

Program Progress Performance Report for University Transportation Centers

U.S. Department of Transportation
Research and Innovative Technology Administration
Federal Grant No. DTRT12 G UTC04

Project Title: Southeastern Transportation, Research, Innovation Development and Education Center
(STRIDE)

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Signature of Submitting Official: _____
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Accomplishments

What are the major goals of the program?

The STRIDE Center is devoting its energies to three major areas that are deemed critical in Region 4: safety, livable communities and economic competitiveness. More specifically, the major goals of the Center are:

- a) To develop, implement and maintain a comprehensive research program that addresses critical needs related to safety, livable communities and economic competitiveness
- b) To serve as the focal point for transportation research, education and outreach in the region
- c) To strengthen the collaboration between the partner universities as well as between the consortium and federal, state, and local agencies
- d) To develop ties with other University Transportation Centers (UTCs) and USDOT's research clusters to create opportunities for collaborative activities across centers
- e) To disseminate research results to government, academia and private sectors through publication in peer-reviewed journals, conference papers and presentations at transportation-related industry events
- f) To establish additional communication mechanisms, including the use of social media, by which important research findings are made available to researchers and others with an interest in transportation matters
- g) To utilize research activities to promote transportation-related education as well as careers and employment opportunities
- h) To support and encourage the identification, development, and implementation of inventions and discoveries with the potential to address challenges in the core focus areas.

What was accomplished under these goals?

Accomplishments are listed below under each of the program's major goals:

- a) To develop, implement and maintain a comprehensive research program that addresses critical needs related to safety, livable communities and economic competitiveness**

Accomplishments:

In Year 1 (2012) of the STRIDE Center, a total of 18 research projects were competitively awarded, including five K-12 Workforce Development (WD) projects. Of these a total of 10 projects have been completed to date. In Year 2 (2013) of the STRIDE Center, a total of 11 research projects were competitively awarded, including four K-12 WD projects. Of these, one has been completed to date. A set of tables is provided starting on page 3 to summarize the status of each project. Additional details on each project are provided in pages 19-24. The remaining projects are either under peer review or are in various stages of completion. Reports for all completed projects are posted on the STRIDE website at:

<http://www.stride.ce.ufl.edu/completed-projects>.

All selected projects have a technology transfer component, and we continue to monitor those activities as described in progress reports. We are also reaching out to the lead researchers of each project to discuss additional technology transfer opportunities for each project in the form of webinars, workshops, etc.

| YEAR 1 PROJECTS (2012) | | |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| No. | Research Project Title | STATUS |
| 1 | Emissions Modeling and Integration into Traffic Micro-simulation | Under peer-review |
| 2 | A Regional Land-use Transportation Decision Support Tool for Mississippi | Under peer-review |
| 3 | Engineering: It's for Girls Too! | Awaiting final report |
| 4 | Empirically-Based Performance Assessment and Simulation of Pedestrian Behavior at Unsignalized Crossings | COMPLETED |
| 5 | Quantifying the Costs of School Transportation | In progress |
| 6 | Towards a Holistic Understanding of Quality of Life: An Analysis of Activity-Travel Patterns on Non- Mid-week Days | In progress |
| 7 | Development of Pedestrian and Bicycle Transportation Course Modules | COMPLETED |
| 8 | Consequence Based Route Selection for Hazardous Material Cargo: GIS-Based Time Progression of Environmental Impact Radius of Accidental Spills | In progress |
| 9 | Investigation of ATDM Strategies to Reduce the Probability of Breakdown | Under peer-review |
| 10 | Development of Graduate Level Course on Sustainable Pavements | COMPLETED |
| 11 | Automated Sidewalk Quality and Safety Assessment System | In progress |
| 12 | Engaging Engineering Students with Transportation Safety: an Educational Module | COMPLETED |
| 13 | Comparative Analysis of Dynamic Pricing Strategies for Managed Lanes | Under peer-review |
| 14 | A Naturalistic Driving Study Across the Lifespan | COMPLETED |
| 15 | Development of Educational and Professional Training Modules on Green/Sustainability Design and Rating Systems for Neighborhood Development and Transportation | In progress |
| 16 | Analyzing the Impact of Carbon Regulatory Mechanisms on Supply Chain Management | COMPLETED |
| 17 | Developing a New Course for Public Transportation Education | In progress |
| 18 | Signalized Intersection Simulation Program for Education | In progress |

YEAR 1 WORKFORCE DEVELOPMENT PROJECTS (2012)

| No. | Project Title | STATUS |
|-----|-----------------------------------------------------------------------------------------------------------|-------------|
| 1 | LEGO Robot Vehicle Afterschool Workshops: Transportation Engineering Problem Solving (Modules 1-5) | COMPLETED |
| 2 | K-12 Workforce Development in Transportation Engineering at FIU | In progress |
| 3 | Transportation Workforce Development at UAB | COMPLETED |
| 4 | Family Engineering Night STRIDE Proposal for K-12 Workforce Transportation Workforce Development (at MSU) | COMPLETED |
| 5 | K-12 Workforce Development in Transportation Engineering at UF | COMPLETED |

