



Region 2

University Transportation Research Center

## **2016 UTRC REQUEST FOR PROPOSALS**

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***ALL AWARDS ARE SUBJECT TO THE AVAILABILITY OF APPROPRIATED FUNDS.***

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## **SECTION A - Introduction**

### ***Background:***

The Region 2 University Transportation Research Center (UTRC) is one of ten original University Transportation Centers established in 1987 by the U.S. Congress. These Centers were established with the recognition that transportation plays a key role in the nation's economy and the quality of life of its citizens. University faculty members provide a critical link in resolving our national and regional transportation problems while training the professionals who address our transportation systems and their customers on a daily basis.

The UTRC was established in order to support research, education and the transfer of technology in the field of transportation. Success in many competitions for designation as a University Transportation Center in the U.S. Department of Transportation (US DOT) program has provided continued funding. The theme of the Center is "Planning and Managing Regional Transportation Systems in a Changing World." UTRC represents USDOT Region 2, including New York, New Jersey, Puerto Rico and the U.S. Virgin Islands. Functioning as a consortium of nineteen major Universities throughout the region, UTRC is located at The City College of New York, the lead institution of the consortium. The Center, through its consortium, an Agency-Industry Council and its Director and Staff, supports research, education and workforce development, and technology transfer under its theme.

### **UTRC Consortium Members:**

City University of New York	Syracuse University
Clarkson University	The College of New Jersey
Columbia University	University of Puerto Rico - Mayagüez
Cornell University	
Hofstra University	
Manhattan College	
New Jersey Institute of Technology	
New York Institute of Technology	
New York University	
Rensselaer Polytechnic Institute	
Rochester Institute of Technology	
Rowan University	
State University of New York	
Stevens Institute of Technology	

UTRC conducts an open, broad-based process for soliciting and selecting proposals. High-quality proposals that best match the results of the needs assessment and the objectives and research emphasis areas of the consortium will be selected for funding.

The Region 2 University Transportation Research Center (UTRC) is pleased to announce the 2016 UTRC Call for Proposals competitive matching grant programs for faculty-initiated projects. Funds are available in the following categories: faculty initiated research, emerging investigators program, research cluster teams, and education/technology transfer.

**Only faculty at institutions of the UTRC consortium** (listed above) are eligible to submit a proposal. Proposals will be evaluated on a **competitive basis**. Final awards will be subject to the governing requirements of the U.S. DOT University Transportation Centers Program ([www.rita.dot.gov/utc/sites/rita.dot.gov/utc/files/June2014\\_GeneralProvisions.pdf](http://www.rita.dot.gov/utc/sites/rita.dot.gov/utc/files/June2014_GeneralProvisions.pdf)) and the Research Foundation of the City University of New York ([www.rfcuny.org](http://www.rfcuny.org)).

### **Program Objectives:**

The purpose of the Center is to **advance U.S. technology and expertise** in the many disciplines comprising transportation through the mechanisms of research, education, and technology transfer; and to **provide a critical transportation knowledge base** outside the U.S. DOT and address vital workforce needs for the next generation of transportation leaders.

The objectives of the UTRC Call for Proposals are to:

1. Promote **excellent and innovative research projects, education, and technology transfer activities** on transportation problems relevant to U.S. DOT's Region 2 as well as the nation.
2. Provide practical and workable **contributions and solutions to the region's transportation community**.
3. Encourage **multi-disciplinary** and **multi-university** approaches to research on these problems.
4. Promote **collaboration** between traditional fields of transportation expertise (e.g. civil engineering and urban planning) and academic research centers in advanced technologies (e.g. nanotechnology, photonics, wireless communication technologies).
5. **Further the education** of transportation students by involving them in scholarly research.
6. **Encourage faculty** in the UTRC consortium to compete for research funds.
7. Promote high-quality research on the **development, demonstration, or implementation of advanced technologies** in the transportation field.
8. **Encourage partnerships** among universities, public agencies, and the private sector.

## **Section B – Proposal Funding Categories**

The program is divided into four funding categories and each proposal must clearly specify the category in which the proposal is submitted, address our research focus areas, and respond to at least one of the USDOT strategic goals.

