



Semi-Annual Progress Report #13

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1. Accomplishments

Major goals of the program

The Pacific Southwest Region UTC (PSR) addresses the transportation issues of Region 9 through an integrated, multidisciplinary program of research, education, and technology transfer aimed at FAST Act research priority area 1: improving the mobility of people and goods throughout the region. The goal of PSR is to improve passenger and freight transportation throughout Region 9.

Our consortium of universities and community colleges, together with partnerships with state Departments of Transportation (DOTs), Metropolitan Planning Organizations (MPOs), and industry leaders, forms a comprehensive, region-wide network. The University of Southern California (USC) leads the consortium. Partners include California State University Long Beach (CSULB); University of California, Davis (UCD); University of California, Irvine (UCI); University of California, Los Angeles (UCLA); University of Hawai'i at Manoa (UH); Northern Arizona University (NAU); and Pima Community College (PCC). USC and CSULB are both partners in the METTRANS Transportation Center, the entity that houses the PSR UTC.

Accomplishments under these goals

Our accomplishments are categorized under research, education, and outreach.

Administrative accomplishments

During the reporting period, **Marlon Boarnet (USC)** met with the **METRANS executive committee** to update them on recent activities and to discuss upcoming events such as the International Association of Maritime Economists (IAME) conference, hosted by METTRANS, which took place in Long Beach, CA, Sept. 5-8, 2023. METTRANS convened the PSR executive committee on June 14, 2023, and September 12, 2023. The METTRANS Advisory Board gathered on April 21, 2023.

Pima City College (PCC) hired a full time Commercial Driver's License coordinator in July 2023. A full-time program coordinator was also hired September 2023 to help support the activities of the UTC.

A. Research Accomplishments

The goal of our Center is to address regional issues and provide public policy advisement, technical assistance to state and local agencies, and innovative workforce development strategies. Our multi-modal, multi-disciplinary research program is organized around four themes that are covered in our previous SAPR.

Our research program has three parts: 1) research conducted by PSR faculty; 2) research conducted by researchers inside or outside PSR but within Region 9; and 3) a graduate research fellowship program. We have reserved a small pool fund for a Region 9-wide solicitation with the purpose to promote broader participation across the states and territories.

The total research project and white paper count for PSR is 158. We have funded 6 regional pool fund projects at UC Santa Barbara and 4 at UC Riverside, the remainder of the projects are based at PSR-member institutions. PSR partners have now completed a total of 110 research projects and white papers.

Table 1: Projects Completed during current reporting period.

Note on Funding Sources: DOT= DOT funded

Partner	Project No.	PI	Title	Funding Source
UCSB	PSR-22-06	Konstadinos Goulias	Commercial Fleet Demand for Electric Vehicles in California: Current Fleet, Purchase Intentions, and Optimal Structure of Incentives	DOT
NAU	PSR-22-09	Edward Smaglik	Prioritizing Bicyclist Safety and Mobility: Which Guidance Do I Use?	DOT
UCR	PSR-22-17	Peng Hao	Evaluating the Impacts of Clean Miles Standard on Transportation System	DOT
UCD	PSR-22-48	Miguel Jaller	Development of Sketch-Planning Tool for Sustainable and Resilient Urban Goods Movements	DOT
UCD	PSR-22-49	Fraser Shilling	Predicting Wildlife Use of Existing Highway Bridges and Culverts	DOT

PSR research accomplishments:

- **CSULB** completed the California State University Transportation Consortium (CSUTC: CA SB-1) Addressing Transportation Construction Workforce Needs Through Innovative Policies and Practices Assessment (Match Project)
- During the reporting period, one **ITS-Davis** Friday Seminar was supported by PSR. Recording of the seminar is available via the below link.
 - “Advancing a Seamless Transit System in the Bay Area and California” with Ian Griffiths, Policy Director at Seamless Bay Area.
<https://its.ucdavis.edu/seminar/april-28-2023/>



Ian Griffiths presenting at the April 28, 2023, ITS-Davis Friday Seminar

Match funding

PSR has the following match funding priority rankings: new funding, match from other existing research projects, and in-kind match. It is important to note that we have met and exceeded our match. The University of California partners continue to have access to state funding through SB1, which increased the California fuel tax by 12 cents per gallon. A portion of SB1 funding is allocated to the UC Institute of Transportation Studies (ITS). UCD, UCLA, and UCI are part of ITS and receive SB1 funds. Some of these funds are used for PSR match. ITS is funded in-part by the state of California, as well as by Caltrans research contracts. There are several statewide research collaborations taking place through ITS. ITS has provided match funding support to initiate the Year 3 Faculty Research Projects and administer the PSR Publication at UCLA. The California partners continue to award funding via Caltrans, who has committed to a 50% match for PSR. USC has obtained additional research funding from foundations, local industry, and agencies for specific projects. NAU continues to receive in-kind match funding from the Arizona Board of Regents Research Innovation Fund for research aimed at

increasing freight safety and mobility along the I-10 corridor. UH requires each research project to provide its own match; the match is mainly in-kind. [Table 2](#) shows match funding sources and amounts.

Table 2: Match funding sources for PSR

Fund source	Amount
USDOT total for PSR	\$15,584,200.00
Caltrans match funding for PSR	\$4,912,339.00
Other match funding for PSR	\$14,370,796.00
Total match funding, all sources for PSR	\$19,283,135.00

Student opportunities for research

Student support is an important component of research project selection. Highlights of how PSR has supported students:

UCI sponsored five undergraduate students in summer 2023 for the Transportation Undergraduate Research Assistants Program (TURAP). These students participate in an 8 week research project supported by ITS-Irvine faculty. The five projects this year were: 1) Development of smartphone applications for navigation and traffic data collection, 2) monitoring Out-of-State Trucks Entering California at Major Gateways, 3) Equitable Design of shared E-scooter and E-bike systems, 4) Design and Analysis of Microtransit Services in California and 5) young adults’ use of community resilience centers during disruption and non-disruption conditions in California.

Additional accomplishments

i. **Research dissemination**

Dissemination of our research results takes place via research reports and research briefs, scholarly publications, popular publications, conference presentations, and media. Numerous PSR researchers present at conferences and seminars throughout the region, nationally, and internationally. Projects that are funded by Caltrans require the PI to present findings to a panel of practitioners, and particularly to Caltrans personnel.

Dissemination highlights

Completed final reports and research briefs are available on the PSR research website at <https://www.metrans.org/metrans-research>.

NAU presented work funded through this consortium at the following venues:

- ITS Arizona Annual Conference, September 2023
- ITE/IMSAs, April 2023
- ITE Mountain District Meeting, June, 2023
- Western Bridge Engineers’ Seminar, September 2023
- ASCE-ASHE AZ State Conference, September 2023



NAU graduate students Vaishnavi Kandgule presenting at the Western Bridge Engineers' Seminar in September

UCI hosted their regular seminar series, highlighting PSR work and PSR-related work by external researchers:

- “Human Factors Modeling and Traffic Management Design” presented by Irene Martinez, Assistant Professor and Co-director of the hEAT lab, Department of Transportation & Planning Civil Engineering and Geosciences Faculty TU Delft on April 14, 2023
- “Dynamic On-Demand Crowdshipping Using Heuristics-Embedded and Constrained Deep Reinforcement Learning” presented by Bo Zou, Department of Civil, Materials, and Environmental Engineering, University of Illinois Chicago on May 19, 2023.
- “Application of Distributed Models in Transportation Systems” presented by Associate professor, Mahdiah Allahviranloo, City College of New York (CCNY-CUNY), Visiting Academic Amazon Last Mile Science on May 26, 2023
- “Multi-Agent Framework for Control of Complex Transportation Systems” presented by Professor Monty Abbas, Virginia Tech, Transportation Infrastructure and Systems Engineering on June 2, 2023.

