

**RHODE ISLAND DEPARTMENT OF TRANSPORTATION  
TWO CAPITOL HILL  
Providence, RI 02903**

**Call for Research Proposals**

Proposals are being solicited by the Rhode Island Department of Transportation (RIDOT) for **higher education institutions and government research entities** to join a research team that will support the:

**RI TRANSPORTATION INNOVATION PARTNERSHIP  
AUTONOMOUS VEHICLE MOBILITY CHALLENGE  
Proposals Due: July 13, 2018, 5pm EST**

**Submit to [Julia.Gold@dot.ri.gov](mailto:Julia.Gold@dot.ri.gov)**

**I. INTRODUCTION**

[The Rhode Island Transportation Innovation Partnership \(TRIP\)](#), a collaboration of state and local partners, sees transportation and mobility as a critical part of an integrated and comprehensive system of communities, infrastructure, land use planning, technology, and the natural environment.

In line with this vision, and in conjunction with ongoing investments in smart transit and innovation districts, the State is proud to introduce the TRIP Autonomous Vehicle Mobility Challenge (**Challenge**), a pilot project that will leverage highly automated vehicles, easy-access mobility platforms, and other emerging technologies to position Rhode Island at the forefront of mobility testing and fill a gap in the state's transportation network. The intent of this Challenge is to provide the opportunity to test multi-passenger vehicle(s) of SAE Level 3+ of automation under real operating conditions within the context of one district in the City of Providence.

RIDOT and its partners (the City of Providence and the Rhode Island Public Transit Authority) have identified Providence's Woonasquatucket Corridor, that links the densely populated, historic neighborhoods of Valley, Olneyville, and Smith Hill, as a potential location for the introduction of the Challenge and to introduce next-generation mobility services. With our [recently advertised RFP](#), RIDOT is soliciting proposals from qualified Vendors to implement a pilot mobility service utilizing connected and highly automated and/or autonomous vehicles to connect Providence's Downtown to the Woonasquatucket Corridor and fill a transportation gap in an area of burgeoning development.

**The associated strategies of the TRIP Autonomous Vehicle Mobility Challenge are to:**

- (a) Introduce low or zero emission connected and highly automated or autonomous vehicle technology to Rhode Island's capital city in a way that provides a safe and accessible environment for Rhode Islanders to experience the new mobility service;
- (b) Provide first/last mile linkages with other existing transportation modes and points of interest, such as the MBTA commuter rail and Amtrak train service at Providence Station (with connecting service to TF Green Airport), existing RIPTA bus services, bike and pedestrian routes, the Woonasquatucket Corridor and Downtown;

- (c) Provide a sustainable and equitable mobility solution that will connect residents in the Olneyville neighborhood of Providence with job opportunities within the Woonasquatucket Corridor;
- (d) Open and create new economic opportunities across skill levels, including training for new career pathways that will help offset any disruptions from new technologies and foster new investment opportunities in the Corridor;
- (e) Accelerate adoption of CAV and other innovations in Rhode Island, in large part due to deployment of new V2I technologies and Wi-Fi capabilities;
- (f) Promote development opportunities and accelerate innovation in Rhode Island;
- (g) Evaluate and demonstrate, via qualitative survey and quantitative data collection efforts, the performance of the pilot within a dense urban area that is open to public travel and under all-weather conditions;
- (h) Gauge public user acceptance of and experience with using the pilot system.

The Challenge presents a unique opportunity to test and expose the capabilities of emerging CAV and transit technologies in a city with complex infrastructure and unique transportation needs. It also looks to integrate innovative new technologies with the City's historic culture, and reconnect some of Providence's most important neighborhoods by reestablishing the links made by streetcars of the past.

Within the TRIP Initiative, we see partnerships, research, and test projects as key components to ensuring a responsible, sustainable, and equitable path forward. With safety as our number one priority, our approach is to create fertile ground in which the private and public sectors can work collaboratively and efficiently to harness innovation for the social and economic benefit of Rhode Islanders.

