



Semi Annual Progress Report for University Transportation Centers

Prepared for the USDOT Office of the Assistant Secretary for Research and
Technology (OST-R)

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Project title: **Pacific Northwest Transportation Consortium (PacTrans): Developing human-centered and transformative multimodal mobility solutions for an equitable Pacific Northwest**

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Report #1, SAPR reporting for six months (June 1, 2023 – September 30, 2023)

Project/Grant Period: June 1, 2023 - May 31, 2029

Reporting Period End Date: March 31, 2023

Report Term: Semi-Annual

Accomplishments

What are the major goals and objectives of the program?

Pacific Northwest Transportation Consortium (PacTrans) consists of institutions from all four states in our region with the University of Washington (UW) as the lead and Northwest Indian College (NWIC), Portland State University (PSU), University of Alaska Anchorage (UAA), University of Idaho (UI), and Washington State University (WSU). PacTrans' theme centers on "Developing human-centered and transformative multimodal mobility solutions for an equitable Pacific Northwest". PacTrans serves as a focal point within Region 10 to develop initiatives and facilitate collaborative activities with regional partners to maximize the effectiveness of their collective services and programs toward the U.S. Department of Transportation (USDOT) strategic goal of mobility. Major goals and objectives of PacTrans include:

Research – Serving as Region 10's research engine, PacTrans is committed to funding research in both the categories of advanced and, more importantly, applied research.

Technology Transfer – PacTrans strives to be an applied technology showcase, providing additional funds to projects that are deemed as "Success Stories" to ensure dissemination of results to policy makers, educators, practitioners, other transportation professionals, and the general public.

Education – As a consortium of six prestigious universities/colleges, PacTrans is devoted to being an education leader. This involves continued evaluation and evolution of our transportation engineering programs as well as providing state-of-the-art research laboratories, student conferences and seminars, mentoring, and scholarship opportunities for our students and future workforce trainees.

Workforce Development – PacTrans endeavors to be a workforce development base: hosting activities that focus on the development of transportation professionals, building strong partnerships with transportation agencies and companies in our region, and designing training programs to address the workforce development needs, while connecting our students with quality jobs where they can implement the knowledge they gained through their education.

Outreach – Throughout all of these other goals and objectives, PacTrans seeks to be in a continual process of outreach: promoting and building the educational student base, making new industry and agency partners, attracting new research, and providing opportunities to share and learn about key outcomes and achievements that have been learned through research and education activities.

Collaboration – PacTrans desires to be a platform for participation and is always on the lookout for potential new partner and new opportunities with current partners to collaborate on transportation related endeavors.

What was accomplished under these goals?

PacTrans is fortunate as an existing UTC to already have a robust infrastructure in place to begin pursuing the Center's goals quickly. While our team's composition is different for this grant than it has been over the past several years, most of our team members have participated in the UTC program in the past. The majority of our work thus far has been to get organized and begin working toward getting each consortium

partner their first-year funding. Below are some more details.

Research

As Region 10's research engine, PacTrans has been actively engaged in two broader categories of research projects. We engage in multi-institutional research projects that require participation from at least two consortium universities, and typically have a larger budget. Such projects include multi-institutional general research projects, as well as a multi-institutional educational project, and a multi-institutional outreach project. We also engage in single institutional projects (referred to as small research projects) that only require participation from a single consortium university and typically have smaller budgets. Both categories of research are geared towards the goal of advancing the region's transportation mobility research.

All of our multi-institutional and about half of our single-institutional projects were pre-selected from an RFP process that occurred while we were writing our new UTC proposal last year. This left a handful of single-institutional projects to be selected, which is what our consortium partner universities are presently working on.

Technology Transfer

As this is a brand-new Center, we do not have anything on the subject of technology transfer to report.

Education

The UW has welcomed a cohort of three new PacTrans Fellows. This fellowship is made possible by a partnership between PacTrans and the UW CEE department to offer promising Master's students covered tuition while they complete their studies and learn real world knowledge through internships.

Workforce Development

We are in the process of hiring a new Assistant Director of our Workforce Development Institute who will help us drive the WDI into its next phase during the life of this new grant.

What opportunities for training and professional development have the program provided?

