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# Transportation Center

METRANS is a partnership organization between the University of Southern California and Long Beach State University. Its mission is to solve transportation problems of large metropolitan areas through research, education, and outreach.

#### **PSR RESEARCH**

## Two Years of PSR-UTC Research, Education, and **Outreach** Culminates at Second Annual PSR Congress Meeting



University Transportation Center

The second annual Pacific Southwest Region (PSR) Congress took place in Tucson, Arizona, on April 9, 2019. The event was hosted by Pima Community College at its downtown campus. Both faculty and student researchers participated, as well as industry and public agency representatives.

The PSR University Transportation Center (UTC) is a consortium of eight universities: University of Southern California (USC); Long Beach State University (LBSU); Northern Arizona University (NAU); Pima Community College; the University of Hawaii (UH); the University of California, Davis (UCD); the University of California, Irvine (UCI); and the University of California, Los Angeles (UCLA). PSR is led by USC and funded by the U.S. Department of Transportation (US DOT) at approximately \$2.75 million per year, for five years. Matching funds are provided by Caltrans, other state DOTs, local agencies, foundations, and private industry.

Considering the geographic distance between the regional partners, the Congress also provides an opportunity for PSR Advisory Council members to address important research and policy issues face-to-face rather than virtually. During the Advisory Council meeting, students also meet to share information and brainstorm.

Workforce development needs, a priority for host Pima and the Tucson region as a whole, served as a major theme of this year's Congress. David Dore, Pima's Vice Chancellor of Workforce and Economic Development, and Ian Roark, Pima's Vice President of Workforce Development, kicked off the day with a presentation of current skills gaps and how to approach them.

"I was very pleased with the opening remarks," said METRANS Director Genevieve Giuliano. "They fostered valuable discourse around one of PSR's high priorities and got the Congress off to a great start."

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PSR Congress attendees receive a tour of the TuSimple facilities in Tucson, Arizona.



METRANS Director Genevieve Giuliano addresses the second annual PSR Congress.

#### **PSR RESEARCH**

### Two Years of PSR-UTC Research, Education, and Outreach

Culminates at Second Annual PSR Congress Meeting, Con't.

Giuliano opened the research presentations portion of the day, encouraging attendees to review the research posters developed by PSR students. Graduate and undergraduate students from PSR universities brought posters to showcase their ongoing projects. Topics included the electrification of drayage trucks, coordinated freight routing, the inequalities of commuting in California, and factors affecting injury severity in traffic crashes on Arizona tribal lands.

"It was an exciting opportunity to represent Long Beach State University's Center for International Trade and Transportation [CITT] at this year's PSR Congress," said CITT Research Assistant Rachel Brownell. "I enjoyed discussing our poster on workforce development for sustainable transportation systems with university and industry partners from all over the region."

Another research element of the Congress, new this year, were the "Ignite" presentations, in which each slide advances automatically after thirty seconds over the course of a ten minute delivery. This public speaking challenge proved to be an efficient means for those in attendance to get an overview of center-specific research occurring within PSR.

## The Ignite presentations from the 2019 PSR Congress are listed in full below.

- "Transportation Systems and Research at IMSC USC" by Luciano Nocera, Associate Director of the Integrated Media Systems Center (IMSC), University of Southern California
- "Geospatial Technology Education" by Ben Olson, Research and GIS Coordinator, Center for International Trade and Transportation, Long Beach State University
- "Supporting Transportation Resilience: Research Activities at the UH UTC" by Pradip Pant, Assistant Director for Training Development and Research, University of Hawaii National Preparedness Training Center
- "Pedestrian and Bicyclist Behavior at Highway-Rail Grade Crossings:
   An Observational Study of Factors Associated with Violations,
   Distraction, and Crossing Speeds During Train Crossing Events"
   by Brendan Russo, Assistant Professor, Department of Civil Engineering,
   Construction Management, and Environmental Engineering, University of Northern Arizona
- "Changes in Deliveries from Online Shopping: Implications for Household Vehicle Miles Traveled" by Jean-Daniel Saphores, Professor of Civil and Environmental Engineering, University of California, Irvine
- "Equity, Justice, and Sociocultural Research on Bicycling Transportation" by Rebecca van Stokkum, Ph.D. candidate in Geography, University of California, Davis
- "A Time and a Place for Every Rider? Geographic and Temporal Changes in Bay Area Transit Ridership" by Jacob Wasserman, Master of Urban and Regional Planning student, University of California, Los Angeles



The PSR group at TuSimple METRANS at TRB 2019: METRANS Research.

