North to the Future
Emerging Mobility and Safety Issues in the Pacific Northwest
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THANK YOU TO OUR TEAM //

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

Dr. Panos Prevedouros, Planning Committee

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

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

Dr. Ali Hajbabaie, Planning Committee
Rasool Mahobifard, 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.

Enjoy your stay with us.

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.
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, WAAHTO, FAA, FHWA, and the Alaska Society of Engineers, Fairbanks Chapter. He is currently a member of the AASHTO Council on Highways and Streets.

“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”

“working to provide a safe and efficient transportation system that allows Alaska to thrive”
SCHEDULE //

8:00am - 8:30am  REGISTRATION AND CHECK-IN //  ELIF Lobby

8:30am - 8:45am  WELCOME + OPENING REMARKS //  Schaible Auditorium
Dr. Nathan Belz, Planning Committee Chair
University of Alaska Fairbanks
Dr. Yinhai Wang, PacTrans Director
University of Washington
Billy Connor, CSET Director
University of Alaska Fairbanks
Senator Lisa Murkowski (Digital Welcome)
State of Alaska

8:45am - 9:15am  KEYNOTE ADDRESS //  Schaible Auditorium
Moving Safer, Moving Smarter. Transportation in Alaska
Ryan Anderson, Assistant Commissioner
Alaska Department of Transportation and Public Facilities

9:15am - 9:30am  BREAK //  ELIF Lobby
Refreshments Provided

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

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

10:30am - 10:45am  BREAK //  ELIF Lobby
Refreshments Provided

9:30am - 10:30am  SAFETY TRACK: SESSION 1 //  BP Design Theater, 4th Floor ELIF
Concurrent with Mobility Track: Session 1

Rural + Context Sensitive Safety
Dr. Mike Lowry, Presiding
University of Idaho

Brian Walsh
Washington State DOT
Glenn Miller
Fairbanks North Star Borough
Angel Gonzalez
University of Idaho

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
Roads in Idaho

10:30am - 10:45am  BREAK //  ELIF Lobby
Refreshments Provided

QUICK FACT
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.
MOBILITY TRACK: SESSION 2 // Schaible Auditorium

Angela Konert, Presiding
BMW

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

MOBILITY TRACK: SESSION 3 // Schaible Auditorium

Angela Konert, Presiding
BMW

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."

SAFETY TRACK: SESSION 2 // BP Design Theater, 4th Floor ELIF

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.

SAFETY TRACK: SESSION 3 // BP Design Theater, 4th Floor ELIF

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

11:45am - 1:00pm
LUNCH AND AWARDS // Wood Center Ballroom

See award recipient information on Page 12

1:00pm - 1:30pm
POSTER SESSION ELEVATOR PITCH // Wood Center Ballroom

1:30pm - 2:20pm
POSTER SESSION // Wood Center Ballroom

2:20pm - 2:30pm
BREAK // ELIF Lobby

Refreshments Provided

2:30pm - 3:30pm
MOBILITY TRACK: SESSION 3 // Schaible Auditorium

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

Can drone operations near roadways contribute to driver distraction?

Opportunities and Barriers of Smart Vehicles and Cities for RITI Communities

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

SAFETY TRACK: SESSION 3 // BP Design Theater, 4th Floor ELIF

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

3:30pm - 3:45pm
BREAK // ELIF Lobby

Refreshments Provided

3:45pm - 5:00pm
MOBILITY TRACK: SESSION 4 // Schaible Auditorium

Angela Konert, Presiding
BMW

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."

SAFETY TRACK: SESSION 4 // BP Design Theater, 4th Floor ELIF

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

5:00pm - 6:30pm
POSTER SESSION // Wood Center Ballroom

Refreshments Provided
Balancing Safety and Mobility
Dr. Jeff Ban, Presidenting 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?

“With an increasing number of transportation options, a newfound sense mobility is “delighting” many of us. However, safety often comes as an afterthought.”

“Even with winter upon the state for over half the year, 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.”

