2018 REGION 10 TRANSPORTATION CONFERENCE October 12th, 2018 FAIRBANKS, AK



**Emerging Mobility and Safety Issues in the Pacific Northwest** 



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# THANK YOU TO OUR TEAM //

WASHINGTON

Dr. Jeff Ban, PacTrans Associate Director + Planning Committee Cole Kopca, PacTrans Assistant Director + Planning Committee Melanie Parades, PacTrans Program Coordinator + Planning Committee Rochelle Starrett, Student Conference Planning Committee

Dr. Nathan Belz, CSET Assistant Director + Planning Committee Chair Vicky Wolf, CSET Outreach Coordinator + Planning Committee Gabriel Fulton, Student Conference Planning Committee Dylan Baffrey, *Student Conference Planning Committee* 

UNIVERSITY of HAWAI'I Mānoa

University of Idaho

Dr. Mike Lowry, Planning Committee Fatma Madkour, Student Conference Planning Committee



WASHINGTON STATE UNIVERSITY

Dr. Ali Hajbabaie, *Planning Committee* Rasool Mahobifard, Student Conference Planning Committee



Dr. Panos Prevedouros, Planning Committee

Dr. Haizhong Wang, *Planning Committee* Hisham Jashami, Student Conference Planning Committee

# ABOUT US //



## PACIFIC NORTHWEST TRANSPORTATION CONSORTIUM

The Pacific Northwest Transportation Consortium (PacTrans) is the University Transportation Center (UTC) for Federal Region 10. It was established in January 2012 with five academic institutions—University of Alaska Fairbanks (UAF), University of Idaho (UI), Oregon State University (OSU), Washington State University (WSU), and the University of Washington (UW) as lead institution.

On its fifth year and with the recent success in the FAST Act UTC competition, PacTrans has recently added two new educational partners, the Boise State University (BSU) and Gonzaga University (GU). The new center also shifts PacTrans' focus, from safety to mobility. PacTrans' theme centers on developing data-driven solutions for the diverse mobility needs of the Pacific Northwest. It serves as a focal point within Region 10 to develop initiatives and facilitate collaborative activities with regional partners to maximize the effectiveness of their collective services and programs toward the USDOT strategic goal of safety.

The goal of PacTrans is to create an environment where the consortium universities and transportation agencies within Region 10 work together synergistically. The Pacific Northwest offers a unique blend of opportunities to examine a variety of transportation issues, including those related to urban centers, rural communities and diverse geographic features (e.g., coastal plains, mountain ranges). This diversity makes the Pacific Northwest a natural laboratory in which to investigate transportation solutions that are applicable both locally and nationally. PacTrans is dedicated to collaborating with transportation agencies, companies, and research institutions to jointly develop safe and sustainable solutions for the diverse transportation needs of the Pacific Northwest.

## **CENTER for SAFETY EQUITY in TRANSPORTATION**

The Center for Safety Equity in Transportation is a Tier 1 University Transportation Center (UTC) established in 2017 under the USDOT FAST Act. CSET is comprised of four academic institutions—University of Hawaii at Manoa (UH), University of Idaho (UI), University of Washington (UW) and University of Alaska Fairbanks (UAF) as lead institution.



The mission of the Center for Safety Equity in Transportation (CSET) is to provide everyone with fair and equitable access to a safe transportation system. Many communities across the nation are not increasing in population and those that are experiencing rapid rates of growth are dealing with significant social pressures on their traditional ways of mobility. We need to make sure that your fundamental right to a safe transportation environment is not being ignored simply because you do not live in or near a highly focused upon "megaregion."

Rural America is a critical part of our economy and our cultural and social well-being. We must make available a transportation system that can support and move our rural, isolated, tribal and indigenous communities in a safe and efficient way. We must hold paramount both safety and the preservation of culture while moving our transportation system forward.

# DIRECTOR'S WELCOME //



**DR. YINHAI WANG //** *PacTrans Director* 

Welcome representatives of public agencies, private industry, elected officials, and academic institutions, and thank you for attending the 2018 Region 10 Transportation Conference. We are very excited for the program that has been planned. We sincerely hope this conference will continue to serve as the premier forum on transportation related issues in our region.