Many of the specific details of these opportunities get discussed above. More generally, PacTrans provides training and professional development opportunities through multiple channels:

Research: Through the lifespan of this grant, PacTrans annually selects research projects that offer faculty and student researchers funding to conduct cutting edge research in a variety of areas directly tied to the USDOT strategic goals.

Education: PacTrans consortium partners offer a variety of other on-campus and online courses designed for professional development in addition to the regular degree programs. The online programs, such as the online master's program of sustainable transportation, are particularly good for working professionals because of the flexibility in schedule and location. PacTrans also supports a wide variety of student activities geared toward enhancing their educations. Several examples include: supporting ITE student chapter activities, travel support for students to present accepted work at conferences, sponsorship of student competition teams, and so much more.

Outreach: PacTrans offers training and educational opportunities to K-12 students through its outreach activities. Three quick examples include: (1) UW partners with the UW Teen and Youth Program to deliver a course titled *Introduction to Autonomous Cars* that is offered to sixth through eighth graders during the summer months, and (2) PacTrans consortium partners UW and WSU have partnered with WSDOT to offer a week long, high school transportation summer camp, and (3) PSU participates in the National Summer Transportation Institute (NSTI) program to bring roughly 25 students to campus each summer for a week long transportation experience.

Funding assistance: PacTrans financially supports students through their participation in research activities, as well as fellowships. During this past reporting period, PacTrans welcomed three new graduate fellows, and also continues to offer undergraduate research fellows. The Undergraduate Research Fellowship offers undergraduate students the opportunity to participate in research while receiving a stipend for things like conference travel, or research supplies.

Seminars, workshops, and conferences: As outlined above, PacTrans offers many opportunities for training and professional development through its webinar series and various workshops. PacTrans also emphasizes our Region 10 Transportation Conference and Region 10 Student Conference as important opportunities for training and professional development.

Internships: PacTrans regularly posts internship opportunities on our website as a student resource. During this reporting period for example, PacTrans circulated thirteen separate announcements for internship opportunities. Further, we regularly work with our external partners to develop internship programs for our students. With the WSDOT for example, we have set up internship opportunities both with their traffic management center and their tolling operations group.

Partnerships: PacTrans has developed strong partnerships with many agencies, companies, and non-profit organizations. For example, PacTrans has developed strong partnerships with local ITE chapters in student mentoring and training. ITE Washington has a mentor program for university students. They offer student fellowships and also host events for student training. PacTrans is also in a strong partnership with American Society of Civil Engineers in organizing the upcoming International Conference on Transportation and Development.

How have the results been disseminated? If so, in what way/s?

This being a brand-new Center, we do not yet have many results to disseminate but PacTrans has a strong outreach program to local and state transportation agencies and private partners in the region, where PacTrans research outcomes are presented and demonstrated. Research outcomes are posted on the PacTrans website, distributed through our monthly newsletter and annual reports, and promoted through social media such as LinkedIn and Facebook and the University of Washington press media. We also disseminate news, events and results via our website at www.pactrans.org.

Another avenue for dissemination that PacTrans leans on heavily is presentations at conferences, workshops, and symposia. Each year we send roughly one hundred PIs and students (about 70 students) to the TRB annual meeting where we participate in over 120 committee meetings, poster presentations, workshops, and lecterns. Our annual conference each October also provides an invaluable platform for

our researchers to present work either through presentation or poster.

PacTrans also encourages new, innovative dissemination materials through the identification of success stories, where PacTrans offers limited additional funds to projects that have results with potentially strong impacts. These funds can then be used to explore new and innovative opportunities to get knowledge, methods, and products gained, into the hands of practitioners. This year these funds have been used to host workshops/training, produce informational videos, build online tools and procedure manuals, etc.

Finally, per our obligation as a UTC, research results are posted on our website and are disseminated to all of the required repositories that include, TRID, USDOT, Transportation Library, Volpe National Transportation Systems Center, Federal Highway Administration Research Library and the US Department of Commerce National Technical Information Service.

What do you plan to do during the next reporting period to accomplish the goals and objectives?

PacTrans is working hard to get first year funding distributed to our consortium partner universities. Here are some of the specific items we hope to accomplish in the coming six-month performance period.

Research

During this next reporting period PacTrans will initiate our Year 1 (2023 – 2025) research projects.

