



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: DTRT1-G-UTC27

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

Consortia members: Portland State University (PSU), University of Oregon (UO), University of South Florida (USF), 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
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Grant Period: October 1, 2013 – September 30, 2018

Reporting Period End Date: March 31, 2015

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 six categories:

Research

- **Build and extend our current research through Year 1 Projects.**
During the first year, we will undertake research projects that build upon and extend our current work, and reflect priorities identified by our external advisory board. All Year 1 project work plans will be peer-reviewed.
- **Competitive, peer-review project selection process in Years 2 and 3.**
Our projects in Years 2 and 3 will be selected through an open RFP process to consortium faculty. These funds will be available for projects consistent with our theme.
- **Transportation for Livable Communities Pooled-Fund Research.**
We will continue the Transportation for Livable Communities Pooled-Fund Research program. This program provides regional and local agencies, such as metropolitan planning organizations and municipalities, more opportunity to be invested in research.

Leadership

- **High Standing within National and International Arenas of Transportation.**
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 takes 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.

NITC faculty help address national transportation problems through volunteer leadership on TRB committees and in other positions. By serving on these committees, faculty will help set national research agendas and connect with agency leaders and practitioners on pressing research issues. 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.
- **Solving Regional and National Transportation Problems.** NITC researchers have a long history of conducting research that is useful in solving the problems

practitioners and decision-makers face every day. NITC's director and staff will serve as points of contact for agency leaders and policymakers 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 modal administrations, both in Washington, D.C., and within our regions to determine the most effective way for our researchers to learn from and inform agency activities.

- **Future Leaders.** We recognize the investment we must make in our young faculty and students by prioritizing research projects that include them. We will support students traveling to conferences to present their work, a key activity in developing the next generation of leaders.
- **Development and Delivery of Programs.** We demonstrate our leadership in innovating transportation education, workforce development, deployment of research results and conducting research.

Education and Workforce Development

- **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.
- **Develop Innovative New Curriculum.** We will develop new, innovative curriculum consistent with transportation and livable communities that can be tested and shared among NITC and other universities.
- **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.
- **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 research assistantships working on projects. We will provide dissertation fellowships for students to research surface transportation topics that fit under the NITC theme. This will be a competitive process open to Ph.D. students at NITC universities.

- **Sponsor a Transportation and Livable Communities Student Competition.** To further attract students to transportation-related professions and to promote integrated education into transportation and livability issues, NITC will sponsor an annual competition on transportation and livable communities.

Technology Transfer

- **Move Research into Practice.** Each research project will include a well-defined scope of work that identifies the problem the research will solve, how the research will address the problem and how the results will be implemented. We will continue our practice of having every final report peer reviewed by at least one academic and one practitioner with relevant knowledge. We will also identify "implementation champions" the influential decision makers, executives and other top officials who can cut through organizational obstacles to deploy research results. We will provide these champions yearly summaries of our deployment successes as a reminder of the value of our research. Researchers working closely with practitioners and champions throughout the project ensures that our research stays current with the changing needs of practice and delivers research results in the optimal format.
- **Use Innovative Approaches 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 once 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.

Diversity

- **Attract underrepresented students to transportation careers.** We aim to attract underrepresented middle through high school students to transportation as a career through our partnerships with STEM and WTS.

- Priority funding to research with an equity focus. We give priority to funding research projects that have an equity focus by awarding them additional points in the RFP process. In addition, three of our projects selected for the first year directly address equity issues.

What was accomplished under these goals?

Research

- **Build and extend our current research through Year 1 Projects.**

All thirteen of the Year 1 projects have submitted proposals and have either started or are in the process of an external peer review or paperwork processing. The total allocation of NITC funds for these projects is \$860,526.22. As of March 30th, 2015, the nine projects in progress are on average, 41% complete. The remaining four projects will start by May 31, 2015. The projects in progress include the following:

- Encouraging Low-Income Households to Make Location-Efficient Housing Choices, Andree Tremoulet, Portland State University. 55% complete
 - Integrating Freight into Livable Communities, Kristine Williams, University of South Florida. 35% complete
 - Generalized Adaptation of an Electric-Hydraulic hybrid drive system, James Long and David Culler, Oregon Institute of Technology. 25% complete
 - Improving Trip Generation Methods for Livable Communities, Kelly Clifton, Portland State University and Nico Larco, University of Oregon. 30% complete
 - Transportation Cost Index: A Comprehensive Performance Measure for Transportation and Land Use Systems and its Application in OR, FL, and UT, Liming Wang and Jenny Liu, Portland State University. 10% complete
 - Metropolitan Centers: Evaluating local implementation of regional plans and policies, Richard Margerum and Rebecca Lewis, University of Oregon, and Keith Bartholomew, University of Utah. 30% complete
 - Developing a model for Transit Oriented Development in Latino Immigrant Communities: A National Study of Equity and TOD, Sandoval, Gerardo. 75% complete
 - Do TODs make a Difference? Phase 2, Arthur Nelson and Reid Ewing, University of Utah and Jenny Liu, Portland State University. 95% complete
 - Changing attitudes toward sustainable transportation: The impact of meta-arguments, David Sanbonmatsu and David Strayer, University of Utah. 15% complete
- **Competitive, peer-review project selection process in Years 2 and 3.**
A request for proposals (RFP) for the NITC National Year 2 funds was released in January of 2015 for at least \$1 million in research and technology transfer projects.

NITC requires that all proposals fit within the NITC theme of livability, safety and environmental sustainability. The NITC Advisory Committee provided guidance at the December 2014 meeting that the RFP give priority for research funding that examines the economic impact of transportation and livable communities. Abstracts were due on March 16th, 2015 and full proposals due on April 15th, 2015. Fifty-eight abstracts were submitted from the five partner campuses. All proposals will undergo an external peer review by two academics and one practitioner as well as an internal programmatic scoring. The executive committee will review funding recommendations on June, 10th. Awards will be made shortly after for an August 1, 2015 start date for many of the projects.

- **Transportation for Livable Communities Pooled-Fund Research.**

A request for problem statements was released in February 2015. Any agency is eligible to submit a problem statement to identify research needs that could be of common interest to similar agencies. Problem statements from partners are due on April 15th, 2015. A problem statement will be selected by the NITC executive committee in early May. NITC staff will then work with the sponsoring agency to develop a clear problem statement, identify match partners. NITC will then issue the request for proposals (RFP) for a response from faculty at our partner universities. The intention is to raise at least \$75,000 and up to \$100,000 of matching funds for a research project between \$150,000 and \$200,000.

Leadership

- **High Standing within National and International Arenas of Transportation**

- NITC staff are active in the AASHTO-RAC liaison group.
- Faculty members and students at the five NITC member campuses currently serve on 55 TRB committees/task forces and eight NCHRP/SHRP2/NCFRP/TRB panels.

- **Solving Regional and National Transportation Problems.**

During this period, we solicited problem statements for the Transportation for Livable Communities Pooled-Fund Research (see above). By the nature of the solicitation process, the project(s) selected will address national problems.

NITC staff is in the planning stages of the Transportation and Communities Summit (formerly the Oregon Transportation Summit) to take place September 15, 2015.

Along with advisory committee of representatives from WTS, Oregon APA, ITE and each of our partner campuses, we are developing a program that has national relevance on topics such as performance measures, transportation funding and the impact of new technologies. The presenters and audience for the summit is a combination academics and practitioners. The 2015 Summit will have some sessions live webcast.

- **Future Leaders.**

NITC encourages all Principal Investigators to include students in NITC funded research project. As of March 31st, seven students were conducting research on the Year One projects in progress.

Currently the NITC Tier 1 funds are being used to fund the student groups at the partner campuses of Portland State University, Oregon Tech, University of Oregon and University of Utah. The update for those groups is included in the Tier 1 PPPR. The University of South Florida is in the process of forming their student group consisting of both planning and engineering undergraduate and graduate students. They are developing their program using the LiveMove model from the NITC-supported University of Oregon program. The USF student group held a Spring Student Colloquium in March to highlight the formation of the new student group as well as connect researchers and practitioners with students.

- **Development and Delivery of Programs.**

The development and delivery of programs that support education, workforce development and deployment of research results is currently being funded through the NITC Tier 1 grant. We will fund this work with NITC National funds after the Tier 1 funds have been exhausted.

Education and Workforce Development

- **Offer Degrees and Courses in Multiple Disciplines.**

The five-university consortium offers 27 degrees in transportation, closely related fields, and many dual degree options.

- **Provide Experiential Learning.**

Our campuses continue to incorporate access to community partners and employment opportunities in a number of ways. The support for the student groups and student scholars are our priority method for accomplishing this goal. As previously stated, the only campus student group and student scholars program currently being supported through NITC National funds is University of South Florida. The student scholars program at USF supported one student for conducting research on the Integrating Freight into Livable Communities project. This allowed her access to employment opportunities through engagement with match partners. Further, the Spring Student Colloquium held in March was an event designed and hosted by the students that highlighted student research and connected students with practitioners.