## ***Funding Categories:***

*Below are the four categories of projects to be considered for funding:*

### **1. Faculty-Initiated Research:**

The primary purpose of this program is to ***fund novel and exciting ideas from faculty*** in the area of transportation. The projects funded should seek to promote excellent and innovative research on transportation problems relevant to U.S. DOT's Region 2. Proposals will be peer-reviewed by an ad-hoc committee of researchers at other UTCs, and by practicing professionals at agencies within Region 2. Reviewers will score proposals according to the quality of the research plan; qualifications of the team; relationships of proposed work to other work in the field; degree of innovation; degree of support given to students; collaboration across disciplines and/or universities; feasibility of schedule and work plan; and relevance to Region 2's needs, UTRC's Theme, and USDOT strategic goals.

Projects funded in this category will be limited to a maximum of \$75,000 of UTRC funds and require a 100% matching of non-Federal funds.

### **2. Emerging Investigators Program:**

This program is to ***assist faculty (especially junior faculty)*** at UTRC member institutions to learn to write competitive research proposals and to develop relationships with funding agencies. This program will help fund ***exploratory*** research by faculty. It is intended to support faculty throughout the UTRC Consortium in the development of a paper on an emerging transportation issue of the investigator's choice.

Projects funded in this category will be limited to a maximum of \$15,000 of UTRC funds and require a 50% matching of non-Federal funds.

### **3. Research Cluster Teams:**

The Center will support collaborative Research Focus Teams consisting of faculty, students, and transportation professionals, drawn from throughout the UTRC consortium and organized around a specific transportation issue. The teams should be composed of leading researchers, faculty, students, and institutions engaged in transportation research and the synergistic exchange of ideas and resources.

The purpose of these teams will be to develop consensus statements of research needs in collaboration with the region's public agencies and to further promote dialogue between the universities and transportation professionals in the region and nationally.

UTRC will accept proposals from one or a group of faculty that seek to initiate and lead a focus area group. Research clusters should include researchers from multiple institutions. The proposal should clearly describe the focus areas of the team, potential participants, activities,

and expected products generated by the team.

Teams may spend UTRC grant funds on workshops, trips to speak to funding agencies, release time, collaborator forum meetings, or other ways to bring a diffuse but related group of research entities into a sustainable and productive collaboration.

Proposals funded in this category will be limited to a maximum of \$15,000 of UTRC funds and require a 50% matching of non-Federal funds.

#### **4. Education and Technology Transfer:**

Projects under this category include **outreach activities** to advance the awareness of the general public, policy makers and transportation organizations on the issues, consequences, objectives and resources, associated with the USDOT strategic goals.

Examples of activities\*:

- **Research Conferences** – Expenses associated with hosting transportation research conferences and workshops. (No funding will be provided for travel or registration to participate in conferences elsewhere, foreign travel, and meals).
- **Workforce Training Programs / Research Implementation Workshops / Technology Transfer Seminars** – Travel and other costs associated with providing training to public agency employees on the outcomes of university research.
- **Curriculum Development Workshops and Other Initiatives** – Exploring new fields and areas of transportation knowledge. Bringing faculty together to discuss new approaches to course and curriculum design.
- **Community Partnerships** – Grants to facilitate student coursework that directly addresses a real transportation need in a local community, e.g. a studio class organized in partnership with a public agency or community group.
- **Exchange Programs** – Funding to allow students and faculty to collaborate across universities by spending time in residence at another campus within UTRC or the USDOT University Transportation Centers program.

Proposals funded in this category will be limited to a maximum of \$15,000 of UTRC funds and require a 50% matching of non-Federal funds.

\*If awarded, costs eligible for the UTRC grant must be explicitly discussed with the UTRC Program coordinator.

#### **Strategic Goals and Focus Areas:**

UTRC has defined eight research focus areas that combine the diversity of UTRC knowledge to address the articulated problems facing our region and the nation, responding to the five

USDOT's strategic goals and pursuing our Center's theme of "Planning and Managing Regional Transportation Systems in a Changing World".