The afternoon sessions, led by private and public transportation project leaders in Tucson, shifted gears to highlight the role of technology and automation in the city's development. Presenters included: Jennifer Toothaker, Project Manager at the DOT, Tucson; Jim DeGrood, Deputy Director of Pima Association of Governments (PAG) and the Regional Transportation Authority (RTA); Steven Eddy, Manager of Government Relations at Tucson Electric Power; and Doug Stetson, President and CEO at FreeFall, a company developing revolutionary new antenna technology for ground, air, and space.

The theme of automation continued throughout the proceedings with a chance for all attendees to visit TuSimple, a software company that aims to have its operating systems powering the market's first driverless trucks. PSR representatives learned about the project's capabilities and limitations from TuSimple's leadership and received a behind-the-scenes tour of the facility.

"TuSimple provided an excellent forum for PSR faculty and students to discuss the near- and long-term challenges to implement autonomous truck technology," said METRANS Associate Director Thomas O'Brien.

The second annual Congress was an ideal event to commemorate and integrate PSR's two years of research, education, and outreach. In this short time, PSR has launched a vibrant research program organized around its four thematic areas: technology for improved mobility; improving mobility for disadvantaged populations; improving resilience and protecting the environment; and managing mobility in high growth cities and regions. At this time, thirty-eight projects have been funded and six projects have been completed.

Seminar programs at USC, UCD, UCI, and UCLA support the research program. Additionally, as part of its technology transfer program, PSR has facilitated signature events like: the CITT State of the Trade and Transportation Industry Town Hall Meeting (LBSU); the National Travel Monitoring Exposition and Conference (NaTMEC) (UCI and USC); the Lake Arrowhead Symposium (UCLA), and the International Urban Freight Conference (USC and LBSU). PSR education support ranges from K-12 to PhD programs and includes robust workforce and professional development programs.

#### **METRANS OUTREACH**

### METRANS at TRB 2019

The Transportation Research Board's (TRB) 98th Annual Meeting was held January 13-17, 2019, at the Walter E. Washington Convention Center, in Washington, D.C. The information-packed program attracted more than 13,000 transportation professionals from around the world.

The meeting program covered all transportation modes, with more than 5,000 presentations in nearly 800 sessions and workshops, addressing topics of interest to policy makers, administrators, practitioners, researchers, and representatives of government, industry, and academic institutions. A number of sessions and workshops focused on the spotlight theme for the 2019 meeting: *Transportation for a Smart, Sustainable, and Equitable Future*. Pacific Southwest Region 9 University Transportation Center (PSR-UTC) partners presented a total of 45 presentations and papers at TRB, from "Gender and the Division of Car Use in Auto-Deficit Households" to "Evaluating the Environmental Impacts of Online Shopping."

METRANS researchers presented on a range of topics during poster and lecture sessions, as listed in the table below.

#### **Marlon Boarnet, University of Southern California**

Panel: Gender and Rail Transit Use: The Influence of Environmental Beliefs and Safety Concerns

#### Alison Conway, City College of New York

Poster: Before/After Freight Impact Analysis of the New York City Clear the Curb Initiative Poster: Attracting the New Generation of Transportation Professionals

Lecture: ASCE T&DI Freight and Logistics Committee Lecture: TRB Freight Transportation Data Committee

Lecture: Freight Data Users Forum: Moving Federal Freight Datasets Forward

#### Genevieve Giuliano, University of Southern California

Poster (with co-author Sanggyun Kang): Data Challenges in Urban Freight Research: The Case of Warehousing and Distribution

