



Program Progress Performance Report for University Transportation Center at Portland State University

Submitted to: U.S. Department of Transportation
Research and Innovative Technology Administration (RITA)

Grant Number: DTRT12-G-UTC15

Project Title: University Transportation Center
National Institute for Transportation and Communities (NITC)

*Consortium members: Portland State University (PSU),
University of Oregon (UO), Oregon Institute of Technology (OIT),
University of Utah (UU)*

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Submitting Official: same as above

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Recipient Organization: Portland State University
PO Box 751
Portland, OR 97207-0751

Grant Period: January 2, 2012 – January 31, 2016

Reporting Period End Date: December 30, 2014

Report Term: Semi-annual

Signature:

A handwritten signature in black ink, appearing to read 'J. Dill'.

1. ACCOMPLISHMENTS: What was done? What was learned?

The information provided in this section allows the RITA grants official to assess whether satisfactory progress has been made during the reporting period.

What are the major goals of the program?

The major goals for NITC as described in our application fall into five categories:

Research

- **Competitive, peer-review project selection process.** NITC projects are to be selected through an open RFP process. All faculty at the member campuses, as well as approved Faculty Associates, will be eligible to submit research, education and technology transfer project proposals responsive to our theme. The proposal evaluation process will emphasize external peer review and draw on the expertise of practitioners and researchers nationally.
- **Transportation for Livable Communities Pooled-fund research.** To help maximize implementation of U.S. DOT's commitment to livable communities, NITC's Transportation for Livable Communities Pooled-Fund Research program will provide regional and local agencies, such as metropolitan planning organizations and municipalities, more opportunity to be invested in research
- **Transportation Data for Livable Communities.** This initiative aims to create a model for data collection, management and dissemination that will foster the wider, national use of data resources collected on a local level.
- **Engaging Citizen Leaders.** This initiative will expand NITC's scope of work to reach a wide range of current and future transportation leaders. We will accomplish this in two ways. First, our competitive RFP process will include a score for community engagement; this will result in projects that achieve the first two goals. Second, we will set aside \$70,000 for projects that specifically target creating community leaders among the general public (not university students) and where community leadership is the *primary* objective, not a secondary or complementary objective to a larger research project.

Leadership

- **Shape national & international conversations on transportation research and education.** NITC faculty are well regarded nationally and internationally as leaders in their fields. They will continue to demonstrate this leadership through publishing in the top journals and presenting their work at conferences. NITC will take the concept of leadership far beyond academic circles, as evidenced by the wide

dissemination of research results in professional, technical and general publications and other media.

- **Serve on national committees and panels.** NITC faculty help address national transportation problems through volunteer leadership on TRB committees and in other positions, including journal editorial boards, national and international conference organizing committees, NSF panels, and other advisory boards. To continue and reinforce this practice, NITC will mentor our new, junior faculty to apply for committee and panel membership and recognize the activities of all faculty members.
- **Respond to needs of practitioners and policymakers.** NITC researchers have a long history of conducting research that is useful in solving the problems practitioners and decision-makers face every day. Our theme and project selection process will ensure that our research continues to address our nation's transportation problems. NITC's Director and staff will serve as points of contact for agency leaders and policymakers both regionally, statewide and nationally. When we identify needs that match the expertise of our researchers, we will make a connection. We will work with key staff at the DOT administrations (FHWA, FTA, etc.), both in Washington, D.C., and within the region, whose work relates to our theme to determine the most effective way for our researchers to learn from and inform agency activities.

Education and Workforce

- **Offer degrees and courses in multiple disciplines.** NITC will continue to offer a rich array of degrees that serve the transportation profession.
- **Provide experiential learning.** A key component of our education strategy is experiential learning, which will help attract and retain students. Our campuses will continue to provide these opportunities, and NITC will seek ways to expand them.
- **Attract and support undergraduate students.** NITC will build upon existing and effective mechanisms to expose K-12 students to transportation, attract and retain new undergraduate students to our degree programs, and involve undergraduates in our research.
- **Attract and support graduate students.** NITC will support graduate students directly through the following: Research assistantships working on projects; Dissertation fellowships for students to carry out research on surface transportation topics that fit under the NITC theme; Funds for scholarships at each campus to recruit new and retain existing high-performing students; and Funds for transportation student group activities.