## **USDOT Strategic Goals:**

### ***Safety***

Improving transportation safety remains DOT's top priority. DOT's goal is to bring a department-wide focus on reducing transportation-related fatalities and injuries. DOT highlights the need to promote roadway safety for all users; combat distracted driving and other dangerous behaviors; implement a new Federal role in transit safety; and carry out strategies for addressing the most serious safety risks in aviation and other transportation modes.

### ***State of Good Repair***

Recent reports on the condition of important facilities—highways, bridges, transit systems, passenger rail, ports and waterways, and airports—reveal that many fall short of a state of good repair and thus compromise the safety, capacity, and efficiency of the U.S. transportation system. DOT will bring a strong programmatic emphasis and new resources to improving and sustaining the condition of US transportation infrastructure. DOT will encourage its state government, airport sponsors and industry partners to make optimal use of existing capacity, minimize life-cycle costs, and apply sound asset management principles throughout the system.

### ***Economic Competitiveness***

DOT's goal is to support the U.S. economy by fostering strategic investments that will serve the traveling public and facilitate freight movement now, and in the future. Transportation enables economic activity, quality of life, connected communities, and ladders of opportunity to education, opportunities, and services. In order to support the lives and economies of neighborhoods, regions, and the Nation, DOT must invest wisely in transportation. DOT's central strategies for achieving maximum economic returns on its policies and investments include leading the development of high-speed and intercity passenger rail and a competitive air transportation system; increasing travel time reliability in freight-significant highway corridors; improving the performance of freight rail and maritime networks; advancing transportation interests in targeted markets around the world; encouraging the adoption of new technologies; creating communities that foster quality of life with transportation choices for all users to attract a strong work force and economic activity, and creating a dynamic workforce.

### ***Quality of Life in Communities***

Over the past 50 years, transportation spending has often been poorly coordinated with other infrastructure investments, resulting in residential communities where access to job opportunities and amenities is inadequate and expensive. DOT will pursue coordinated, locally focused policies and investments that increase transportation choices and access to transportation services for all Americans.

### ***Environmental Sustainability***

Transportation is crucial to the U.S. economy and quality of life, but building, operating, and maintaining transportation systems clearly has significant environmental impacts on air, water, and natural ecosystems. The transportation sector is a significant source of greenhouse gas (GHG) emissions, accounting for about 27 percent of total U.S. GHG emissions in 2011. DOT will address these challenges through strategies such as promulgating fuel economy standards for cars and trucks, promoting more environmentally sound construction and operational practices, and expanding opportunities for shifting freight from less fuel-efficient modes to more fuel-efficient modes.

### **UTRC Research Focus Areas:**

UTRC focus areas represent major research areas critical to the needs of Region 2 within the federal objectives that proposals should focus on. They include: economic competitiveness, financing, freight productivity, system modernization through information technologies, safety through communications and other technologies, infrastructure state of good repair, livable communities, and planning for extreme events.

### ***Focus Area 1: Enhancing understanding of the economic impacts of transportation investment***

Transportation infrastructure investment has a direct impact on economic activity due to direct job creation of a project and the following macroeconomic impact of regional multipliers. Achieving the maximum net economic benefit from our transportation investments is essential in this period of economic hardship and difficult budget choices at the Federal, State, and local levels. DOT is committed to fostering policies and investments, including investment in the transportation workforce of the future that will produce the greatest economic benefit for the broadest number of citizens and businesses and will lay the groundwork for long-term economic growth and prosperity.

### ***Focus Area 2: Practices, partnerships, and mechanisms for financing transportation systems***

Currently, federal, state, local, and private system operators are struggling to finance transportation infrastructure and operations. Limited funding at both the federal and state levels due to an inability to find alternative sources of revenue has led to poor maintenance of transportation infrastructure which in turn, leads to potentially dangerous conditions on many older bridges and road facilities. In considering new financing approaches, a number of fiscal and administrative challenges will need to be addressed.