Panel: Summary of Future Interstate Report

#### Nathan Hutson, University of Southern California

Panel: Zero Emission Drayage Truck Deployment at the Ports of Los Angeles and Long Beach

#### Camille Kamga, City College of New York

Paper: Signal Priority: Comparison of Two Recent Traffic Signal Control Models

#### Thomas O'Brien, Long Beach State University

Lecture: The Future of Intermodal Freight Education

#### Tyler Reeb, Long Beach State University

Lecture: Issues of Employability in the Transportation Workforce — Transferability and Globalization Issues

# METRANS OUTREACH METRANS Spring 2019 Seminars

The Spring 2019 Speaker Series, hosted by METRANS, has brought a variety of accomplished researchers and industry leaders to the University of Southern California. Recent seminars include the following:

#### **Practitioner Series:**

- "Women at Work-shop" by Sara E. Brown, Postdoctoral Teaching Fellow at USC Shoah Foundation — The Institute for Visual History and Education;
- "Leadership as Improvisation 2.0!" by Carol J. Geffner, Professor
  of the Practice of Governance, Management and Policy at the USC
  Sol Price School of Public Policy and Director of the Executive Master
  of Leadership Program

#### **Research Series:**

- "Addressing Bicycle-Vehicle Conflicts with Alternate Signal Control Strategies" by Edward Smaglik, Professor at Northern Arizona University, Flagstaff and Director of AZTrans: The Arizona Laboratory for Applied Transportation Research;
- "Critical Perspectives and Recent Research on the Travel Behavior Implications of Disruptive Trends and Autonomous Vehicles" by Ronald Milam, Director of Evolving the Status Quo at Fehr & Peers

 "Ghost Cars and Fake Obstacles: Automated Security Analysis of Emerging Smart Transportation Systems" by Qi Alfred Chen, Assistant Professor in the Department of Computer Science at UCI.

In addition, METRANS hosts a Transportation Careers Speaker Series. The latest installment was a lunch with Steven Mateer, Transportation Superintendent for the City of Glendora. During his talk, Mateer shared his professional experience and gave advice for navigating the field of transportation planning.

METRANS also held a "Lunch with a Practitioner" event this spring. The event, "Testimonies and Witness; A Compelling Voice for Education and Action," was led by Emerald Archer, Director of Mount Saint Mary's University Center for the Advancement of Women. She discussed her mission to address persistent gender inequalities by gathering data across university departments and conducting original research.

For a full list of METRANS seminars and available recordings, click here: https://www.metrans.org/seminars

#### **METRANS OUTREACH**

## CITT Wins UPCEA 2019 National Engagement Award



CITT Executive Director Tom O'Brien accepts the UPCEA 2019 National Engagement Award.

After receiving the regional award with the same name in 2018, the Center for International Trade and Transportation (CITT) at Long Beach State University (LBSU) has been awarded the 2019 National Engagement Award by the University Professional and Continuing Education Association (UPCEA) for its role in developing The Port of Long Beach Academy of Global Logistics (AGL) at Cabrillo High School.

"What's exciting about AGL receiving national recognition is the

potential for similar models to be implemented throughout the country," said CITT Executive Director Tom O'Brien. "This effective partnership demonstrates how public educational institutions, the community, and industry can and should work together to prepare students for logistics careers."

Through the combined efforts of CITT, the Port of Long Beach, and Long Beach Unified School District, AGL offers students an industry-vetted curriculum that provides work-based learning for high school students. "AGL provides a continuous pipeline to the logistics workforce development pathways at Long Beach City College and Long Beach

State," said Angeli Logan, Director of Trade and Transportation Programs at CITT. "The pathway progresses through to the graduate school level, allowing students to progress to a Master's degree in Supply Chain Management at LBSU."

The UPCEA Engagement Award is presented to an outstanding partnership between a member institution and one or more external constituents, such as local communities, corporations, government organizations, or associations, that results in a mutually beneficial exchange of knowledge and resources. CITT's partnership reflects a measurable and sustainable shared impact in community development, workforce training, and capacity building.