Dr. Sarah Grajdura from **UCD** presented on her PSR-funded research at the July 19, 2023, TRB Webinar, “Community-Based and Equitable Transportation Response in Disaster.” Her presentation, titled “Incorporating vulnerability and equity: Wildfire evacuation perspective,” highlighted findings from her dissertation on “Mixed Methods Approaches to Wildfire Evacuation: Modeling Behavior, Simulation, and Equity.” https://www.nationalacademies.org/event/769_07-2023_trb-webinar-community-based-and-equitable-transportation-response-in-disaster.

Additionally, at the 2023 International Conference on Ecology and Transportation—which took place June 5-8 in Burlington, Vermont—Dr. Fraser Shilling and his team gave two presentations related to their PSR-funded research: “Spatially Explicit Decision Support to Resolve Wildlife-Vehicle Conflict,” and “Economic Decision Support for Wildlife-Vehicle Conflict Reduction”.

The Integrated Basic Education and Skills Training (IBEST) collaboration with **PCC’s** internal Adult Basic Education and Career Counseling department to give extra support to English language learners received news coverage. The news story can be found here: <https://www.kgun9.com/news/local-news/breaking-language-barriers-pcc-to-teach-truck-driving-english-in-same-class>. The IBEST model has also been selected as a session at the National Council for Workforce Education annual conference held in Baltimore, MD on October 4, 2023.

PCC participated in the National CTE Letter of Intent Signing Day where students commit to their CTE training. We also provided a semi-truck for static display. PCC continues to utilize its social media accounts to disseminate student success stories (by permission) and other pertinent industry information.

USC METRANS PSR funded faculty members Boarnet, Dessouky, Giuliano, and Ioannou gave invited presentations at the IEEE workshop on Smart Cities and Transportation, June 30 – July 1 in Cyprus.

(Travel was not funded by DOT to align with DOT funding restrictions.) Their work will be part of an edited book on international perspectives on Smart Cities, to be published in 2024.

USC METRANS hosted two PSR funded METRANS Research Seminars during the reporting period. Recordings of the seminars are available [here](#).

- “Ride-hailing applications in Southeast Asia: completed and on-going research at CUTI” Dr. Saksith Chalermpong, Associate Professor in Civil Engineering at Chulalongkorn University
- “Microscopic Traffic Flow Control” Dr. Ketan Savla, Associate Professor in Civil Engineering at the University of Southern California

Media coverage

The project “Understanding and Responding to Homelessness in State Transportation Settings” by **Anastasia Loukaitou-Sideris (UCLA)** completed with four publications and 1 media output:

Media: <https://usa.streetsblog.org/2023/02/23/three-ways-dots-can-help-the-unhoused-on-and-off-the-road>.

Steven Gehrke (NAU) was interviewed by Mark Brodie on KJZZ 91.5’s “The Show” to discuss findings from a past UTC-funded project (PSR 21-16) exploring the impacts of sidewalk autonomous delivery robots on pedestrians and cyclists at NAU ([link](#)).

Geoff Boeing (USC) appeared on the media several times for his project, “Race, Class, and the Production of and Exposure to Vehicular Pollution in Los Angeles”.

- Afro LA. “Unequal Air: The Pollution Legacy of Segregation and the Freeway Boom in Los Angeles.” June 19, 2023.
- Spectrum News (TV). “Inside the Issues with Alex Cohen.” May 1, 2023.
- Streets MN. “New Research Highlights the Problems of Urban Freeways.” April 27, 2023.
- Los Angeles Times. “How White and Affluent Drivers Are Polluting the Air Breathed by L.A.’s People of Color.” March 9, 2023.
- Los Angeles Times. “L.A. Residents Who Drive Less Are Exposed to More Air Pollution, Study Finds.” March 7, 2023.

John Gunnar Carlsson’s (USC) project, “The “sidekick” routing paradigm for VMT reduction and improved accessibility” was one of three recipients of a University Research Fellowship with Toyota Material Handling of North America, as announced here:

<https://www.youtube.com/watch?v=VdtVI89e3rk&t=1s>

ii. Plans for next reporting period

The next reporting period is October 1, 2023 through March 30, 2024. **We anticipate completing all remaining 20 projects during the next reporting period throughout the consortium.** A few projects have been delayed due to COVID and our Caltrans match funded projects had delayed starts while Caltrans extended their master contract with PSR. Because we have met and exceeded our match requirement for the FAST Act PSR UTC, the most recent delayed-start Caltrans projects (which began after June 1, 2023) will match the BIL PSR UTC and are reported in the SAPR for the BIL PSR. We have

requested and received a no-cost extension to Sept. 30, 2024. We will use that time to complete the PSR FAST Act center research agenda.

NAU will use the remaining grant funds to partially fund a graduate research fellow, an undergraduate research intern, and student and faculty travel for dissemination, outreach, and workforce development. They expect to provide support for travel to the Transportation Research Board Annual Meeting in January 2024. As part of their outreach efforts, NAU also plans to complete several in-school K-12 presentations on transportation engineering during late fall 2023 and spring 2024 as part of the Flagstaff Festival of Science In-School Speaker Series.

UCI researchers Roy and Saphores will continue working on their PSR match projects, which were funded during this reporting period. They will continue to host regular seminars, as well as their fall event: The Undergraduate Transportation Research Showcase, highlighting the results of student work on the Transportation Undergraduate Research Assistants Program (TURAP).

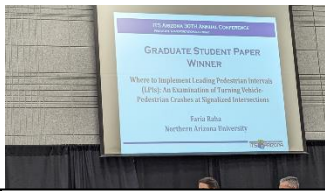
UCD expects to finalize and publish 3 research reports and 3 research briefs during the next reporting period. PSR dissertation grant recipient Ran Sun completed his PhD degree in Summer 2023, and his dissertation is expected to be available in the next reporting period. Additionally, their researchers will present on their PSR-funded research at the 103rd Transportation Research Board (TRB) Annual Meeting in January 2024.

UCLA will continue working on Faculty Research Projects funded under the RFP program.

- Host the UCLA Lake Arrowhead Symposium which will return to Lake Arrowhead, CA on October 15-17, 2023. The theme will be “Transforming Transportation” which will discuss the need to do big things relatively quickly and the government’s ability to do so including infrastructure, costs, and timelines.
- Begin research on “Student Transit Programs and Other Modes-to-School in California” by PI Evelyn Blumenberg which aims to determine if transit is a solution for California’s public school students’ access to education.

B. Educational Accomplishments

For this period, **NAU** continued supporting undergraduate and graduate transportation students through paid internships, fellowships, as well as engage in outreach activities. They funded 4 students and two faculty to attend the annual ITE / IMSA conference in Phoenix, AZ., 2 faculty and 43 students to attend the 2023 ITS Arizona Conference (note that funding for this



Faria Raha receiving her Best Paper Award

trip was split between the FAST and BIL grants), and 2 faculty and 3 students to attend the ITE Mountain



NAU students and faculty at the 2023 ITS Arizona Conference

District Meeting in St. George, UT. Of note is that Faria Raha, a Spring 2023 fellow funded by this grant, won the ITS Arizona Best Paper award, beating

out submissions from Arizona State University and the University of Arizona for the honor. Her paper entitled “Where to Implement Leading Pedestrian Intervals (LPIs): An Examination of Turning Vehicle-Pedestrian Crashes at Signalized Intersections” was also submitted and accepted for presentation at the 2024 Annual Meeting of the Transportation Research Board. As a research group, they wrapped up one project funded by the UTC, led by Dr. Smaglik, with another led by Dr. Gehrke slated to wrap up this fall.