This conference has three specific goals:

(1) that you will have an opportunity to learn about the many great efforts that PacTrans is engaged in to solve the diverse mobility challenges of people and goods in the Pacific Northwest,

(2) that we will have an opportunity to hear from you about your views on the mobility challenges of our region, and

(3) that we will all have the opportunity to network and share ideas about how we can collectively move our transportation system into the future.



## BILLY CONNOR, P.E.//

CSET Director

Dunilggux, chin'an gheli, Dena'ina, meaning "Welcome and come in." Twenty native languages are spoken in Alaska which give you some idea of the cultural diversity of our state. For many of you, this is your first visit to Alaska. I hope you take some time to enjoy some of the unique experiences that our state offers. All you need do is look south to the Alaska Range and if you're lucky, on a clear day you'll see Denali, the High One. For those of you who are returning, welcome back. I hope you have the time to experience something new.

This year's joint PacTrans/CSET conference brings the themes of mobility and rural safety together. The program is intended to inform, challenge, and create a lasting dialogue. We hope you go home knowing a bit more. More importantly, we hope you go home energized with new ideas; ideas that you can use to develop into truly meaningful research leading to an improved transportation system.

Enjoy your stay with us.



# **KEYNOTE SPEAKER //**



Ryan F. Anderson, P.E. Northern Region Director Alaska Department of Transportation and Public Facilities

## Moving Safer, Moving Smarter: A Vision for Better Transportation in the North

Ryan Anderson is the Northern Region Director for the Alaska Department of Transportation and Public Facilities (AKDOT&PF), a University of Alaska Fairbanks alumni of the Geological Engineering program, and currently provides transportation leadership to northern Alaskan communities that encompass a vast and geographically diverse region that runs from the Gulf of Alaska to the Bering Sea. Ryan believes that a sound transportation system is a foundation for community vitality, and that connecting people and cultures through infrastructure provides economic opportunities that improve people's lives. Since moving to Alaska in 1993 to attend the University of Alaska, Fairbanks, Ryan has worked both in mining and transportation, with his transportation career beginning in 2000 as a construction engineering assistant for DOT&PF. Since then, Ryan has worked through the ranks designing and managing road and airport projects, with a focus on improving transportation in rural Alaska. Ryan has led teams in successfully delivering major road and airport capital improvement projects in the arctic, working to improve safety and mobility, as well as infrastructure condition. Since receiving his Alaska Civil Engineering license in 2003, he received recognition for transportation excellence and innovation from the Northwest Arctic Leadership Team, WAASHTO, FAA, FHWA, and the Alaska Society of Engineers, Fairbanks Chapter. He is currently a member of the AASHTO Council on Highways and Streets.

"working to provide a safe and efficient transportation system that allows Alaska to thrive"

## "AKDOT&PF serves every Alaskan every day"





"connecting Alaskans to goods, services, economic opportunities, each other, and the world"



"with safety at the forefront of everything that we do"

"measuring efficiency and effectiveness to assist in decision making that improves performance"



# SCHEDULE //

8

| 8:00am - 8:30am | <b>REGISTRATION AND CHECK-IN //</b> ELIF Lobby                              |
|-----------------|---|
| 8:30am - 8:45am | WELCOME + OPENING REMARKS // Schaible Auditorium                            |
|                 | Dr. Nathan Belz, Planning Committee Chair<br>University of Alaska Fairbanks |
|                 | Dr. Yinhai Wang, PacTrans Director<br>University of Washington              |
|                 | Billy Connor, CSET Director<br>University of Alaska Fairbanks               |
|                 | Senator Lisa Murkowski (Digital Welcome)<br>State of Alaska                 |

KEYNOTE ADDRESS // Schaible Auditorium 8:45am - 9:15am

Moving Safer, Moving Smarter. Transportation in Alaska

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

#### BREAK // ELIF Lobby 9:15am - 9:30am

**Refreshments Provided** 

#### MOBILITY TRACK: SESSION 1 // Schaible Auditorium 9:30am - 10:30am

Concurrent with Safety Track: Session 1

## **Connected + Autonomous Mobility**

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

#### This session will focus 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 will be discussed. Lessons learned from early deployment projects will be shared.