- **Sponsor a student conference.** NITC will host a national student conference focusing on our theme.
- **Educate professionals.** NITC will maintain a vibrant program of seminars, workshops, professional courses and other training opportunities that provide transportation practitioners with the latest tools and techniques.

Technology Transfer

- **Move research into practice.** Moving research into practice first requires research findings that are relevant to practice. Our competitive project selection process will help ensure that we select projects that have direct implications for practitioners in the short- or long-term. In addition, we will use practitioners to help inform projects after selection and review final products. Additional efforts will include short workshops to share research results, one-page research briefs, presenting work at conferences aimed at practitioners, holding one-day conferences, funding technology transfer projects, and encouraging the commercial application of research results when possible.
- **Inform researchers.** The quality of scientific inquiry depends upon researchers sharing their findings with other researchers through the peer-review publication processes. Fellow researchers are important targets for our technology transfer program. We will accomplish this through two primary activities. First, NITC's faculty will continue to publish extensively in peer-reviewed journals. Second, TREC will support our faculty in presenting their work at nationally recognized academic conferences by including travel funds for each project.
- **Use innovative technologies to communicate research results.** NITC will embark on an ambitious program of sharing information through traditional and new media.

Collaboration

- **Collaborating within our consortium.** NITC's governance structure is cooperative and leadership is distributed. The Executive Committee includes one faculty member from each campus. The Executive Committee provides overall direction for the Center, makes project funding decisions, and selects Center award recipients, including student of the year. They will meet in person at least twice a year, rotating the location between campuses, and hold regular conference calls. Each Executive Committee member will be responsible for representing and supporting their respective campus

- **External collaboration.** In addition to the partnerships that occur through individual projects and the pooled-fund program, NITC will foster collaboration with a range of “end-users” of our work through an External Advisory Board.

What was accomplished under these goals?

Research

- **Competitive, peer-review project selection process.**

The first round of NITC funds were awarded in the fall of 2012. Nineteen projects were selected through the competitive, peer-review process each of which is between 12 and 18 months in duration. As of December 30th, 2014, the 19 projects are on average, 92% complete. Four final reports have been reviewed and published. Five draft reports are either in the editing or peer review process.

The second round of NITC funds were selected in the fall of 2013 and awarded in the winter of 2014. Ten projects were selected through a competitive, peer review process. Each project from the second round is also between 12 and 18 months in duration. As of December 30th, 2014, the 10 projects are on average, 54% complete.

We awarded a second round of NITC small starts funds in the fall of 2013. These project awards are for preliminary research and to help PIs further develop their research idea so they can be more competitive in the future NITC RFPs. The six projects selected for funding are, on average 94% complete as of December 30th, 2014. Two final reports have been reviewed and published. Three draft reports are either in the editing or peer review process.

The third round of NITC funds were selected in the June of 2014 and awarded by August 2014. Eight projects were selected through a competitive, peer review process totaling \$800,000. As of December 30th, 2014, the 10 projects are on average, 18% complete.

- **Transportation for Livable Communities Pooled-fund research.**

The pooled-fund research project, Online Non-motorized Traffic Count Archive, was awarded in the spring of 2014. Dr. Krista Nordback and Dr. Kristin Tufte are the PI and Co-PI, respectively, and both are from Portland State University. Funding partners on the project include the Oregon Department of Transportation, FHWA, City of Boulder, Lane Council of Governments, Metro, City of Eugene, City of Austin, City of Bend and the Bend MPO.

The goal of the project is to create a national non-motorized count archive where agencies can add data, counts are checked for quality, and data can be exported and visualized through mapping and basic graphic functions.

The anticipated impacts include jurisdictions being more easily able to share and access data, data can be exported in a standard format and thus easier to manipulate and data can be incorporated into other national databases. Currently the project is 40% complete. The anticipated completion date is November of 2015.