Technology Transfer

We typically do not begin offering Success Story funding until after our first year of research projects has been completed. So, it will be a few more reporting periods before we have anything on those.

However, during this next reporting period, PacTrans has several great opportunities for technology transfer, including: our 2023 Region 10 Transportation Conference, and the 2024 TRB Annual Meeting.

Education

PacTrans consortium partners will support our students in a variety of ways, including but not limited to:

1. We support professional organization student chapters, such as the Institute of Transportation Engineers, and student competition teams, such as UI's clean snowmobile team, and UW's Hyperloop team.
2. Some of these funds are historically used to support the travel of students to conferences such as our 2023 Region 10 Transportation Conference, and the 2024 TRB Annual Meeting.

Finally, PacTrans will continue to operation of our quarterly Doctoral Webinar Series with a Fall and Winter installment of the series.

Workforce Development

We will continue hosting seminars/webinars that provide insights as to the current state of the industry and emerging research needs and cutting-edge technologies and techniques. For example, Prof. Kelvin Wang of Montana State University will be our Fall Quarterly Transportation seminar, and Karl Smith of Purdue University will be featured in the Michael Kyte Distinguished Lecture at the University of Idaho.

Participant and Collaborating Organizations: Who has been involved?

What individuals have worked on the program?

- PacTrans Director, **Yinhai Wang**, Ph.D., Professor of Civil and Environmental Engineering at the UW, devotes 50 percent of his time directing PacTrans. Dr. Wang has overall responsibility for program management, oversight of PacTrans operations, including the Research Committee, the Education and Workforce Development Committee, and the Outreach and Technology Transfer Committee, and Student Leadership Council. He is the regional and national leadership for PacTrans, and the contact person for management relationships with USDOT Research and Innovative Administration (RITA) and other USDOT organizations.
- PacTrans Associate Director in Research, **Jeff Ban**, Ph.D., Associate Professor of Transportation Engineering in Civil and Environmental Engineering at the UW spends 5 percent of her time managing the research program for PacTrans and coordinates the research collaboration across the five partner institutions.
- PacTrans Associate Director in Education and Workforce Development, **Anne Vernez-Moudon**, Dr. es SC, Professor of Architecture, Landscape Architecture, and Urban Design and Planning, Adjunct Professor of Epidemiology and in Civil and Environmental Engineering, devotes 5 percent of her time leading the Education and Workforce Development Committee. She is involved in curriculum changes, training program development, and educational enhancements among the partner institutions.
- PacTrans Associate Director in Technology Transfer, **Jon Froehlich**, PhD, Professor of Computer Science Engineering, devotes 5 percent of his time leading the Technology Transfer Committee.
- PacTrans Associate Director in Portland State University (PSU), **Jennifer Dill**, Ph.D., Professor of Urban Studies & Planning at PSU, devotes 5 percent of his time to managing and organizing the education, outreach, and research activities within PSU. She coordinates all results and outcomes with the UW on a regular basis.
- PacTrans Associate Director in the University of Alaska Anchorage (UAA), **Osama Abaza**, PhD, Professor of Civil Engineering at UAA, devotes 5 percent of his time to managing and organizing the education, outreach, and research activities within UAA. He coordinates all results and outcomes with the UW on a regular basis.
- PacTrans Associate Director in University of Idaho (UI), **Ahmed Abdel-Rahim**, Ph.D., Professor of Civil Engineering at UI, devotes 5 percent of his time to managing and organizing the education, outreach, and research activities within UI. He coordinates all results and outcomes with the UW on a regular basis.
- PacTrans Associate Director in Washington State University (WSU), **Xianming Shi**, Ph.D., Professor of Civil and Environmental Engineering at WSU, devotes 5 percent of his time to managing and organizing the education, outreach, and research activities within WSU. He coordinates all results and outcomes with the UW on a regular basis.
- PacTrans representative from Northwest Indian College (NWIC), **Victoria Retasket**, Dean of Student Life at NWIC, devotes 5 percent of her time to managing and organizing the education and outreach activities within NWIC. She coordinates all results and outcomes with the UW on a regular basis.

