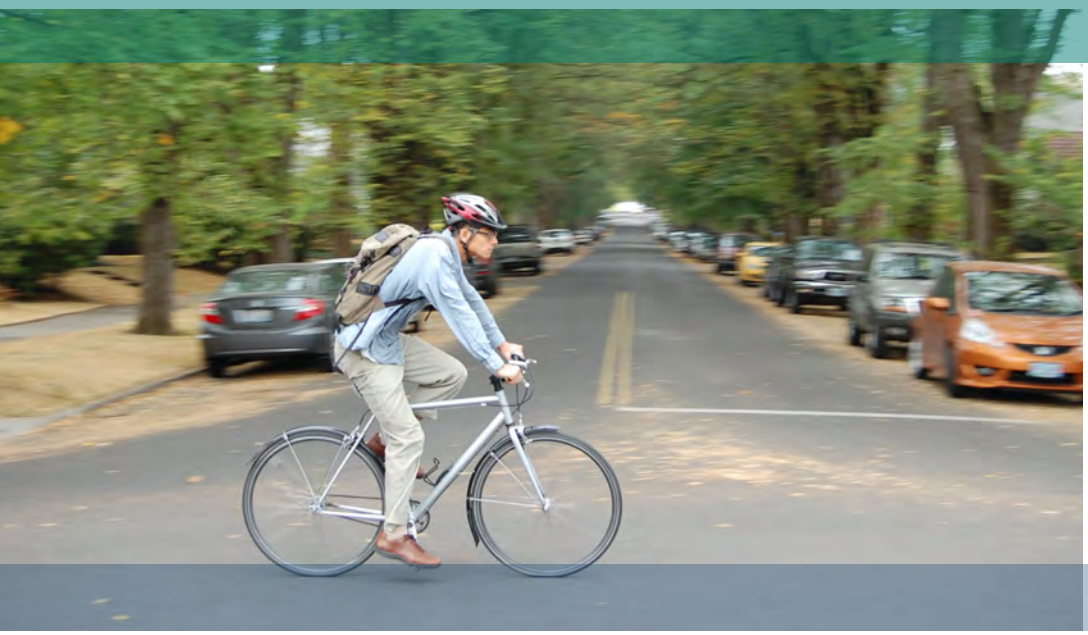

2011 – 2012 Annual Report

OTREC
OREGON TRANSPORTATION RESEARCH
AND EDUCATION CONSORTIUM

Contents

Mission OTREC is committed to providing relevant and high-quality research to assist local, state and regional agencies in their work and expanding the pool of highly trained graduates who choose to work in transportation-related fields. OTREC seeks to build upon our collective efforts and expertise to make Oregon a place where innovation, creativity and multidisciplinary collaboration lead to sustainable, livable communities. OTREC serves its mission by supporting research, training and outreach in a wide variety of transportation-related disciplines.

Theme: OTREC supports innovations in sustainable transportation through advanced technology, integration of land use and transportation, and healthy communities.

The Oregon Transportation Research and Education Consortium (OTREC) is a university transportation center based at Portland State University and sponsored by the U.S. Department of Transportation's Research and Innovative Technology Administration.

This publication is a report of OTREC's transportation research, education and technology transfer activities for October 1, 2011 – September 30, 2012.

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Edited by: Justin Carinci
Contributors: Jennifer Dill, Hau Hagedorn, Jon Makler, Carol Wallace, Margaret Sanger

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Message from
OTREC Director Jennifer Dill

This annual report comes at a time of transition for OTREC. The projects described in these pages are among the last awarded under OTREC's original grant. Since OTREC was created six years ago under the federal SAFETEA-LU transportation law, we've established an impressive list of accomplishments in our research, education and technology transfer program areas. Our work has informed policy and educated students who went on to become leaders in their fields. It has gone into practice at public agencies, private firms and organizations in Oregon and across the nation.

At OTREC, we've always understood the importance of measuring the value of our investments and the value of the public's investment in our center. While the type of groundbreaking multidisciplinary work that takes place at OTREC campuses can often defy traditional measures, we have worked even harder to make sure we record and communicate results. From our running "OTREC by the Numbers" tally (Page 5) to our follow-up tracking with project partners, OTREC has always operated with the conviction that our work doesn't end with the publication of a final report. Implementation is a key part of every project. As a demonstration of this commitment, we're pleased to have recently instituted a system that allows us to track and analyze information about each user who downloads an OTREC report, including that report's intended use. This system helps us follow up to ensure that the intended use succeeds and lets us enjoy the surprises that come with our research driving an application that the researcher never imagined.

As OTREC administers the new National Institute for Transportation and Communities program, we're pleased that the U.S. Department of Transportation has written a similar philosophy into its new guidelines. Every university transportation center will now report in detail on the results of the program and how its investments benefit the nation. These results are divided into three categories: outputs, outcomes and impacts. Whereas outputs describe the typical products associated with university transportation research, such as papers published and reports presented, outcomes and impacts take accountability one step further. Outcomes show how a project increases understanding and knowledge of transportation issues, for example, or increases the pool of trained transportation professionals. Finally, impacts show how a transportation center makes real, long-term changes on topics such as improving safety for all transportation system users, increasing travel-time reliability or increasing the acceptance and use of active transportation modes.