YEAR 2 PROJECTS (2013)

| No. | Research Project Title | STATUS |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| 1 | Teaching Schoolchildren Pedestrian Safety: A Pragmatic Trial Using Virtual Reality | In progress |
| 2 | Dynamic Traffic Control Interventions for Enhanced Mobility and Economic Competitiveness | In progress |
| 3 | Livability Performance Measures to Transportation Plans and Projects | COMPLETED |
| 4 | Signal Timing Optimization with Consideration of Environmental and Safety Impacts | In progress |
| 5 | Engineers Change the World: A Hands-on Workshop for 13- to 18-Year-Old Girls | In progress |
| 6 | GIS-Based Instructional Tool for Crash Prediction Methods | In progress |
| 7 | School Transportation: Development of an Education Module | In progress |
| 8 | On-Board-Diagnostics (OBD) Data Integration into Traffic Microsimulation for Vehicle-Specific Fuel Use and Emissions Modeling and In-Vehicle App Testing | In progress |
| 9 | Investigating the Effect of Drivers' Body Motion on Traffic Safety | In progress |
| 10 | Distracted Driving - It Is Not Always a Choice | In progress |
| 11 | Using Crowdsourcing to Prioritize Bicycle Route Network Improvements | In progress |

| YEAR 2 WORKFORCE DEVELOPMENT PROJECTS (2013) | | |
|----------------------------------------------|----------------------------------------------------------------------------------------------------|-------------|
| No. | Project Title | STATUS |
| 1 | LEGO Robot Vehicle Afterschool Workshops: Transportation Engineering Problem Solving (Modules 1-5) | In progress |
| 2 | K-12 Workforce Development Activities at NCSU | In progress |
| 3 | Engaging in Engineering Initiative with Centennial Elementary School at GaTech | In progress |
| 4 | K-12 Workforce Development Activities at UAB | In progress |
| 5 | K-12 Workforce Development Activities at UF | In progress |

- b) **To serve as the focal point for transportation research, education and outreach in the region**

Accomplishments:

Planning Underway for the Third Annual UTC Conference for the Southeastern Region

The third annual UTC Conference for the Southeastern Region will be hosted by the University of Alabama at Birmingham (UAB) with collaboration from Mississippi State University (MSU) on March 26-27, 2015, at the Hyatt Regency – Wynfrey Hotel in Birmingham, Alabama. The first such conference was initiated by STRIDE in 2013, with the intent to enhance collaboration among the academic community as well as the private and public sector agencies in the Southeastern region. The 2015 conference is being planned by Dr. Virginia Sisiopiku of UAB along with Dr. John Usher of MSU. Visit the 2015 conference website for more information: <http://www.ncitec.msstate.edu/2015-utc/>.

Educational Projects:

Below are examples of educational products produced by STRIDE funded projects to date. STRIDE-funded educational projects will be posted as they are completed at the following website: <http://www.stride.ce.ufl.edu/course-materials-developed-by-stride>.

| Project Title | Product |
|---------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Engaging Engineering Students with Transportation Safety: An Educational Module (STRIDE 2012-085S) | Course Website: http://ergo.research.ise.msstate.edu/stride-classroom-module/ |
| Development of Pedestrian and Bicycle Transportation Course Modules (STRIDE Project Number 2012-028s) | Course Website: www.pedbikeinfo.org/training/courses.cfm |
| Development of Graduate Level Course on Sustainable Asphalt Pavements (STRIDE Project Number 2012-049s) | Course Website: http://eng.auburn.edu/online/professional-development/course-listing/civil-structural.html . |
| Transportation K-12 Workforce Development 2012 at FIU, GaTech, MSU, NCSU, UAB, and UF | <p>K-12 Workforce Development projects at FIU, GaTech, MSU, NCSU, UAB, and UF have yielded lesson plans and information on how to create activities that engage school-age children in engineering and transportation. Information on these activities can be found at: http://stride.ce.ufl.edu/workforce-development</p> <p>LEGO® Robot Vehicle Lesson Plans for Secondary Education; Course website: http://www.t2ctt.ce.ufl.edu/Forms.asp?MODE=NEW&Forms_FormTypeID=-17</p> |

WTS Chapter Development in the Southeast: The STRIDE Center continues to work with WTS International to create additional student chapters in the Southeast and the partnership continues to increase participation of women in our transportation programs and events. The WTS student chapters will once again meet at the 2015 UTC Conference for the Southeastern Region, which will be held in Birmingham, Ala. in March to discuss ways to collaborate with other chapters across the region. Student chapters from both WTS and ITE representing GaTech, NCSU, FIU, USC, USF, UAB participate at this event. The STRIDE center continues to be actively engaged with Ms. Tiffany Jackson, Director of Membership and Chapter Development, at WTS International to assist with chapter creation across the region.

- c) **To strengthen the collaboration between the partner universities as well as between the consortium and federal, state, and local agencies**

Accomplishments:

It is expected that a panel discussion with State DOT representatives will be held at the 3rd Annual UTC Conference in for the Southeastern Region in Birmingham, Ala. In March 2015. The program is not yet finalized, but last year at the 2nd Annual UTC Conference held at GaTech, the following state DOT representatives participated: John Kirby, NCDOT; William Barstis, MDOT; Darryll Dockstader, FDOT; Jeffrey Brown, ALDOT; and

Georgine Geary, GDOT. Collaboration with other agencies is also strengthened through the technology transfer requirement in STRIDE funded projects. For example, in Dr. Leigh Blackmon Lane's "Livability Performance Measures to Transportation Plans and Projects (2013-018S)", her research team held various workshops in five states, which included the Atlanta Regional Commission (also the Metropolitan Planning Organization (MPO) for the city); GDOT representatives; Broward County MPO in Florida; non-technical community leaders selected by the Mayor of Greenville Mississippi; City of Huntsville, Alabama technical staff and consultants; the French Broad River MPO in Asheville, North Carolina, which also included participants from NCDOT and the Citizen's Advisory Committee. This is just one example of how one project has the capability of extending its collaboration across states within the region. The STRIDE Center will continue to actively engage state and local agencies in discussions and potential collaborations within the region to increase their participation and involvement.

d) To develop ties with other UTCs and USDOT's research clusters to create opportunities for collaborative activities across centers.