- **Transportation Data for Livable Communities.**

- Eighteen of the 44 projects funded through either the general research or small starts grant programs create a model for data collection, management or dissemination. The results of this research will foster the wider, national use of data resources collected at the local level.
- Five projects selected in the third round of NITC funding focus on data:
 - Trip and Parking Generation by Transit-Oriented Developments, Reid Ewing, University of Utah
 - Exploiting New Data Sources to Quantify Arterial Congestion and Performance Measures, Miguel Figliozzi and Robert Bertini, Portland State University
 - Evaluation of an Eco-driving Intervention: Changing Knowledge, Attitudes, and Behavior by Means of Supervisor Support, Donald Truxillo, Leslie Hammer, John MacArthur, Talya Bauer, Portland State University
 - Modeling, Analysis and Implementation of Pedestrian Priority at Signalized Intersections, Chris Monsere and Sirisha Kothuri (Portland State University) and Ed Smaglik (Northern Arizona University)
 - Understanding Cyclist-Vehicle Interaction via Analysis of Ego-centric Video, Feng Liu, Wu-chi Feng, Miguel Figliozzi, Portland State University

- **Engaging Citizen Leaders.**

- We funded one proposal in the first round of NITC funding called Transportation Leadership Education . This is the project is behind schedule due to the PI leaving the university. A new PI started on the project in winter of 2014. This project develops a case study and national model of the Portland Bureau of Transportation's Traffic and Transportation Course. Over 1,000 citizens have taken this 10-week course to learn how to engage in transportation issues in their community. Congressman Blumenauer has expressed interest in implementing the national model once it has been completed. Interviews and surveys have confirmed

that the Portland Traffic and Transportation Course presents a unique approach to educating interested citizens about transportation. A survey of course participants, completed in Fall 2014 and currently being analyzed, provides anecdotal evidence that the course has had a significant impact in terms of creating a group of interested, informed, and involved citizens. Many other comments highlight the course's specific strengths along with areas that a revised curriculum could improve. Ongoing analysis of the survey results will assess graduates' current involvement in community activities, the impact of class projects (including those that were implemented), and areas that students would like to greater or lesser devotion of time and resources. This analysis, as a part of the case study, will inform the curriculum development, which will be completed between February and April 2015. Currently, the project is 50% complete.

- The project Disseminating the Sustainable City Year Program (SCYP) Educational was selected in the third round of general research funding. This project intends to expand upon the success of the SCYP by supporting universities across the country to implement the program. The SCYP educates local politicians, citizens and agency staff on the components and benefits of livable communities. Thus far a national webinar has been completed and a second in being organized. The first webinar has led to numerous inquiries from universities and we have one site visit is scheduled to assist university development of an SCYP program. A communication organization has been hired to assist in the web module development. The expansion of the program will support the development of citizen leaders in communities across the United States. Currently the project is 30% complete.
- Our programmatic scoring criteria gave higher points to projects that actively engage external partners and addressed equity and diversity issues. Partly as a result, one project from our second round focus on equity: Is HUD Affordable Housing Really Affordable?
- Three of our round one funded projects focus on equity: (1) Understanding the Transit-Dependent Population; (2) Assessing Transit Fare Equity in Utah Using a Geographic Information System; and (3) Latino Immigrant Communities and Equity in Transit Oriented Development.

Leadership

- **Shape national & international conversations on transportation research and education.**

- NITC staff is helping to shape a new TRB training initiative headed by the recently-formed Task Force ABG05T, Ahead of the Curve: Mastering the Management of Transportation Research. The mission of the Task Force is to develop a TRB training program that enhances the knowledge, skills, and abilities of those who manage transportation research programs and innovation activities.
 - Thirty NITC faculty and staff serve on editorial, policy and other advisory boards.
 - NITC staff are active in the AASHTO-RAC liaison group.
 - NITC researchers prepared a white paper on pedestrian and bicycle safety research, to be used by OST-R.
 - NITC faculty are part of the team (led by ICF International) developing FHWA's Strategic Agenda for Pedestrian and Bicycle Transportation.
- **Serve on national committees and panels.**
Faculty members and students at the four NITC member campuses currently serve on 35 TRB committees/task forces and 7 NCHRP/SHRP2/NCFRP/TRB panels.
 - **Respond to needs of practitioners and policymakers.**