Student Awards:

Anne Yoon, an **UCLA** ITS graduate student, received the ITS Capstone Grand Prize for her project, “Bus Shelter Equity: A Study of the Distribution of Bus Shelters in Los Angeles County and Unincorporated Communities.”



Jin Zhang, another **UCLA** ITS graduate student, received 2nd place for the 2023 Capstone Prizes for his project, “Safe Routes to School in St. Louis & Beyond”. **Elena Savignano**, an ITS graduate student, received 3rd place for the 2023 Capstone Prizes for her project, “Change for the Meter: Exploring the Equity Implications of Market-Priced Parking”.

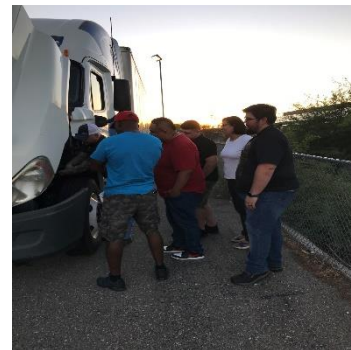


Pearl Liu and Greer Cowan, both **UCLA** ITS graduate students, received the Transportation Equity & Justice Prize, for their project, “Rethinking Transit Safety: Understanding and Addressing Gender-Based Harassment and Enhancing Safety on San Francisco’s Muni System”.



Student Programs

PCC hosted the first Integrated Basic Education and Skills Training (IBEST) cohort, in collaboration with PCC’s internal Adult Basic Education and Career Counseling department to give extra support to English language learners, beginning on August 21, 2023. The cohort has 3 students; they continue to progress well through the program as of this writing. Below is a photo of the first day of the cohort and includes the Commercial Drivers License (CDL) instructor, the Adult Basic Education for College & Career instructor, students and a second CDL instructor for program sustainability into the future.



IBEST cohort at Pima City College, August 21, 2023

- i. **Workforce development**

UCLA’s Student Fellowship Program:

The UCLA student fellowship program supports students pursuing applied research with faculty supervision. The students gained invaluable experience in transportation through working with clients and faculty researchers. As such, the program has contributed to the development of highly-skilled professionals into the workforce to shape our complex transportation needs in the U.S.

UCLA’s Arrowhead Symposium:

This event provides an intimate learning experience for policymakers, community leaders, and researchers about the pressing issues in transportation. This event equips participants with current policies and practices to allow them to make informed decisions and programs that address the needs of the Region 9 population. The 2023 theme is on Transforming Transportation: How government and society can overcome obstacles to accelerate the transformation to a safe, equitable, and carbon-neutral transportation system. Three USDOT employees from Region 9 offices of FHWA and FTA will be in attendance.

UCD provides support, via PSR, to the WTS UC Davis Student Chapter, the fourteenth WTS student chapter founded nationwide, to help women network and advance their professional careers.

USC provides support, through match funding, to the student Institute of Transportation Engineers (ITE) club, for student travel to ITE events and for programming. During this reporting period, the student ITE group hosted a presentation by Kome Ajise, the Executive Director of the Southern California Association of Governments.

NAU continues to support undergraduate and graduate research interns, as well as student fellowships. They hosted an in-person seminar associated with their NAU ITE student chapter on April 26, 2023 presented by Estrella Hollander, Mobility Planner for Mountain Line – Northern Arizona’s transit agency, who gave a talk on current and future transit operations in the Flagstaff region.



Estrella Hollander, guest speaker

NAU continued to make available a recorded a presentation on transportation engineering for use in the Flagstaff STEM City Nights series and the Career Exploration Series. Finally, AZTrans faculty have volunteered to provide in-school presentations to local K-12 students every academic year – they will continue this and we will look to present at local STEM festivals and other community events as these opportunities arise.

PCC increased public awareness of autonomous trucking and formed an advisory committee of industry stakeholders (autonomous trucking companies, DOT offices, national trade association) to further evolve the Autonomous Vehicle Driver and Operations Specialist certificate program to meet industry needs. Additionally, PPD:

- Began a language learner contextualized learning model for CDL applicants, decreasing language barriers to transportation-related jobs.
- Continued access and outreach to tribal nations. One of the graduates this reporting period obtained his passenger endorsement to provide transportation for Pascua Yaqui tribal members.



Ernesto obtained his passenger endorsement to provide transportation for Pascua Yaqui tribal members.

ii. Education and Workforce Development goals for next reporting period

During the next reporting period, PSR partners will continue to administer degree and non-degree training programs to a broad array of students. We will continue the PSR seminar series at USC, UCD, UCI, and UCLA. Seminars will continue to be offered in a hybrid format.

C. Outreach Accomplishments

PSR conducts many outreach efforts that have been described in past SAPRs. Ongoing outreach activities include: **CSULB CITT Center Updates**, bimonthly e-blasts to industry/academia consisting of brief articles covering relevant Center activities with a focus on the freight sector and workforce development; **Logistics Peer Exchange** (CSULB), a peer exchange on best practices in regional freight planning and coordination; **METRANS on the Move** (USC), this is a weekly e-newsletter written and produced by USC students with staff guidance; **Mobility Matters** (CSULB), a CITT podcast series dedicated to addressing mission-critical issues facing the professionals who design, develop, operate, and maintain mobility systems.

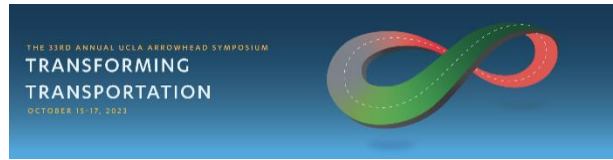
METRANS News: During this past reporting period, USC METRANS and CSULB continued our newsletters, with newsletters in July and August, 2023. The newsletters summarize a completed research project in lay terms for workforce and professional audiences. The newsletters also cover events and more. METRANS News also summarizes outreach activities and includes coverage of NCST- and PSR-funded projects and activities. It is distributed to 2219 scholars, students, staff at Caltrans, USDOT, UTCs and faculty throughout the U.S., to federal, state, and local public and private agencies, and to industry. The average open rate for all the newsletters for this reporting period was 66.55%, which is higher than Constant Contact's overall average of 35%. The range for a good open rate is 15-25%, and the newsletter's open rate slightly exceeds this range. The monthly newsletters are archived [here](#).

The focus of information dissemination for both **METRANS and CITT emphasizes LinkedIn** over other forms of social media. With the launch of the CA LTAP Center at CITT, efforts took place to launch a LTAP social media presence. CA LTAP has established a regular email newsletter and social media posting schedule and launched a LTAP website in the fall of 2022.

Transfers Magazine:

Transfers Magazine published its 11th issue in August 2023, consisting of four articles from UCLA, USC and UC Irvine scholars. The website www.transfersmagazine.org, which also features regularly updated blogs with transportation-related news, research and events, had more than 25,000 page views during this six-month period, which increased from the previous six-month period. Most of our web traffic peaks in the two- to four-week period immediately after publishing an issue. The Transfers team has worked to create a social media content calendar to maintain promotion of the issues throughout the full period between issues, and has developed short videos as another means of expanding the magazine's audience. We have begun recruiting for the next issue, which is currently set for a target date of May/June 2024. The goal of the magazine is to translate the research of faculty, staff, and students at the PSR campuses into highly accessible content for an audience of elected officials, transportation planners, members of the media, and the general public.