Accomplishments:

The 3rd UTC Conference for the Southeastern Region to be held in Birmingham, Alabama brings together faculty, students, staff, and transportation professionals from state DOTs, MPOs and other agencies in the region and helps to create opportunities for collaboration related to research and other activities.

e) To disseminate research results to government, academia and private sectors through publication in peer-reviewed journals, conference papers and presentations at transportation-related industry events

Accomplishments:

Faculty and students affiliated with the STRIDE Center continue to publish papers and present at conferences as per the information contained in the performance indicators collected at the end of December 2014. The STRIDE Center is actively engaged in creating workshops, webinars, conferences and other technology transfer activities from completed CMS (Tier-1 UTC at UF) and STRIDE-funded projects and will continue this process as STRIDE projects are being completed. Currently, we are reaching out to lead investigators of all STRIDE projects to explore additional technology transfer opportunities.

f) To establish additional mechanisms, including the use of social media, by which important research findings are made available to researchers and others with an interest in transportation matters

Accomplishments:

We continue to use our website (stride.ce.ufl.edu), Facebook and Twitter pages to announce events, webinars, conference, completed projects and other important information related to STRIDE and other UTC activities.

The STRIDE Center has subscribed to Constant Contact, an online email marketing service to advertise annual reports, completed projects, events, and any other products produced by the Center.

g) To utilize research project activities to promote transportation-related careers and employment opportunities for education and workforce development

Accomplishments:

The four STRIDE interns selected to work with researchers at STRIDE partner schools as part of the Transportation Research Internship Program (TRIP) completed their internship in August with final presentations. The interns were

- Intern: Kory Harb, UF civil engineering
Adviser: Dr. Yafeng Yin, UF
Project: Developing agent-based simulation models to learn about the impact and implementation of real-time parking services via smartphone applications
- ✓ Megan McGinley (UF)
Adviser: Dr. Scott Washburn, Transportation Program, Civil Engineering, UF
Project: Analyzing a new Active Traffic Demand Management (ATDM) software
- ✓ Brian Pitman (UF)
Adviser: Dr. Scott Washburn, Transportation Program, Civil Engineering, UF
Project: Creating software to simulate emissions given off by cars using CORSIM
- ✓ William Woolery (Georgia Tech)
Adviser: Dr. Mike Hunter, School of Civil and Environmental Engineering, Georgia Institute of Technology (GaTech)
Project: Working on research to identify changes in visual search patterns of drivers as environments around become more complex

Workforce Development Activities:

- Draft final reports for the first year contracts for workforce development were finalized.
- In 2014, the STRIDE Center awarded contracts to four partner institutions for K-12 workforce development (Georgia Tech, North Carolina State University, University of Alabama at Birmingham and the University of Florida). FIU continued their efforts into the second year after utilizing matching funds the first year.
- North Carolina State University has continued to use LEGO® Mindstorms NXT robots in outreach activities. These workshops provide a hands-on experience that encourage students to look at science, technology, engineering and math (STEM) topics in a new light and foster interest in transportation engineering as a career choice.
- The University of Alabama at Birmingham continues to use interactive activities, presentations, and workshops such as Family Engineering Night to introduce girls to engineering in hopes that these activities will spark an interest in considering Transportation Engineering as a career path.

- The University of Florida continued to offer the very successful K-12 activities, including: the LEGO® robots program; Transportation Career Day, which is designed for high school-aged students to introduce them to Transportation careers; Family Engineering Night, which actively engages elementary school children and their families in fun, hands-on engineering activities at local elementary schools; and utilizing the computer game, SimCity, to develop Transportation-specific modules for middle school students to foster interest in the transportation profession as a career choice.
- Georgia Tech's work focused on interfacing with 5th grade students at Centennial Place Elementary School to introduce Engineering elements such as measurements, data collections, data analysis, presentation and group work, focusing on examples from topics in Transportation Engineering.
- The faculty and students at FIU have developed a regional consortium-based model with a K-12 pipeline, professional societies, industry, and families that capitalizes on expertise and leverages existing partnerships and resources to systematically enhance the quality of STEM education.
- UAB conducted two "Kids in Engineering" events in Fall 2014 working with the UAB SWE student chapter. A total of 41 fourth, fifth, and sixth grade students from the surrounding Birmingham metropolitan area as well as students from the Montgomery metropolitan area attended the Oct 11th event and 31 students participated in the Oct 18th event. UAB's Dr. Virginia Sisiopiku hosted a Career Information Session on October 10th for nineteen UAB engineering students to learn about the transportation engineering profession and its potential benefits as a career path.
- The UF ITE, WTS and ASCE student chapters hosted a family engineering event at PK Yonge Research School on October 3rd in Gainesville, FL, where UF students guided 85 students as well as their parents and care takers through hands-on activities.
- As part of the Transportation Career Day effort, UFTI partnered with the UF Center for Pre-collegiate Education and Training, on January 26, 2015. A traffic signal lab tour was conducted for 21 visiting high school students by PhD student Don Watson and Thomas Chase.
- NCSU worked with 134 students at Robbinsville High School in Graham County, North Carolina. Nine sessions were offered for a total of 13 hours in which students were introduced to careers in transportation as well as learning practical math applications.
- UFTI developed a 9-week class for middle school students using the computer game SimCity (simcity.com), building on the educational benefits of computer games. A pilot was conducted at Jordan Glen School for 19 students with 45 minute modules designed to instill participants with the planning and engineering concepts involved in this transportation profession, such as design, materials, traffic mitigation, and budget management.
- UFTI piloted a new curriculum for fourth and fifth graders to build and program the new LEGO EV3 robot on the UF Campus on December 13th for seven students.
- NCSU and UF completed their partnership for the *Engineering: It's for Girls, Too* project which includes a series of one-day workshops targeted at girls in middle

school and high school. NCSU partnered with WTS to co-sponsor a Transportation YOU event held in Raleigh on September 18th. The workshop provided experiential hands-on activities, speakers, role models, and mentoring opportunities which serve to engage and inspire.