### ***Focus Area 3: Promoting freight productivity, efficiency, and sustainability through multi-modal policy, planning, and logistics***

Freight transportation is critical to support livable communities and economic competitiveness. At the same time, freight vehicles and facilities are not without impacts on surrounding



communities, infrastructure, and the environment. Mirroring the broader US system, Region 2 is home to a vast, multi-modal freight infrastructure that includes highways, rail, marine ports, airports, and international border crossings. The region is challenged to provide multi-modal freight access to support industry productivity and safe, reliable, and efficient movement of goods between shippers and receivers while at the same time minimizing the impact of freight on infrastructure, traffic conditions, and the environment.

***Focus Area 4: System modernization through implementation of advanced and information technologies***

Recent technology advances have revolutionized the methods of communications between transportation system operators and users, and between infrastructure and system users. Through implementation of roadside, station, and in-vehicle technologies, and especially with rapid integration of smartphones and other handheld computers, users now have the ability to receive transportation information in real-time. Continued research can result in implementation of significant advancements, particularly through partnerships between private developers, transportation agencies and academic researchers.

***Focus Area 5: Planning, monitoring, and implementation of communications and other technologies to understand and improve multi-modal transportation safety***

Safety remains the top priority in development and operation of national, regional, and local transportation systems. Accidents result from both human errors and environmental factors. Significant research is still needed to understand contributing variables and to implement solutions through vehicle and infrastructure design improvements or through operational and communications improvements.

***Focus Area 6: Infrastructure design, monitoring, inspection, and management to ensure a State of Good Repair***

The United States has invested trillions of dollars in what is arguably one of the finest transportation systems in the world. As the country continues to grow, there will be continued pressure to expand this system to handle the increase in personal and freight mobility that characterizes economic prosperity. However, perhaps the most significant need and challenge facing the Nation's transportation system is keeping the existing highways, bridges, transit facilities/equipment, ports and airports in a state of good repair.

***Focus Area 7: Promoting livable and sustainable communities through quality of life improvements and diverse transportation development***

In its draft Strategic Plan, USDOT defines livable communities as "places where transportation, housing and commercial development investments have been coordinated so that people have access to adequate, affordable, and environmentally sustainable travel options." Achieving livability requires integration of land-use and transportation planning, as well as economic development, to ensure that residents have access to needed goods and services.

***Focus Area 8: Securing transportation systems and improving planning for and response to extreme events***

Transportation systems are highly vulnerable to extreme events by virtue of several properties associated with their design and use. A key transportation characteristic contributing to both to its attractiveness and vulnerability is the concentration of facilities and users in ways that potentially maximize consequences of extreme events.

## Section C – Guidelines for Submitting a Proposal

The proposal must be in the format specified below and should present the items in the sequence indicated below. The limits on the number of proposals that an individual proposer may submit in each funding category are indicated below:

1. Faculty-initiated research - 2 proposals (Limited to 1 proposal as lead and 1 proposal as co-lead)
2. Emerging scholars program - 1 proposal
3. Research cluster team - 1 proposal
4. Education/technology transfer - 1 proposal

Proposals involving well-structured teams from two or more institutions are encouraged. Such proposals should be submitted as a single entry with a budget for each institution.

**NOTE: Please pay strict attention to the length limitations and use a minimum 11 pt font and 1 inch margins. Proposals that exceed the page limits or fail to follow the proposal guidelines will not be considered for funding.**

### ***Proposal Submission:***

Proposals must be submitted electronically in Microsoft Word or pdf format with the budget in Microsoft Excel format, through the UTRC on-line submission system (<http://www.utrc2.org/welcome-utrc-ii-submission-system>). Total proposal length should not exceed 15 pages, plus resumes and ancillary information in an appendix.

Each submission must include the following elements:

1. A **cover page** following the form in the Template for Technical Proposals on the UTRC website (<http://www.utrc2.org/resources>). A lead institution and Principal Investigator (PI) should be clearly identified. The Principal Investigator must be a faculty member of a member institution of the UTRC consortium. The funding category should be clearly indicated in the cover page. A proposal is limited to one and only one funding category.
2. An **abstract** briefly describing the problem, objectives, proposed approach, and work effort in 500 words or fewer.
3. The **main proposal narrative** consisting of the following items:

#### ***For proposals submitted in the faculty-initiated research category:***

- a. Background and Problem Statement (limit one page)

Provide a narrative of the transportation problem that you are trying to study. A description of the research questions being addressed and how they relate to UTRC focus areas and USDOT strategic goals.