Autonomous Intersection Control Formulation and Optimization Enabled by CV+AV

Connected Vehicle Deployment in Ada County, Idaho: Lessons Learned

**Cooperative Adaptive Cruise Control:** Assessing Implementation Challenges and Solutions

#### SAFETY TRACK: SESSION 1 // BP Design Theater, 4th Floor ELIF 9:30am - 10:30am

## Concurrent with Mobility Track: Session 1

## **Rural + Context Sensitive Safety**

Dr. Mike Lowry, Presiding University of Idaho

This session will present 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, experience, and research related to context-sensitive solutions will be discussed with a focus on local outreach and engagement.

Brian Walsh Washington State DOT

Glenn Miller Fairbanks North Star Borough

Angel Gonzalez University of Idaho Roads in Idaho

#### 10:30am - 10:45am BREAK // **ELIF Lobby**

#### **Refreshments Provided**



Seattle is the fastest-growing city of the decade. The traffic generated by the growing population ranks the congestion as being 9th worst in the United States.

Transit Routes in Seattle

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

**Ongoing Challenges of Providing Transit** Service in Northern Climates

Safety of Rural Unpaved Two-way

# SCHEDULE (continued) //

10:45am - 11:45am MOBILITY TRACK: SESSION 2 // Schaible Auditorium Concurrent with Safety Track: Session 2

## The Controversy of Technology

Angela Konert, Presiding BMW

> Dr. Sumit Roy University of Washington

Dr. David Hurwitz Oregon State University

Dr. Sameh Sorour University of Idaho

#### SAFETY TRACK: SESSION 2 // 10:45am - 11:45am

Concurrent with Mobility Track: Session 2

## Traffic Safety in Tribal/Indigenous/ **Pacific Islander Communities**

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

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 discuss the challenges of emerging technologies and their implementation issues including adoption, reluctance of businesses/manufacturers to change without mandates, and cross-platform compatibility.

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

Can drone operations near roadways contribute to driver distraction?

Opportunities and Barriers of Smart Vehicles and **Cities for RITI Communities** 

### BP Design Theater, 4th Floor ELIF

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

Building Traffic Safety Capacity Among Washington State Tribes

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

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

## 11:45am - 1:00pm LUNCH AND AWARDS //

See award recipient information on Page 12

| 1:00pm - 1:30pm              | POSTER SESSION ELEVA |            |  |
|------------------------------|----------------------|------------|--|
| 1:30pm - 2:20pm              | POSTER SESSION // W  |            |  |
| 2:20pm - 2:30pm              | BREAK //             | ELIF Lobby |  |
| <b>Refreshments Provided</b> |                      |            |  |

#### MOBILITY TRACK: SESSION 3 // 2:30pm - 3:30pm

Concurrent with Safety Track: Session 3

### Shared Mobility / MaaS

Dr. Haizhong Wang, Presiding Oregon State University

> Ali Lohman Oregon Department of Transportation

Anne Eskridge University of Washington

Dr. Hao Yu University of Hawaii at Manoa

#### SAFETY TRACK: SESSION 3 // BP Design Theater, 4th Floor ELIF 2:30pm - 3:30pm

Concurrent with Mobility Track: Session 3

## Workshop: Defining Isolation in a **Transportation Conte**

Billy Connor, Presiding **CSET+AUTC** Director

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

Panos Prevedouros University of Hawaii at Manoa

**Expertise:** Transportation Engineering

3:30pm - 3:45pm **Refreshments Provided** 

ELIF Lobby BREAK //

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### TOR PITCH // Wood Center Ballroom

ood Center Ballroom

### Schaible Auditorium

This session will present research and developments focusing on current paradigm shifts of Mobility as a service (MaaS) from public State DOT, research domain, and industries perspectives. The goal of this session is 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**

#### Shared Mobility is like Air BnB on Wheels

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

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 is meant to spark dialogue with researchers and practitioners and bring some perspective to how we might objectively measure transportation isolation.