- NCSU provided a LEGO Mindstorm NXT robot workshop December 8-10 at Centennial Middle School for ten students utilizing the transportation curriculum developed at UF in 2012.
- In October, GATech offered three sessions to introduce students to Transportation Engineering to a group of 17 students in fifth grade at Centennial Place Elementary School over two days. The students were divided into three groups designed to expose them to three Transportation Engineering modules: 1) Pedestrian Accessibility; 2) Visual Complexity and the Roadway Environment; and 3) Traffic Engineering. On the first day, students rotated through each module and conducted both manual and automated data collection techniques. Manual data collection included activities such as performing vehicle counts on paper, measuring width and slopes of pedestrian paths, and rating images of roadway conditions, while automated data collection techniques involved tablet computer technologies. On the second day, the three groups were assigned to one of the three aforementioned modules for the entire day where they analyzed the data collected from the previous day and prepared a presentation on their respective module for their peers and research mentors.
- In June, FIU hosted a summer camp with fifty participating students. ITE and WTS student chapters provided outreach to several schools and career day events as well.
- Georgia Tech has produced a paper which they will present at the 2015 American Society of Engineering Educators Southeast Section Conference, April 12-14, 2015 in Gainesville, FL. The paper is entitled "Introducing transportation engineering to diverse K-8 school students."

How have results been disseminated?

1. Information on completed projects is made available to transportation professionals, students and faculty in the public and private sectors via the use of Constant Contact, an email marketing tool.
2. Reports are also posted on the STRIDE website, on the STRIDE newsletter and annual report and in refereed journals.
3. Additionally, the STRIDE Center continues to showcase ongoing and completed projects at the Annual UTC Conference for the Southeastern Region and at the STRIDE Student Poster Showcase/Competition, which is held at the University of Florida's Reception during the Transportation Research Board's annual meeting in Washington, D.C.
4. Results have been posted on the STRIDE Facebook and Twitter page. The LEGO® Robot Lesson Plans, created from a project funded by the CMS Tier 1 UTC and incorporated into the STRIDE workforce development activities, have been downloaded 106 times as of December 2014. Agencies that have downloaded the lesson plans range from UTCs and other universities, to K-12 and after-school programs across the U.S. and as far away as Alaska and California.

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

1. Create additional technology transfer opportunities (including webinars and short courses) such as events based on completed CMS and STRIDE research projects.
2. Monitor the remaining ongoing projects from STRIDE 1 (the portion of the grant that began January 2012) via quarterly reports to ensure they are progressing on schedule, and products and results are disseminated as expected.
3. Monitor the draft final reports from STRIDE 1 projects, the peer reviews of those reports and the process of receiving and editing the final reports for posting on the STRIDE website, reporting these on RiP database as completed projects, and providing links to completed PDF of projects from the TRID database.
4. Monitor the STRIDE 2 projects (those that began October 2013) via quarterly reports to ensure they are on schedule.
5. Monitor the K-12 Workforce Development projects via quarterly reports.
6. Obtain draft final reports for second year contracts and begin peer review.
7. Start gathering performance indicators for the Performance Indicators report due in June 2015.
8. Promote the 3rd Annual UTC Conference for the Southeastern Region so that faculty, students, and transportation professionals attend.
9. Continue to publish the STRIDE e-Newsletter twice a year (Spring and Fall), using Constant Contact.
10. Continue to engage in discussions with State DOTs in the region and nationwide for potential collaborations.
11. Continue to engage in discussions with WTS International to create student chapters in the region, and coordinate activities with these chapters as they are created.
12. Continue posting events and products on the STRIDE website, Facebook, and via the use of Constant Contact email marketing tool to advertise the completion of final reports, events, etc.

Products

List any products resulting from the program during the reporting period

1. Engaging Engineering Students with Transportation Safety: An Educational Module (STRIDE 2012-085S, Principal Investigator: Dr. Leslie Strawderman, Mississippi State University). Course website: <http://ergo.research.ise.msstate.edu/stride-classroom-module/>.
2. Transportation related worksheets were developed for SimCity as well as a competition matrix
3. Georgia Tech developed three different modules for middle school student of Transportation Engineering: 1) Pedestrian Accessibility, 2) Visual Complexity and the Roadway Environment, and 3) Traffic Engineering.
4. Teaching Schoolchildren Pedestrian Safety: A Pragmatic Trial Using Virtual Reality (STRIDE 2013-004S, Principal Investigator, Dr. David Schwebel, University of Alabama at Birmingham). Via the use of a virtual reality environment, the research team trained more than 305 children in pedestrian safety in Summer 2014 at the YMCA Youth Center in Birmingham, Ala. Additionally, this training was reported in five local news outlets in Alabama.
5. Livability Performance Measures to Transportation Plans and Projects (STRIDE 2013-018S, Principal Investigator: Dr. Leigh Blackmon Lane, North Carolina State University). Workshops in five states (Georgia, Florida, North Carolina, Alabama, Mississippi) were held, which focused on

the development of performance measures that could be used as part of a transportation or comprehensive planning process. Focusing on livability-oriented outcomes, participants learned how to select performance measures using the FHWA Community Vision Metrics tool and evaluated performance measures according to criteria provided in the workshop.

