

University Transportation Center for Federal Region X at the University of Washington

**Inside This Issue:**

OneBusAway	2
WSU Research	2
Region X Focus	3
TransNews	4

## OneBusAway: Improving Public Transportation One App at a Time

Imagine knowing exactly when your bus will arrive, which stop is closest to your current location, and where you can find restaurants or grocery stores along the way. This vision of improving the daily public transportation experience has become a reality with OneBusAway ([www.onebusaway.org](http://www.onebusaway.org)), real-time transit information available for free in a variety of formats: web, phone, SMS texting, Android, and iPhone.

OneBusAway is the creation of two University of Washington PhD students, Kari Watkins from the department of Civil and Environmental Engineering (CEE) and member of TransNow's Advanced Institute and Brian Ferris from the department of Computer Science Engineering (CSE), and is funded by a grant from the National Science Foundation and Nokia Research. The OneBusAway code is open source primarily because Watkins and Ferris hope it will be a useful model for other transit agencies which will encourage people to use public transportation.

Although more in-depth analysis is planned, the initial survey results have been enthusiastic with the majority of users reporting that their overall satisfaction with public transit improved; 91 percent reported that they spent less time waiting for a bus to arrive. Another reported benefit was an increase in feelings of safety; about 21 percent felt safer while waiting since they were able to wait less time in an area they felt was unsafe or were able to easily find a different stop location altogether. Riders also reported an increase in walking; a common reason given was that since they knew precisely when their bus would arrive or could easily change their routes, they had more time to exercise along the way. According to Watkins, the launch of the iPhone application in September 2009 made OneBusAway even more popular. "The iPhone app has changed everything; since it can track your location, you don't even need a bookmark, you just press a button. It's so easy that I really think it's a game changer."

The open source adaptability, easy to use features, and daily public benefit have not gone unnoticed. In March 2010, the Washington Technology Industry Association announced that OneBusAway won the award for "Best use of Technology in the Government, Non-profit or Educational Sector" and has been featured in *The Seattle Times*, *The Stranger*, and the *Seattle Transit Blog*.

The number of devoted users is impressive and continues to grow: there are approximately 20,000 unique users a week and more than 20,000 downloads of the iPhone application to date. Currently, OneBusAway provides real-time transit information for Metro Transit, Pierce Transit, Sound Transit, and Washington State Ferries. Eventually, Watkins and Ferris hope to incorporate more transit system data from Community Transit and others in the region. While the GPS technology that enables the real-time transit reporting is expensive to install, Ferris hopes that the long-term benefits of empowering riders with information will improve transit by increasing ridership and ultimately, public support.



OneBusAway creators Brian Ferris and Kari Watkins



Bus Stop Number for OneBusAway

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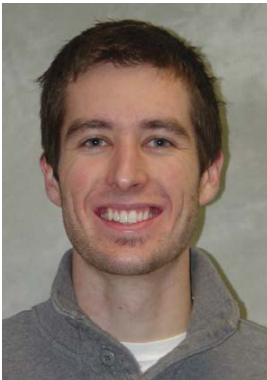
## OneBusAway *Continued from Page 1*

Watkins and Ferris see their creation as not only a transportation tool, but also a source of research data to help transportation professionals “evaluate what works and what doesn’t.” Moreover, they see it as a way to implement positive social and environmental change. “If you want urban areas to work better, you have to support public transit...it helps everyone.”



*Kari Watkins and Brian Ferris plan to graduate in June 2011. They wish to acknowledge their advisors and co-contributors, Scott Rutherford (CEE), Alan Borning (CSE), Dieter Fox (CSE), and David Layton (Evans School of Public Affairs). Ferris and Borning will present research findings at CHI 2010 (Association for Computing Machinery Conference on Human Factors in Computing Systems).*

## WSU Student Tests the Use of Environmentally-friendly Concrete



*Will Goede, MSCE, WSU*

Will Goede graduated in December 2009 with an MS in Civil Engineering from Washington State University. His thesis focused on assessing some of the durability and performance aspects of using pervious concrete for roadways. Pervious concrete is a novel paving material known for its stormwater and other environmental benefits. Unlike impervious pavements, pervious concrete allows rainwater to infiltrate through to the ground below, reducing the amount of runoff and associated pollutants from stormwater which can otherwise cause detriment to property and waterways downstream. Additional environmental benefits include improved sound absorption, potential for benefits with respect to mitigating the urban heat island effect, enhanced carbon dioxide absorption, and reduced use of de-icing chemicals.