The National UPCEA Engagement Award was presented at the 2019 UPCEA Annual Conference in March in Seattle, Washington.

UPCEA is the leading association for professional, continuing, and online education. Founded in 1915, UPCEA now serves most of the leading public and private colleges and universities in North America. For 100 years, the association has served its members with innovative conferences and specialty seminars, research and benchmarking information, professional networking opportunities, and timely publications.

To read more about the 2019 National UPCEA Conference, go to: http://conferences.upcea.edu/annual2019/index.html

#### **METRANS OUTREACH**

# METRANS Associate Director Thomas O'Brien Interviews Industry Experts in Latest Episodes of *Trade Talks*

The latest episodes of the Center for International Trade and Transportation's (CITT) *Trade Talks* are now available for viewing. METRANS Associate Director and CITT Executive Director Tom O'Brien recently interviewed the Port of Long Beach's Executive Director Mario Cordero and the Los Angeles Economic Development Corporation's Executive Vice President and the President of the World Trade Center Los Angeles Stephen Cheung.

O'Brien and Cordero discuss the technological shifts in the industry and the zero-emission goals that the Port is working toward. "My interview with Mario shows audiences a glimpse of the Port's future. The Port of Los Angeles and the Port of Long Beach are paving the way for the use of green infrastructure and technology, and it is our job to anticipate those shifts and offer research and resources in a time of major transition," said O'Brien.

With Cheung, O'Brien asks questions related to the global landscape of trade and transportation as well as the impact of new federal trade policy on the Ports of Los Angeles and Long Beach. "Our interview provides the viewer with a real apt and efficient analysis of trade policy and how the greater region of Los Angeles plays an important role as a gatekeeper of international trade."

*Trade Talks* is a quarterly video series hosted by METRANS Associate Director and CITT Executive Director Thomas O'Brien.

#### To watch Trade Talks, click here: http://bit.ly/2DUEjge



METRANS Associate Director Tom O'Brien hosts Stephen Chung, President of the World Trade Center Los Angeles, on Trade Talks.



#### **METROFREIGHT UPDATE**

## MetroFreight Hosts Three-Day Course on Urban Freight

In conjunction with the South Bay Cities Council of Governments (SBCCOG) and the Volvo Research and Education Foundations (VREF), MetroFreight recently hosted a free, three-day course on urban freight called,

"The Battle for the Curb: Managing Local Goods Movement in the Age of E-Commerce." Attendees included public sector planners and private sector transportation planning consultants and featured a case study involving the recently vacated Toyota headquarters in Torrance, California. The course was held on three consecutive Thursdays, January 24, January 31, and February 7, 2019, in order to accommodate the schedules of busy working professionals.

The curriculum was created to help participants develop an understanding of urban freight logistics and related topics typically overlooked in traditional planning curricula. The course included a walk audit at the former Toyota headquarters to provide a spatial understanding of the study area. During the walk audit, participants worked together to collect data. Data collected was then used to complete a presentation on the impacts of potential development at the site.

"It was exciting to see course participants use the GIS-enabled walk audit tool at a real-world urban site to collect data that could hypothetically inform future development," said Ben Olson, Research and GIS Coordinator at the Center for International Trade and Transportation (CITT), who helped facilitate the course.

In addition to testing this GIS-enabled walk audit and site assessment tool, participants had the opportunity to network with practitioners who have a shared interest in last-mile transportation planning and learn from goods movement experts and local planners. Speakers included Fran Fulton, Economic Development Manager for the City of Torrance; Sue Dexter, a former Toyota employee and Urban Planning and Development Ph.D. student at the USC Sol Price School of Public Policy; and Thomas O'Brien, the Associate Director of Long Beach Programs for METRANS.

"We hope this class serves as a model for how universities can engage with our local agency partners in preparing staff to address the challenges of moving freight in the 21st century," O'Brien said.

