Issue Date: September 13th, 2017

I-STREET Testbed at the University of Florida (Implementing Solutions from Transportation Research and Evaluation of Emerging Technologies)

Request for Information (RFI)

Intent

The intent of this Request for Information (RFI) is to invite industry partners, private sector developers, research entities and transportation innovators (hereinafter referred to as I-STREET Partners) to express interest and provide deployment-oriented approaches for real-world demonstration and testing of emerging technologies and transportation solutions (hereinafter referred to as I-STREET Solutions). The anticipated outcome is the immediate realization of transportation safety and mobility benefits. The I-STREET Testbed is a collaboration of the University of Florida (UF), the Florida Department of Transportation (FDOT), and the City of Gainesville (CoG) (hereinafter referred to as the I-STREET Team).

I-STREET intends to leverage the ongoing efforts at FDOT, UF and CoG, involving the use of hardware and software solutions to advance deployment of connected vehicle (CV) and autonomous vehicle (AV) technologies. This initiative plans to provide I-STREET Partners with national recognition, impactful data, expert support, and other output measures obtained from ongoing projects.

The mission of the I-STREET Team is:

- To collaborate with and provide every possible assistance to I-STREET Partners to demonstrate and test a wide range of I-STREET Solutions that have the potential to increase the rate of delivery of fatality-free and congestion-free transportation systems for all transportation system users. Included are software, hardware and any other solution for review by the I-STREET Team.
- To provide I-STREET environs ranging from freeways to high-pedestrian volume arterials. Each of the environs is or will be equipped with Intelligent Transportation System (ITS) and/or AV/CV infrastructure.
- To provide technical, evaluation, and financial resources to assist I-STREET Partners to transition I-STREET Solutions from the laboratory to wide-scale field deployment.
- To share cooperatively the results of successful I-STREET Solutions with the various industry groups to which the I-STREET Partners belong. (The I-STREET Team will not share any proprietary information without prior consent from the respective I-STREET Partner.)

Options and Selection of I-STREET Solutions for Demonstration and Testing

The following general options are available to I-STREET Partners for engaging with the I-STREET Team:

1. *Testing and Evaluation of Equipment/Hardware/Software*: This option is most suitable for I-STREET Partners with a fully developed concept, which is ready for installation and testing in a real-world environment. Under this option, the I-STREET environs may be used to test and

evaluate the effectiveness of the new device or software. An I-STREET Partner may conduct independent evaluations using the facilities, or work in collaboration with the I-STREET Team.

2. *Equipment Loan and Collaboration*: This option is most suitable for entities with developed solutions interested in their product being used for research, education, and technology transfer purposes by the I-STREET Team. Under this option, the I-STREET Partner may enter into an agreement to loan equipment over a pre-specified time period or under a pre-specified set of conditions.
3. *Research and Development*: This option is most suitable when desiring to collaborate with the Team to develop or refine an existing concept or device. In this case, a research-type agreement may be developed.

The options above are only provided for illustrative purposes. The I-STREET Team is open to all proposals requested through the RFI process. The I-STREET website (http://www.transportation.institute.ufl.edu/research-2/istreet-about-us/) provides examples of agreements for each of these categories. All agreements will be developed and finalized with I-STREET Partners on a case-by-case basis.

The I-STREET Team will select candidate I-STREET Solutions for further discussions and/or demonstration based on the information requested in the section titled "Response to RFI", provided later in this document. If the candidate solution proposed requires financial support, the I-STREET Team along with its partners may use a combination of funding mechanisms to achieve the project objectives. UF will manage any necessary contracts and agreements between the I-STREET Team and I-STREET Partners.

I-STREET Facilities

The I-STREET Team is investing in various emerging technology projects within the CoG and Alachua County as shown in Figure 1. These corridors and their associated technologies can be made available to I-STREET Partners to test their proposed I-STREET Solutions. All these corridors (including I-75) are connected to the CoG's Smartraffic Center[1] using the City's communications network. CoG has several ITS deployments such as traffic cameras, travel time data collection devices, and arterial dynamic message signs on a few corridors. CoG also manages and operates signals for UF and surrounding areas including the City of Alachua. The traffic signal controllers are Naztec 980 version and run on the ATMS.now central system software at CoG's Smartraffic facility.