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

“All states are seeking out new transportation options. A growing number of people are shunning automobile use, and we need to be ready to provide them with a viable alternative. As a state, we need to push harder to find solutions that everyone can use.”

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 inattentive, failure to yield right of way, and speeding.
**LIFETIME ACHIEVEMENT AWARD //**

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 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 time-consuming 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.

**EDUCATOR OF THE YEAR //**

Dr. Kevin Chang, PE Assistant Professor University of Idaho

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 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.

**PARTNER OF THE YEAR //**

Idaho Transportation Department & the City of Moscow, ID

- 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.
POSTERS

01 Bridge Inspection using Bridge Information Models (BrIM) and Unmanned Aerial Systems (UAS)
Yelda Turkan, Yiye Xu

02 Driving Performance with Text Reading: Perceptions and Driving Simulation Tests
Panos Prevedourous

03 Analysis of risk factors and their impacts on injury severity at tribal reservations with a modified random parameters model
Zhennng Li

04 CVTS: a web-based crash visualization tool system
Hao Yu

05 Crash Reporting: Procedural Practices in the Pacific Northwest
Kevin Chang

06 Safety impacts of wider pavement marking in two-lane rural highways
Mohamed Mohamed

07 Crash Density and Severity Prediction using Recurrent Neural Networks Combined with Particle Swarm Optimization
Ziqiang Zeng

08 Decentralized Fleet Management for Autonomous and Electric Mobility on Demand Systems
Sameh Sorour

09 Real-Time Traffic Monitoring using Airborne LiDAR: Opportunities and Obstacles
Sameh Sorour

10 Quantifying Unlawful Use of Off-Highway Vehicle Use on Public Facilities in Alaska
Nathan Bela

11 AssessingFeasibility and Use of Non-Standard Accident Reporting and Safety Data
Robert Perkins

12 Connected Vehicle based Adaptive Vehicle Routing Algorithm
Wenbo Zhu

13 Work Zone Intrusion Alert Technologies for Highway Construction Projects
Ali Karakhan

14 How Does Bicycle App Data Represent Bicycle Population: A Temporal and Spatial Study in Oregon
Chen Chen

15 Safety Risk and Occupational Rewards Perception and Trade-off: A Study in Construction
Mohammed Ameer

16 New Training Needs for Transportation Workforce Development
Ying Jiang, Yinhai Wang

17 Evaluation of Safety Effectiveness of Wider Pavement Markings
Mohamed Mohamed, Maged Mohamed, Ahmed Abdel-Rahim, Kevin Chang

18 Laboratory-Based Spectral Signatures of Anti-Icing and Deicing Chemicals
Gabriel Fulton, Nathan Bela

19 King County School Walkability Project
Anne Moudon, Yefe Chen

20 Connected Vehicle Based Traffic Signal Coordination
Wan Li, Xuegang Ban

21 Development of Protocol to Enhance the Safety of Pervious Concrete Pavement Installations in Winter Conditions
Othman AliShareefah, Somiyh Nasser

22 Road Surface Condition Prediction using Long Short-Term Memory Neural Network Based on Historical Data
Ziyuan Pu, Chenglong Liu, Yinhai Wang, Xiaming Shi

23 Cell-Speed Prediction Neural Network (CPNN): A Deep Learning Approach for Trip-based Speed Prediction
Hao Yang, Chenxi Liu, Christopher Gottsacker, Xuegang Ban, Yinhai Wang

24 Driver Eye Movements at the Onset of Circular Yellow Indication on High-Speed Signalized Intersection Approaches
Hammed Mohammed, David Hurwitz

25 Subarctic streamflow response to climate warming, glacier-affected Interior Alaska
Anna Lihdyahl, Anne Geedele, Ronald Daanen, Jing Zhang

26 GIS: A framework for identifying Isolated Communities in a Transportation Context
Skye Swoboda-Collberg

27 Numerical Model development and Field Calibrations of Asphalt Pavement Structures to Predict Excess Vehicle Fuel Use Due to Pavement Structural Response
Mostafa Estaji, Erdem Coleri, John Harvey, Ali Butt