NITC was involved with sponsored three in-person trainings through the Initiative for Bicycle and Pedestrian Innovation (IBPI). NITC researchers and partners taught classes at two five-day bicycle planning and engineering courses and a two-day trail design workshop. The first course, Comprehensive Bicycle Design & Engineering 1.0, was held from July 28th through August 1st and hosted 13 practitioners. The second course, Comprehensive Bicycle Design & Engineering 2.0, was held from August 25th through August 29th and also hosted 13 practitioners. The Trail Design Workshop held on October 30th and 31st and hosted 8 practitioners. These courses covered the fundamentals of bikeway and trail planning and design through an interactive classroom and field experience. All workshops were hosted on the Portland State University Campus.

IBPI hosted 4 webinars in July, September, November and December. The 4 webinars were attended by 389 practitioners and policymakers.

The Oregon Transportation Summit was held on September 14th, 2014 at Portland State University. The event hosted 296 practitioners, policymakers, students and researchers. The goal of the Summit is to advance the educate professionals on the state of research and to facilitate a conversation between practitioners and researchers to shape future research agendas.

NITC hosted a casual event aimed at practitioners and policymakers called "Let's Be Fearless: Big Ideas for our Transportation Future." Seventeen of Portland's brightest minds and engaging personalities attempted to sell their next big idea for the future of

Portland's transportation system in three minutes or less. The audience voted on their favorite idea. Over 125 people attended the event.

Education and Workforce

- **Offer degrees and courses in multiple disciplines.**

The four NITC campuses continue to offer 16 degrees in transportation and closely related fields.

- **Provide experiential learning.**

Our campuses continue to incorporate access to community partners and employment opportunities in a number of ways. Examples during this reporting period include the following:

The University of Utah student group, Point B, in partnership with the local Women's Transportation Seminar (WTS) chapter, hosted a mixer with practitioners working on transportation issues in the Salt Lake Area, a walk and ride to highlight deficiencies in the local transportation infrastructure for people walking and biking and a question and answer session with the Utah transportation director.

The University of Oregon student group, LiveMove started a new ByDesign project. Through the suggestion of community partner, LiveMove designed a traffic garden. A traffic garden is a small scale city which allows for children and adults to practice safe walking and bicycling practices in a non-threatening location. Some property owned by the local school district was selected for the site. LiveMove members conducted a site visit, historical research on the site, evaluated zoning and regulatory requirements, hosted an open house for the project, and completed a preliminary design.

The Oregon Institute of Technology continues to engage students through a focus on the ITE Traffic Bowl. The staff from Kittelson & Associates help tutor students on the event. The team from Oregon Tech were crowned champions of the 2014 Oregon ITE Traffic Bowl.

At Portland State University, the College of Urban and Public Affairs continues to offer the Pedestrian and Bicycle Planning Lab. The source provides the opportunity to participate in a workshop-based planning process and is taught by top professionals in the field of bicycle and pedestrian planning and design.

- **Attract and support undergraduate and graduate students.**

Since the fall of 2012, NITC has awarded 46 scholarships to student support for research projects. Each student who receives a NITC scholarship develops a research product (such as a thesis) that fits within the NITC themes.

During the last reporting period we solicited proposals for a dissertation fellowship. We awarded one fellowship to Portland State University PhD. candidate, Allison Duncan for her Shared Space and Bicyclists research.

- **Sponsor a student conference.**

We will plan and host a student focused daylong event in 2015 in conjunction with the Oregon Transportation Summit. We plan on including a student competition with the event. Also, we will be coordinating with the Region X UTC regarding their student conference in 2015.

- **Educate professionals.**

NITC staff planned and hosted the 6th Oregon Transportation Summit. The event was held on September 14th, 2014 at Portland State University. The event hosted 296 practitioners, policymakers, students and researchers. The goal of the Summit is to advance the educate professionals on the state of research and to facilitate a conversation between practitioners and researchers to shape future research agendas. The event offered 4.5 AICP credits.