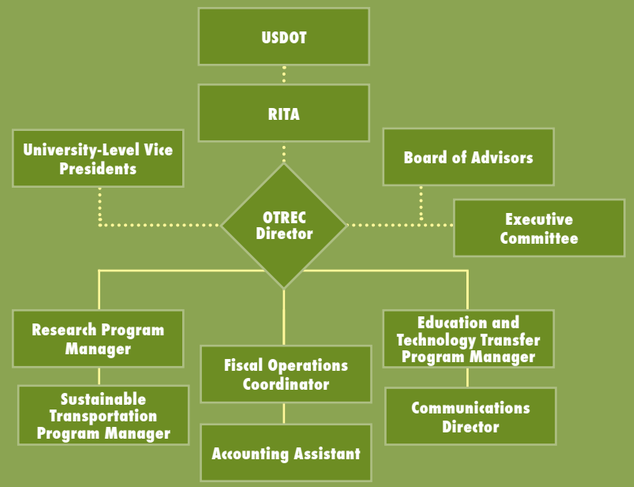
As we go forward with the NITC program—and look forward to the next grant competition—OTREC will continue to focus on all three categories of results. With the research phase of projects awarded under the initial grant coming to a close, we're aware that our commitments have just begun. We're still ensuring the work we've done gets into the hands of the practitioners who put it to use, the researchers who will build upon it and the innovators who will find new ways to solve the transportation problems of the future.

Jennifer Dill, Ph.D.
Director, Oregon Transportation Research and Education Consortium
Professor, Nohad A. Toulan School of Urban Studies and Planning
Portland State University

OTREC Staff and Structure

Organizational Chart

OTREC is a national university transportation center under the U.S. Department of Transportation's Research and Innovative Technology Administration. Jennifer Dill directs OTREC. An Executive Committee is made up of one faculty member from each partner institution, an Oregon DOT representative and a FHWA representative. The OTREC Board of Advisors consists of representatives from transportation-related organizations. Each university's vice president for research (or equivalent) and their staff also assist with OTREC administration and oversight.



Key Personnel

Jennifer Dill, Ph.D.
Director

Hau Hagedorn
Research Program Manager

Jon Makler, AICP
Education and Tech Transfer Program Manager

John MacArthur
Sustainable Transportation Program Manager

Justin Carinci
Communications Director

Carol Wallace
Fiscal Operations Coordinator

Margaret Sanger
Accounting Assistant

Executive Committee

Jennifer Dill, Ph.D.
Director,
Portland State University

Marc Schlossberg, Ph.D.
Associate Director,
University of Oregon

Chris Higgins, Ph.D., P.E.
Associate Director,
Oregon State University

Roger Lindgren, Ph.D., P. E.
Associate Director,
Oregon Institute of Technology

Satvinder Sandhu
Oregon Division, Federal Highway Administration

Barnie Jones
Research Manager,
Oregon Department of Transportation

Board of Advisors

Mike Baltes Director
Office of Technology, Federal Transit Administration

Jerri Bohard Interim Deputy Director of Operations, Oregon Department of Transportation

Phillip Ditzler Administrator
Oregon Division, Federal Highway Administration

Brian Dunn Oregon Modeling Steering Committe, Oregon Department of Transportation

Mike Hoglund Research Director
Metro

Rob Inerfeld Transportation Planning Manager, City of Eugene

Susie Lahsene Senior Manager
Transportation and Land Use Policy, Port of Portland

Alan Lehto Director of Project Planning, TriMet

Jay Lyman Chief Operating Officer
David Evans & Associates

Randy McCourt Principal
DKS Associates

Lynn Peterson Sustainable Communities and Transportation Policy Adviser, Oregon Gov. John Kitzhaber's office

G. Scott Rutherford Interim Director
Transportation Northwest (TransNow)

Rob Sadowsky Executive Director
Bicycle Transportation Alliance

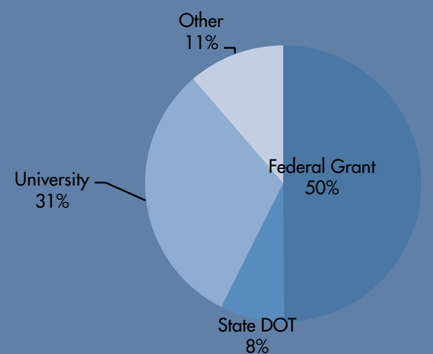
Tom Schwetz Director of Development Services
Lane Transit District

OTREC by the Numbers

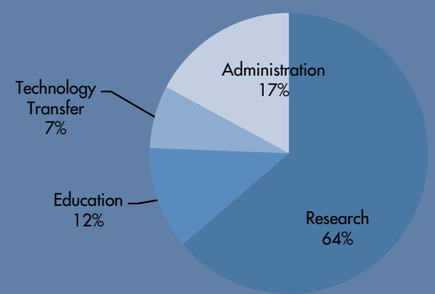
A numerical overview of the Oregon Transportation Research and Education Consortium.