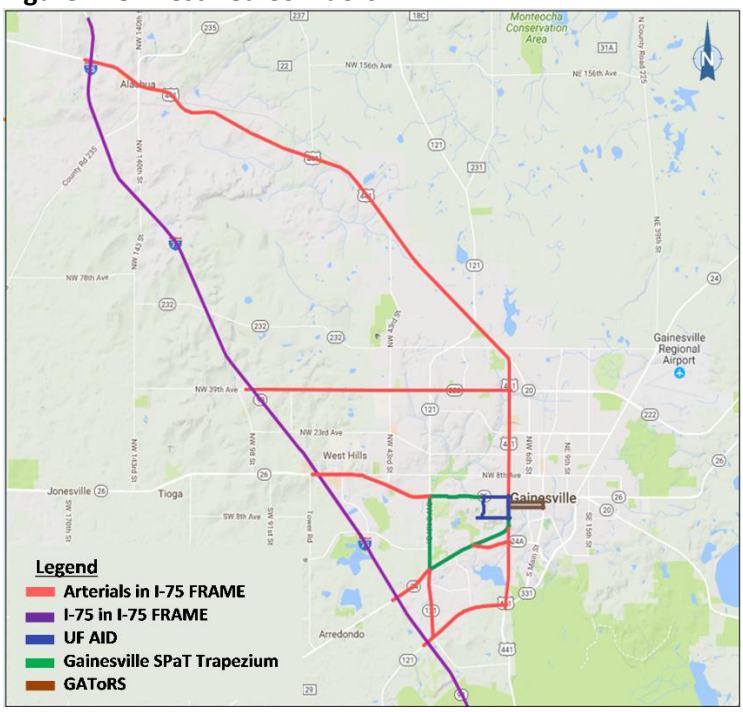
Detailed information regarding the specific equipment available at a particular location or corridor may be obtained from the City of Gainesville (see contacts at the end of the RFI). Summaries of on-going projects shown in Figure 1 are provided below:

1. **I-75 Florida's Regional Advanced Mobility Elements (FRAME):** This project will deploy Automated Traffic Signal Performance Measures (ATSPM), ITS and CV technologies to better manage, operate, and maintain the multi-modal transportation system and create an Integrated Corridor Management (ICM) solution on I-75 and state highway systems in and around Gainesville. The goal of the project is to reduce crashes on I-75 and reduce the impact of diverted traffic on the arterial roadways. I-75 FRAME routes are: I-75 and US 441, US 301, SR 24, SR 24A, SR 26, SR 121, and SR 222. Approximately 150 roadside units (RSUs) are planned for installation.

[1] http://gac-smartraffic.com/

2. **UF Accelerated Innovation Deployment (AID) Demonstration project**: This project plans to deploy and test pedestrian and bicycle safety applications (active or passive) at 13 signalized intersections and seven (7) mid-block crossings using CV technologies within the core of the UF campus. The goal of the project is to reduce pedestrian and bicycle crashes and conflicts. The routes are SR 26 (University Avenue), US 441 (SW 13th Street), Museum Road and Gale Lemerand Drive. It is anticipated that approximately 20 RSUs and passive pedestrian detection will be deployed.
3. **Gainesville Trapezium**: This project plans to deploy and test CV technology and applications along four corridors forming a trapezium surrounding the UF main campus. The goal of the project is to improve travel time reliability, throughput, and traveler information. This project plans to deploy pedestrian and bicyclist safety applications. The routes are SR 121, SR 26, US 441, and SR 24. The approximate number of RSUs installed on this project is 45.
4. **Gainesville Autonomous Transit Shuttle (GAToRS):** This project will deploy an autonomous transit system to connect the CoG Innovation District and downtown with UF student housing and campus by means of frequent transit service. The goal of GAToRS is to maintain a maximum headway of 10 minutes or less for the GAToRS buses. GAToRS routes include SW 4th Avenue, SW 13th Street, SW 2nd Avenue, and S Main Street (shown in brown). The RFP for this project is available as of August 28, 2017 (RFP NO. RTSX-180030-DS, GAINESVILLE AUTONOMOUS TRANSIT SHUTTLE - GAToRS), with a due date of 10/3/2017 at 3:00 PM Eastern.

Figure 1. UF Test Bed Corridors



I-STREET Partners may opt to use these corridors to test their Solutions or may request other corridors within CoG City Limits[2]. Developers may also identify other opportunities to improve existing and proposed systems in this region to support demonstration or testing of their proposed I-STREET Solution(s). Examples may include outfitting City Buses or University fleet vehicles. Such recommendations should be submitted to the I-STREET Team along with the RFI response or they may be identified after the proposed solution is selected for further discussion, potentially leading to demonstration or testing.

Desired Technologies/Applications

The I-STREET Team is specifically interested in the following categories of emerging transportation I-STREET Solutions, but is open to receiving information on other Solutions as well.