NITC staff supported three IBPI trainings for practitioners. These courses are discussed in detail in the *Leadership: Respond to needs of practitioners and policymakers* section. The three trainings offered a total of 68 AICP credits.

NITC and IBPI hosted a total of 4 webinars that highlight NITC sponsored research over the reporting period. 416 people attended the webinars. One AICP credit was offered per webinar. The webinar subjects included the following:

- A sneak peek into the development outcomes associated with different fixed-guideway transit systems
- Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations
- Health Impact Assessment (HIA) in Transportation Planning
- E-Bikes: Generating the New Wave of Cyclists

Each Friday during the quarter, Portland State University holds a Friday Transportation Seminar that is open to the public. We do a live webcast of the event. The fall seminar had 981 professionals at either the in-person event, live webcast or watched the archived video.

Technology Transfer

- **Move research into practice.**

The NITC round 1 project, Making Streets into Complete Streets: An Evidence Based Design Manual is a technology transfer project. The design manual, called Rethinking

Streets: An Evidence-Based Guide to 25 Complete Street Transformations, has been completed and draws upon research from previous OTREC projects, as well as other research. The design manual is available on the NITC website and <http://rethinkingstreets.com/>. Over 5,000 copies of the pdf have been downloaded.

- **Inform researchers.**

NITC encourages PIs to present on their research at conferences all over the world. Over the course of the grant, researchers reported 79 presentations on NITC projects with over 6,000 people in attendance. In addition, NITC sponsored research has resulted in over 28 peer-reviewed articles.

- **Use innovative technologies to communicate research results.**

We launched our new NITC website this fall. The site contains an updated look, functionality and improved interface for users such as PIs. Our content management system is integrated into the new system continue to work on our website. PIs are able to upload research products and profile information for public access.

We use our social media resources such as Twitter and Facebook to bring awareness to the release of a report or highlighted produce. We continue to edit our new database management system to streamline the process for proposal submission, reviews, awards, progress reports and final report submission. As noted above, we have offered four webinars and several live and archived webcasts of seminars.

Collaboration

- **Collaborating within our consortium.**

The Executive Committee of NITC via conference calls during the reporting period. NITC staff hosted calls on October 24th, 2014 and again on December 11th, 2014. Each member of the executive committee attended the Oregon Transportation Summit in September and the NITC Advisory Committee meeting in December.

- **External collaboration.**

The pooled-fund project referenced in *Research* section demonstrate strong partnerships with a number of agencies in Oregon, Austin, Texas and Boulder, Colorado.

The NITC Executive Committee and staff spent significant time and energy revitalizing the NITC Advisory Board. NITC staff and the Executive Committee are evaluated the existing partners role and added organizations with a national focus. The following people and organizations have agreed to be members of the NITC Advisory Board:

Michael Baltes, Federal Transit Administration

Michael Bufalino, Oregon Department of Transportation

Rob Burchfield, City of Portland

James Christian, FHWA-Utah Division
Tyler Deke, Bend MPO
Kevin Desmond, King County Metro Transit
Susan Handy, University of California at Davis
Matthew Hardy, AASHTO
Susan Herbel, Cambridge Systematics
Craig Honeyman, League of Oregon Cities
Robin Hutcheson, Salt Lake City
Cameron Kergaye, Utah DOT
Wayne Kittelson, Kittelson & Associates, Inc.
Ted Knowlton, Wasatch Front MPO
Alan Lehto, TriMet
Jana Lynott, AARP
Charles Pattison, 1000 Friends of Florida
Paula Reeves, WSDOT
Gabe Rousseau, FHWA
Brian Saelens, Seattle Children's Researcher Institute
Tom Schwetz, Lane Transit District
Ted Trepanier, Inrix
Yinhai Wang, PacTrans

The NITC Advisory Board met for a day-long meeting at the Portland State University campus on December 16th, 2014. The outcomes of the meeting included strategic direction for the next general research RFP and education to advisory board members of NITC research highlights from each campus. The next in-person meeting will be in conjunction with the 2015 Oregon Transportation Summit.