UCLA Lake Arrowhead Transportation - Land Use - Environment Symposium: UCLA began planning the annual UCLA Lake Arrowhead Symposium on the Transportation - Environment - Land Use Connection which will place October 15-17, 2023. The theme was titled “Transforming Transportation” which covered solutions for professionals, elected officials, and advocates working on transportation and regional economic issues. Over the 2.5 days, participants will explore how governments can overcome obstacles to deliver a transformed transportation system. Participants will explore piloting projects, visions for equitable transportation, and governance approaches to building transformative transportation. The conference will reconvene at its eponymous home at the UCLA Lake Arrowhead Lodge and Conference Center in Lake Arrowhead, California and will be attended by 170 guests. More information can be found on the symposium website at www.uclaarrowheadsymposium.org



FED Talks

Since October 2020, UCLA has continued to assemble professors and graduate students to discuss and present new research and best practices around public transit, transportation finance, innovative mobility, infrastructure, housing, and much more. The lunchtime talks were attended by students, faculty, staff, and partners of the institute and PSR research over the reporting period. The impact of these talks have been a stronger community of researchers (faculty, staff, and PhD Students) to share ideas and research that could strengthen PSR research in the future.

Featured Talks:

- “Political Preferences and the Spatial Distribution of Infrastructure: Evidence from California's High-Speed Rail” Pablo Fajgelbaum presented his work on how political preferences shape the design of transportation policy in the context of California’s High-Speed Rail. He found that voters respond to expected real-income benefits, but party affiliation and other proxies of political preferences are stronger drivers of the aggregate vote and the spatial distribution of expected welfare effects.
- “Pandemic Mobility in Paris” - Visiting Scholar Celine Vacchiani-Marcuzzo from University of Reims Champagne-Ardenne discusses her work in mobilities in Paris during the pandemic: The myth of the urban exodus in Paris. What daily mobilities in times of pandemic?
- “Traffic Data -INRIX and Streetlight Roundtable” - Facilitated by Madeline Brozen, Lewis Center Deputy Director, the overall intent for this FED talk was for researchers to dig into options for obtaining high quality traffic data for research projects and analysis and learn from each other's experiences.

InterActions LA: From Housing Crossroads to Transportation Connections

UCLA hosted the annual InterActions LA Conference alongside the UCLA Lewis Center for Regional Policy Studies. The goal of the event is to dive deep into how housing advances must be coupled with

transportation approaches that do not continue to favor car-based mobility. The event is intended to continue conversations from the fall UCLA Lake Arrowhead Symposium “California’s Housing Crossroads” and dive into updates in legislative policy and research since the fall. Back in person at The California Endowment, InterActions will take place on April 28, 2023 and will include approximately 120 guests including those from academia, nonprofits, public agencies, and government.



Michael Manville (UCLA), a professor of urban planning and editor of PSR’s *Transfers Magazine*, has been appointed department chair of the UCLA Urban Planning Department. Both his research and teaching focus on the relationships between transportation and land use, and on local public finance. Much of his research concerns the tendency of local governments to hide the costs of driving in the property market, through land use restrictions intended to fight traffic congestion. These land use laws only sometimes reduce congestion and can profoundly influence the supply and price of housing.

i. Outreach plans for the next reporting period

METRANS will hold its next **Advisory Board meeting** on November 1, 2023. The *Transfers Magazine* was released in January and August 2023, <https://transfersmagazine.org/>.

2. Participants & Collaborating Organizations

Participants contribute to the work of the PSR through financial or other support, or directly in research, education, or technology transfer. Collaborating organizations participate in Center activities, provide advisement, or support the center.

A. Financial support

Over the course of the grant, these are among the entities who provided match funding for PSR research projects:

- Bosch LCC
- California Community Foundation
- California Department of Transportation (Caltrans)
- California Strategic Growth Council
- Chan Zuckerberg Initiative
- Los Angeles County Metropolitan Transportation Authority (LA Metro)
- Los Angeles World Airports (LAWA)
- Port of Long Beach (POLB)
- South Coast Air Quality Management District (SCAQMD)
- Southern California Association of Governments (SCAG)
- State of California
- Volvo Research and Education Foundation (VREF)

B. Other support

The following organizations provide indirect or in-kind support to PSR:

- **California:** AECOM (Los Angeles); Alliance for Community Transit; Amtrak Capitol Corridor; California Energy Commission (CEC); California Transit Association; Caltrans Office of Earthquake Engineering, Analysis and Research; City of Anaheim; City of Anaheim; City of Davis; City of Santa Clara; Cool Davis; Council of Supply Chain Management Professionals (CSMCP); Fehr & Peers; Foothill Transit; Gateway City Council of Governments; Governor's Office of Business and Economic Development (GO-Biz); HDR; International Longshoremen and Warehousemen's Union (ILWU) Local 13; Investing in Place (Los Angeles); Kiwi Inc.; Long Beach Transit; Long Beach Unified School District; Los Angeles Department of City Planning; Majestic Realty; MetroLink; Nixon Peabody; Orange County Transportation Authority (OCTA); Port of Los Angeles; San Francisco Metropolitan Transportation Commission; San Francisco Municipal Transportation Agency; Santa Clara County Assessor's Office; Southern California Association of Governments (SCAG); Southern California Edison; Toole Design Group; Tree People/Climate Resolve (Los Angeles); UC Davis Feminist Research Institute; UC Davis Policy Institute for Energy, Environment, and the Economy; UC Davis Road Ecology Center; UC Institute of Transportation Studies (UC-ITS); Watson Land Company; Yusen Terminals LLC
- **Arizona:** Arizona Board of Regents, Chamberlin Group, Pima Association of Governments, Northern Arizona University, Southern Arizona Anti-Trafficking United Response Network (SAATURN)
- **Hawaii:** National Disaster Preparedness Training Center (NDPTC), University of Hawaii
- **Others:** Federal Highway Administration; King County Metro (Seattle, WA); staff from state DOTs in California, Colorado, Maine, Minnesota, Nevada, and Virginia.

Additional Support

PSR has a tremendous network of partners as noted above and in past SAPRs. Additional supporters include: **Council of University Transportation Centers (CUTC)**, Thomas O'Brien (CSULB) completed his tenure as president of CUTC and Genevieve Giuliano (USC) is a past president and past executive committee member, and Susan Handy (UCD) is a member of the board; **Institute of Transportation Studies (ITS)** (UCD, UCI, UCLA), provides match funding and other resources; **MetroFreight Center of Excellence** (USC, CSULB), METTRANS is the home of the Volvo Research and Education Foundation (VREF) Center of Excellence on urban freight and offers many opportunities for international collaboration and partnerships; **National Center for Sustainable Transportation (NCST UTC)** (UCD, USC), strengthens and expands our work in sustainable freight transport; **Southwest Transportation Workforce Center** (CSULB), provides significant infrastructure and professional capacity in support of workforce development programs for PSR; **The Center for International Trade and Transportation** (CSULB), uses its media and social media channels to announce events and other opportunities to a network of students and industry and government partners; **Toastmasters International** (CSULB), provides public speaking competency training for undergraduates; **TuSimple** (PCC), offers program support and priority hiring to graduates; **UCLA Lewis Center for Regional Policy Studies**, provides workspace and matching funds researchers and staff at UCLA ITS; **Velodyne Lidar** (UCI), provided a donation of two LiDAR units that are supporting current graduate student fellowship and faculty research projects. The following **METRANS Associates** provide additional financial support: LA Metro, Majestic Realty, Port of Long Beach, Western States Petroleum Association, Metrolink, Southern California Association of Governments, WSP USA, Los Angeles World Airports, San Diego Association of Governments.