- **Develop Innovative New Curriculum.**

Over the last reporting quarter, we solicited and awarded grants to enhance transportation curriculum modules from each of the five campuses for the 2015 winter, spring and summer terms. These curriculum projects include the following:

- Introduction to Scientific Computing for Planners, Engineers, and Scientists, Liming Wang, Portland State University
- Integrating Bicycle and Pedestrian Topics into University Transportation Curriculum, Christopher Monsere, Portland State University
- Graduate-level Civil Engineering Transportation Course Development- Oregon Tech, Roger Lindgren, Oregon Institute of Technology
- Pedestrian and Transit Oriented Design, Keith Bartholomew, University of Utah
- Multimodal Transportation Planning Curriculum for Urban Planning Programs, Kristine Williams, University of South Florida
- Advanced GIS: Smart Transportation, Chris Bone, University of Oregon

Currently, we are soliciting requests for year two of the education funds from each campus. We expect to make these awards by August 1st, 2015.

- **Educate Professionals.**
No activity during this reporting period. All seminars, workshops, professional courses and other training opportunities continue to be funded through the NITC Tier 1 grant and will be reported as such.
- **Attract and Support Undergraduate Students.**
NITC staff is working with Oregon MESA (Mathematics, Engineering, Science, Achievement) and the Fariborz Maseeh College of Engineering and Computer Science at Portland State University to partner on two major workforce development efforts. The first is to develop a two day workshop for junior and senior high school girls in November 2015 as part of the ChickTech.. The second is a weeklong summer program for high school girls that focuses on exposure to careers in transportation on the Portland State University campus in the summer of 2016.
- **Attract and Support Graduate Students.**
Currently, the University of South Florida is the only university of the five to receive student scholarship funds. The student scholars program at USF supported one student for the Integrating Freight into Livable Communities research project. The other four universities are using NITC Tier 1 funds for their scholarship program.
- **Sponsor a Transportation and Livable Communities Student Competition.**
NITC staff have been working with leaders from the student groups to develop a student competition for the 2015-16 academic year.

Technology Transfer

- **Move Research into Practice.**
No activity during this reporting period.
- **Use Innovative Approaches to Communicate Research Results.**
No activity during this reporting period.

Collaboration

- **Collaborating within our consortium.**

The Executive Committee met via conference call on October 24th, 2014 and December 11th, 2014 and in person on December 16th, 2014 at the NITC Advisory Committee meeting.

- **External collaboration.**

The NITC Executive Committee and staff spent significant time and energy involving the NITC Advisory Board in our activities. NITC staff and the Executive Committee 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 general research RFP released in January 2015 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

Transportation and Communities Summit.

Diversity

- **Attract underrepresented students to transportation careers.**
One of the key objectives of the 2016 summer program (above) is to attract underrepresented students to transportation careers. The partnership with Oregon MESA is critical in developing an outreach plan to attract young women and students of color. The weeklong residential program will also be at no cost to the participants in order to reduce any financial barrier to participation.
- **Priority funding to research with an equity focus.**
Two of our Year 1 projects address equity issues. The research project Encouraging Low-Income Households to Make Location-Efficient Housing Choices and Developing a Model for Transit Oriented Development in Latino Immigrant Communities are in progress.

How have the results been disseminated?

Nothing to report for this period.

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

Expected highlights for the next reporting period include:

- Select and award General Research Year 2 projects
- Select and initiate pooled-fund project
- Select dissertation fellowships
- Transition all core campus awards (executive committee funding, student group, student scholars) to NITC National funding
- Develop transportation engineering curriculum for ChickTech workshop
- Award Year Two education/curriculum development projects
- Develop student competition for 2015-16
- Organize and execute the 2015 Transportation and Communities Summit

2. PRODUCTS: What has the program produced?

Publications, conference papers, and presentations

Nothing to report for this period.

Website(s) or other Internet site(s)

We have created a new website for NITC located here: <http://nitc.us>

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, University of Utah, and the University of South Florida. Each NITC-funded research project is required to have 120% match. Match partners for current Year 1 projects include the following:

- American Automobile Association
- California Department of Transportation
- Florida Department of Transportation
- NAACO Materials Handling Group
- Oregon Department of Transportation
- Oregon BEST
- University of California, Davis
- University of Colorado, Denver
- Vancouver Housing Authority

Have other collaborators or contacts been involved?

Nothing to Report for this period.

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?**

Nothing to Report for this period.

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

Nothing to Report for this period.

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?

Nothing to Report for this period.

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.