	2011-2012	Cumulative
Proposals received	42	307
Research projects funded	13	118
Multi-campus projects	3	37
Multi-principal investigator projects	9	92
Research projects partnered with Oregon DOT	4	56
Dollars awarded: research projects	$1,543,292	$9,781,786
Faculty partners (running total)	90	90
External sponsors participating (running total)	42	42
Labs and research groups (running total)	13	13
Education projects funded	1	20
Dollars awarded: education projects	$26,734	$597,244
Technology transfer projects funded	1	15
Dollars awarded: technology transfer projects	$41,566	$828,301
Graduate students involved in projects	81	760
Undergraduate students involved in projects	97	612

Finance



Funding Sources
(Inception to Sept. 30, 2012)



Expenditures
(Oct. 1, 2011 to Sept. 30, 2012)

Student Achievement

2012 Outstanding Student of the Year:
Kristina Currans, Portland State University

Kristina Currans is a graduate student at Portland State University whose work focuses on the relationship between land use and travel behavior, with a particular interest in multimodal transportation. After graduating Oregon State University with a civil engineering bachelor's degree in 2010, Currans soon made a name for herself in transportation circles. She started her graduate coursework at Portland State and worked during academic breaks with the Oregon Department of Transportation's Transportation Planning Analysis Unit, home to state and regional transportation models. There, she worked with the Statewide Integrated Model, SWIM2, and the GreenSTEP transportation emissions model. Currans works as a part of OTREC's Oregon Modeling Collaborative and on several OTREC research projects. Her work on trip generation has attracted national attention. Currans was the 2012 outstanding student inductee to the Denice Dee Denton Women Engineers Hall of Fame.

Doctoral Dissertation Fellows

OTREC awards fellowships to assist doctoral candidates in completing their dissertation research. The $15,000 fellowships are awarded through a competitive process open to doctoral candidates at OTREC universities.

Oliver Smith is a Ph.D. candidate in Portland State University's urban studies program, studying travel behavior and health, and energy use as it relates to transportation. Smith's dissertation research examines whether commute well-being is greater among users of active transportation modes than among motorized mode users. It also examines the connections between commute well-being and overall subjective well-being. The research is important in part because evidence of connections between active commute modes and well-being could help policymakers and advocates to better market active transportation policies.

Nicole Iroz-Elardo is a Portland State urban studies Ph.D. candidate. She joined the program after working for several years as a statistician in environmental health. Her areas of expertise include urban health and understanding how conflict is resolved in urban planning. She was drawn to these specializations because she wants to understand how planning curriculum and public planning processes can better support social justice ideals and outcomes. Her dissertation investigates the potential of health impact assessments to provide communities an additional avenue for participation and influence in transportation planning activities.

Student Groups and Activities

Transportation student groups are a big part of student life on each OTREC campus. Activities include field trips, guest speakers, job fairs and social activities. Group profiles below include the name of the group leader for 2011-2012:

Students in Transportation Engineering and Planning (STEP) is the name of PSU's group. In 2010-11, STEP hosted the Region X Student Conference (more below), organized a holiday Gingerbread Transit Competition, sent 32 students to TRB, hosted a local TRB "after-shock" community debrief, toured the Port of Portland and organized a multi-modal hiking adventure. 2011-12 Leader: Chris Muhs (MSCE '12)

Transportation and Livability Student Group (LiveMove) is the UO's group. The students organized and hosted eight events in their ongoing speaker series, bringing prominent guests to Eugene to interact with the campus and community. In addition to TRB and several regional transportation events, LiveMove members attended the invitation-only Clinton Global Initiative University Conference. Notably, the group's number of active members grew to 21. 2011-12 Leader: Cortney Mild (MCRP '12)

The OSU Student Chapter of ITE hosted visiting scholars including Shane Brown (Washington State Univ.), David Noyce (Univ. of Wisconsin) and local professionals. The group examined air- and land-side operations at Eugene Regional Airport and helped host Oregon DOT's Northwest Transportation Conference in February. The OSU team won Traffic Bowl for the Oregon Section of ITE and placed second at the Western District competition. 2011-12 Leader: Lacy Brown (MSCE '12)

OIT's ITE Student Chapter uses OTREC's support to send students to events such as the annual Traffic Bowl and on transportation field trips. OIT students this year toured a Knife River Pre-Stress plant and the Willamette River Bridge in Eugene, Ore., visited the Asphalt Pavement Association of Oregon lab and the Antlers Bridge project in Lakehead, Calif. Students also traveled to conferences and hosted speakers. 2011-12 Leader: Zach Davis (BSCE '12)

Frequently, the highlight of the academic year for Oregon's transportation students falls in mid-November. The 20th annual William C. Kloos Traffic Bowl was held by the Oregon Section of the Institute of Transportation Engineers on November 17, 2011. The Oregon State Beavers, reigning Best Student Chapter in ITE's Western District, won the Jeopardy-style tournament. The traffic bowl was followed immediately on November 18th by the 9th annual Region X Student Conference. Portland State played host and offered several exciting technical tours: bridges, bikes, signals, and incident command. The 75 students in attendance selected Lacy Brown (Oregon State) for the best presentation award and the team of Sara Morrissey and Chloe Ritter for best poster.