6. Researchers involved with the project titled “Investigating the Effect of Drivers’ Body Motion on Traffic Safety” created and published an on-line, open-access scientific database that contains 523 depth video sequences of 27 drivers performing 236 merges and 287 lane changes. The database is called DMDDDB (Driver's Motion Depth Database). The 3D motion of the drivers was captured in the database in more than 300,000 depth frames, with 16 billion 3D points. The database is accessible from the web-site of the project at: <http://research.dwi.ufl.edu/dmddb>. The team has also entered this data base in a 3D Shape Retrieval Contest during the [8th EUROGRAPHICS Workshop on 3D Object Retrieval](#) in Zurich, Switzerland on May 2-3, 2015. Contestants will design algorithms that detect the locations of the left and right arms of the driver. The organizers of the 3D Shape Retrieval Contest will give you a sequence of depth/range frames recorded using the Kinect sensor depicting drivers in a vehicle. You need to identify the pixel locations of the arms of the drivers. See an example in this image: http://research.dwi.ufl.edu/dmddb/shrec/shrec_example.png. The top ranked contestants will be invited to co-author a paper with the track organizers, evaluating the effectiveness of the proposed algorithms to be submitted to the proceedings of the workshop.
7. Project 2012-4 (titled “Empirically-Based Performance Assessment and Simulation of Pedestrian Behavior at Unsignalized Crossings” and conducted by a team of researchers at NC State, the University of Florida, and UAB) developed a large database for pedestrian behavior at unsignalized crossings, as well as a simulation algorithm that can be used to replicate vehicle and pedestrian behavior at these locations. The researchers are now developing a proposal for a book monograph related to this work.

Participants and Other Collaborating Organizations

What organizations have been involved as partners?

| Organization Name | Location | Contribution |
|----------------------------------------------|-----------------------------|---------------------------|
| University of Florida | Gainesville, FL | Lead University |
| Auburn University | Auburn, AL | Partner University |
| Georgia Institute of Technology | Atlanta, GA | Partner University |
| Mississippi State University | Mississippi State Univ., MS | Partner University |
| North Carolina State University | Raleigh, NC | Partner University |
| University of Alabama at Birmingham | Birmingham, AL | Partner University |
| University of North Carolina | Chapel Hill, NC | Partner University |
| Florida Department of Transportation (FDOT) | Tallahassee, FL | Matching funds commitment |
| Alabama Department of Transportation (ALDOT) | Montgomery, AL | Matching funds commitment |

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|------------------------------------------------------------|-------------|---------------------------|
| Georgia Department of Transportation (GDOT) | Atlanta, GA | Matching funds commitment |
| Mississippi Department of Transportation (MDOT) | Jackson, MS | Matching funds commitment |
| North Carolina Department of Transportation (NCDOT) | Raleigh, NC | Matching funds commitment |

Other collaborators

| Organization Name | Location | Contribution | Comments |
|----------------------------------------------------------------------------|----------------|---------------|----------|
| Town of Carrboro (Jeff Brubaker) | North Carolina | Collaboration | |
| Town of Chapel Hill (Council member Jim Ward) | North Carolina | Collaboration | |
| Durham-Chapel Hill-Carrboro MPO (Andrew Henry and other staff) | North Carolina | Collaboration | |
| University of North Carolina Facilities Planning | North Carolina | Collaboration | |
| Carrboro Bicycle Coalition (Seth Lajeneuse North Carolina and other staff) | North Carolina | Collaboration | |
| Triangle J Council of Governments (John Hodges Copple and other staff) | North Carolina | Collaboration | |
| Federal Highway Administration | Washington, DC | Collaboration | |
| Federal Transit Administration | Washington, DC | Collaboration | |

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| Woman's Transportation Seminar (WTS) International | Washington, DC | Collaboration in the creation of new chapters in the Southeast | Various K-12 workforce development programs for STRIDE Project Number 2012-009S |
| WTS NC Triangle Chapter | Raleigh, NC | Collaboration | Various K-12 workforce development programs for STRIDE project Number 2012-009S |
| University of North Florida | Jacksonville, FL | Facilities, collaboration, personnel exchanges | K-12 workforce development program for STRIDE Project Number 2012-009S |
| 21 st Century Community Learning Center of Alachua County | Gainesville, FL | Facilities, collaboration, personnel exchanges | Various K-12 workforce development programs for STRIDE project Number 2012-009S |
| North Florida WTS Chapter | Jacksonville, FL | Facilities, collaboration, personnel exchanges | Various K-12 workforce development programs for STRIDE Project Number 2012-009S |
| WTS Central Florida Chapter | Orlando, FL | Facilities, collaboration | Various K-12 workforce development programs for STRIDE Project Number 2012-009S |
| Center for Transportation and the Environment (CTE) at North Carolina State University | Raleigh, NC | Facilities, Collaborative research Personnel exchanges | Various K-12 workforce development programs for STRIDE Project Number 2012-009S |
| Highway Safety Research Center at North Carolina State University | Raleigh, NC | Facilities, Collaborative research personnel exchanges | For data extraction of injuries and crashes on STRIDE Project Number 2012-022S |

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| Roybal Center for Translational Research on Aging and Mobility, University of Pennsylvania | Philadelphia, PA | Collaborative research, personnel exchanges | The director of the Roybal Center, Dr. Karlene Ball, is a member of the multidisciplinary Advisory Committee for STRIDE research project 2012-095 . The center has a vast expertise in cognitive research aimed to older adults |
| Safe Routes to School | Federal program, various states | Personnel exchanges, collaborative research on STRIDE project 2012-067S | Assisted in collecting sidewalk data for STRIDE Project Number 2012-067S |
| Atlanta Regional Commission | Atlanta, GA | Personnel exchanges, Facilities, collaborative research on STRIDE project 2012-067S | Transportation Division, bicycle and pedestrian planning for STRIDE Project Number 2012-067S |
| City of Atlanta | Atlanta, GA | Personnel exchanges, facilities, collaborative research on STRIDE project 2012-067S | Department of Public Works, Department of Planning and Community Development for STRIDE Project Number 2012-067S |
| Atlanta City Council Sidewalk Task Force | Atlanta, GA | Personnel exchanges, facilities, collaborative research on STRIDE project 2012-067S | Members of the research team on STRIDE Project Number 2013-067S participate in the Atlanta City Council Sidewalk Task Force, which involves attending general meetings and subcommittee meetings related to policy and funding for pedestrian facility maintenance. The full Sidewalk Task Force |