The aim of this course was to enable participants to better collaborate with planning entities and other partners in order to incorporate the needs of the freight industry into those of the urban transportation system as a whole.



Course graduates (from left to right) Juanita Martinez, NCE; Maria Slaughter, City of Carson; and Sylvia Avendano, Morgner Co. receive their certificates of completion.



METRANS Associate Director Tom O'Brien and CITT Research and GIS Coordinator Ben Olson present to "Battle for the Curb" participants.

#### **METRANS EDUCATION**

# **PSR and NCST Student Awards** 2018-2019

METRANS would like to acknowledge the hard work and dedication of its transportation students. Please see the METRANS website for a complete list of PSR and NCST student award and fellowship recipients of the 2018-19 academic year. Congratulations to all on their various achievements!

Find the full table of awards here: http://bit.ly/2WR0oSX



2019 Transportation Research Board Minority Student Fellows Cohort.



#### **PSR RESEARCH**

## **PSR RESEARCH NEWS UPDATE**

#### **PSR RESEARCH**

## NAU Professor Edward Smaglik Presents on Bicycle-Vehicle Conflicts



**Edward Smaglik** 

Northern Arizona University Professor and PSR researcher Edward Smaglik presented on alternate signal control strategies to address bicycle-vehicle conflicts as a part of the PSR Speaker Series. Smaglik's project looks at the renewed interest in non-motorized mobility in cities and offers ways to improve and ensure both bicycle and vehicle safety through signal timing treatments at intersections.

One of PSR's research focuses aims to address transportation problems as metropolitan areas experience rapid

population and employment growth. As cities get denser and traffic congestion increases, people are relying more and more on non-motorized transit for their daily commutes. Smaglik's project is one

example of many research projects that are now concerned with the necessary infrastructure and traffic flow improvements that can be made to better facilitate both motorized and non-motorized modes on the road.

"There is a lack of empirical-based guidance for practitioners looking to implement traffic signal timing based countermeasures for the bicyclemotor vehicle right/left hook conflict, which precludes their use, as the lack of numerical guidance makes it challenging for managers to make the choice to install," said Smaglik. "This project was proposed to fill that gap. It didn't complete that mission, but it was an important step forward."

Smaglik has submitted a proposal to the Oregon DOT for funding to build upon his PSR research to incorporate numerical guidance into his project.

To view Smaglik's full presentation, click here: https://www.youtube.com/watch?v=KBJNQWe0Elk&feature=youtu.be

#### **PSR RESEARCH**

## Looking Ahead: PSR Reseach Projects

Moving into its fourth year, the Pacific Southwest Region 9 University Transportation Center (PSR-UTC) is funding a wide range of research initiatives. Researchers from all eight member universities – the University of Southern California (USC); the University of California, Irvine (UCI); the University of California, Riverside (UCR); Long Beach State University (LBSU); the University of Hawaii (UH); the University of California, Los Angeles (UCLA); Northern Arizona University (NAU); and Pima Community College – will continue active projects and begin many new ones. Below are a few highlights of current PSR researchers.

#### For more information, including a list of all PSR research projects, please visit the METRANS website: http://bit.ly/2IrL8bb.



James Miles
Assistant Professor, Department
of Psychology, LBSU; PSR Project:
Evaluation of Autonomous Vehicles
and Smart Technologies for Their
Impact on Traffic Safety and Traffic
Congestion



Maged Dessouky
Professor, Daniel J. Epstein
Department of Industrial and
Systems Engineering, USC Viterbi
School of Engineering; PSR Project:
Cost-Sharing Mechanisms for
Ridesharing



Alan Jenn
Assistant Professional Researcher,
Institute of Transportation Studies,
UCD; PSR Project: Charging
Infrastructure Development for
Transportation Network Company
Electrification



Oceana Francis
Associate Professor, Department
of Civil and Environmental
Engineering, UH; PSR Project:
Stormwater Management for
Transportation Planners and
Engineers

#### **PSR RESEARCH**

## **Emerging Scholars Symposium** Convenes PSR Reseachers and Current Students

Students and faculty members of the PSR-UTC convened at USC to share their research at the Emerging Scholars Symposium, held on March 29, 2019, at the USC campus. The one-day event afforded a unique opportunity for current students and faculty members to engage in a thoughtful dialogue about pursuing long-term careers in academia while presenting their current research projects.