At present, most residential streets have impervious concrete which is strong material but costly to the environment. Goede’s work was based upon two applications in Oregon and Washington. These demonstration sites were made of pervious concrete of varying depths and were subjected to loaded concrete trucks over extended periods of time. His study showed that different panels in these two field applications were exposed to equivalent loading amounts as “residential” streets in use for many years, or even “collector” streets in use for between approximately 2 to 20 years. Based on loading stresses, Goede determined that the pavement condition index (PCI) ratings of the thicker pervious concrete sections indicate that pervious concrete, when properly designed, is capable of being used for most “residential” streets and even some “collector” streets. Most of the 7 to 12 inch depth panels received PCI ratings well above the average PCI reported for streets in cities such as Minneapolis, San Francisco, and Los Angeles. He suggested that future work include other stress evaluations such as weather impacts. Goede’s research advisory committee consisted of Dave McLean, Haifang Wen, and Liv Haselbach, faculty members in the Civil and Environmental Engineering Department at WSU.

*Continued from Page 3*

*all, the conference highlighted that there are many people who share the goal of improving transportation systems. The conference was a unique experience that every transportation student should have. The transportation, hotel accommodations, and food were generously supported by TransNow. Thank you!*

Attendees discussed ideas for next year’s conference, including teleconferencing to garner more participation from Idaho and Alaska students. Stay posted for more details about next year’s event. In the meantime, thank you to Kevin Belanger and the students at the UO for a successful conference!

# Region X Focus



Alaska



Idaho

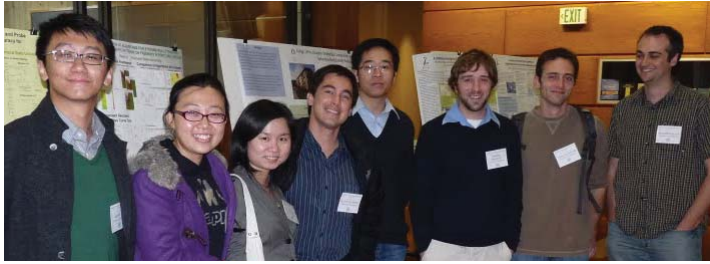


Oregon



Washington

## Region X Student Conference



*Runze Yu, Tingting Wang, Cathy Liu, Felipe Sandoval, Xiaolei Ma, Timothy Thompson, Drew Cooper, and Matthew Klein*

sustainably, including the keynote address on “Innovations in Transportation During Times of Societal Change” by Jim Whitty, Manager of the Oregon DOT Office of Innovative Partnerships and Alternative Funding. In addition, students presented current research projects. The best presentations received awards, including: Felipe Sandoval (UW) for best presentation, Raul Avelar (OSU) for best presentation, 2nd place; Chelsea McNeil and Andrea Rose (OIT) for best poster; and Rolando Mengoza and David Ruelas (PSU) for best poster, 2nd place.

TransNow supports students’ attendance to the annual event. This year, TransNow sent eight students to the conference, including Runze Yu, Tingting Wang, Cathy Liu, Felipe Sandoval, Xiaolei Ma, Timothy Thompson, Drew Cooper, and Matthew Klein. Below is Felipe’s write-up of the conference:

*Transportation students from Region X UTCs gathered to exchange ideas and greet old and new friends. The 2009 conference took place in Eugene, which is a little far for those that traveled from Seattle but well worth the trip. Over*

*Continued on Page 2*

## Region X News

### *2009 Michael Kyte Region X Student of the Year*

In honor of Michael Kyte, retired Director of NIATT at the University of Idaho, and his dedication to multi-university education projects in our region, the Region X UTC Directors created the Michael Kyte Region X Student of the Year award to recognize one outstanding student from the region’s UTCs each year. This year, TransNow’s Yegor Malinovskiy (UW) was awarded the honor at the annual Region X Reception held in conjunction with the TRB Annual Meeting.

