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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Signature:

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

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.

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. 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; Dissertation fellowships; 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**. 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. 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.

- **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 projects were awarded in the fall of 2012. Nineteen projects were selected through the competitive, peer-review process. As of December 31st, 2015, the 19 projects are on average, 97% complete. Twelve final reports have been reviewed and published. Four draft reports are either in the editing or peer review process.

  The second round of NITC projects were selected in the fall of 2013 and awarded in the winter of 2014. Ten projects were selected through a competitive, peer review process. As of December 31st, 2015, the 10 projects are on average, 87% complete. One final report has been reviewed and published. Four draft reports are in the peer review process.

  We awarded a 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 future NITC RFPs. The six projects selected for funding are complete. All six final reports have been reviewed and published.

  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. Each project from the third round of funding is between 12 and 18 months in duration. As of December 31st, 2015, the 10 projects are on average, 71% complete. One draft report is in the editing and peer review process.

- **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, respectably, 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 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 95% complete. The anticipated completion date is May 2016. Over 4.8 million non-motorized count records from five states and 11 counties populate the online archive. Practitioners can upload data to the live Bike-Ped Portal Site: http://bp.its.pdx.edu/

Thus far the project has resulted in one paper titled Creating a National Non-Motorized Traffic Count Archive: Process and Progress that was published in an issue of Transportation Research Record (TRR). Three presentations have been given on the project to approximately 110 people. Further, an overview of the project was given to 325 attendees, many of whom were practitioners, during a NITC supported webinar on how to measure pedestrians.

Additionally, the project involves 7 area high school students (from diverse backgrounds) in alpha testing software, two of whom also were also engaged in software development tasks using Python.

- **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. The Online Non-motorized Traffic Count Archive discussed in the Pooled-fund section has been very successful in this effort.

  - Five projects selected in the third round of NITC funding focus on data:

    o Trip and Parking Generation by Transit-Oriented Developments, Reid Ewing, University of Utah

    o Exploiting New Data Sources to Quantify Arterial Congestion and Performance Measures, Miguel Figliozzi, Portland State University

    o 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

- o Modeling, Analysis and Implementation of Pedestrian Priority at Signalized Intersections, Chris Monsere and Sirisha Kothuri (Portland State University) and Ed Smaglik (Northern Arizona University)

- o 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 called Transportation Leadership Education . This project developed a case study and national model of the Portland Bureau of Transportation's Traffic and Transportation Course. Over 1,300 citizens have taken this 10-week course to learn how to engage in transportation issues in their community. A case study of the Portland Traffic and Transportation course has been completed. The case study found that course participants received a good understanding of factors that influence the transportation landscape, and of the fiscal and policy constraints and available tools for transportation agencies. Participants were also much more involved in local transportation activities after taking the course. Of 102 participants surveyed, 68 students proposed a specific solution to an observed transportation problem, 28 of which were implemented, and 22 were attributable at least in part to the student's actions. The case study and curriculum materials will be distributed and shared with various constituencies. Currently, funding is being sought to launch demonstration courses in 2-3 additional U.S. cities.

  The research informed a course curriculum and implementation handbook for a "Citizen Transportation Academy" which seeks to replicate the Portland Traffic and Transportation course model in other U.S. cities. Congressman Blumenauer promotes the course at various speaking engagements across the country. Interviews and surveys have confirmed that the Portland Traffic and Transportation Course presents a unique approach to educating interested citizens about transportation.

  The project Disseminating the Sustainable City Year Program (SCYP) Educational was selected in the third round of general research funding. This project expands 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. The fourth annual Sustainable City Year Program Conference was held in April 2015 in collaboration with the Resilient Cities Program at the University of Minnesota. This conference was attended by more than sixty individuals representing 24 universities and cities from around the country. A series of professionally produced podcasts were created that assist with the development of new programs, the development of transportation based SCYP projects.

  The work from this grant has assisted in the establishment of numerous new SCYP programs throughout the country. This includes programs in various stages of development at the University of Colorado, Denver, Arizona State University, California

State University, Monterey Bay, University of Southern Florida, California State University, East Bay, California State Universi1y, Sonoma, and University of California, Chico. This represents the engagement of hundreds of students, faculty, city staff, community members and elected officials.