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|------------------------------------------------------------------------------------------------------------------|----------------------|---------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | | | includes city staff from the department of Public Works and department of Planning, elected officials, and pedestrian advocates. |
| Atlanta Pedestrian Organization (PEDS) | Atlanta, GA | Personnel exchanges on STRIDE project 2012-067S | Staff and volunteers at PEDS participated in initial testing of the sidewalk survey instrument and provided feedback that was then incorporated into the instrument before full scale deployment. |
| Tulane University | New Orleans, LA | Personnel exchanges, collaborative research, financial support | Collaboration and as partial match for petroleum related releases |
| Cambridge Systematics | Tallahassee, Florida | Anita Vandervalk participates on the STRIDE External Advisory Board | |
| National Center for Transportation Systems Productivity and Management (NCTSPM), Georgia Institute of Technology | Atlanta, GA | Financial support | Co-sponsors for the UTC Conference for the Southeastern Region |
| National Center for Intermodal Transportation (NCITEC), Mississippi State University | Miss. State, MS | Financial support | Co-sponsors for the UTC Conference for the Southeastern Region |
| National Center for Transit Research (NCTR), University of South Florida, | Tampa, FL | Financial support | Co-sponsors for the UTC Conference for the Southeastern Region |
| Centennial Place Elementary School | Atlanta, GA | Facilitates | For K-12 activities |

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| Girl Scouts of Gateway Council, Camp Kateri | Orange Springs, FL | Facilitates | For K-12 activities |
| Williams Elementary School | Gainesville, FL | Facilities | For K-12 activities |
| PK Yonge Research School | Gainesville, FL | Facilities | For K-12 activities |
| Lincoln Middle School | Gainesville, FL | Facilities | For K-12 activities |
| Mebane Middle School | Gainesville, FL | Facilities | For K-12 activities |
| Bishop Middle School | Gainesville, FL | Facilities | For K-12 activities |
| UF - Lawton Chiles Elementary School | Gainesville, FL | Facilities | For K-12 activities |
| Boone High School | Orlando, FL | Facilities | For K-12 activities |
| Arlington Middle School | Jacksonville, FL | Facilities | For K-12 activities |
| Jordan Glen School | Archer, FL | Facilities | For K-12 activities |
| 21st Century Community Learning Center, Alachua County Public Schools | Gainesville, FL | Facilities and Collaboration | For K-12 activities |
| MSU – St. Martins Middle School, Arthur Watson Elementary School; Jackson County Schools, Mississippi; St. Martins Elementary, Mississippi | Pascagoula, MS and St. Martins, MS. | Facilities | For K-12 activities at Mississippi State University |
| Centennial Campus Magnet Middle School | Raleigh, NC | Facilities | For K-12 activities at North Carolina State University |
| Cade Museum | Gainesville, FL | Facilities | For K-12 activities at UF |
| UF Center for Pre-collegiate Education and Training | Gainesville, FL | Facilities | For K-12 activities at UF |
| University of North Florida | Jacksonville, FL | Facilities and collaboration | STRIDE K-12 workforce development activities at UF and on STRIDE project 2012-009S |
| University of Florida LTAP | University of Florida, Gainesville, FL | Personnel exchanges, facilities, collaborative | STRIDE K-12 workforce development activities |

| | | | |
|---------------------------------------------------------------------------------------------------------|----------------|--------------------------------------|-------------------------------------------------------------------------------------------|
| | | research on STRIDE project 2012-067S | at UF and on STRIDE project 2012-009S |
| RPCGB - Darrell Howard, Deputy Director of Planning Franchesca Taylor, Active Transportation Planner | Birmingham, AL | Personnel exchanges | |
| North Carolina Local Technical Assistance Program (NC LTAP) | Raleigh, NC | Personnel exchanges | STRIDE K-12 workforce development activities at UF and on STRIDE project 2012-009S |

Impact

What is the impact of the program? How has it contributed to transportation education, research, and technology transfer? (See below)

- What is the impact on the development of the principal discipline(s) of the program?*
Continued focus and increased emphasis on the safety, livability and economic competitiveness for the Southeast region of the U.S.; increased collaboration between the STRIDE partner universities; increased collaboration with the State DOTs in the region; production of educational materials related to the research focus areas; production and delivery of various educational and workforce development activities and programs.
- What is the impact on other disciplines?*
Interdisciplinary collaboration in research projects, education, workforce development and technology transfer. Collaboration between transportation researchers at the partner universities is likely to increase broader collaboration between the universities involved.
- What is the impact on transportation workforce development?*
Six of out of the eight STRIDE consortium member universities have participated in workforce development programs geared toward K-12 students, and as a result have held various activities in each state. For example, NCSU and UF offered the LEGO® Robot Vehicle Lesson Plans for Secondary Education. The LEGO® Robot Vehicle Lesson Plans have been downloaded from the STRIDE website 106 times by individuals and organizations across the U.S. Engineering outreach activities geared toward young girls have been held at UF and at NCSU at various local schools and in collaboration with WTS chapters. Family Engineering Nights are ongoing at MSU, UAB, FIU and UF. Lastly, GATech has developed a new series of teaching modules, which will soon be available on our website.
- What is the impact on physical, institutional, and information resources at the university or other partner institutions?*
There is increased emphasis and awareness of the importance and breadth of transportation at all partner institutions, as well as other collaborating institutions in the region and nationwide. Availability of various products and reports on our website and distribution through social media will enhance the flow of information.
- What is the impact on technology transfer?*

A third UTC Conference for the Southeastern Region is in the process of being organized for March 2015, hosted by the University of Alabama at Birmingham with collaboration from Mississippi State University. This conference brings together UTCs and State DOTs in the Southeast region, thus creating opportunities for collaboration. Also, all STRIDE-funded projects have a built-in requirement for technology transfer activities. STRIDE is closely monitoring this requirement as all projects near completion, and engaging in discussions with lead investigators on these projects to create further opportunities. .