C. Collaborations

PSR has an extensive network of collaborations with academic, public and private organizations. Many of these have been described in past SAPRs. Ongoing collaborations include: **Arizona Technology Park (PCC)**, seeks to bring economic developers and academic researchers together to attract autonomous vehicle manufactures to southern Arizona; **Florida Atlantic University (UH)**, engages in collaborative research on the use of visualizations to improve the understanding of sea level rise Impacts to transportation in FL and HI; **Maricopa Association of Governments (NAU)**, continues to work on pilot evaluation projects with the **University of Arizona**; **Oregon State University (NAU)**, partners on two research projects funded by the **Oregon Department of Transportation**; **University of Antwerp (CSULB)**, developing an executive workshop that address pharmacological supply chains including the rollout of vaccines in the City of Long Beach.

NAU and MetroPlan, the metropolitan planning organization for the Flagstaff region, have been working on a method for MetroPlan to fund NAU to assist them with their engineering and planning services and research activities. This would be similar to the IGAs we have with Phoenix, MAG, and Scottsdale, but we're still working on the final agreements. At this point, we're expecting to start several projects with them in the next year.

NAU is also collaborated with multiple entities on two research projects funded by the Arizona IAM which were both completed in May 2023. Collaborators include:

- NAU (Dr. Brendan Russo and Dr. Razi (formerly with NAU and is now faculty at Clemson University as of August 2021))
- University of Arizona (UA) (Dr. Larry Head and Dr. Jason Pacheco)
- Arizona State University (ASU) (Dr. Yan Chen, Dr. Yezhou Yang, and Dr. Hongbin Yu)
- Science Foundation of Arizona (Dr. Jeffrey Wishart)

UH collaborated with the following persons:

- Dr. Pamela Murray-Tuite, Clemson University, Glenn Department of Civil Engineering. On proposed research for the Federal Rail Road Administration's Broad Agency Announcement titled "Derailment Evacuation Planning: Knowledge Management to Action.
- Glen Rudner, President of GDR Consulting. On proposed research for the Federal Rail Road Administration's Broad Agency Announcement titled "Derailment Evacuation Planning: Knowledge Management to Action.
- Deborah Matherly and Patricia Bye of MIRTA, LLC on Transportation Research Board, ACRP 04-29 Transportation Emergency Response Application (TERA): Migration Options Beyond 2020, and on proposed research for the Federal Rail Road Administration's Broad Agency Announcement titled "Derailment Evacuation Planning: Knowledge Management to Action.

UCD collaborated with UC Davis Feminist Research Institute and UC Davis Road Ecology Center.

PCC trained employees from City of Tucson, Raytheon, and Pima County Sheriff's office for commercial driver licensing during this reporting period. Through collaboration with their Business Development partners, they continue to train guests of the Gospel Rescue Mission. They had two successful graduates during this reporting period and one pending.



Bobby, a guest of Gospel Rescue Mission, successfully completed his Class A CDL.

UCLA collaborated with **Institute of Transportation Studies (ITS)**: ITS is the University of California transportation research institute. It has branches at UC Berkeley, UC Davis, UC Irvine, and UCLA. ITS is funded in-part by the state of California, as well as by Caltrans research contracts. There are several statewide research collaborations taking place through ITS. ITS has provided match funding support to administer the PSR Publication *Transfers* at UCLA. They also collaborated with **UCLA Lewis Center for Regional Policy Studies**: Deputy Director, Madeline Brozen is a researcher on the Year 2 Faculty Research Project, "Public Transportation Among University Students." The Lewis Center also provides workspace and matching funds researchers and staff at the UCLA Institute of Transportation Studies.

3. Outputs

PSR outputs include publications, reports, papers, presentations, media, and others. Our target for peer-reviewed publications is 5 per year; our target for presentations is 10. During this reporting period, we have produced **22 peer-reviewed** journal publications and **34 presentations**. For a list of the publications, conference papers, and presentations, see [Appendix A](#). See [Table 1](#) for a list of the 5 project final reports that were published during the reporting period.

As previously mentioned, issue 11 of *Transfers Magazine* was released in August 2023 and featured topics such as "Rethinking the One-Way Street"; "Getting Heavy-Duty Vehicle Fleets to Net-Zero"; and "Parking that's Just Right." The articles in this issue of *Transfers* are about the power of the status quo, and the challenge of changing it. The American transportation system has for many decades operated under a set of quiet but implicit assumptions: that most households would have a reliable vehicle, that most vehicles would burn gasoline, that most streets would be oriented to let vehicles move quickly, and that the curbs would offer free parking for those vehicles when their drivers got to where they were going.

A. Websites

The [PSR website](#) is the central, authoritative source of information regarding our center. Our consortium members also maintain additional sites that contain information relevant to PSR's research and activities. Some of these sites are:

- CITT (CSULB): <https://www.cpie.csulb.edu/center-for-international-trade-and-transportation>
- eScholarship (UCD, UCI, UCLA): <https://escholarship.org/>
- ITS-Davis: <https://its.ucdavis.edu/>
- ITS-Davis eScholarship: <https://escholarship.org/uc/itsdavis>
- METRANS: <https://www.metrans.org/>

- NAU PSR UTC: <https://in.nau.edu/aztrans/psr-region-9/>
- Transfers Magazine (PSR flagship publication): <http://www.transfersmagazine.org/>
- UC Davis Feminist Research Institute: <https://fri.ucdavis.edu/>
- UC Davis Policy Institute for Energy, Environment, and the Economy: <https://policyinstitute.ucdavis.edu/>
- UCI ISERT conference: www.its.uci.edu/isert2020
- UCI seminar series: www.its.uci.edu/seminars
- UCLA ITS YouTube channel: <https://www.youtube.com/c/UCLAInstituteofTransportationStudies/>
- UCLA ITS: <http://www.its.ucla.edu>
- UCLA Lake Arrowhead Symposium: <http://www.uclaarrowheadsymposium.org>
- Open access to UCLA Institute of Transportation Studies reports, capstone projects, and policy briefs: https://escholarship.org/uc/ucla_its
- UH website (includes posts on PSR research): <https://ndptc.hawaii.edu>
- UH Twitter: <https://twitter.com/uhpurl>
- UH Facebook: <https://www.facebook.com/UH.PURL/>
- NDPTC Twitter: <https://twitter.com/disasterctr>
- NDPTC Facebook: <https://www.facebook.com/disasterctr>
- NDPTC LinkedIn: <https://www.linkedin.com/company/18472899/admin/feed/posts/>
- PURL Twitter: <https://twitter.com/uhpurl>
- PURL Facebook: <https://www.facebook.com/UH.PURL>
- DURP Facebook: <https://www.facebook.com/UH.DURP/>

B. New methodologies, technologies, or techniques

C. Other products

Andreas Molisch (USC) created a method for channel sounding: Spinning directional antenna in centimeter and millimeter wave bands; US Patent US202163137320P was approved. The patented sounder design aspect of the project provides a novel method of extracting double-directional channel models at mm-wave frequencies and can be extended to even higher frequencies.

4. Outcomes

PSR's goal is to effectively and efficiently move research to practice so that new knowledge can be shared, acted upon, and contribute to a more efficient, sustainable, and equitable transportation system. We achieve our goal through technology transfer activities: events, communications, training, and client-based research. We define outcomes as any changes made to the transportation system, or its regulatory, legislative, or policy framework, resulting from research and development outputs.

UCD received findings from the PSR project, "Predicting Wildlife Use of Existing Highway Bridges and Culverts", that are currently being used in development of a web-system supported by funding from the Wildlife Conservation Network. This system will use the coefficients from the modeling to allow users to

automatically predict wildlife use of existing structures to inform their planning for mitigation of wildlife impacts of transportation projects.