b. Literature Review (limit one page)

A description of the current state of research on the topic and how this project relates to it.

c. Methodology and Proposed Approach (limit two pages)

A description of the research approach.

d. Proposed Statement of Work and Schedule (limit four pages)

The Statement of Work (SOW) is the primary contractual document that outlines work activities and specifies deliverables. It delineates each step required to accomplish the project objectives. Therefore, each action needs to be identified, indicating who will perform it, how it will be performed and its intended result. At the end of each task description, specific task deliverable(s) must be listed. Be sure to identify the task deliverable, as this will be a measure of your performance. One task which must be included is a three month period for the review of the final report. Another task which must be included is the preparation of a one- to two-page research brief summarizing the methods, findings, and significance of the research project in non-technical language, suitable for distribution to transportation agencies and policymakers.

Project-specific Work Scope Tasks. Add as many tasks and subtasks as necessary to cover all actions needed to achieve the goals and objectives of the project. Each task should include a concise narrative description of the work that will be performed and how the work will be performed and specific deliverables to be provided.

Schedule. Present a work schedule with a starting point and duration for each task and subtask.

e. Research obligations of key project personnel (limit one page)

A listing of the research obligations for the 2016 Academic Year, including both UTRC and non-UTRC projects that will be underway during that time.

***For proposals submitted in the emerging investigators category:***

A three to five page description of the proposed working paper, including how it will make a contribution to the academic literature and relate to UTRC focus areas and USDOT strategic goals.

***For proposals submitted in the research cluster team category:***

A three to five page description of the focus areas, potential participants, activities, and expected products generated by the team in the proposed project.

***For proposals submitted in the education/technology transfer category:***

A three to five page description of the education or technology transfer activities to be undertaken in the proposed project.

4. **Proposer Qualifications** (two to three pages). Provide an overview of the relevant qualifications of the proposer, other team members and major subcontractors. (limit 3 pages)

5. **A budget**, using the Template for Faculty Initiated Proposals – Budget Tables, on the UTRC website (<http://www.utrc2.org/resources>):

- a. Each proposal must include a detailed estimate of the time and cost to perform the work, including the billing rate for each person.
- b. Proposals are encouraged to include funding for one undergraduate or graduate student researcher; higher levels of student support may be requested but must be justified in the proposal.
- c. Proposals should include funding to present research findings at one academic or professional meeting within the Continental United States.
- d. No faculty member can receive funding from UTRC exceeding 30% of his/her academic year's time.
- e. A non-Federal match of not less than 100% of the UTRC funds is required for faculty initiated research proposals and a non-Federal match of not less than 50% of UTRC funds is required for proposals in the other three categories. Eligible sources of matching funds include cash or in-kind sources of funds from state or local transportation agencies; foundations, business, or civic organizations; or faculty release time or student stipends provided by the university. Sources of matching funds must be documented on a letterhead of the sponsor agency and subject to reasonable and verifiable valuation.

**NOTE:** Proposers must note that the USDOT grant term that governs solicitations for subcontracts, including procurements of material and equipment is as follows: “In all solicitations, either by competitive bidding, or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the contractor of the contractor’s obligations under this contract and the Acts and the Regulations relative to Non-discrimination on the grounds of race, color or national origin.”

*\* Proposals that are not able to identify sufficient matching funds may not be eligible for consideration in this program. Priority will given to proposals that demonstrate fully matching from non-Federal sources. Please contact Penny Eickemeyer or Ellen Thorson before you submit your proposal if you need guidance on the proposal and budget preparation or potential sources of a match.*

## **Appendices:**

Include any resumes (limit to two pages each for key members of the team), company qualifications, or ancillary information, which is deemed necessary to support your proposal.

As appropriate, also include:

**Letters of Commitment.** If you are relying on any other organization to provide services, equipment or cost share, include a letter from that organization describing its planned participation. Absence of Letters of Commitment will be interpreted as the proposer not having support from the identified parties.

**Letters of Support.** Also include Letters of Support from other organizations that are not on the Project Team, but that are critical to the success of the project. Credible Letters of Support carry considerable weight in the evaluation process.