- 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.
  - Twenty-one NITC faculty and staff serve on editorial, policy and other advisory boards.
  - NITC staff are active in the AASHTO-RAC liaison group.
  - NITC faculty are part of the team (led by ICF International) developing FHWA's Strategic Agenda for Pedestrian and Bicycle Transportation.
  - NITC's Director, Jennifer Dill, was elected to the Executive Committee of the Council of University Transportation Centers (CUTC).
  - NITC's Director, Jennifer Dill, is serving on a special TRB policy committee on Innovative Mobility Services. The committee was established at the request of the TRB Executive Committee.
  - NITC's Director, Jennifer Dill, served on the organizing committee for a two-day conference jointly sponsored by TRB and the American College of Sports Medicine, Moving Active Transportation to Higher Ground: Opportunities for Accelerating the Assessment of Health Impacts. The committee will be producing an article for TR News with recommendations on future research directions that move the research to practice.
  - NITC Associate Director Hau Hagedorn is the co-chair of the TRB Conduct of Research Committee.
  - NITC's Associate Director is on the panel for NCHRP 20-44 to improve methods of delivering research findings and promoting their use.

- NITC continues to shape bicycle and pedestrian curriculum by training professors from the country on integrating these topics into university planning and engineering courses.
- NITC Executive Committee Marc Schlossberg co-organized a summit in Israel on his Rethinking Streets guidebook.

- **Serve on national committees and panels.**
  Faculty members and students at the four NITC member campuses currently serve on 33 TRB committees/task forces and 7 NCHRP/SHRP2/NCFRP/TRB panels, Professor. Chris Monsere serves as the co-chair of the TRB committee Safety Data, Analysis and Evaluation (ANB20).

- **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. The first course, Comprehensive Bicycle Design & Engineering 1.0, was held from July 26th through July 30th, hosted 11 practitioners and offered 27 professional development credits.

  The second course, Comprehensive Bicycle Design & Engineering 2.0, was held from August 17th through August 21st, hosted 21 practitioners and offered 30 professional development credits. 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.

  NITC hosted a webinar on August 27th called Pedestrians Count! – How to Measure Foot Traffic. The webinar had 325 attendees.

  NITC hosted 6 webinars on funded research between July and December, 2015. The webinars were attended by practitioners and policymakers.

  - Transit-Oriented Development and Equity in Latino Neighborhoods: A Comparative Case Study of Macarthur Park (Los Angeles) and Fruitvale (Oakland), 52 attendees
  - Americans' Views of Transportation and Livable Communities, 115 attendees
  - Four Types of Cyclists: A National Look, 129 attendees
  - Transport Cost Index: A New Comprehensive Performance Measure for Transportation and Land Use, 38 attendees
  - Transportation Academy: Lessons from the Portland Traffic and Transportation course, 52 attendees
  - Crowdsourcing the Collection of Public Transportation Data, 35 attendees

  The Transportation and Communities Summit (TCS) was held on September 15th, 2015 at Portland State University. The event hosted 247 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.

Portland State Professor Chris Monsere was appointed to the City of Portland Vision Zero Task Force. The Task Force is a multi-disciplinary and multi-jurisdictional group of members charged with developing a community-wide action plan to drastically reduce injuries and fatalities on the roadway. Monsere serves in an advisory capacity and investigates solutions as a NITC researcher. His expertise in the area of multimodal safety allow him to offer operational and logistical insights.

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. In 2015, over 200 students participated in one of the four campus student groups and 100 students affiliated with the NITC program attended conferences. Twenty-nine students held transportation-related internships.

  The student groups are also active in hosting events and attending conferences. The University of Utah student group, Point B, hosted and/or participated in the following events during the reporting period:

  - Bikeshare ride and tour of downtown
  - Fall Mixer
  - Ride to Ogden on the light rail line
  - Attended the National Walking Summit in Washington DC
  - Attended the Transportation and Communities Summit at Portland State University
  - Attended the National Association of Railroad Passengers' spring council meeting in Washington, DC.

  The student group continues their partnership with the local WTS chapter and participates in the TransportationYOU program with middle school girls in the Sale Lake City area.