- How have the results been disseminated?

The NITC communications director works with each of the PIs to create a plan on reporting dissemination. Thus far 8 final reports have been published including 4 general research, 1 education, 1 technology transfer and 2 from the small starts program. These reports are available for download on the project page on the NITC site.

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

Expected highlights for the next 6 month reporting period include:

- Publish and promote all NITC final reports through social media, webinars and the 2015 Oregon Transportation Summit.
- Plan and host at least 12 days of professional development for academics and

practitioners

- Release an RFP for NITC National general research funding

2. PRODUCTS: What has the program produced?

Publications, conference papers, and presentations

Researchers from the NITC projects reported 79 presentations about those projects at conferences and events. NITC researchers also reported that over 6,000 people were in attendance for these presentations. In addition, NITC sponsored research has resulted in over 28 peer-reviewed articles.

Thirty-six projects were funded through NITC round one, two, three and the small starts program. As of the end of this reporting period, 8 final reports have been published and 8 draft reports are currently undergoing review and editing. The 8 final reports are listed below:

- Lessons from the Green Lane: A Comprehensive Evaluation of Protected Cycling Facilities, Chris Monsere and Jennifer Dill, Portland State University
- Combined Traction and Energy Recovery Motor for EVs, James Long, Oregon Institute of Technology
- Sustainable Transportation Class for OLIS, Vicki Elmer, University of Oregon
- Assessing Transit Fare Equity in Utah Using a Geographic Information System, Steven Farber, University of Utah
- Effect of Light-Rail Transit on Traffic in a Travel Corridor, Reid Ewing, University of Utah
- Latino Immigrant Communities and Equity in Transit Oriented Development, Gerardo Sandoval, University of Oregon
- Racial Bias in Driver Yielding Behavior at Crosswalks, Kimberly Kahn, Portland State University
- Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations, Marc Schlossberg, University of Oregon

Website(s) or other Internet site(s)

The NITC website is located here: <http://nitc.trec.pdx.edu/>.

Technologies or techniques

Nothing to report for this period.

Inventions, patent applications, and/or licenses

Nothing to report for this period.

Other products

Nothing to report for this period.

3. PARTICIPANTS & OTHER COLLABORATING ORGANIZATIONS: Who has been involved?

What organizations have been involved as partners?

The members of the consortium include Portland State University, University of Oregon, Oregon Institute of Technology, and University of Utah. Each NITC funded project is required to have 100% match. The organizations providing match appear in Table 1

Table 1: Partner Organizations

Match Partner	Type	Financial	In-Kind
1000 Friends of Oregon	Non-profit/Foundation		X
Bend, OR MPO	Regional government	X	
Bike Belong	Non-profit/Foundation	X	
City of Austin, TX	Local government	X	
City of Bend, OR	Local government	X	
City of Boulder, CO	Local government	X	
City of Flagstaff, AZ	Local government		X
City of Meza, AZ	Local government		X
City of Portland, OR	Local government		X
City of Salem, OR	Local government	X	
Conscious Commuter	Private industry		X
Drive Oregon	Non-profit/Foundation	X	
ESRI, Inc	Private industry		X
Federal Highway Administration	Federal agency	X	
Intel	Private industry		X
KersTech Vehicle Systems	Private industry		X
King County Metro	Regional government	X	
Lane County MPO	Regional government	X	
Lane Transit District	Transit agency	X	
Metro	Regional government	X	X
Mountainlands Association of Governments	Regional government		X
National Association of Realtors	Non-profit/Foundation	X	
Northern Arizona University	University		X