Visit student group Web pages at http://otrec.us/for_students/groups

2011-2012 Year in Review

10.07.11
OTREC visiting scholar Andrew Dannenberg, at right, meets with students before a transportation seminar presentation at Portland State.

11.10.11
Above, historic road preservation planner Dan Marriott answers questions in Eugene during the University of Oregon LiveMove Speaker Series.

11.17.11
Students from OTREC campuses and beyond participate in the annual Oregon ITE Traffic Bowl competition.

12.07.11
Teams from Portland State University's STEP student group (above) compete to build edible designs of the multibillion-dollar Columbia River Crossing highway project.

12.19.11
The Initiative for Bicycle and Pedestrian Innovation at Portland State University receives a gift creating an endowment for an annual transportation lecture in Portland.

03.19.12
OTREC staff meet with University of Utah faculty, students and partners to kick off the new National Institute for Transportation and Communities program. Keith Bartholomew, above left, leads the group to Utah Transit Authority headquarters.

04.13.12
Denver Igarta, right, principal author of the Portland Bicycle Plan, discusses planning for livable streets at an OTREC seminar.

04.06.12
Rick Donnelly, above, opens the OTREC transportation seminar series with a modeling overview.

05.04.12
Visiting scholar Peter Furth, above, shares his research on low-stress bicycle networks at Portland State University.

06.20.12
OTREC staff attends the Council of University Transportation Centers summer meeting in Houghton, Mich.

09.10.12
The fourth annual Oregon Transportation Summit, OTREC's signature event, features a plenary session on the future of metropolitan planning organizations and workshops on topics ranging from car and bike sharing to the economics of transportation systems. Keynote speaker Eran Ben-Joseph of MIT details the design and culture of parking. Above, Carolina Iraheta Gonzalez of the Portland Bureau of Transportation discusses the Walking School Bus campaign.

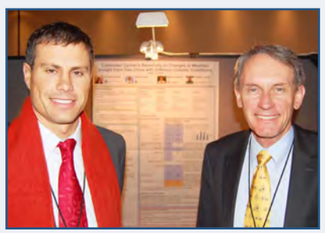
2011

10.21.11
Ronald Tamse with the city of Utrecht, Netherlands, speaks to students as a visiting scholar at the University of Oregon and Portland State.

11.18.11
Students get a tour of signal systems as Portland State hosts the Region X Student Transportation Conference. The student-run conference showcases student research in Oregon, Washington, Idaho and Alaska.

2012

01.22.12
Students and faculty researchers from OTREC universities present 45 papers at the Transportation Research Board's annual meeting. Below, Miguel Figliozzi, left, and Geoffrey Rose present on cyclists' sensitivity to weather changes.



03.20.12
OTREC helps organize and facilitate a transportation workforce summit convened by Portland Mayor Sam Adams, above center, and Multnomah County Commissioner Loretta Smith, second from right. The 35 transportation leaders attending discussed ways to meet expected workforce challenges.

05.01.12
University of Oregon LiveMove student Casey Gifford receives Fulbright scholarship to study transportation in Denmark.

04.11.12
Oregon Tech students and faculty give OTREC staff a tour of projects in action. Below, Director Jennifer Dill tests out an electric vehicle under development.

06.06.12
Below, U.S. DOT Research and Innovative Technology Administration staff tour a living laboratory for OTREC research: Portland streets.

06.11.12
OTREC makes available its entire eight-week transportation modeling seminar series. The series shows how modeling can support better decision making.

07.02.12
U.S. Sen. Jeff Merkley, above center, sets out on his "Oil-Free Across Oregon" electric vehicle tour from the Electric Avenue charging hub at Portland State University. Portland Mayor Sam Adams, left, and Portland State President Wim Wiewel examine a charger.

Completed Projects

RESEARCH

Relocation of Homeless People from ODOT Rights-of-Way
Ellen Bassett

Integrated Multimodal Transportation, Air Quality, and Livability Corridor Study: Measuring, Understanding, and Modeling the Interactions
Miguel Figliozzi

The Relationship Between VMT and Economic Activity
B. Starr McMullen

Contextual Influences on Trip Generation
Kelly Clifton

Wireless Data Collection System for Travel Time Estimation and Traffic Performance Evaluation
David Kim

Real-time Change And Damage Detection Of Landslides and Other Earth Movements Threatening Public Infrastructure
Michael Olsen

Climate Change Impact Assessment for Surface Transportation in the Pacific Northwest and Alaska
John MacArthur

A Study of Headway Maintenance for Bus Routes: Causes and Effects of "Bus Bunching" In Extensive and Congested Service Areas
Miguel Figliozzi