1. **Safety Applications** for improved public welfare through CV systems; smart work zones; improved bicyclist, skateboarders, scooter, and pedestrian awareness; enhanced rail-road crossings notification and improved at-grade crossings; road weather notifications; and the use of Unmanned Aerial Systems (UAS) in transportation management.
2. **Mobility Applications** for improved traffic flow throughput and travel-time reliability for all modes through efficient and intelligent traffic signals; intelligent parking systems (cars and trucks); freight delivery applications; and improved first- and last-mile connectivity.
3. **Data Management Applications** for cost effective data sharing and management through use of vehicular data for fleet management and public safety; the use of traffic data for predictive analytics, decision support systems, dashboard applications, and third-party dissemination using cellular/Wi-Fi/Dedicated Short Range Communication (DSRC); and improved data sharing agreements between private party and local/state agencies. The use of Internet of Things (IOT) elements can also play a role in I-STREET.

Each I-STREET facility has specific transportation safety and mobility needs, such as increasing the throughput, addressing recurring and non-recurring congestion, mitigating traffic crashes, providing detours, supporting multimodalism (pedestrians, bicyclists, skateboarders, scooters, transit), offering parking solutions, addressing at-grade train crossing issues, high truck volume and freight delivery aspects, and meeting road weather information needs.

Response to RFI

Interested parties are requested to submit the following information for consideration:

1. **I-STREET Solution Description(s):** Describe the I-STREET Solution(s) proposed by the Developer for demonstration and/or testing. Discuss the innovative aspects of the I-STREET Solution, in what way it improves on previously available solutions and implementations, and the proposed location(s) or types of locations where it is expected to be deployed.
2. **Implementation Roadmap**: Describe the path to wide-scale implementation and how the path to development and/or implementation of the proposed I-STREET Solution will benefit from demonstration and/or testing in partnership with I-STREET. Describe the estimated timeframe

[2] http://gainesvillefl.maps.arcgis.com/apps/webappviewer/index.html?id=0a0a533b105040819877c82cbe5a091d

for technology prototype availability for testing and for field deployment. Implementation readiness is an important objective of I-STREET.

3. **Deployment Benefits:** Discuss the types and magnitude of the potential safety and/or mobility benefits relative to a specific or range of transportation needs.
4. **Implementation Resources**: Describe resource requirements for wide-scale field development, implementation, operations, and maintenance of your proposed I-STREET Solution.
5. **I-STREET Outcomes**: Describe goals, objectives and expected outcomes of collaboration with I-STREET for demonstration and/or testing of the proposed I-STREET Solution.
6. **I-STREET Team Financial and Technical Support Needs:** Describe the level of support required or desired from the I-STREET Team to accelerate bringing Solution(s) to the marketplace, including:
   - Infrastructure elements: provide as much detail as possible on preferred location(s) for installation of the proposed technology.
   - Technical resources: provide details on resource needs for design, implementation, testing, integration, or other support that may be available from the I-STREET Team.
   - Evaluation resources: provide details on resource needs for monitoring, data collection, data analysis and reporting that may be available from the I-STREET Team.
   - Financial resources: provide details on financial resource needs for procurement of hardware/software or other elements of the proposed Solutions that may be available from the I-STREET Team.
7. **Standards and Specifications:** Identify and describe current and planned level of compliance with applicable standards/specifications for the safe mobility of road users. Prospective I-STREET Partners are invited to explore technology options for deployment-readiness. Of particular interest to the I-STREET Team is the ease of integration and compatibility with the CoG's Smartraffic software, FDOT's SunGuide® software, and FDOT's Data Integration and Video Aggregation System (DIVAS). If applicable, the Security Credential Management System (SCMS) elements may be described.
8. **Risks**: The I-STREET Team may be consulted while identifying potential risks that could limit either a successful technology test or potential full scale implementation if the test is highly successful. Identify potential safety or security risks to road users and ITS infrastructure, and provide a risk mitigation or management plan for use during I-STREET Solutions testing/operations.
9. **Confidentiality**: Identification of any portions of the proposer's RFI response that are confidential, or proprietary information protected by copyright, trademark, or patent.
10. **Other Information**: Prospective I-STREET Partners may request additional information from the I-STREET Team to develop the I-STREET Solution(s) for demonstration and/or testing.

Receipt of RFI Responses

The I-STREET Team will first review the RFI responses received before October 16th, 2017, 5:00 pm Eastern Time. RFI responses shall be submitted to Dr. Clark Letter at clarklet@ufl.edu. Responses received after that date may also be reviewed at a later date, at the I-STREET Team's discretion. Submission of an RFI response does not commit UF or the I-STREET Team to award any work to the I-STREET Solution proposers either directly or through response to a future RFP. If any member of the I-STREET Team chooses to advertise an RFP, all qualified I-STREET Partners will need to submit proposals for consideration in accordance with the terms defined in the RFP.

Contact Information

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