The work throughout Mohammad Al Faruque's (**UCI**) project "Software and Hardware Systems for Autonomous Smart Parking Accommodating both Traditional and Autonomous Vehicles" showcased hardware and software implementation of a smart parking system that can communicate with both traditional and connected vehicles alike. This comes as a step towards evolving the existing parking infrastructures to accommodate the estimated wide-scale adoption of autonomous vehicles and connected vehicles, which would require real-time information about available parking services.

Michael Hyland's (**UCI**) project "Non-myopic path-finding for shared-ride vehicles: A bi-criterion best-path approach considering travel time and proximity to demand" has disseminated his findings to researchers and engineers at universities as well as transportation network companies (e.g., Uber and Lyft) and micro-transit companies (e.g. Via).

Chunhee Cho's (**UH**) project "Bridge Monitoring through a hybrid approach leveraging a modal updating technique and an artificial intelligence (AI) method" has produced the following results: 1) The proposed method integrated with a sensor-based system enables to continuously monitor structural integrity. As a result, when critical structural elements are damaged, the proposed method clearly and informed damage locations (global inspection) and their severity (local inspection). 2) Current biannual inspection may miss the critical and dangerous damage growths before the next inspection cycles. The proposed continuous monitoring timely filled the inspection gap by identifying critical damages before out of control. 3) No additional cost for system improvement is required if a sensing system is already installed on a bridge structure.

Andreas Molisch's (**USC**) project "Measurement and Modeling of Broadband Millimeter-Wave Signal Propagation Between Intelligent Vehicles" reports that the patented sounder design aspect of his project provides a novel method of extracting double-directional channel models at mm-wave frequencies and can be extended to even higher frequencies. This new technology allows more extensive channel measurements and modelling to happen at high frequencies in dynamic and fast-varying scenarios. The channel modelling aspect of his project provides parameters that are essential and a requirement for intelligent vehicles system development, such as directional RMS delay spread and angular spreads on both the Tx and the Rx sides.

Cyrus Shahabi's (**USC**) project "Freight Volume Modeling on Major Highway Links" has validated the feasibility of freight volume estimation on major highway links from accurate but sparse sensor data using synthetic data. He created a dataset of publicly available Caltrans CCTV video footage and leveraged the ADMS traffic database to generate the synthetic data. His team has implemented state-of-the-art computer vision algorithms to detect and classify trucks into truck categories optimized for best performance.

Gwen Shaffer's (**CSULB**) project "Using artificial intelligence to improve traffic flows, with consideration of data privacy principles" engaged a multidisciplinary research team to simultaneously test and evaluate methods for ITS data gathering, prioritizing data privacy. This project provides a real-world framework for the CSULB research team to collect, process, and analyze 25-30 hours of video footage at the intersection of Santa Fe Avenue and Pacific Coast Highway (PCH) in West Long Beach and at

comparable intersections in the region through data-gathering partnerships with community, municipal, and industry stakeholder.

Konstadinos Goulias' (**UCSB**) project "Spatial Microanalysis and Equity Assessment of Joint Relationships among Destination Choice, Activity Duration, and Mode Choice" develops a new integrated framework for experienced walking accessibility and assessment of disparities using motif and sequence analysis based on the 2012 California Household Travel Survey and the 2017 National Household Travel Survey for California. Goulias' team develops many different model formulations to study Vehicle Miles of Travel (VMT) and show the power of quantile regression as analytical tool challenging the wisdom of VMT as a policy variable.

Anastasia Loukaitou-Sideris's (**UCLA**) white paper "Understanding and Responding to Homelessness in State Transportation Settings" has produced recommendations in developing homelessness policies that state departments of transportation may consider more than useful. She has presented her findings at the Bridging Transportation Researchers conference.

Petros Ioannou's (**USC**) project "Systematic and Provably Safe Control Design Methodology for Autonomous Vehicles" developed a provably safe and systematic control design methodology for autonomous vehicles that ensures safety, comfort, and compliance with traffic rules irrespective of the availability of vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication. It also ensures that the vehicle adapts safe speed according to the weather conditions, road geometry, sensor's range and field of view.

Scholarly Awards:

For John Gunnar Carlsson's (**USC**) project "Continuous approximation models with temporal constraints and objectives," he was selected as a 2021 Edelman Laureate by INFORMS, which recognizes significant contributions to work that is selected as representative of the best applications of analytical decision making in the world. See <https://www.informs.org/Recognizing-Excellence/INFORMS-Prizes/Franz-Edelman->

John Gunnar Carlsson (**USC**) won another award for his project, "The 'sidekick' routing paradigm for VMT reduction and improved accessibility" when he was selected as a University Research Fellow with Toyota Material Handling of North America.

5. Impacts

PSR defines an impact as that which influences the transportation system, or society in general, such as reduced fatalities, decreased capital or operating costs, community impacts, or environmental benefits. The journey of generating outputs and impacts is uncertain and happens over time. Our contributions are judged by the PSR Advisory Council and measured as significant or not significant. PSR's research products are made [available to the public](#).

Public Transit Safety Among University Students (2020) by Anastasia Loukaitou-Sideris (**UCLA**) and Madeline Bropzen- the data from this work was used in the bill analyses for California Senate Bill 1161 which was passed in September 2022. This bill advances regular reporting on sexual harassment on

public transit in a standard way to inform efforts to improve the safety of transit riders and reduce street harassment on public transit.

Sze-Chuan Suen's (USC) project "Using Traffic Data to Inform Transmission Dynamics for COVID19 in Southern California" developed novel algorithms for integrating real-world traffic flow patterns into origin-destination (OD) estimations (manuscript under review), and demonstrated it on Los Angeles County data. Further manuscripts on optimization of vaccine locations given these OD estimations and sensor outcomes are currently in progress.

Petros Ioannou's (USC) project "Highway Safety and Traffic Flow Analysis of Mixed traffic with Connected and Non-Connected Vehicles" indicates that, while autonomous vehicles (AVs) need to accept small risks to achieve the same traffic flow efficiency as humans, connected AVs (CAVs) can improve safety and efficiency without having to accept any risks. AVs and CAVs still behave safely in mixed fleets, but they do not bring significant macroscopic improvements.

Ketan Savla's (USC) project "Data-driven Feedback Control of Urban Traffic Systems with Performance Guarantees" measures the sensitivity of the performance of ramp meeting algorithms in managing congestion. Output feedback control with performance guarantees is a challenging topic for nonlinear systems. The results of the project are an important contribution to this challenging topic with concrete practical applications. Students trained in the project gain firsthand exposure to data-driven techniques for traffic management.

John Gunnar Carlsson's (USC) project "Continuous approximation models with temporal constraints and objectives" largely impacted JD.com, an industrial learning partner, on computational and theoretical analysis. His contributions have helped ensure that districting for vehicle routing does not adversely affect performance.

Kanok Boriboonsomsin's (UCR) project "Evaluating System-Level Impacts of Innovative Truck Routing Strategies" proposes that for the strategy evaluated in this research to be impactful at the city or community scale, a technology adoption rate of more than 20% is necessary. Some incentives, policies, or regulations may be required to help reach that level of technology adoption. This research demonstrates a high potential for routing trucks in a way that mitigates their air pollution impacts, especially in disadvantaged communities that are disproportionately affected by truck traffic.

6. Changes/Problems

Changes in approach and reasons for change

Nothing to report.

Problems and delays encountered during the reporting period

UH experienced unexpected results from data analyses in the current internal project which have presented some delays in completion, as well as a change in approach to analyzing the data.

UCD, UCI, UCLA, and USC report that there were some delays in finalizing the Year 6 contracting for our Caltrans match projects. This was resolved in July 2023 and those projects are now underway. These are

match funded projects and because we have met our FAST Act match and the projects began after the BIL PSR UTC began, we will report these projects and claim them as match for the BIL PSR UTC.

