

## NTC Program Progress Performance Report (PPPR) Information Form

### For P.I.'s Use

On a semi-annual basis the NTC sponsored P.I. must report Program Progress Performance Report (PPPR) using the format specified in this PPPR Information Form. The form must be submitted electronically to the corresponding NTC Associate Director by **9/16/2016**.

**Cover Period: 4/01/2016 – 9/30/2016**

NTC Funded Project Information (Round/Year 3, 2015-2016)	
Project timeline: January 1, 2016 to December 31, 2016	
University Name	North Carolina State University
Project Title	Methods for Improving the Reliability of Transportation Systems
Principal Investigator	George List (NCSU) and Paul Schonfeld (UMD)
PI Contact Information	<a href="mailto:gflist@ncsu.edu">gflist@ncsu.edu</a>

**The form includes the following six parts:**

- Part I – Performance Indicators
- Part II – Accomplishments: What was done? What was learned?
- Part III – Products: What has the program produced?
- Part IV – Participants & Collaborating Organizations: Who has been involved?
- Part V – Impact: What is the impact of the program? How has it contributed to transportation education, research and technology transfer?
- Part VI – Changes/Problems

*Supplementary documents/materials can be attached to this form with the submission.*

<b>Part I – Performance Indicators</b>	
<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. Transportation-related courses offered during the reporting period that were taught by faculty and/or teaching assistants who are associated with the UTC</b>	
Undergraduate courses	CE 305 Traffic Engineering (NCSU)
Graduate courses	CE 707 Transportation Policy and Funding CE 595 Railroad Engineering (EOL) CE 504 Airport Planning and Design (OS&EOL) CE 795 Transportation Logistics (OS&EOL) EOL = Engineering On Line; OS&EOL = on-site and EOL
<b>2. Students supported by this grant</b>	
Undergraduate students	[Student Name] [Supervisor]
Masters students	[Student Name] [Supervisor]
Doctoral students	Mehdi Mashayekhi (NCSU)
<b>3. Students participating in transportation research projects funded by this grant (but not supported by this grant)</b>	
Undergraduate students	
Graduate students	Elizabeth Williams (PhD) – George List Russell Smith (MS) – George List
<b>4. Students supported by this grant who received degrees</b>	
Undergraduate degrees	[Student Name]
Masters degrees	Elizabeth Williams
Doctoral degrees	[Student Name]

**Part II – Accomplishments: What was done? What was learned?**

<b>The information provided in this section allows the OST-R grants official to assess whether satisfactory progress has been made during the reporting period.</b>	
<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. What are the major goals of the program?</b>	<p>The National UTC aims to promote strategic transportation policies, investment, and decisions that bring lasting and equitable economic benefits to the U.S. and its citizens. The Center is concerned with the integrated operations and planning of all modes serving the nation’s passenger and freight transportation system, including the institutional issues associated with their management and investments. A balanced multi-modal approach will be used that considers freight and passenger travel mobility, reliability, and sustainability, as well as system operations during periods of both recurring and non-recurring incidents, including response to major emergencies. The modes in this theme include highway, transit, rail, and inter-modal interfaces including ports, terminals and airports. In particular, the center focuses on research, education, and technology transfer activities that can lead to (1) Freight efficiency for domestic shipping and for our international land, air, and sea ports; (2) Highway congestion mitigation with multi-modal strategies; and (3) Smart investments in intercity passenger travel facilities such as high speed rail. Major center activities are as following:</p> <ul style="list-style-type: none"> <li>• <b>Advanced &amp; Applied Research Promoting Economic Competitiveness:</b> Our research activities are multimodal/intermodal and multidisciplinary in scope, with the aims of addressing nationally and regionally significant transportation issues pertinent to economic competitiveness and providing practice-ready solutions.</li> <li>• <b>Education, Workforce Development, Technology Transfer, &amp; Diversity</b> The consortium is committed to providing high-quality transportation education and workforce development programs for a broad and diverse audience. Center’s efforts will support the development of a critical transportation knowledge base and a transportation workforce that is prepared to design, deploy, operate, and maintain the complex transportation systems of the future.</li> </ul>
<b>2. What was accomplished under</b>	Nothing yet. The project just started in August 2016.