Tools for Gusset Plate Evaluation
Christopher Higgins

Development of a Model to Predict and Mitigate Environmental and Public Health Impacts of Traffic Flows and Traffic Management Policies in Urban Transportation Microenvironments
Linda George

Regional Transportation and Land Use Decision Making: A Multistate Analysis
Richard Margerum

Durability Assessment of Recycled Concrete Aggregates for use in New Concrete
Jason Ideker

Exploratory Methods for Truck Re-identification in a Statewide Network Based on Axle Weight and Axle Spacing Data to Enhance Freight Metrics: Phase 2
Christopher Monsere

Wireless Data Collection System for Real-Time Arterial Travel Time Estimation
David Porter

Extraboard Management
James Strathman

Green and Economic Fleet Replacement Modeling
David Kim

Impacts of Neighborhood Electric Vehicles (NEVs) on Transportation Infrastructure Safety and Regulation
Kate Hunter-Zaworski

Evaluation of Safe Routes to School Programs: Qualitative and Quantitative Analysis of Parental Decision-Making
Lynn Weigand

Analysis of Travel Time Reliability for Freight Corridors Connecting the Pacific Northwest
Miguel Figliozzi

Analyzing and Quantifying the Impact of Congestion on LTL Industry Costs and Performance in the Portland Metropolitan Region
Miguel Figliozzi

Seismic Hazard Assessment of Oregon Highway Truck Routes
Peter Dusicka

Combined Seismic Plus Live Load Analysis of Highway Bridges
Michael Scott

Future Flooding Impacts on Transportation Infrastructure and Traffic Patterns Resulting from Climate Change
Heejun Chang

Advisory Speed Safety Study
Karen Dixon

Calibrating the HSM Predictive Methods for Oregon Highways
Karen Dixon

Hurricane Wave Forces on Highway Bridge Superstructure: Psuedo-dynamic Testing for Bridge Subassembly
Daniel Cox

Value of Reliability, Phase 2
Miguel Figliozzi

A Novel Design Strategy for Integrating Freight Rail Into Urban Settings: A Capping Study
John Jeffrey Schnabel

Financing Mechanisms for Capacity Improvements at Interchanges
James Strathman

The Effectiveness of Vertebrate Passage and Prevention Structures: a Study of Boeckman Road in Wilsonville
Catherine de Rivera

Expanding Development of the Oregon Traffic Safety Data Archive Phase 2
Christopher Monsere

Exploratory Methods for Truck Re-identification in a Statewide Network Based on Axle Weight and Axle Spacing Data to Enhance Freight Metrics
Christopher Monsere

Evaluation of Bike Boxes at Signalized Intersections
Jennifer Dill

Maintaining Safe, Efficient and Sustainable Intermodal Transport Through the Port of Portland
David Jay

Healthy Communities and Urban Design: A Multi-Disciplinary National Analysis of Travel Behavior, Residential Preference, and Urban Design
Jessica Greene

Factors for Improved Fish Passage Waterway Construction, Phase 2
David Sillars

Overlooked Density: Re-Thinking Transportation Options in Suburbia, Phase 2
Nico Larco

Freight Performance Measures: Approach Analysis
B. Starr McMullen

Evaluating the Effectiveness of the Safety Investment Program (SIP) Policies for Oregon
Christopher Monsere

Using Archived ITS Data to Measure the Operational Benefits of a System-wide Adaptive Ramp Metering System
Robert Bertini

Understanding School Travel: How Residential Location Choice and the Built Environment Affect Trips to School
Yizhao Yang

Expanding Development of the Oregon Traffic Safety Data Archive
Christopher Monsere

No More Freeways: Urban Land Use-Transportation Dynamics without Freeway Capacity Expansion
Lei Zhang

Hurricane Wave Forces on Highway Bridge Superstructure: Repair and Retrofit of Existing Bridges, Phase 2
Daniel Cox

Long-term Evaluation of Individualized Marketing Programs for Travel Demand Management
Jennifer Dill

Development of an Open Source Bridge Management System
Michael Scott

Instrumentation for Mechanistic Design Implementation
Todd Scholz

Food Delivery Footprint: Addressing Transportation, Packaging, and Waste in the Food Supply Chain
Madeleine Pullman

Overlooked Density: Rethinking Transportation Options in Suburbia
Nico Larco

Seismic Damage State Models for Oregon Bridges
Peter Dusicka

Influence of Environmental Effects on Durability of CFRP for Shear Strengthening of RC Girders, Year 2
Christopher Higgins

Assessment and Refinement of Real-Time Travel Time Algorithms for Use in Practice, Phase 2
Kristin Tufte

Practical Approximations to Quantify the Impact of Time Windows and Delivery Sizes on Freight VMT in Urban Areas
Miguel Figliozzi

Freight Distribution Problems in Congested Urban Areas: Fast and Effective Solution Procedures to Time-Dependent Vehicle Routing Problems
Miguel Figliozzi

Oregon Freight Data Mart
Miguel Figliozzi

Value of Reliability
Miguel Figliozzi

Understanding Driver Behavioral Changes Associated with Road User Fees
Anthony Rufolo

