Workshop: Defining Isolation in a Transportation Context

Billy Connor, *Presiding, CSET + AUTC Director*

Though there are several ways in which one might define a remote or isolated community, one that is relevant for transportation applications has not been well established. Beyond connectedness and continuity of roads, there are a myriad of factors that might make a community isolated (e.g., EMS response time, distance or time to acute care facilities, and relative ease of access to basic goods and services). This hour was meant to spark dialogue with researchers and practitioners and bring some perspective to how we might objectively measure transportation isolation.

Included as speakers on the panel were Dr. Cary de Wit, from the University of Alaska Fairbanks, with an expertise in cultural geography; Hillary Strayer, from the Alaska Native Tribal Health Consortium, with an expertise in injury

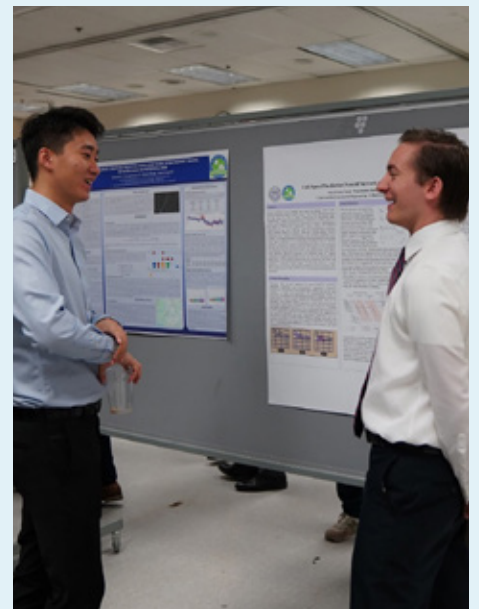
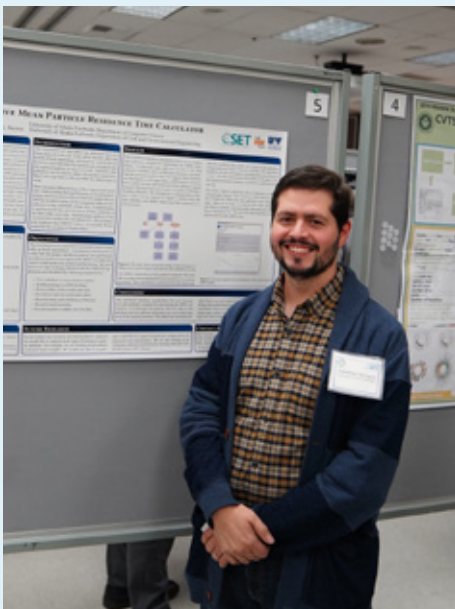
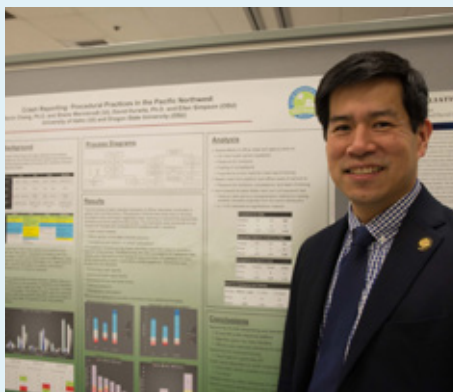
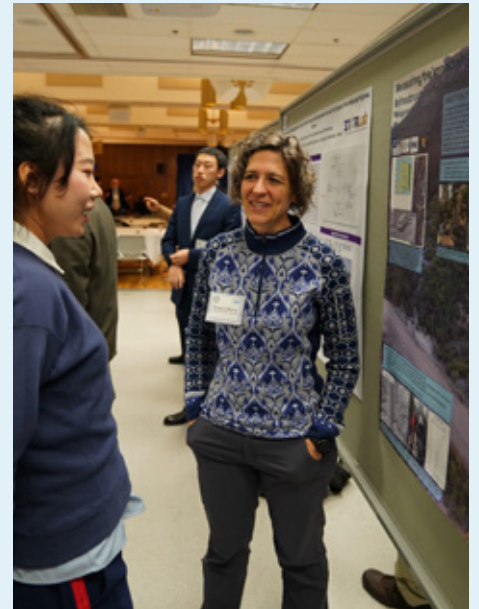
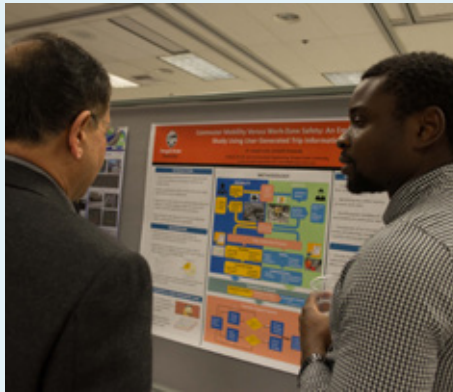
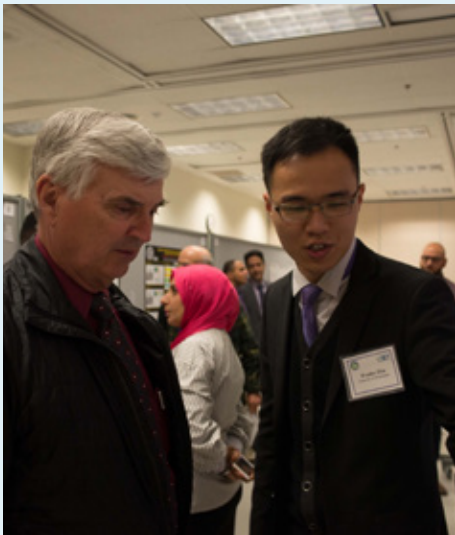
prevention; Panos Prevedouros, from the University of Hawaii at Manoa, with an expertise in transportation engineering; and Dr. Sveta Yamin-Pasternak and Dr. Igor Pasternak, from the University of Alaska Fairbanks, with expertises in cultural anthropology and built-environment.