28 Towards better mobility: Centralized and Decentralized Approaches for Connected and Autonomous Vehicle Routing
Alireza Mostafizi, Hairong Wang, Shangxia Dong

29 Self-Adaptive Real Time Sampling (SARTS) of Vehicle Trajectory Using Spectral Domain Properties
Nazih Siddique, Xuegang Ban

30 Promoting CSET Outreach Activities through Safety Data Management and Analysis in RITI Communities
Christopher Gottsacker, Ziqiang Zeng, Yinhai Wang

31 Performance Measurement For A Selected Pilot Urban Corridor In Seattle
Zhiyong Cui

32 Developing a Geo-spatial Database Covering Posted Speed Limit Information for the Full Extent of the National Highway System
Mayuree Bunolkar, 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

34 A Connected Multi-Sensor Solution for Large-Scale Parking Space Management
Ruimin Ke, Yifan Zhuang, Ziyuan Pu, Yinhai Wang

35 Commuter Mobility versus Work-zone Safety
Joseph Louis, Kenny Fawoyi

36 Examination of the Variability in Grout Test Results
Trenton Friend, Il-Sang Ahn

37 Economic Analysis of Commuting Service Platforms
Rong Fan, Xuegang Ban
**Quick Fact**

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.

**Quick Fact**

In Idaho, cyclists are allowed to 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 |

**Economic Impact of North Slope Rail Extension on Northern Energy and Mineral Development**
Paul Metz, Colin Brooks, Mike Billmire

**Imitation Learning for Human-like Navigation in Urban Transportation Environment**
Mayuree Binjolkar, John Eugene Ash, Yinhai Wang

**Prestress Loss Due To Creep in Precast Concrete Decked Bulb-Tee Girders under Cold Climate Conditions**
Drew Vandermeer, Il-Sang Ahn

**Comparative Analysis of Big and Small (Survey) Data for Deriving Human Mobility Patterns**
Jingxing Wang, Feilong Wang, Xuegang Ban, Cynthia Chen

**Is This For Subsistence or Pleasure? Ethnographic Insight on Mobility and Transportation from Communities around the Bering Strait**
Sveta Yamin-Pasternak, Igor Pasternak

**Connecting Alaskans: Transportation Accessibility in Rural and Isolated Environments**
Nathan Belz, Carrie Sorensen

**Transportation Engineering: a balance between the fundamentals and incorporating creative and progressive solutions**
Colin Singleton
CRW Engineering Group - Anchorage, AK

**Transportation Engineering in the North; planning, budget, logistics of transportation in Fairbanks, AK**
Jackson Fox
Executive Director of the Fairbanks Metropolitan Area Transportation System

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

**Student Conference //**

**Breakfast and Check-In //**
8:30am - 9:00am

**Speaker 1 //**
9:00am - 9:55am
Transportation Engineering: a balance between the fundamentals and incorporating creative and progressive solutions
Colin Singleton
CRW Engineering Group - Anchorage, AK

**Speaker 2 //**
10:00am - 10:55am
Transportation Engineering in the North; planning, budget, logistics of transportation in Fairbanks, AK
Jackson Fox
Executive Director of the Fairbanks Metropolitan Area Transportation System

**Speaker 3 //**
11:00am - 11:55am
Building Resilency in Transportation
Marc Luiken, C.M.
Commissioner of Alaska Department of Transportation + Public Facilities

**Poster Session/Competition + Lunch //**
12:00pm - 1:00pm

**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). See tour description on Page 12.
ROUGHLY 17% of our domestic oil supply travels 800 miles from Prudhoe Bay at an average speed of 3.9 mph over three mountain ranges, 30 major rivers and streams, with a maximum grade of 145% through Thompson Pass on its way to Valdez. In 2002, the pipeline survived a magnitude 7.9 earthquake at the Denali Fault which shifted 14 feet horizontally and 2.5 feet vertically.

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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