- *What is the impact on society beyond science and technology?*
Increased collaboration between academic institutions; increased collaboration between academia, public and private sectors; development and implementation of the path from research to technology transfer; development and implementation of workforce development activities.

Changes/Problems

- *Changes in approach and reasons for change:* Nothing to report.
- *Actual or anticipated problems or delays and action or plans to resolve them:* Nothing to report.
- *Changes that have a significant impact on expenditures:* Nothing to report.
- *Significant changes in use or care of human subjects, vertebrate animals and/or biohazards:* Nothing to report.
- *Change of primary performance site location from that originally proposed:* Nothing to report.

Special Reporting Requirements

(Award-specific reporting requirements)

- Federal Financial Report – This report is prepared by the grants specialist at UF responsible for managing all STRIDE related financial duties.
- Federal Financial Accountability and Transparency Act (FFATA) Sub-award and Executive Compensation Reporting Requirement – This report is prepared by the College of Engineering contracts office.

List of Projects and PIs (STRIDE 2013)

The following projects were selected for funding

Dynamic Traffic Control Interventions for Enhanced Mobility and Economic Competitiveness

PI: Nagui Roupail, Ph.D., North Carolina State University

Co-PI: Mohamed Hadi, Ph.D., Florida International University

\$150,000

Signal Timing Optimization with Consideration of Environmental and Safety Impacts

PI: Mohamed Hadi, Ph.D., Florida International University

Co-PIs: Lily Elefteriadou, Ph.D., University of Florida

\$120,000

On-Board-Diagnostics (OBD) Data Integration into Traffic Microsimulation for Vehicle-Specific Fuel Use and Emissions Modeling and In-Vehicle App Testing

PI: Scott Washburn, Ph.D., University of Florida

Co-PIs: Christopher Frey, Ph.D., North Carolina State University; Nagui Roupail, Ph.D., North Carolina State University

\$150,000

Using Crowdsourcing to Prioritize Bicycle Route Network Improvements

PI: Jeffrey J. LaMondia, Ph.D., Auburn University

Co-PI: Kari Watkins, Ph.D., Georgia Institute of Technology

\$100,000

Distracted Driving – It is not always a choice.

PI: Mike Hunter, Ph.D., Georgia Institute of Technology

Co-PI: Gregory M. Corso, Ph.D., Morehead State University

\$150,000

GIS-Based Instructional Tool for Crash Prediction Methods

PI: Ilir Bejleri, Ph.D., University of Florida

Co-PI: Siva Srinivasan, Ph.D., University of Florida

\$89,961

Investigating the Effect of Drivers' Body Motion on Traffic Safety

PI: Angelos Barmoutis, Ph.D., University of Florida

Co-PIs: Alexandra Kondyli, Ph.D., University of Florida; Virginia Sisiopiku, Ph.D., University of Alabama at Birmingham

\$132,972

Applying Livability Performance Measures to Transportation Plans and Projects

PI: Leigh Blackmon Lane, Ph.D., North Carolina State University

\$53,000

Engineers Change the World: A Hands-on workshop for 13- to 18-Year-Old Girls

PI: James Martin, Ph.D., North Carolina State University

Co-PI: Nina Barker, University of Florida

\$42,452

Teaching Schoolchildren Pedestrian Safety: A Pragmatic Trial Using Virtual Reality

PI: David Schwebel, Ph.D., University of Alabama at Birmingham

Co-PIs: Daniel Rodriguez, Ph.D., University of North Carolina at Chapel Hill; Virginia Sisiopiku, Ph.D., University of Alabama at Birmingham

\$150,000

School Transportation: Development of an Education Module

PI: Noreen McDonald, Ph.D., University of North Carolina at Chapel Hill

Co-PI: Ruth Steiner, Ph.D., University of Florida

\$71,000

List of Projects and PIs (STRIDE 2012)

(The following projects were selected for funding)

Quantifying the Costs of School Transportation

PI: Noreen McDonald, Ph.D., University of North Carolina at Chapel Hill

Co-PIs: Ruth Steiner, Ph.D., University of Florida; Jeff Tsai, Ph.D., North Carolina State University

\$250,313

Empirically-Based Performance Assessment and Simulation of Pedestrian Behavior at Unsignalized Crossings

PI: Bastian Schroeder, Ph.D., North Carolina State University

Co-PIs: Lily Elefteriadou, Ph.D., University of Florida; Virginia Sisiopiku, University of Alabama at Birmingham

\$315,148

Comparative Analysis of Dynamic Pricing Strategies for Managed Lanes

PI: Jorge Laval, Ph.D., Georgia Institute of Technology

Co-PIs: Yafeng Yin, University of Florida; Yingyan Lou, University of Alabama

\$204,526

Signalized Intersection Simulation Program for Education

PI: Scott Washburn, Ph.D., University of Florida

\$34,212

Investigation of ATDM Strategies to Reduce the Probability of Breakdown

PI: Mohammed Hadi, Ph.D., Florida International University

Co-PI: Lily Elefteriadou, Ph.D., University of Florida

\$190,792

Engaging Engineering Students with Transportation Safety: An Educational Module

PI: Lesley Strawderman, Ph.D., Mississippi State University

\$2,610

A Naturalistic Driving Study across the Lifespan

Co-PIs: Despina Stavrinos, Ph.D. and Lesley Ross, Ph.D., University of Alabama at Birmingham

\$125,071

Development of Educational and Professional Training Modules on Green/Sustainability Design and Rating Systems for Neighborhood Development and Transportation