Hillary Straver Alaska Native Tribal Health Consortium Expertise: Injury Prevention

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

# **SCHEDULE (continued)** //

3:45pm - 4:45pm

### CLOSING PANEL // Schaible Auditorium

## **Balancing Safety and Mobility**

Dr. Jeff Ban, Presiding University of Washington The final panel is intended to provide an opportunity for discussion and engagement with four leading experts in the areas of mobility and safety. A keen focus will be on how to provide a transportation system that finds balance between these two key issues especially with the advent of emerging technologies. Where do these find synergy? Where are they fundamentally different?



Annie Chang Program Manager, SAE International





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

"Even with winter upon the state for over half the vear, AKDOT&PF's mission is to Keep Alaska Moving while promoting the development and use of the safe, cost effective, efficient and environmentally sensitive technologies, equipment, materials and practices."

"We must march forward with the vision that transportation mobility and traffic safety are two core pieces and they need to complement each other. We can accomplish this vision by working together, via effective communication, sincere collaboration. and sensible adaptation."

Dr. David Yang

THE STATE OF THE S

Executive Director, AAA



Associate Professor, Vanderbilt University

"We must exploit advances in technology for the social good of all travelers; this includes both mobility and safety."

4:45pm - 5:00pm

## CLOSING REMARKS // Schaible Auditorium

5:00pm - 6:00pm

## SOCIAL HOUR + NETWORKING // BP Design Theater, 4th Floor ELIF

**Refreshments Provided** 

QUICK FACT

The State of Hawaii experienced a 525% increase in pedestrian roadway fatalities since September of last year. More than half of the 25 fatalities were the result of inattention, failure to yield right of way, and speeding.

## SATURDAY, OCTOBER 13th, 2018

8:30am - 1:00pm

See Page 20 for more details.

8:30am - 12:30pm

**PERMAFROST TOUR //** Meet in ELIF Lobby

Tour for pre-registered participants only. Lunch provided. Free parking is available on weekends in the Signers+Eielson Lot (refer to Campus Map on Page 21).

**Thompson Drive** 

**UAF** Campus

## **Goldstream Road**

Fairbanks, AK

## **Pipeline Viewpoint**

Fox, AK

Permafrost Tunnel

Fox, AK

Much of Thompson Drive is built on a huge pile of coarse, grapefruit-sized rocks that allow air circulation beneath the roadway. Warm air rises and cool air sinks. Gas-filled hairpin thermosyphons are also placed horizontally beneath a portion of the asphalt surface. The refrigerant inside evaporates in the bottom portion and condenses when it travels as a gas to the top and helps to keep the permafrost below remain frozen.

Across much of the interior of Alaska you will find formations known as thermokarsts, which are formed as ice-rich permafrost thaws. In the winter, small domes form on the surface from frost heaving and then collapse during the summer leaving small surface depressions. These periglacial formations are prone to selective melting of the permafrost and often leave behind bodies of water ranging from as small as a backyard pond to an entire lake.

Here participants are afforded a close-up look at one of the world's engineering marvels, the Trans-Alaska Pipeline. The 48-inch diameter pipeline navigates through three major mountain ranges and over 800 miles from Prudhoe Bay to Valdez. Roughly 420 miles of the pipeline are elevated using thermosypons. Food for thought: every hour, more than a million dollars of oil flows through the pipeline on its 8.6 day journey across the state of Alaska

The Permafrost Tunnel began in the early 1960s a training camp for the Army Corps of Engineers to learn about excavating permafrost. Since then, it has become a vessel by which the Bureau of Mines, UAF, CRREL, and others can experience and research permafrost, other frozen formations, and the embedded fossils and sediments first hand. Since the tunnel is not open to the public, experiencing the 360-foot long tunnel is a once in a lifetime experience.