  The University of Oregon student group, LiveMove, hosted and/or participated in the following events during the reporting period:

  - Walk and Bike to School Day
  - Eugene Bicycle Pedestrian Advisory Council Presentation
  - Transportation Day
  - ITE Oregon Traffic Bowl and student conference
  - Lunch and Learn With Shane MacRhodes and Emma Newman
  - End of Term Event

- Congressman Peter DeFazio visit
- Lane County Roads Advisory Committee presentation

The Oregon Institute of Technology student group hosted and/or participated in the following events during the reporting period:

- NAPA Sustainable Asphalt Pavement conference, Portland
- Antlers Bridge Tour
- Annual civil engineering fall banquet
- ITE Oregon Traffic Bowl and student conference
- WTS Winter Gala
- Fern Valley Interchange Tour

The Portland State University student, STEP, group hosted and/or participated in the following events during the reporting period:

- ITE Traffic Bowl Tryouts
- ITE Oregon Traffic Bowl and student conference
- Fall Social

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 125 scholarships to support student-led research projects. Fifty-two of the scholarships went to Portland State University, 29 to University of Oregon, 28 to University of Utah and 16 to the Oregon Institute of Technology. Each student who receives a NITC scholarship develops a research product (such as a thesis or conference paper) that fits within the NITC themes.

  During the reporting period we solicited proposals for the Fall 2015 Dissertation Fellowship program. We awarded a fellowship to the following PhD candidate:

  - Tara Goddard at the Toulan School of Urban Studies and Planning for her thesis "Exploring Drivers' Attitudes and Behaviors toward Bicyclists: The Effect of Explicit and Implicit Attitudes on Self-Reported Safety Behaviors"

- **Sponsor a student conference.**
  Representatives from NITC sponsored student groups coordinated with the Region X UTC regarding their student conference in October 2015. We are launching a Student Video Contest in January of 2016. Five students from the NITC partner campuses participated in the 3-minute thesis competition at the Transportation and Summit in September 2015.

- **Educate professionals.**

  During the reporting period, NITC supported 16 events that offered 73.5 continuing education credits. 1875 people attended one of these 16 events. Specifics of these events are detailed below.

  - NITC researchers and partners taught classes at two five-day IBPI bicycle planning and engineering courses. The first course, Comprehensive Bicycle Design & Engineering 1.0, was held from July 26th through July 30th, hosted 11 practitioners and offered 27 professional development credits. The second course, Comprehensive Bicycle Design & Engineering 2.0, was held from August 17th through August 21st, hosted 21 practitioners and offered 30 professional development credits.

  - NITC hosted a webinar on August 27th called Pedestrians Count! – How to Measure Foot Traffic. The webinar had 325 attendees.

  - NITC hosted 6 webinars on funded research between July and December, 2015. The webinars were attended by practitioners and policymakers.

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    - Americans' Views of Transportation and Livable Communities, 115 attendees
    - Four Types of Cyclists: A National Look, 129 attendees
    - Transport Cost Index: A New Comprehensive Performance Measure for Transportation and Land Use, 38 attendees
    - Transportation Academy: Lessons from the Portland Traffic and Transportation course, 52 attendees
    - Crowdsourcing the Collection of Public Transportation Data, 35 attendees

  - The Transportation and Communities Summit (TCS) was held on September 15th, 2015 at Portland State University. The event hosted 247 practitioners, policymakers, students and researchers.

  - 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 460 non-student participants (primarily professionals) at either the in-person event or live webcast.

Technology Transfer
Move research into practice.
NITC launched a Technology Transfer Pool program in the Spring 2015 which allows the opportunity to support implementation or translation of research results. Grants are limited to disseminating results stemming from previously funded and completed research funded by OTREC or NITC. The purpose of these awards is to turn research into products that can be used

by practitioners and/or researchers to further advance implementation. The following projects received funding:

- o Adding Value to GPS Travel Data with New Open-Source Processing Software for Everyone, Jennifer Dill (Portland State University)
- o Tools for Assisting Low Income Households With Finding Location-Efficient Housing, Andree Tremoulet (Portland State University)

A second call for Technology Transfer Pool projects was released in the Fall of 2015. Currently the following project is under review for funding:

- o A Practitioner's Handbook and Toolbox for Conducting a Commuter Rail Case Study, Joanna Ganning (University of Utah)

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. The PI on the project, Marc Schlossberg, is currently on sabbatical in Israel. He co-organized a workshop in Tel Aviv for January of 2016. The promotion of the conference and the book resulted in downloads of the report from 32 international cities.

- **Inform researchers.**
  NITC encourages PIs to present on their research at conferences all over the world. Over the course of the grant, researchers reported 97 presentations on NITC projects with 5,949 people in attendance. In addition, NITC sponsored research has resulted in over 26 peer-reviewed articles and 19 citations.