## ***Proposal Evaluations***

The proposals will be evaluated by external reviewers knowledgeable in the respective subject. These reviewers will evaluate the proposals (according to specific criteria) and provide UTRC with their recommendations.

The reviewers will be asked to evaluate the proposals based on the following criteria:

- Relevance to the UTRC themes and priorities
- Collaborative activities
- Innovation and originality
- Soundness of method
- Personnel, facilities, budget, and other resources
- Educational component
- Transferability of results and products
- Technology transfer component
- Workforce development component

## **SECTION D – Other Considerations**

Generally the project schedule should not exceed 15 months, except to indicate the approximate duration of future phases (beyond the proposed phase) of a multi-phase project.

Multi-phase projects are acceptable as long as the proposal only requests funding for one clearly-defined phase and adheres to the funding limit for the appropriate project category as described under “Funding Categories” above. The proposer must accept that any contract awarded to fund one phase of a multi phase project does not in any way obligate UTRC to fund later phases.

Teaming arrangements are strongly encouraged, where appropriate, to enhance the likelihood of project success. Proposal teams may include commercial firms, industry associations or research organizations, universities, government agencies, end-users, and other stakeholders. Letters of interest or commitment from each identified team member should be included in an appendix to the proposal. The lack of such letters, especially in cases where co-funding is indicated, is viewed as a very serious proposal deficiency and will be judged accordingly in the evaluation process.

### ***Limitations***

This solicitation does not commit UTRC to award a contract, pay any costs incurred in preparing a proposal, or to procure or contract for services or supplies. UTRC reserves the right to accept or reject any or all proposals received, to negotiate with all qualified sources, or to cancel in part or in its entirety the solicitation when it is in UTRC's best interest.

### ***Other Research Policies***

Researchers are expected to acknowledge the support provided by the UTRC in all presentations and publications resulting from the research. UTRC will not knowingly support research that is being funded or proposed for funding in whole or in part by other agencies or organizations without a specific agreement for joint funding. Failure to disclose other proposed or in-hand research funding for a project substantially similar to a UTRC project is grounds for termination of a UTRC grant.

Student contributions to research projects must be acknowledged in any publication resulting from research using UTRC funds. Acknowledgment may be by footnote or by co-authorship of reports and articles, depending upon the nature and extent of student contributions.

### ***Reporting Requirements***

#### **Quarterly Progress Report:**

The Principal Investigator is required to submit quarterly project status reports to the UTRC

Project Manager using the template included in resources for PIs on the UTRC website. These reports should be submitted on or about March 10, June 10, September 10 and December 10 and should reflect activity undertaken within the quarter, description of any issues or problems that may lead to requests for extensions or budget revisions, and suggestions for implementation of the research.

### **Final Report:**

The Principal Investigator is required to submit a draft final report at the conclusion of the project (within one month of project completion or if this deadline cannot be met, at a mutually agreeable date between the PI and UTRC). This draft should include a cover, disclaimer page and a completed USDOT Form 1700, which are available at <http://www.utrc2.org/resources>. The draft will be submitted by UTRC for peer review, but this requirement may be waived if previously reviewed and accepted for publication prior to submission to UTRC. The comments of peer reviewers should either be addressed and included in the final report or the PI should explain to the UTRC project manager why the issue should not be included.

The Principal Investigator is required to submit all project deliverables, first, in draft formats for review and comment by the UTRC Project Manager. The Principal Investigator is required to address the reviewer's comments, as needed, and re-submit to the UTRC Project Manager for review. Upon acceptance by the UTRC Project Manager, the Principal Investigator is required to submit the deliverables to the UTRC Project Manager in final formats.

### **Research Brief:**

A one-page non-technical summary of the project is due when the final report is submitted. A template will be provided by the project manager close to project completion. The brief should summarize the methods, findings, and significance of the research project in non-technical language, suitable for distribution to transportation agencies and policymakers. It may include graphics, photos, information on implementation, publications, and any other information that the PI chooses to include to inform the public about the research.

Upon submission of the final report, UTRC will produce with the researcher a very short video clip of the study's work to be posted on the UTRC website.