Change of primary performance site location

Nothing to report.

7. Special Reporting Requirements

Nothing to report.

8. Appendix A

This appendix includes lists (non-exhaustive) of PSR researchers' publications and presentations from the current reporting period.

Publications

Peer-reviewed journal publications

1. Flynn, J. A., Circella, G., & Venkataram, P. S. (2023). Transportation and Neighborhood Priorities of Californians with Disabilities: Focus Group Findings. *Transportation Research Record*, 0(0). <https://doi.org/10.1177/03611981231180203>
2. Garde, A., Jamme, H.T., Toney, B., Bahl, D., & Banerjee, T. (2023). Can TODs Include Affordable Housing?. *Journal of the American Planning Association*, DOI: 10.1080/01944363.2023.2236586
3. Gehrke, S. R. (2023). "Chapter 11: Measuring land-use variables in the transport–land-use interaction". In *Handbook on Transport and Land Use*. Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781800370258.00018>
4. Jaller, M., Pahwa, A., Otero-Palencia, C., & Pourrahmani, E. (2023). "Chapter 19: Overview of innovations in urban freight". In *Handbook on City Logistics and Urban Freight*. Cheltenham, UK: Edward Elgar Publishing. <https://doi.org/10.4337/9781800370173>.
5. Jamme, H.T., Eisenlohr, A., Bahl, D., & Banerjee, T. (2023, July). Ride-Hailing to Rail in the Suburbs: Can Subsidized Rides Enhance First and Last Mile Access for the Carless?. *Findings*. <https://doi.org/10.32866/001c.82216>.
6. Kim, K., Joo, Y.M., & Lee, D. (2023). Going Slow to Build Resilience: Cittaslow in Korea's Rural Regions. *KDI School of Public Policy and Management Paper*, 23(05). <http://dx.doi.org/10.2139/ssrn.4540070>.
7. Kim, K., Kaviari, F., Marasco, D., Tran, C., & Yamashita, E. Evacuation Needs of Homeless People in Waikiki, O'ahu
8. Kim, K., Yamashita, E., Choi, J., Vorce, M., & Faraone, D. (2022). Rapid Integrated Damage Assessment (R-IDA) Using Google Street View (GSV) and 360degree Imagery. *Natural Hazards Center*. <https://hazards.colorado.edu/quick-response-report/the-2021-marshall-fire>.
9. Kim, K., Yamashita, E., Ghimire, J., Bye, P., & Matherly, D. (2023). Knowledge to Action: Resilience Planning Among State and Local Transportation Agencies in the United States. *Journal of Emergency Management*, 21(1). <https://doi.org/10.5055/jem.0715>.
10. Li, Y., Tok, A.Y.C., Sun, Z., Ritchie, S.G., & Allu, K.R. (2023). LiDAR Vehicle Point Cloud Reconstruction Framework for Axle-Based Classification. *IEEE Sensors Journal*, 23(11), pp. 11168-11180. DOI: 10.1109/JSEN.2023.3235301.
11. Liao, X., Wu, G., Yang, L., & Barth, M.J. (2023). A Real-World Data-Driven approach for estimating environmental impacts of traffic accidents. *Transportation Research Part D*, Vol. 117, p. 103664. <https://doi.org/10.1016/j.trd.2023.103664>.
12. Loukaitou-Sideris, A., Handy, S., Ong, P., Barajas, J., Wasserman, J., Pech, C., Garcia Sanchez, J., Ramirez, A., Jain, A., Proussaloglou, E., Nguyen, A., Turner, K., Fitzgibbon, A., Kaepelin, F., Ramirez, F., & Arenas, M. (2023, March 3). The Implications of Freeway Siting in California: Four Case Studies on the Effects of Freeways on Neighborhoods of Color (PSR-20-40; J. Wasserman, Ed.). Pacific Southwest Region University Transportation Center. <https://escholarship.org/uc/item/7mj2b24q>.

13. Loukaitou-Sideris, A., Handy, S., Ong, P., Wasserman, J., Barajas, J., and Pech, C. (2023, March 3). Four Case Studies on the Effects of Freeway Siting on Neighborhoods of Color. Pacific Southwest Region University Transportation Center. <https://escholarship.org/uc/item/0jm2d235>.
14. Loukaitou-Sideris, A., Wasserman, J., Ding, H., & Nelischer, C. (2023, January 31). Homelessness on the Road: Reviewing Challenges of and Responses to Homelessness in State Transportation Environments. UCLA Institute of Transportation Studies. <https://doi.org/10.17610/T6DC77>.
15. Loukaitou-Sideris, A., Wasserman, J., Ding, H., & Nelischer, C. (2023, January 31). Homelessness in State Transportation Environments. UCLA Institute of Transportation Studies. <https://doi.org/10.17610/T6J603>.
16. Marasco, D., Kim, K., & Yamashita, E. Investigating Social Vulnerabilities and Non-Use of Seat Belts in Hawai'i.
17. McCullough, S. R., & Erasmus, C. S. (2023). Performative versus Authentic Equity Work: An Assessment of Current Practices in Transportation Planning. *Transportation Research Record*, 0(0). <https://doi.org/10.1177/03611981231193409>
18. Pooladsanj, M., Savla, K., & Ioannou, P.A. (2023, September). Ramp metering to maximize throughput under vehicle safety constraints. *Transportation Part C: Emerging Technologies*. <https://doi.org/10.1016/j.trc.2023.104267>
19. Shen, S., Kim, K., & Liu, D. (2023). Aging in Place or Moving to Higher Ground: Older Adults' Adaptation to Sea Level Rise in Honolulu, Hawaii. *Sustainability*, 15(12), 9535. <https://doi.org/10.3390/su15129535>.
20. Su, R., & Goulias, K. (2023). Untangling the relationships among residential environment, destination choice, and daily walk accessibility. *Journal of Transport Geography*, 109, 103595. <https://doi.org/10.1016/j.jtrangeo.2023.103595>.
21. Wasserman, J., Loukaitou-Sideris, A., Ding, H., & Nelischer, C. (2023, September 1). The Road, Home: Challenges of and Responses to Homelessness in State Transportation Environments. *Transportation Research Interdisciplinary Perspectives*, 21C. <https://doi.org/10.1016/j.trip.2023.100890>.
22. Yang, D., & Hyland, M. (2023, September 12). Electric Vehicles in Urban Delivery Fleets: How Far Can They Go?. <http://dx.doi.org/10.2139/ssrn.4569874>

Other publications

Conference papers

23. Chan, T.C.M., Kothawala, A., Circella, G., & Chakraborty, D. (2023, July 20) Road Pricing in Los Angeles County: Understanding Stakeholder Views and Vision for Transportation Sustainability [Paper Presentation]. World Conference on Transport Research 2023, Montreal, QC, Canada. <https://easychair.org/smart-program/WCTR2023/2023-07-20.html#talk:216528>
24. Feng, G., Li, Y., Tok, A., & Ritchie, S. (2023). An Investigation of Classification by Gross Vehicle Weight Rating Categories using Advanced Single Inductive Loops [Paper Presentation]. 102nd Annual Meeting of the Transportation Research Board, Washington, D.C., United States.

Presentations

25. Boarnet, M. (2023, July 1). Institutional Obstacles to New Transportation Technology Adoption . Presentation at IEEE workshop : Smart Cities and Transportation. Cyprus.