### STUDENT CONFERENCE // BP Design Theater, 4th Floor ELIF

## LIFETIME ACHIEVEMENT AWARD //



Ken Casavant Professor Washington State University

Dr. Ken Casavant has been a professor of economics at Washington State University since 1971, where he has served as Interim Vice Provost for Academic Affairs and Interim Vice Provost of Research. He has represented Washington State University (WSU) as its Associate Director of the Region 10 University Transportation Center program, both with PacTrans since its creation in 2012, and its predecessor, TransNow, beginning in 1996. Dr. Casavant has served as the Director of Freight Policy Transportation Institute (FPTI) since 2009, as well as an Adjunct Professor for Upper Great Plains Transportation Institute (UGPTI) at North Dakota State University since 2002. He has served on the Washington State Governor's Joint Natural Resources Cabinet, and has been appointed to various boards throughout his distinguishing career, including the Border Policy Research Institute at Western Washington University and the Independent Economic Analysis Board of Northwest Power and Conservation Council among others. His numerous accolades include the Lifetime Achievement Award from Upper Great Plains Transportation Institute at North Dakota State University, Faculty of the Year (1990) from WSU, the Sahlin University Award for Public Service (2004) from WSU and the Sahlin University Award for Leadership (2009) from WSU. Dr. Casavant has been a member of no less than seven professional organizations, and chair, or been a member of, over 200 student graduate committees. Most of all, Dr. Casavant has been a dear friend and avid supporter of transportation research and education in the Pacific Northwest for over 50 years.

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

## EXCELLENCE IN TECHNOLOGY TRANSFER //



Dr. Burkan Isgor Professor Oregon State University

Dr. Burkan Isgor is leading the effort to establish the formation factor of concrete as a rapid performance index, part of a pooled-fund study that involves several state DOTs and FHWA. The research at OSU has so far shown that the formation factor of concrete can be linked to other critical performance indicators. While most of durability properties require timeconsuming and expensive standardized tests, the formation factor can be obtained quickly and inexpensively.

Although Dr. Isgor is leading efforts to standardize the use of formation factor in specifications and design codes, practicing engineers are still not adequately trained on its benefits and applications. This project received supplemental funding from the PacTrans Success Stories and will overcome this challenge through development and deployment of online calculators, training modules, and organization of webinars.

The 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.

## **RESEARCHER OF THE YEAR //**



Dr. Nathan Belz Assistant Professor University of Alaska Fairbanks

Dr. Nathan Belz has over ten years of research experience specific to rural transportation issues. He currently serves as the Assistant Director of the Center for Safety Equity in Transportation, a Tier 1 USDOT UTC. During his career, he has attracted roughly \$1.2 million as principal investigator, presented at over 30 conferences, and has received numerous accolades for his research accomplishments. He has been twice awarded the Fred Burggraf Paper Award. Dr. Belz is an active member in the Transportation Research Board community, faculty advisor for the UAF Green Bikes bike-sharing program, Community Garden, Concrete Canoe Team, and has been a member of organizing committee for the PacTrans Annual Conference for four years.

The Research 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. Kevin Chang, PE Assistant Professor University of Idaho

country.

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.

## EDUCATOR OF THE YEAR //

Dr. Kevin Chang, PE has over 15 years of professional experience which includes as period of time as a Traffic Engineer for the King County Department of Transportation. Dr. Chang has participated in the highly competitive and prestigious ASCE ExCEED program and was awarded the outstanding early career faculty award from the College of Engineering at the University of Idaho. He has served as the President of the ITE Education Council and was recently voted into office as the incoming Vice President of the Pacific Northwest Section of the American Society of Engineering Educators. Dr. Chang is regularly recognized as an exceptional faculty advisor by faculty members around the region and

## PARTNER OF THE YEAR //

## Idaho Transportation Department & the City of Moscow, ID

A few of examples of the Idaho Transportation Department's (ITD) and City of Moscow partner contributions include:

- Continual support of and partnering with PacTrans by providing match dollars from state research funds.

- Instrumental in helping UI researchers develop funded research projects that align with the PacTrans center goals.