Empirical Observation of the Impact of Traffic Oscillations on Freeway Safety
Christopher Monsere

Operational Analysis of Transit Bus Collisions
James Strathman

Analysis of TriMet Bus Operator Absence Patterns
James Strathman

Evaluation of the Oregon DMV At-Risk Driver Program, Phase 2
James Strathman

Socioeconomic Effect of Vehicle Mileage Fees, Phase 2
B. Starr McMullen

Evaluation of the Oregon DMV At-Risk Driver Program
James Strathman

Coevolution of Transportation and Land Use
Lei Zhang

Improving Travel Information Products via Robust Estimation Techniques
David Maier

Assessment and Refinement of Real-Time Travel Time Algorithms for Use in Practice
Kristin Tufte

Performance Enhancement of Bridge Bracing Under Service and Extreme Loads
Peter Dusicka

Influence of Environmental Effects on Durability of CFRP for Shear Strengthening of RC Girders
Christopher Higgins

Factors for Improved Fish Passage Waterway Construction
David Sillars

Characteristics of Transitions in Freeway Traffic
Robert Bertini

Understanding and Measuring Bicycling Behavior: A Focus on Travel Time and Route Choice
Jennifer Dill

Hurricane Wave Forces on Highway Bridge Superstructure
Daniel Cox

The Influence of Community Walkability and Safety on Active Transportation Among Low-Income Children
Jessica Greene

Using Existing ITS Commercial Vehicle Operation (ITS/CVO) Data to Develop Statewide (and Bi-state) Truck Travel Time Estimates and Other Freight Measures
Christopher Monsere

Socioeconomic Effect of Vehicle Mileage Fees
B. Starr McMullen

From Arterial to Asset: Examining the Role of the Multi-Way Boulevard in Coordinated Transportation and Land Use Planning
Mark Gillem

Completed and Ongoing Projects

Completed Projects (continued)

EDUCATION

Enhancing Bicycle and Pedestrian Education through Curriculum and Faculty Development
Lynn Weigand

Bicycle and Pedestrian Engineering Design Curriculum Expansion
Ashley Haire

designBridge: Integrating Transportation into Service Learning Design/Build Projects, Phase 2
Nico Larco

Electric Vehicle Charging Infrastructure Community Needs Assessment
Robert Parker

Bicycle and Pedestrian Design Curriculum Expansion
Lynn Weigand

Expanding Service Learning Models in Transportation
Robert Parker

Rural Young Women Transportation Education Outreach
Roger Lindgren

designBridge: Integrating Transportation into Service Learning Design/Build Projects
Nico Larco

Trail Planning & Community Service Curriculum
Lynn Weigand

Distribution Logistics Course
Miguel Figliozzi

Traffic Engineering Training for Rural Communities
Roger Lindgren

Bicycle and Pedestrian Education Program
Lynn Weigand

Linking Experiential Learning to Community Transportation Planning
Robert Parker

Road Ecology Course and Seminar Series
Mark Sytsma

City Design Lecture Series: Linking Transportation and Land Use Planning
Mark Gillem

TECHNOLOGY TRANSFER

Pedestrian and Bicycle Master Planning: Training for Practitioners
Lynn Weigand

Transportation Planning Through Mobile Mapping Technology
Marc Schlossberg

Transferring GIS / Community-Based Transportation Assessment Tools Nationwide
Marc Schlossberg

Increasing Capacity In Rural Communities: Planning for Alternative Transportation
Megan Smith

Oregon Transportation Planning Experience
Carl Abbott

Active Transportation, Neighborhood Planning and Participatory GIS, Phase 2
Marc Schlossberg

Initiative for Bicycle and Pedestrian Innovation
Jennifer Dill

Application of LRFD Principles for Deep Foundations in Oregon: Phase 1
Trevor Smith

Active Transportation, Neighborhood Planning and Participatory GIS
Marc Schlossberg

Developing a Coordinated Professional Development Program for OTREC
Robert Layton

Ongoing Projects

RESEARCH

Development of Pedestrian Planning Tools for Use in Travel Demand Modeling
Kelly Clifton

Integrated Multimodal Transportation, Air Quality, and Livability Corridor Study, Phase II
Miguel Figliozzi

The Application of Smart Phone Truck Data to Develop Freight Performance Measures and Support Transportation Planning
Miguel Figliozzi

Operational Guidance for Bicycle-Specific Traffic Signals
Christopher Monsere

Commute Friendly Gas-Electric Hybrid Vehicle
James Long

Assessing Transit Agencies' Climate Change Adaptation Needs
John MacArthur

Wider Dissemination of Household Travel Survey Data Using Geographical Perturbation Methods
Nebahat Noyan

Improved Pedestrian Safety at Signalized Intersections Operating the Flashing Yellow Arrow
David Hurwitz

Promoting Active School Travel by Making it Cool: a Quasi-Experimental Study Using Boltage
Yizhao Yang