- **Use innovative technologies to communicate research results.**
  We launched a new NITC website in the fall of 2014. The site contains an updated look, functionality and improved interface for users such as PIs. Currently, we are adding the ability to track student to our project and proposal management system (PPMS) in order to better track students after the graduate from one of the partner universities.

  The NITC program has begun producing video project briefs to complement our existing communications products. Video briefs communicate practical and policy implications of funded research projects in a concise, accessible format.

  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 update our database management system to streamline the process for proposal submission, reviews, awards, progress reports and final report submission. As noted above, we have offered six webinars and several live and archived webcasts of seminars.

Collaboration
- **Collaborating within our consortium.**
  The NITC Executive Committee met via conference call and in-person during the reporting period. The Executive Committee met after the Transportation and Communities on September 16th and via conference call on December 14th.

- **External collaboration.**
  The pooled-fund project referenced in the *Research* section demonstrate strong partnerships with a number of agencies in Oregon, Austin, Texas and Boulder, Colorado.
  The following people and organizations were members of the NITC Advisory Board during this reporting period:
    - Alan Lehto, Director of Planning & Policy, TriMet
    - Brian Saelens, Professor of Pediatrics and Psychiatry & Behavioral Sciences, Seattle Children's Hospital
    - Cameron Kergaye, Director of Research, Utah DOT
    - Charles Pattison, Policy Director, 1000 Friends of Florida
    - Craig Honeyman, Legislative Director, League of Oregon Cities
    - Gabe Rousseau, Safety Operations Team Leader, FHWA
    - James Christian, Division Administrator, FHWA-Utah Division
    - Jon Peterson, Research Manager, Washington Department of Transportation
    - Kevin Desmond, General Manager, King County Metro Transit
    - Matthew Hardy, Program Director, Policy and Planning, AASHTO
    - Michael Baltes, ITS Program Manager, Office of Mobility Innovation, Federal Transit Administration
    - Michael Bufalino, Research Section Manager, Oregon Department of Transportation
    - Robin Hutcheson, Director, Transportation Division, Salt Lake City
    - Susan Handy, Director, National Center for Sustainable Transportation
    - Susan Herbel, Principal, Cambridge Systematics
    - Ted Knowlton, Sustainability Director, Wasatch Front MPO
    - Ted Trepanier, Director of Product Management, Traffic, Inrix
    - Tom Schwetz, Planning & Development Manager, Lane Transit District
    - Tyler Deke, Executive Director, Bend MPO
    - Wayne Kittelson, Founding Principal, Kittelson & Associates, Inc.
    - Wendy Cawley, Traffic Safety Engineer, Portland Bureau of Transportation
    - Yinhai Wang, Director, PacTrans

  The NITC Advisory Board met for a day-long meeting at the Portland State University campus on September 16th, 2015 in conjunction with the Transportation and Communities Summit. The outcomes of the meeting included strategic direction for the general research RFP for the NITC National Grant as well as campus and research updates.

- 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 19 final reports have been published including 10 general research, 2 education, 1 technology transfer and 6 from the small starts program. These reports are

available for download on the project page on the NITC site. We regularly use e-newsletters and social media (Twitter, Facebook) to promote completed research. As referenced in the education section, NITC hosted six webinars on recently published research during the reporting period. 421 people attended the webinars.

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.
- Plan the 2016 Transportation and Communities Summit.
- Host at least four webinars on NITC research.
- Distribute remaining Technology Transfer Pool funds.

2. PRODUCTS: What has the program produced?

Publications, conference papers, and presentations

Researchers from the NITC projects reported 97 presentations about those projects at conferences and events. NITC researchers also reported that 5,949 people were in attendance for these presentations. In addition, NITC sponsored research has resulted in over 26 peer-reviewed articles.