- Review and ranking of small projects submitted to the UI. Their feedback to UI researchers has helped improve the quality of the PacTrans projects and their outcome.

- Contributing to education by providing case study projects for undergraduate and graduate courses at the University of Idaho, the results of which were recently used to help win over \$1.5 million dollars for new transportation infrastructure.



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.

| 01 | Bridge Inspection using Bridge Information Models (BrIM) and Unmanned Aerial Systems (UAS)<br>Yelda Turkan, Yiye Xu                      |
|----|--|
| 02 | Driving Performance with Text Reading: Perceptions and Driving Simulation Tests<br>Panos Prevedouros                                     |
| 03 | Analysis of risk factors and their impacts on injury severity at tribal reservations with a modified random parameters model Zhenning Li |
| 04 | CVTS: a web-based crash visualization tool system<br>Hao Yu  |
| 05 | Crash Reporting: Procedural Practices in the Pacific Northwest<br>Kevin Chang  |
| 06 | Safety impacts of wider pavement marking in two-lane rural highways<br>Mohamed Mohamed   |
| 07 | Crash Density and Severity Prediction using Recurrent Neural Networks Combined with Particle Swarm Optimization                          |
| 08 | Ziqiang Zeng<br>Decentralized Fleet Management for Autonomous and Electric Mobility on Demand Systems<br>Sameh Sorour                    |
| 09 | <b>Real-Time Traffic Monitoring using Airborne LiDAR: Opportunities and Obstacles</b><br>Sameh Sorour                                    |
| 10 | Quantifying Unlawful Use of Off-Highway Vehicle Use on Public Facilities in Alaska<br>Nathan Belz  |
| 11 | Assessing Feasibility and Use of Non-Standard Accident Reporting and Safety Data<br>Robert Perkins                                       |
| 12 | Connected Vehicle based Adaptive Vehicle Routing Algorithm<br>Wenbo Zhu  |
| 13 | Work Zone Intrusion Alert Technologies for Highway Construction Projects<br>Ali Karakhan   |
| 14 | How Does Bicycle App Data Represent Bicycle Population: A Temporal and Spatial Study in Oregon<br>Chen Chen                              |
| 15 | Safety Risk and Occupational Rewards Perception and Trade-off: A Study in Construction<br>Mohammed Azeez                                 |
| 16 | New Training Needs for Transportation Workforce Development<br>Ying Jiang, Yinhai Wang   |
| 17 | <b>Evaluation of Safety Effectiveness of Wider Pavement Markings</b><br>Mohamed Mohamed, Maged Mohamed, Ahmed Abdel-Rahim, Kevin Chang   |
| 18 | Laboratory-Based Spectral Signatures of Anti-Icing and Deicing Chemicals<br>Gabriel Fulton, Nathan Belz                                  |
| 19 | King County School Walkability Project<br>Anne Moudon, Yefu Chen   |
| 20 | Connected Vehicle Based Traffic Signal Coordination<br>Wan Li, Xuegang Ban   |

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- 22 Road Surface Condition Prediction using Long Short-Term Memory Neural Network Based on **Historical Data** Ziyuan Pu, Chenglong Liu, Yinhai Wang, Xianming Shi
- Hao Yang, Chenxi Liu, Christopher Gottsacker, Xuegang Ban, Yinhai Wang
- 24 Approaches Hameed Mohammed, David Hurwitz
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- 27Vehicle Fuel Use Due to Pavement Structural Response Mostafa Estaji, Erdem Coleri, John Harvey, Ali Butt
- Towards better mobility: Centralized and Decentralized Approaches for Connected and Autonomous 28 Vehicle Routing Alireza Mostafizi, Haizhong Wang, Shangjia Dong
- 29 Self-Adaptive Real Time Sampling (SARTS) of Vehicle Trajectory Using Spectral Domain Properties Nazib Siddique, Xuegang Ban
- 30 Christopher Gottsacker, Ziqiang Zeng, Yinhai Wang
- Performance Measurement For A Selected Pilot Urban Corridor In Seattle 31 Zhiyong Cui
- 32 Developing a Geo-spatial Database Covering Posted Speed Limit Information for the Full Extent of the National Highway System Mayuree Binjolkar, John Eugene Ash, Ziqiang Zeng, Yinhai Wang
- 33 Measuring the Impact of a Landslide on Transportation Infrastructure to Improve Mobility and Safety Margaret Darrow, Ronald Daanen, Jaimy Schwarber
- A Connected Multi-Sensor Solution for Large-Scale Parking Space Management 34 Ruimin Ke, Yifan Zhuang, Ziyuan Pu, Yinhai Wang
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- Examination of the Variability in Grout Test Results 36 Trenton Friend, Il-Sang Ahn
- 37 **Economic Analysis of Commuting Service Platforms** Rong Fan, Xuegang Ban