Bus Safety Performance Monitoring and Analysis
James Strathman

Increasing Bicycling for Transportation: The Role of Cyclist Type and Infrastructure
Jennifer Dill

Prioritization for Seismic Retrofit with Statewide Transportation Assessment
Peter Dusicka

Transit Bus Fleet Management and Optimization Models Addressing New Engine Technologies and Emissions Constraints
Miguel Figliozzi

Overlooked Destinations: Suburban Nodes, Centers, and Trips to Strips
Nico Larco

Influence of Road Cross Section on Access Spacing
Karen Dixon

Multimodal Data at Signalized Intersections: Strategies for Archiving Existing and New Data Streams to Support Operations and Planning
Christopher Monsere

Livability Performance Metrics for Transit
Marc Schlossberg

Reducing Seismic Risk to Highway Mobility: Assessment and Design Tools for Pile Foundations Affected by Lateral Spreading
Scott Ashford

Durability Assessment of Recycled Concrete Aggregates for use in New Concrete, Phase 2
Jason Ideker

Evaluation of Bike Boxes at Signalized Intersections: Phase 2
Christopher Monsere

Tools for Gusset Plate Evaluation, Phase 2: Strengthening
Christopher Higgins

Economic Benefits of Cycling
Kelly Clifton

Green Schools in Gray Zones: Assessing Alternative Transportation & Land Use Credits of LEED™ and non LEED™ Rated K-12 Schools on Student Health & Academic Performance in Oregon
Ihab Elzeyadi

Fusion and Integration of Arterial Performance Data
Kristin Tufte

Incorporating New Data Needs into Travel and Activity Surveys
Jennifer Dill

Exploiting a Next Generation ITS Data Warehouse for Improved System Performance and Congestion Monitoring
Kristin Tufte

Improving Regional Travel Demand Models for Bicycling
John Gliebe

Implementation of Active Living Policies by Transportation Agencies and Departments
Jennifer Dill

Access Management Best Practices Manual
Karen Dixon

Dynamic Activity-Based Travel Forecasting System
John Gliebe

Application of WIM Data for Improved Modeling, Design, and Rating
Christopher Monsere

Identify and Address Institutional Barriers Delaying Incident Clearance
Karen Dixon

EDUCATION

An Activity-Based Learning Module for Human Factors in the Introductory Transportation Engineering Course
David Hurwitz

University of Oregon Transportation Speaker Series
Marc Schlossberg

Sustainable Cities Lecture Series
Mark Gillem

Development, Deployment, and Assessment of a New Educational Paradigm for Transportation Professionals and University Students
Ashley Haire

Closing the Gap: Developing a Transportation Curriculum for the Oregon Young Scholars Program
Carla Gary

TECHNOLOGY TRANSFER

Transportation Electrification Initiative
John MacArthur

Sustainable Cities Initiative (SCI)
Robert Liberty

Development of Mobile Mapping Technology to Facilitate Dialog between Transportation Agencies and the Public
Ken Kato

Transportation Electrification Initiative
John MacArthur

Oregon Modeling Collaborative
Kelly Clifton

Sustainable Cities Initiative (SCI)
Nico Larco

A Comprehensive Roadmap for the Development of Low/No Emission Vehicle Infrastructure in the Portland Metro Region
John MacArthur

Expanding Development of the Oregon Traffic Safety Data Archive: Phase 3
Christopher Monsere

Overlooked Density: Re-Thinking Transportation Options in Suburbia, Phase 3
Nico Larco

Options for Integrating Urban Land Use and Travel Demand Models
John Gliebe

Learn more about each of these projects and download available final reports and other products at:
http://otrec.us/research/final_reports

OTREC Award Winners

Each year, OTREC recognizes transportation leaders at the Oregon Transportation Summit. We honor a partner agency that makes OTREC projects possible and a researcher who exemplifies our goals. The Congressman Peter DeFazio Transportation Hall of Fame Award goes to an Oregonian whose leadership reflects Rep. DeFazio's values and advances OTREC's theme.

DeFazio Hall of Fame: Andy Cotugno, Metro

Andy Cotugno has 35 years of professional experience in transportation and planning. He earned a bachelor's degree in city and regional planning from California Polytechnic State University, San Luis Obispo, in 1974, and did graduate work in public administration at Lewis & Clark College in Portland. Cotugno worked as a transportation planner before being appointed Metro's transportation director in 1980. In 2000, the Transportation and Growth Management Services departments were merged into one. Cotugno managed this combined Planning Department until 2008, when he was appointed senior policy advisor to the Metro Council and chief operating officer. As head of transportation planning for Metro, Cotugno advanced the development of a transportation system that balances the needs of all users. He pushed for development of active transportation options and engaged agencies across the region and beyond in smart growth discussions. A staunch supporter of OTREC since its creation in 2006, Cotugno has worked to further research in transportation planning.