26. Chrysovalantis, A., Krumm, J., & Shahabi, C. (2023). Time-variant road network-based bridgelets. Presentation at 24th IEEE International Conference on Mobile Data Management (MDM). IEEE.
27. Ewan, M., & Arumugam, G. (2023, August 17). Advancing Toward a Hydrogen Powered Society. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars. From <https://www.youtube.com/watch?v=IYg-xQ93uOk>
28. Gehrke, S. (2023, April 13). Evaluation of transportation safety and security barriers in bicyclist accessibility. Lectern presentation at Institute of Transportation Engineers and International Municipal Signal Association Spring Conference. Phoenix, AZ, United States.
29. Gehrke, S. (2023, August 23). Cycling routing algorithm for network connectivity in Arizona. Lectern presentation [online] at American Association of Highway and Transportation Officials Committee on Data Management and Analytics Datapalooza Showcase.
30. Grajdura, S. (2023, July 19). Incorporating vulnerability and equity: Wildfire evacuation perspective [Online Presentation]. TRB Webinar: Community-Based and Equitable Transportation Response in Disaster. https://www.nationalacademies.org/event/769_07-2023_trb-webinar-community-based-and-equitable-transportation-response-in-disaster.
31. Gramann, A., & Miller, R. K. (2023, September 21). Disaster AWARE and the Maui Wildfires. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars.
32. Harris, S., Lenentine, M., Forest, J., Balmores, A., Priester, S., Takaki, S., & Kalaiwa'a, G. (2023, May 18). Introducing Resilience Hub Planning on Oahu: Community-based, Active Learning and Neighborhood Scale. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars. From <https://www.youtube.com/watch?v=pU6NBolwDBQ>
33. Hon, K., & Houghton, B. (n.d.). Mauna Kea and Kilauea Eruptions and the CONVERSE Scenario Building Institute. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars. From <https://www.youtube.com/watch?v=yM9oREnJfjl>
34. Hyland, M. (2023). Electric Vehicles in Urban Goods Delivery Fleets: How Far Can They Go? Presentation at BK21 Lecture Series. Inha University.
35. Ioannou, P. (2023, March 17). Highway Safety and Traffic Flow Analysis of Mixed traffic with Connected and Non-Connected Vehicles. Presentation at PSR Annual Congress. University at Southern California, Los Angeles, CA, United States.
36. Janiszewski, H., Vorce, M., Yanik, F., & Ham, C. (2023, April 20). Earthquake in Turkey. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars. From <https://www.youtube.com/watch?v=Me8TpfC2LpY>.
37. Ji, J. (2023, May 30). Leveraging lessons learned from the tolling industry to implement road-usage charge. Presentation at STEPS+ Seminar Series. Davis, CA: UC Davis, United States.
38. Kandgule, V., & Dymond, B. Z. (2023, September). Characterization of bridge deck and culvert deterioration using NBI data. Presentation at ASCE ASHE State Conference. Phoenix, AZ, United States.
39. Kandgule, V., & Dymond, B. Z. (2023, September). Characterization of Bridge Deck and Culvert Deterioration in Western States Using NBI Data. Presentation at Western Bridge Engineers' Seminar. Phoenix, AZ, United States.
40. Li, Z., & Savla, K. (2023). Output-feedback model predictive control for ramp metering. Presentation at IEEE International Conference on Intelligent Transportation Systems.

41. Loukaitou-Sideris, A. (2023, August 9). The Road, Home: Challenges of and Responses to Homelessness in State Transportation Environments. Presented at Bridging Transportation Researchers 5.
42. Loukaitou-Sideris, A. (2023, June 21). Exposing Freeway Inequalities: The Case of Pasadena. Presentation at the UCLA Institute of Transportation Studies Advisory Board meeting.
43. Marasco, D., Pickett, E., Barretto, N., Tremsin, V., & Buckwald, M. (2023, June 15). Wildfire Mitigation Strategies. Online Presentation at University of Hawaii NDPTC National Disaster Preparedness Training Center Webinars. From <https://www.youtube.com/watch?v=4See8A8BVs8>
44. Nguyen, A. (2023, March 17). Barriers to Mobility, Barriers to Unity: Freeway Construction and Racialized Displacement in San Jose, CA. Presentation at the Fifth Annual Pacific Southwest Region University Transportation Center Congress. Los Angeles, CA, United States.
45. Porter, G. (2023, June 5-8). Economic Decision Support for Wildlife-Vehicle Conflict Reduction. Publication at International Conference on Ecology and Transportation. Burlington, VT, United States. From <https://www.icoet.net/2023/schedule>
46. Riffle, K., Smaglik, E., Procaccio, J., Gehrke, S., Russo, S., J, B., & Hurwitz, D. (2023, July). Applying Traffic Flow Theory in Assessing Detector Performance. Presentation at the World Conference on Transport Research. Montreal, Quebec, Canada.
47. Rostomyan, G., Savla, K., & Ioannou, P. (2023). Bottleneck management using pricing under constraints. Presentation at American Control Conference.
48. Rostomyan, G., Savla, K., & Ioannou, P. (2023). Decreasing delay at signal free intersection through high order reference trajectories. Presentation at IEEE International Conference on Intelligent Transportation Systems.
49. Russo, B. (2023, June). Analyzing the Impacts of Intersection Treatments and Traffic Characteristics on Bicyclist Safety. Presentation at the 2023 ITE Mountain District Annual Meeting. St. George, UT, United States.
50. Shaffer, G. (2023, September). Designing and deploying a smart city platform to increase transparency and limit data collection. Presentation at Telecommunications Policy Research Conference. Washington, DC, United States.
51. Shilling, F. (2023, June 5-8). Spatially Explicit Decision Support to Resolve Wildlife-Vehicle Conflict. Presentation at International Conference on Ecology and Transportation. Burlington, VT, United States. From <https://www.icoet.net/2023/schedule>
52. Shilling, F. (2023). Predicting Wildlife Use of Existing Highway Bridges and Culverts. Presentation at the California Mountain Lion Working Group Scientific Meeting.
53. Shilling, F. (2023). Presentation at California Mountain lion Working Group Scientific Meeting.
54. Smaglik, E. (2023, April). Prioritizing Bicyclist Safety and Mobility: Which Guidance Do I Use? Presentation at the ITE/IMSAs Annual Meeting. Phoenix, AZ, United States.
55. Wasserman, J. (2023, July 20). The Implications of Freeway Siting in California. Presentation at the Southern California Association of Governments Equity Working Group meeting. From The Implications of Freeway Siting in California
56. Wei, D., & Giuliano, G. (2023, April 12). Economic Analysis and Review of Commercial Vehicle Road User Charges. Presentation at Road Charge Program. California Department of Transportation.
57. Wu, G., Zhao, X., Liao, X., & Boriboonsomsin, K. (2023). Improving Truck Merging at Ramps in a Mixed Traffic Environment: A Multi-human-in-the-loop (MHuIL) Approach. Presentation at IEEE International Conference on Intelligent Transportation Systems. Spain.

58. Zhang, S., Yu, H., Dai, P., Suen, S., Dessouky, M., & Ordonez, F. (2023, July 26-28). Using Dynamic Origin-Destination Estimation Using Road Traffic Sensor Data for Disease Control Insights. Presentation at INFORMS Healthcare Conference. Toronto, ON, Canada.

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59. Chakraborty, D., Jenn, A., Ji, J., & Chan, M. T. (2023). Tolling Lessons Learned for Road Usage Charge. UC Davis: Institute of Transportation Studies. <http://dx.doi.org/10.7922/G23R0R6M> Retrieved from <https://escholarship.org/uc/item/6xf42194>. Research Report. Published by the institute. Acknowledges federal support.
60. Venkataram, P. S., Flynn, J. A., Circella, G., & Sperling, D. (2023). Challenges Faced by People with Disabilities in Public and Active Transportation Systems in the United States of America. UC Davis: 3 Revolutions Future Mobility Program. <http://dx.doi.org/10.7922/G2HX1B17>.
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