- Assistant Director, **Cole Kopca**, devoted 75 percent of his time to the day-to-day operations in support of the PacTrans mission. His responsibilities include project management, grant management, events coordination and outreach, and managing the PacTrans operations team.
- PacTrans full-time Finance, Grants, and Research Manager, **Christina Yarbrough**, devoted 100 percent of her time to the Center’s budget, expenditure, and research management.
- PacTrans part-time Assistant Director of the Workforce Development Institute (WDI), **Melissa Amrhein**, devotes 80 percent of her time to daily operations of the PacTrans WDI. Her responsibilities include partnership building, needs assessment, and coordination of course development and facilitation.
- PacTrans part-time Program Coordinator, **Melanie Paredes**, devoted 40 percent of her time to the Center’s fiscal matters, support with events coordination and outreach and day to day administration.
- PacTrans has 28 fulltime faculty at the UW engaged in transportation research. Our consortium partners (NWIC, PSU, UAA, UI, WSU) have 41 fulltime faculty directly involved in PacTrans research.

What other organizations have been involved as partners?

Because this is a brand-new Center, we do not yet have funding match partners to report during this reporting period. However, PacTrans has continuing relationships with many partners that have been cultivated over the years. The table below highlights the many partnerships that PacTrans has built over the duration of the center:

Partner	Type
Alaska Department of Transportation and Public Facilities	Government
Idaho Transportation Department	Government
Oregon State Department of Transportation	Government
Washington State Department of Transportation	Government
City of Bellingham	Government
City of Seattle	Government
City of Lynnwood	Government
City of Bellevue	Government
City of Everett	Government
King County	Government
Snohomish County	Government
Pierce County	Government
Sound Transit	Government Agency
Washington Traffic Safety Commission	Government Agency
Washington State Transportation Insurance Pool	Government Agency
University of Alaska, Anchorage	Educational Institution
University of Washington Transportation Services	Educational Institution
Washington State Department of Ecology	Government
Puget Sound Regional Council	Government
Washington State Transportation Investment Board	Government Agency

American Society of Civil Engineers	Professional Association
Institute of Electrical and Electronics Engineers	Professional Association
Institute of Transportation Engineers	Professional Association
Yakama Nation	Federated Tribe
Northwestern Tribal Technical Assistance Program (NW TTAP) Center	University Center
ITS Washington	Professional Association
HDR Engineering	Private Industry
Port of Portland	Government
BMW Group	Private Industry
Western Trailers	Private Industry
Coral Sales Co.	Private Industry
National Institute for Transportation and Communities	University Transportation Center
Transportation for Livability by Integrating Vehicles and the Environment	University Transportation Center
Center for Environmentally Sustainable Transportation in Cold Climates	University Transportation Center
Aichele and Associates	Private Industry
Alstom Grid Inc.	Private Industry
Alta Planning and Design	Private Industry
Battelle	Private Industry
Cascade Bicycle Club	Non-profit/ Foundation
Feet First	Non-profit/ Foundation
DENSO	Private Industry
T Mobile	Private Industry
DKS Associates	Private Industry
Fehr and Peers	Private Industry
FLIR	Private Industry
Inrix Inc.	Private Industry
Wejo	Private Industry
AIWayision	Private Industry
Tom Tom	Private Industry
Amazon	Private Industry
Nokia	Private Industry
Transpo Group	Private Industry
Intelligent Transportation Systems of Washington	Professional Association
Luum	Private Industry
Kittelson and Associates	Private Industry
Microsoft	Private Industry
BlackBerry	Private Industry
Verizon	Private Industry
Q-Free	Private Industry
PACCAR, Inc.	Private Industry
West Salem High School	Educational Institution

The Bush School	Educational Institution
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Outputs

Nothing to report at this time.

Outcomes

Nothing to report at this time.

Impact

Nothing to report at this time.

Changes/Problems

None.

Special Reporting Requirements

Research Project Requirements

Per our research update above, PacTrans is working diligently to initiate our first year of funded projects. They will be uploaded to RiP and put on our website in short order. Further, PacTrans will continue to include the requirement for an ORCID number from each PI before their project funds are released.

Submission of Final Research Reports

As final versions of technical project reports are completed and checked for ADA compliance, they will be uploaded to our repository and linked on the research project profiles on the PacTrans website. Then they will be submitted to TRID, NTL Research HUB, etc. This process will not begin until our first year projects are wrapped up (likely middle of 2025).