Partner of the Year: Metro

Metro, the Portland metropolitan area's regional government, is the only directly elected metropolitan planning organization in the country Metro has been a long-standing partner and collaborator with OTREC and our researchers. In spite of restrictions on specific project match, Metro has partnered on over 10 projects in the past five years, leveraging nearly $500,000 of research for OTREC projects. The partnership between OTREC and Metro has helped advance research on topics such as: improving the regional travel demand model for bicycling, exploring the effect of the suburban built environment and land uses on mode choice, and adjusting the Institute of Transportation Engineers trip generation rates for compact urban settings. Metro is an early adopter of research results, helping the region lead the way in sustainable transportation, which has been integral to creating livable communities.

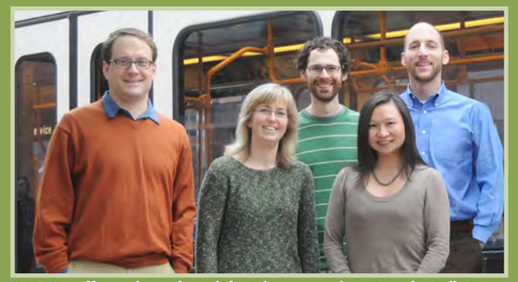
Researcher of the Year: James Strathman

James Strathman has served as director of the Center for Urban Studies at Portland State University since 1998, having joined the faculty in 1982. He is Portland State's university representative to the Transportation Research Board. His external research portfolio spans 40 projects and nearly $3.5 million and he is the author or coauthor of work appearing in more than 100 refereed publications. He is the principal investigator on seven OTREC projects. Strathman has long-standing relationships with both the Oregon Department of Transportation and TriMet, and his research has been invaluable to those agencies. His research on transit driver scheduling, for example, is helping TriMet improve its operations and realize savings of nearly $1 million per year.

In Memoriam: Gail Achterman

One of Oregon's most stalwart and effective public servants, Gail Achterman, died in 2012. Achterman committed her life to furthering environmental and transportation issues to improve the quality of life in Oregon. Her commitment to improving and connecting transportation with land use and environmental policy was the reason she received the 2011 OTREC DeFazio Hall of Fame Award. As chair of the Oregon Transportation Commission, she helped guide the Oregon Department of Transportation toward leadership in sustainability and integrated modeling. We honor her legacy.

OTREC Points of Pride



OTREC staff members, from left, John MacArthur, Jennifer Dill, Justin Carinci, Hau Hagedorn and Jon Makler.

After six years of success, OTREC is growing and changing rapidly. In 2011, Portland State University joined with the University of Oregon, Oregon Institute of Technology and the University of Utah to compete successfully for one of 22 U.S. DOT university transportation center grants, creating the National Institute for Transportation and Communities program, or NITC. In 2012, NITC's executive committee chose 19 research, education and technology projects to be carried out in 2012-2013.

Meanwhile, OTREC's first six years of grants continue to produce research findings and other products from the partnership of Portland State, University of Oregon, Oregon State University and Oregon Tech. And we continue to diversify our efforts with new partnerships and research, including an evaluation of the District (of Columbia) Department of Transportation's bicycle facilities and an examination of how peer-to-peer car sharing affects the travel behaviors and opportunities of vehicle owners and renters. OTREC at Portland State University now administers all of these programs.

In research news, OTREC researchers are fine tuning the methodology they used to evaluate bicycle facilities in Portland and Washington, D.C., for the Green Lane Project of the Bikes Belong Foundation. The researchers are assessing the safety, operations, economic effects, user experience and perceptions of new protected bikeways in six cities across the country. The project is led by Christopher Monsere, with co-investigators Jennifer Dill, Kelly Clifton and Nathan McNeil.

OTREC research continues to advance the understanding of active transportation in suburbia. The project "Overlooked Destinations: Suburban Nodes, Centers and Trips to Strips," by University of Oregon's Nico Larco, challenges conceptions of suburbia as the exclusive domain of the automobile. Active travel is widespread around suburban commercial strips, Larco found. Even where land use doesn't encourage walking and cycling, the demand for active trips leads residents to literally beat their own path to commercial centers.

Communities that invest in active transportation facilities face a nagging question: will businesses suffer if people trade car trips for ones on foot, bicycle or transit? New OTREC research from Kelly Clifton of Portland State suggests that drivers bring no greater monetary benefit to businesses than do other mode users. Her project, "Examining Consumer Behavior and Travel Choices," did find that consumers who arrive at restaurants, bars and convenience stores by automobile spend more on average per trip than others. However, they also average fewer trips. Taking this frequency into account, people arriving by bicycle or on foot are greater spenders on average.

OTREC research led by Miguel Figliozzi of Portland State has turned a busy Portland corridor into a living laboratory, with ongoing research on advanced traffic controls, transit signal priority and air quality. Findings suggest that turning bus shelters away from the roadway can greatly reduce exposure to pollution for transit users. Work on adaptive signal systems shows both traffic volumes and speeds increasing, while signal priority allows more buses to stick to their schedules.

OTREC uses Twitter to share news and keep up with others in transportation-related fields. In August 2012, our Twitter account reached 1,000 followers. If you're not yet one of the 1,000, you can follow @OTREC to keep up with OTREC research and programs and to join in the discussion.

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