PI: Robert W. Peters, Ph.D., University of Alabama at Birmingham

Co-PI: Adjo Amekudzi, Ph.D., Georgia Institute of Technology

\$45,809

Developing a New Course for Public Transportation Education

PI: Kari Edison Watkins, Ph.D., Georgia Institute of Technology

Co-PI: Jeffrey LaMondia, Ph.D., Auburn University

\$70,000

Automated Sidewalk Quality and Safety Assessment System

PI: Randall Guensler, Ph.D., Georgia Institute of Technology

\$196,667

Development of Pedestrian and Bicycle Transportation Course Modules

PI: Daniel Rodriguez, Ph.D., University of North Carolina at Chapel Hill

Co-PI: Rod Turochy, Ph.D., Auburn University

\$25,750

Consequence Based Route Selection for Hazardous Material Cargo: GIS-Based Time Progression of Environmental Impact Radius of Accidental Spills

PI: Berrin Tansel, Ph.D., Florida International University

Co-PIs: Adjo Amekudzi, Ph.D., Georgia Institute of Technology; Nasim Uddin, University of Alabama at Birmingham

\$70,000

Analyzing the Impact of Carbon Regulatory Mechanisms on Supply Chain Management

PI: Sandra Eksioglu, Ph.D., Mississippi State University

Co-PI: Joseph Geunes, Ph.D., University of Florida

\$128,629

Engineering: It's for Girls, Too!

PI: James Martin, PE, North Carolina State University

Co-PI: Lily Elefteriadou, Ph.D., University of Florida

\$38,895

A Regional Land Use Transportation Decision Support Tool for Mississippi

PI: Brian Morton, Ph.D., University of North Carolina at Chapel Hill

Co-PIs: John Poros, Ph.D., Mississippi State University; Joe Huegy, Ph.D., North Carolina State University

\$120,380

Towards a Holistic Understanding of Quality of Life: An Analysis of Activity-Travel Patterns on Non-Mid-week Days

PI: Siva Srinivasan, Ph.D., University of Florida

Co-PI: Xia Jin, Ph.D., Florida International University

\$77,790

Development of Graduate Level Course on Sustainable Asphalt Pavements

PI: James Richard Willis, Ph.D., Auburn University

\$47,837

Emissions Modeling and Integration into Traffic Micro-simulation

PI: Scott Washburn, Ph.D., University of Florida

Co-PIs: Nagui Roupail, Ph.D., North Carolina State University; H. Christopher Frey, Ph.D., North Carolina State University

\$251,764

List of Cost Share Projects

Local Technical Assistance Program (LTAP) 2013 and 2014

PIs: Nina Barker, M.S. and Chris LeDew, PE, UFTI/T2 Center

Safety Project Development Capacity for Small Communities in Coordination with Local Technical Assistance Program Center

PIs: Ilir Bejlari, Ph.D. and Siva Srinivasan, Ph.D., University of Florida

Comparison of Methods for Measuring Travel Time at Florida Freeways and Arterials

PI: Lily Elefteriadou, Ph.D., University of Florida

Estimation of Capacities of Florida Freeways

PI: Lily Elefteriadou, Ph.D., University of Florida

Modeling, Implementation, and Validation of Arterial Travel Time Reliability

PI: Lily Elefteriadou, Ph.D., University of Florida

Before and After Implementation Studies of Advance Signal Technologies in Florida

PI: Lily Elefteriadou, Ph.D., University of Florida

Roundabouts and Access Management

PI: Ruth Steiner, Ph.D., University of Florida

Co-PIs: Scott Washburn, Ph.D., University of Florida; Albert Gan, Ph.D., Florida International University

Planning for Incorporating Ancillary Demands in the Next Generation FSUTMS

PI: Siva Srinivasan, Ph.D., University of Florida

Deployment Strategies of Managed Lanes on Arterials

PIs: Yafeng Yin, Ph.D. and Siriphong Lawphongpanich, Ph.D., University of Florida

Lifting HOV/HOT Lane Eligibility and Shoulder Use Restrictions for Traffic Incident Management

PIs: Yafeng Yin, Ph.D. and Lily Elefteriadou, Ph.D., University of Florida

Estimation of Capacities on Florida Freeways

PI: Lily Elefteriadou, Ph.D., University of Florida

Comparison of Methods for Measuring Travel Time at Florida Freeways and Arterials

PI: Lily Elefteriadou, Ph.D., University of Florida

Deployment Strategies of Managed Lanes on Arterials

PIs: Yafeng Yin, Ph.D. and Siriphong Lawphongpanich, Ph.D. (Team is from University of Florida)

Crash Prediction Methods for Freeway Facilities with High Occupancy Vehicle (HOV) and High Occupancy Toll (HOT) Lanes

PI: Siva Srinivasan, Ph.D., University of Florida

Policy Implications of Automated Vehicle Technology

PIs: Siva Srinivasan, Ph.D., Carl Crane, Ph.D., and Ruth Steiner, Ph.D. (Team is from University of Florida)

K-12 Workforce Development Projects

Florida International University, K-12 Workforce Development Activities, 2012

PI: Berrin Tansel, Ph.D.

Mississippi State University, K-12 Workforce Development Activities, 2012

PI Eric Heiselt, Ph.D.

North Carolina State University, K-12 Workforce Development Activities, 2012

PI: James Martin, P.E.

University of Alabama at Birmingham, K-12 Workforce Development Activities, 2012

PI: Virginia Sisiopiku, Ph.D.

University of Florida, K-12 Workforce Development Activities, 2012

PIs: Nina Barker, T2 Assistant Director and Leslie Washburn, P.E.

Georgia Institute of Technology, Engaging in Engineering Initiative with Centennial Elementary School, 2013

PIs: Yanzhi (Ann) Xu, Ph.D., and Alice Grossman (doctoral student)

North Carolina State University, K-12 Workforce Development Activities, 2013

PI: James Martin, P.E.

University of Alabama at Birmingham, K-12 Workforce Development Activities, 2013

PI: Virginia Sisiopiku, Ph.D.

University of Florida, K-12 Workforce Development Activities, 2013

PIs: Nina Barker, T2 Assistant Director and Leslie Washburn, P.E.