<b>these goals?</b>	
<b>3. How have the results been disseminated?</b>	None to report.
<b>4. What do you plan to do during the next reporting period to accomplish the goals?</b>	Further enhance and advance system level models that have been developed in previous Round 1 and Round 2 projects.

**Part II – Products: What has the program produced?**

Publications are the characteristic product of research projects funded by the UTC Program. OST-R may evaluate what the publications demonstrate about the excellence and significance of the research and the efficacy with which the results are being communicated to colleagues, potential users, and the public, not the number of publications. Many research projects (though not all) develop significant products other than publications. OST-R may assess and report both publications and other products to Congress, communities of interest, and the public.

<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. Journal publications:</b>	None yet. The project just started in August 2016.
<b>2. Books or other non-periodical, one-time publications</b>	None yet. The project just started in August 2016.
<b>3. Other publications, conference papers and presentations</b>	None yet. The project just started in August 2016.
<b>4. Website(s) or other internet site(s)</b>	None yet. The project just started in August 2016.
<b>5. Technologies or techniques</b>	None yet. The project just started in August 2016.
<b>6. Outreach activities</b>	None yet. The project just started in August 2016.
<b>7. Courses and workshops</b>	None yet. The project just started in August 2016.
<b>8. Inventions, patent applications, and/or licenses</b>	None yet. The project just started in August 2016.
<b>9. Other products</b>	None yet. The project just started in August 2016.

**Part III – Participants & Collaborating Organizations: Who has been involved?**

OST-R needs to know who has worked on the project to gauge and report performance in promoting partnerships and collaborations.

<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. What organizations have been involved as partners?</b>	None yet. The project just started in August 2016.
<b>2. Have other collaborators or contacts been involved?</b>	None yet. The project just started in August 2016.

**Part IV – Impact: What is the impact of the program? How has it contributed to transportation education, research and technology transfer?**

**DOT uses this information to assess how the research and education programs:**

- increase the body of knowledge and techniques;
- enlarge the pool of people trained to develop that knowledge and techniques or
- put it to use; and,
- improve the physical, institutional, and information resources that enable those people to get their training and perform their functions.

<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. What is the impact on the development of the principal discipline(s) of the program?</b>	The expected outcomes of this project are methods for analyzing and improving the reliability of freight transportation systems. These methods should eventually help improve the economic performance and competitiveness of the regions they serve.
<b>2. What is the impact on other disciplines?</b>	The outcomes of this project will have an influence on the way logistics analysts and business managers address issues of service reliability and service plan development.
<b>3. What is the impact on the development of transportation workforce development?</b>	Several graduate students from NCSU and UMD will participate in the project. They will be direct workforce beneficiaries. The findings will be incorporated into classes taught at NCSU and UMD which will benefit other students.
<b>4. What is the impact on physical, institutional, and information resources at the university or other partner institutions?</b>	The project findings will be of benefit to all of the PIs funded by the center that focus on network flows and network performance assessment and management.
<b>5. What is the impact on technology transfer?</b>	The findings from this project will enable analytical technology transfer to logistics engineers and analysts and business managers.
<b>6. What is the impact on society beyond science and technology?</b>	The findings will help the society be more effective and efficient about conducting its logistics activities. This will free up scarce resources for use in other endeavors and/or allow more logistics activity to be conducted with less resources.

<b>7. Additional impacts</b>	Encourage undergraduates to pursue graduate degrees related to logistics and help USDOT and other state and local agencies be more effective in supporting logistics activities.
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**Part V – Changes/Problems**

If not previously reported in writing to OST-R through other mechanisms, provide the following additional information or state, “Nothing to Report, if applicable:

<b>Reporting Period</b>	<b>4/01/2016 – 9/30/2016</b>
<b>1. Changes in approach and reasons for change</b>	Nothing to Report.
<b>2. Actual or anticipated problems or delays and actions or plans to resolve them</b>	Nothing to Report.
<b>3. Changes that have a significant impact on expenditures</b>	Nothing to Report.
<b>4. Significant changes in use or care of human subjects, vertebrate animals, and/or biohazards</b>	Nothing to Report.
<b>5. Change of primary performance site location from that originally proposed</b>	Nothing to Report.