Forty-six projects have been funded to date. As of the end of this reporting period, 19 final reports have been published and 9 draft reports are currently undergoing review and editing. The 19 final reports are listed below:

- Assessing Transit Fare Equity in Utah Using a Geographic Information System, Steven Farber, University of Utah
- Characteristics of Li-air Batteries with Optimized Electrolytes as an Option to Increase Electrical Vehicle Range, Claudia Garibay, Oregon Institute of Technology
- Combined Traction and Energy Recovery Motor for EVs, James Long, Oregon Institute of Technology
- Continuous Data Integration for Land Use Transportation Planning and Modeling, Liming Wang, Portland State University
- Effect of Light-Rail Transit on Traffic in a Travel Corridor, Reid Ewing, University of Utah
- Evaluation of Bicyclists' Exposure to Traffic-Related Air Pollution along Distinct Facility Types, Miguel Figliozzi, Portland State University
- Exploring Racial Bias in Drivers' Behavior at Pedestrian Crossings, Kimberly Kahn, Portland State University
- Inclusive Planning to Evaluate Improved Non-Emergency Medical Transportation Services for Patients with End Stage Renal Disease, Jenny Liu, Portland State University
- Latino Immigrant Communities and Equity in Transit Oriented Development, Gerardo Sandoval, University of Oregon

- Lessons from the Green Lane: A Comprehensive Evaluation of Protected Cycling Facilities, Chris Monsere and Jennifer Dill, Portland State University
- Making Streets into Complete Streets: An Evidence based Design Manual, Marc Schlossberg, University of Oregon
- Mobility versus Accessibility: Applications for Shrinking Cities, Joanna Ganning, University of Utah
- Modeling and Analyzing the Impact of Advanced Technologies on Livability and Multimodal Transportation Performance Measures in Arterial Corridors, Miguel Figliozzi, Portland State University
- National Study of BRT Development Outcomes, Chris Nelson, University of Utah
- Rethinking Streets: An Evidence-Based Guide to 25 Complete Street Transformations, Marc Schlossberg, University of Oregon
- Street Portals: Urban User Interface "Test Bed" Prototype for Bike Shares, Jason Germany, University of Oregon
- Sustainable Transportation Class for OLIS, Vicki Elmer, University of Oregon
- Transportation Leadership Education, Nathan McNeil, Portland State University
- Understanding Market Segments for Current and Future Residential Location and Travel Choices, Kelly Clifton, Portland State University

Website(s) or other Internet site(s)

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

Technologies or techniques

Kelly Clifton's project, Development of a Pedestrian Demand Estimation Tool, developed statistical models of pedestrian choice behavior, predicting the distribution of walk trips generated to destinations at a small spatial scale.

Wu-Chi Feng's project, Application of Interactive Video Sensing and Management for Pedestrian and Bicycle Safety Studies, designed and implemented a user-friendly interface for processing video to identify pedestrian crossing and vehicle conflicts.

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/ Cash	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	

Match Partner	Type	Financial/Cash	In-Kind
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 *External 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?

We send a survey every three weeks to those that download the final reports from the NITC website. The first survey for NITC reports was distributed at the end of April. Since then we've received 351 responses regarding the final reports. Below are selected results from the survey:

Please indicate which best describes you?

Student	14%
Faculty/Researcher	19%
Practitioner	49%
Other	18%
Total	100%

What was your purpose for downloading the report? (Choose all that apply)

Help make decisions about practice	42%
Research project	23%
Other	17%
Inform public input process about a project	16%
Research for a class project, paper, thesis, dissertation, etc.	15%
Refer to a colleague	13%
Research proposal	5%
Thesis/ dissertation proposal	3%
I was involved in this project	4%

How useful was the report in meeting these purposes?

Very useful for my intended purpose	37%
Somewhat useful for my intended purpose	38%
Not useful for my intended purpose, but may be for other parts of my work	4%
Not what I was looking for	1%
I don't know yet	19%
Not very useful	0%
Total	100%

NITC encourages PIs to present on their research at conferences all over the world. Over the course of the grant, researchers reported 97 presentations on NITC projects with 5,949 people in attendance. In addition, NITC sponsored research has resulted in over 26 peer-reviewed articles.

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. Eighty-seven former students affiliated with NITC either as a student research assistant or as a member of a campus transportation student group have transportation related jobs after graduation.

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

A Quanser Shake Table I-40 and 12 iPads were purchased for the Oregon Institute of Technology to support specific coursework development and expand research capacity, promoting (a) innovative learning activities that expose students to cutting-edge methods of bridge structural health and behavior monitoring and (b) research by our growing group of graduate students using developing technologies.

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. Of the 121 practitioners surveyed who sought research to inform their decision making, 80% found the report to be either very or somewhat useful.

NITC hosted a total of 6 webinars that highlight NITC sponsored research over the reporting period. 421 people attended the webinars. One AICP credit was offered per webinar.

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.