"We were thrilled to showcase the research of 12 young transportation scholars from PSR partners USC, University of California, Irvine, University of California, Los Angeles, and University of California, Davis to an audience of nearly 100 faculty, practitioners, students, and various members of the community," said METRANS Associate Director of Education and Professional Development Victoria Deguzman. "Presenters came from departments across their respective campuses, including Civil and Environmental Engineering, Industrial and Systems Engineering, Electrical Engineering and Computer Science, Urban Planning, Spatial Analysis, Human Ecology, Economics, and Preventative Medicine, illustrating the broad demand for transportation research."

Keynote speakers Evelyn Blumenberg, Professor of Urban Planning at the University of California, Los Angeles, and Martin Wachs, Distinguished

Professor Emeritus of Urban Planning at the University of California, Los Angeles, addressed the lessons that they have learned throughout their academic careers.

"It is a unique opportunity for students and faculty members to have an event where academics can discuss some of the practical realities of the job while sharing their research contributions," said METRANS Executive Director Genevieve Giuliano. "I hope it was helpful for our students to receive such insight."

The day was split into two sessions of panel presentations from current students and faculty. With a wide range of topics from homeless bicyclists in California to urban mobility in Vietnam, participants were exposed to topics outside of their specializations and had a chance to share their own expertise.

"I appreciated the variety of presentation topics, some that I would never have imagined," said Anthony Lopez, PhD Candidate in Computer Engineering at the University of California, Irvine. "What stood out to me from the keynote addresses was the need to understand the needs of practice and to address them with our research."

#### **PSR RESEARCH**

## PSR Researchers Provide Final Thoughts on Completed Projects



**Antonio Bento** 

**Konstadinos Goulias** 

In these past two years of Pacific Southwest Region 9 University Transportation Center (PSR-UTC) research, faculty members and students have ongoing or completed projects in line with the Center's four multidisciplinary research themes: technology for improved mobility; improving mobility for disadvantaged populations; improving resilience and protecting the environment; and managing mobility in high growth cities and regions.

This issue features three completed projects from Pls: Konstadinos Goulias, Professor of Transportation, University of California, Santa Barbara (UCSB); Antonio Bento, Professor of Economics, University of Southern California (USC); and Fraser Shilling, Research Scientist and Co-Director of the Road Ecology Center,

University of California, Davis (UC Davis).

Goulias' project, "Vertical Equity Statewide Pilot, Data Inventory, and Guidelines for Performance Based Planning," set out to develop a method for vertical equity analysis, which would allow planners to see how disadvantageous groups of different incomes and other sociodemographic characteristics experience the land use-transportation system.

"In this project, we experiment with a method that creates three different types of spatial anchors/commercial centers based on business establishment types," said Goulias. "We can use the findings to develop new travel demand forecasting methods and study how people schedule their daily activities."

Bento's project, "The Cost-Effectiveness of Alternative Policies for Reducing GHG Emissions in the Freight Sector," conducts a multi-market analysis of the effect of adopting cleaner technologies like ZEV's in the freight sector. The model developed simulates adjustments, such as financial costs and charging/re-charging time costs, that freight sector players undergo in response to GHG emission reduction policies.

"The key factor that we noted in the simulations is the importance of recharging time, the magnitude of which can turn around the results completely," said Bento. "Higher recharging time can result in a huge reduction in emissions but also higher prices of commodities, which harms the final consumer. With lower recharging time, emissions reduction is lower, but the prices of goods also decrease leading to better consumer satisfaction and more economic activity."

To read the full article, go to: http://bit.ly/31I4f8z
To read more about PSR research projects, go to: https://metrans.org/research-projects/psr-utc-research

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To learn more about MAP and its benefits, see www.metrans.org/metrans-associates-program



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