POSTER SESSION

Closing Panel, Balancing Safety and Mobility

Dr. Jeff Ban, Presiding, University of Washington

The final panel was intended to provide an opportunity for discussion and engagement with four leading experts in the areas of mobility and safety: Annie Chang, program manager for SAE International; Dan Schacher, director of AKDOT&PF Northern Region M&O; Dr. David Yang, executive director for AAA; and Dr. Daniel Work, associate professor at Vanderbilt University. A keen focus was on how to provide a transportation system that finds balance between these two key issues especially with the advent of emerging technologies. The panelists explored where these things find synergy and where they are fundamentally different.



BOARD MEETING

The PacTrans Board of Directors (BOD) and the External Advisory Board (EAB) convened a meeting on Thursday, October 11, 2018. 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 development, the 2017-2018 implementation plan, with a focus on partnerships, strategic planning, and operations.

The Board of Directors

Yinhai Wang, PhD

Professor of Transportation Engineering
Department of Civil & Environmental Engineering
Director, Pacific Northwest Transportation Consortium (PacTrans)
Director, Smart Transportation Application and Research (STAR) Laboratory
University of Washington

Xuegang (Jeff) Ban, PhD

Associate Professor, Civil & Environmental Engineering
Affiliate Associate Professor, eScience Institute
Associate Director of Research, PacTrans
University of Washington

Ahmed Abdel-Rahim, PhD

Professor, Transportation Engineering
Director, NIATT
Associate Director, PacTrans
University of Idaho

David S. Hurwitz, PhD

Associate Professor, Civil & Construction Engineering
Director, OSU Driving and Bicycling Simulator Laboratory
Associate Director, PacTrans
Oregon State University

Eric Jessup, PhD

Research Associate Professor, School of Economic Sciences
Associated Director, Freight Policy Transportation Institute
Associate Director, PacTrans
Washington State University

Billy Connor, MS

Director, Alaska University Transportation Center
Associate Director, PacTrans
University of Alaska Fairbanks

Anne Vernez-Moudon, PhD

Professor Emeritus, Urban Design & Planning
Architecture, Landscape Architecture; Associate Director of Education, PacTrans
University of Washington

The External Advisory Board Members

Angela Konert, MPA

Vice President, Government and External Affairs
BMW Group Representative Office, Sacramento, California

Rhonda Brooks, MPA

Director
Office of Research and Library Services
Washington State Department of Transportation (WSDOT)
Advisory Board Member

Michael Bufalino, MURP

Research Manager
Office of Research
Oregon Department of Transportation
Research Advisory Committee

Scott Drumm, MUP

Director, Research and Strategic Analysis
Port of Portland

Wayne Kittelson, PE

Founding Principal
Kittelson & Associates, Inc.

Carolyn Morehouse, PE

Chief of Research, Development & Technology Transfer
Statewide Design and Engineering Services
Alaska Department of Transportation & Public Facilities

Ned Parrish, MPA

Research Program Manager
Idaho Transportation Department

Jerry Whitehead

President and CEO
Western Trailer
Chairman, Idaho Transportation Board
Idaho Transportation Department

Brian Brooke

Senior Manager of Innovation and Performance
Sound Transit

STUDENT CONFERENCE



The 2018 PacTrans Student Conference was held October 13 at the Engineering Learning and Innovation Facility (ELIF), on the University of Alaska Fairbanks campus. This year's student conference was the first to be held outside of the University of Washington in Seattle, Washington. This meant that, for some students who wouldn't normally be able to attend, could finally participate in the annual conference.

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 held keynote speakers from CRW Engineering Group, the Fairbanks Metropolitan Area Transportation System (FMATS), Alaska Department of Transportation + Public Facilities, a student research poster competition, and a permafrost tour.

Our first speaker, Colin Singleton, joined us from CRW Engineering Group to talk about how to balance the fundamental of transportation engineering while incorporating new and creative ideas. Singleton also tied his discussion to the benefits that connected and autonomous vehicle technology has to offer in the transportation realm. Our next speaker, Jackson Fox, Executive Director of FMATS was present to discuss the planning, budget, and logistics of transportation in Fairbanks, AK. Fox

presented to us FMATS' Long-Range Transportation Plan, a 25-year plan for all transportation projects in the region which is updated every four years to better fit the needs of the region and its residents. Our last speaker was Mark Luiken, the commissioner of Alaska DOT + Public Facilities. Luiken's presentation was on building resiliency in transportation, more specifically, emerging mobility and safety issues in the PNW. Alaska DOT's four core goals are to preserve, operate, and modernize Alaska's transportation infrastructure, and provide transportation services. Through different case studies, Luiken was able to articulate the lessons that were learned and how new solutions were implemented into Alaska's transportation systems.

The student research poster competition featured over 20 posters showing a great mix of exciting research and passionate students. Attendees learned from the presenters and asked them lots of questions. Based on an attendees vote, the winners of the 2018 PacTrans Annual Student Conference were Hisham Jashami in third place, Mohamed Mohamed in second place, and Alireza Mostafizi 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!

STUDENT POSTER CONTEST



1st place
Alireza Mostafizi



2nd place
Mohamed Mohamed



3rd place
Hisham Jashami