Therefore, the overarching goals of TRIP are to achieve:

- **SAFER TRANSPORTATION:** In the long run, fully autonomous vehicles may have the potential to eliminate many of the human factors that cause traffic fatalities. In the short term, as we transition to this new mode of travel and test them, CAVs must be able to recognize, yield to, and share the road with all users. Cybersecurity must be taken seriously by all parties, from the developers to the users.
- **SUSTAINABILITY, FUEL REDUCTION, AND REDUCED CONGESTION:** The state will work to ensure that its integration of CAV technology achieves reductions in fuel use and associated carbon emissions, with benefits for human health and the environment. This should include a focus on both the use of fuel-saving technology as well as consideration of vehicles, routes, and service-models with the potential to minimize congestion and fleet footprint while achieving efficient travel options that are responsive to consumer needs and preferences.
- **IMPROVED AND EQUITABLE MOBILITY:** Integration of new technology should seek to serve a nimble system that adapts to the needs of a broad user base and accommodates a diverse set of needs, reflective of the people of Rhode Island.
- **GROWING OUR ECONOMY AND SUPPORTING OUR WORKFORCE:** Changes in technology, including autonomous features, have the potential to alter job opportunities in areas ranging from manufacturing to service to fleet operations. As a state, Rhode Island supports training for new career pathways that will help offset any disruptions, encourage new investment, and expand opportunities for our workforce.
- **SMART CITIES, DATA MANAGEMENT AND PRIVACY:** Our infrastructure can serve as a platform for information-gathering and sharing to improve our systems, expand efficiencies, and allow for connectivity. Data-sharing agreements should be framed to bring benefits to both public sector agencies and private companies, while protecting the privacy of individual users.

## **II. TOPICS FOR RESEARCH**

An integral component of the Challenge will be an interdisciplinary research team made up of representatives from local and regional higher education institutions, technical colleges, and government research entities. Working collaboratively with RIDOT, the Challenge partners, and the selected Vendor(s), the research team will explore the following areas of interest:

- **Workforce** -i.e. opportunities for career pathways and impacts, operator roles, responsibilities, and experiences, convening of public to engage in workforce dialogue
- **Social and behavioral impacts**- i.e. public acceptance and understanding of the technology, user behavior, transit choices and trends, and other topics that may involve surveying the public or examining how the Service being provided impacts individuals or the community
- **Environment and Land use**- i.e. fuel related emission impacts, charging needs, charging infrastructure, integration on existing roads and with existing transportation infrastructure, land use opportunities/impacts
- **Design and the human-machine interface**- i.e. vehicle design and human interaction, interior design and information sharing, mobile applications

## **III. RESEARCH TEAM STRUCTURE**

RIDOT and its partners are looking to build an interdisciplinary team. We are looking to include representatives from local and regional higher education institutions– including both research universities and technical colleges. Teams could also include representation from government research entities. Researchers should apply to focus on specific areas listed above. As mentioned below in the application requirements, RIDOT will build the team based on qualifications, but encourages researchers to list potential partnership and coordination opportunities. While research for the topics may occur independently, there will be regular research team meetings to allow for sharing, collaboration, coordination, and support.

## **IV. PROPOSALS**

**Proposals should include the following:**

- **Cover Page**
  - Name of Primary Researcher
  - Title of Project
  - School/Institution
  - Occupation Title
  - Work Address
  - Work Phone
  - Work E-mail
  - Other Members of Your Research Team: Name(s) and Institution(s)

- **Project Narrative** (maximum 10 pages)
  - **Topic:** What topic(s) do you plan to address? What are the key issues and concerns?
  - **Research Design/Description of the Study:** How will you conduct the study? In this section include the conceptual/theoretical framework, method, data collection, and analysis procedures.
  - **Statement of Significance:** How will this project contribute to the larger knowledge base? How will it contribute to the goals of the TRIP Mobility Challenge? How will it benefit the public and other key stakeholders?
  - **Consent:** What kinds of consent (e.g., verbal, written) will you require? How will you obtain consent from participants?
  - **Statement of Ethics:** How you will account for the ethical demands that may arise during the inquiry process, including issues of consent, confidentiality, and privacy)?
  - **Dissemination Plan:** In addition to providing a final report to RIDOT (which is required), explain how you plan to disseminate and share your findings with stakeholders and the public.
  - **Timeline** (based on 18 months, starting Fall 2018) What will happen during this study and when?
  
- **Additional Attachments** (not included in the 10-page maximum)
  - **Staffing structure-** individual roles and responsibilities, resumes, qualifications, and examples of previous related research
  - **Timeline-** (based on 18 months, starting approx. September 2018) schedule for completion of research, including field activities, deliverables, and reports
  - **Potential partnerships-** list potential team collaborators, opportunities for collaboration or coordination across your research topics, and why you might work well together
  - **Budget**

**Scoring will be based on the following:**

- Strength of the research and methodology proposed, i.e., design, implementation, and benefits provided to overall Challenge
- Feasibility of the project (in terms of scope, time, budget, qualifications of the applicant)
- Respondent's previous related research and experience
- Evidence of familiarity with current scholarship supporting the inquiry
- Willingness to collaborate across disciplines
- Creativity

**Submissions are due to [Julia.Gold@dot.ri.gov](mailto:Julia.Gold@dot.ri.gov) by July 13, 2018, 5pm EST**