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Driver Eye Movements at the Onset of Circular Yellow Indication on High-Speed Signalized Intersection

Numerical Model development and Field Calibrations of Asphalt Pavement Structures to Predict Excess

Promoting CSET Outreach Activities through Safety Data Management and Analysis in RITI Communities



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- Imitation Learning for Human-like Navigation in Urban Transportation Environment 39 Mayuree Binjolkar, John Eugene Ash, Yinhai Wang
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- Comparative Analysis of Big and Small (Survey) Data for Deriving Human Mobility Patterns 41 Jingxing Wang, Feilong Wang Xuegang Ban Cynthia Chen
- Is This For Subsistence or Pleasure? Ethnographic Insight on Mobility and Transportation from 42 Communities around the Bering Strait Sveta Yamin-Pasternak, Igor Pasternak
- Connecting Alaskans: Transportation Accessibility in Rural and Isolated Environments 43 Nathan Belz, Carrie Sorensen

There are over 566 active airports and runways (both public and private) in the State of Alaska. This equates to 77 per 100,000 people, the highest rate of any state in the nation and nearly 60% higher than second-ranked North Dakota.

**Airports+Runways** 

QUICK FACT

in Alaska

9:00am - 9:55am

## STUDENT CONFERENCE // BP Design Theater 4th Floor ELIF BREAKFAST AND CHECK-IN // 8:30am - 9:00am

## SPEAKER 1 //



and incorporating creative and progressive solutions Colin Singleton CRW Engineering Group - Anchorage, AK

#### SPEAKER 2 // 10:00am - 10:55am



Jackson Fox

### 11:00am - 11:55am **SPEAKER 3 //**



Building Resiliency in Transportation Marc Luiken, C.M. Commissioner of Alaska Department of Transportation + Public Facilities

12:00pm - 1:00pm

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## POSTER SESSION/COMPETITION + LUNCH //

**PERMAFROST TOUR** // Meet in ELIF Lobby 1:00pm - 5:00pm Tour for pre-registered participants only. Lunch provided. Free parking is available on weekends in the Signers+Eielson Lot (refer to Campus Map on Page 21). See tour description on Page 12.

In Idaho, cyclists are allowed to JUICK FAC ride through stop signs without stopping and through red lights after stopping.

> Non-Motorized Trails in Idaho

158,000 miles w/ \$314 million in maintenance needs Transportation Engineering: a balance between the fundamentals

Transportation Engineering in the North; planning, budget, logistics of transportation in Fairbanks, AK

Executive Director of the Fairbanks Metropolitan Area Transportation System





## QUICK FACT



## PHOTO CREDITS //

All page spread photos courtesy of Nathan Belz.

West face of Denali (cover)

Low cloud cover along Denali National Park Road (pgs. 1 & 2) Hardpack-covered Nome-Council Road (pgs. 5 & 6) Parks Highway in Nenana Canyon (pgs. 7 & 8) A twilight bike ride on Murphy Dome (pgs. 9 & 10) "No Name Road" from airport in Newtok, AK (pgs. 11 & 12) Downtown Nome, AK (pgs. 15 & 16) Railroad crossing on the Parks Highway (pgs. 17 & 18) Traffic jam in Denali National Park (back)

## CONNECT //



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