Nathan McNeil (PSU) received honorable mention. Both students received plaques to commemorate these honors and perpetual plaques will be prominently displayed in each of the UTCs. Congratulations to Michael, Yegor, and Nathan!



*Yegor Malinovskiy and Prof. Kyte with WSDOT Research Manager, Leni Oman, OTREC Director, Jennifer Dill, and Nathan McNeil*

### *Region X Reception at the TRB Meeting*

The annual Region X Transportation Consortium Reception was held in Washington, DC on January 11, 2010 at the Marriott Wardman Park Hotel. The reception was held in conjunction with the TRB Annual Meeting. Members of Region X UTCs and DOTs gathered with partners and friends in the industry for refreshments. This year’s reception featured the first annual presentation of the Michael Kyte Region X Student of the Year award. Thanks to all the AUTC staff for organizing another successful event!

### *Transportation Seminar Series at PSU*

Every quarter, PSU sponsors a seminar series that allows students and faculty to learn about ongoing research, development, and policy. Viewers can attend seminars in-person or watch them live online on most Fridays during the academic year.

TransNow advertises these events to students and faculty at the UW and WSU in addition to broadcasting certain seminars in the TransNow Communication Center.

To receive notifications about the series, visit <https://www.lists.pdx.edu/lists/listinfo/transportation>. To watch live video, see future scheduled seminars, and view archives visit [www.cts.pdx.edu/seminars/](http://www.cts.pdx.edu/seminars/).

## TransNews

### *Marc Eberhard Goes to Haiti*

UW Professor Marc Eberhard went with a team of researchers and practitioners from the Earthquake Engineering Research Institute (EERI) with funding from the National Science Foundation to perform initial reconnaissance in Haiti after the earthquake that struck on January 12.

The EERI is working with the US Geological Survey, the US military, and other organizations to assess the likelihood of another large-scale earthquake, the after-effects of the devastation that hit a few weeks ago, and the path to reconstruction. The advance team prepared the way for a full-scale research study in late February.

### *Guohui Zhang Wins PTV America Award*

UW alumnus Guohui Zhang's High Occupancy Toll (HOT) Lane Simulation method received the 3rd place award from PTV America. This method was a direct result of the TransNow-sponsored

research, "A Self-Adaptive Toll Rate Algorithm for HOT Lane Operations".

Guohui received a PhD in CEE in 2008 and began his career in academia at the University of Texas in Austin. Congratulations to Guohui!

### *Yegor Malinovskiy Wins Prestigious Awards*

Congratulations to Yegor Malinovskiy, PhD student and RA for Professor Yinhai Wang in the STAR Lab. His thesis on "Occlusion Robust and Environment Insensitive Algorithm for Vehicle Detection and Tracking Using Surveillance Video Cameras" won the UW's 2009 Graduate School Distinguished Thesis Award.

In addition, Yegor was named TransNow's 2009 Outstanding Student of the Year for his excellence in research and academics. He was formally recognized by the CUTC at the annual banquet in Washington, DC. TransNow sponsored his travel to the banquet in addition to awarding him \$1000.

### *Greenroads Research Receiving Widespread Recognition*

The TransNow supported Greenroads project is receiving well-deserved local and national attention. Greenroads researchers began a few years ago to create an efficient ratings system for sustainable road projects. The project was highlighted in the UW's University Week. Check out the article at <http://uwnews.org/uweek/article.aspx?visitsource=uwkmail&id=54864>. The research is also featured in Science Daily, the source for the latest research news. Read the article at [www.sciencedaily.com/releases/2010/01/100113091646](http://www.sciencedaily.com/releases/2010/01/100113091646). To learn more about the project visit [www.greenroads.us/.htm](http://www.greenroads.us/.htm).

### *Transportation Student Party*

On February 26, TransNow hosted a pizza party for UW's transportation students and faculty. Attendees enjoyed free food and Pictionary. Stay posted for news about the spring quarter party.