Oregon Department of Land Use and Conservation	State government		X
Oregon Department of Transportation	State DOT	X	X
Oregon Environmental Council	Non-profit/Foundation		X
Oregon Institute of Technology	University		X
Oregon Leadership in Sustainability (UO)	University	X	
Portland State University	University	X	X
Provo City	Local government	X	
Regional Transportation Commission of Southern Nevada	Regional government	X	
Regional Transportation Commission of Washoe County	Regional government	X	
Rensselaer Polytechnic Institute	University		X
Robert Wood Johnson Foundation	Non-profit/Foundation		X
Rowell Brokaw Architects	Private industry	X	X
Salt Lake County	Local government	X	
SFMTA Municipal Transportation Agency	Local government		X
Sustainable Cities Initiative (UO)	University	X	
Toole Design	Private industry		X
Transportation for America	Non-profit/Foundation	X	
TriMet	Transit agency	X	X
University of Minnesota	University	X	
University of North Carolina, Chapel Hill	University		X
University of Oregon (UO)	University	X	X
University of Utah	University	X	X
Utah Transit Authority	Transit agency	X	X
Wasatch Front Regional Council	Regional government	X	X
Washington Department of Transportation	State DOT	X	
Washington Metropolitan Area Transit Authority	Transit agency	X	

Have other collaborators or contacts been involved?

During the Pooled-Fund process, NITC staff communicated and collaborated with numerous agency representatives across the country regarding data management issues and needs. These agency representatives include the Minnesota and Colorado departments of Transportation, Boulder County, and City of Austin.

The role of the NITC Advisory Board is described and the members are listed in the *Exertional Collaboration* section above.

4. IMPACT: What is the impact of the program? How has it contributed to transportation education, research, and technology transfer?

What is the impact on the development of the principal discipline(s) of the program?

In the two months following the release of the final report “Lessons from the Green Lanes: Evaluating Protected Bike Lanes in the U.S.” the project's Web page attracted more page views than any other page on our UTC's website, even the home page. More than 1,800 people downloaded the report in one month. More than 20 print and online media outlets devoted articles to the research, including Time, the Chicago Sun-Times and The Oregonian.

The NITC project, Making Streets into Complete Streets: An Evidence Based Design Manual is a technology transfer project. The design manual, called Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations, has been completed and draws upon research from previous OTREC projects, as well as other research. Over 5,000 copies of the pdf have been downloaded from the NITC and Rethinking Streets websites.

The University of Oregon program, Oregon Leadership in Sustainability (OLIS), developed a Transportation Sustainability Class. A core curriculum on sustainable transportation was created. The course emphasized applied interdisciplinary transportation solutions that future community leaders in the sustainability field will need to know to be successful. The pilot class was taught in the fall of 2013 and continues to be part of the core curriculum of the OLIS program and will be offered yearly.

What is the impact on the development of transportation workforce development?

By supporting students through the funded research projects, scholars program, and the student groups, we are expanding the number of students interested in transportation as a career and exposing them to the interesting and rewarding aspects of how transportation can help create livable communities. Through our reporting process, we are collecting the names and contact information of all students supporting through these programs. Therefore, we will be able to track their experience after graduation.

An example of success includes the informal partnership formed between the Oregon Institute of Technology and Kittelson & Associates. Students at Oregon Tech have trained for the ITE Traffic Bowl with staff from Kittelson & Associates. In the fall of 2014, the Oregon Tech team won the Oregon ITE Traffic Bowl. Further, the result of the partnerships includes a hire of the student group president and multiple internships.

What is the impact on physical, institutional, and information resources at the university or other partner institutions?

Nothing to Report for this period.

What is the impact on technology transfer?

We have implemented a system on our website to track who downloads our reports and survey those users regarding the usefulness and impacts of the research on their work.

NITC and IBPI hosted a total of 4 webinars that highlight NITC sponsored research over the reporting period. 416 people attended the webinars. One AICP credit was offered per webinar. The webinar subjects included the following:

- A sneak peek into the development outcomes associated with different fixed-guideway transit systems
- Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations
- Health Impact Assessment (HIA) in Transportation Planning

What is the impact on society beyond science and technology?

Nothing to Report for this period.

5. CHANGES/PROBLEMS

Changes in approach and reasons for change

Nothing to Report for this period.

Actual or anticipated problems or delays and actions or plans to resolve them

Nothing to Report for this period.

Changes that have a significant impact on expenditures

Nothing to Report for this period.

Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards

Nothing to Report for this period.

Change of primary performance site location from that originally proposed

Nothing to Report for this period.

Additional information regarding Products and Impacts

Nothing to Report for this period.