



New York City Department of Transportation

Request for Expressions of Interest

**NYCDOT DriveSmart Technology RFEI:
Safety, money-saving and time saving
technology for drivers**

May 11, 2011

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Safety, money-saving and time-saving technology for drivers

1. Purpose of RFEI

This Request for Expressions of Interest (“RFEI”) is issued to invite interested vendors to submit information to the New York City Department of Transportation (NYCDOT) about ways to provide driver benefits through in-vehicle and communications technologies, software applications and related components to afford a range of services such as customized information on travel choices and cost; real-time travel conditions; personalized feedback on recent trip-making, and to support pay-as-you-drive insurance and integration of social networking and crowd sourcing. These services would help travelers make better use of the City’s extensive multimodal transportation systems, bringing benefits to them individually and in the process improving the overall efficiency of system operations.

NYCDOT seeks information from interested firms on effective technology and system approaches that would accomplish these goals, taking into account the demanding New York City operating environment. NYCDOT seeks to identify how the City can help advance these technologies and services toward the goal of developing what is likely to be a multi-jurisdictional, public-private program. Finally, NYCDOT seeks to gauge respondents’ interest in participating in near-term field tests of key program components.

2. Background

NYCDOT’s Strategic Plan commits the agency to a series of initiatives for improved mobility and transportation choice, safer streets, greening and public space, and reduced impact on global climate. Agency initiatives include innovative street designs to improve safety and strengthen transit, pedestrian, and cycling options, parking pricing strategies, technologically advanced traffic management, and provision of traveler information including real time traffic cameras and traffic speed data on the NYCDOT website. These initiatives have been highly successful, as evidenced by the increasing number of New Yorkers using faster and more reliable bus services, new bike lanes and public spaces; and by reduction in motor vehicle crashes. At the same time that these initiatives have been implemented, traffic speeds in the most congested parts of Manhattan have been stable or increasing, as documented by the agency’s innovative use of taxi GPS speed data.

While NYCDOT’s initiatives have primarily focused on the design and operation of City-owned infrastructure – in which the agency has extensive experience and expertise – NYCDOT also recognizes that recent advances in traveler information, in-vehicle and communications technology and related areas can also further the agency’s goals. These technologies create new opportunities to provide New Yorkers with customized information on travel choices and cost; real-time travel conditions on roadways, highways and in the transit system; personalized feedback that can assist motorists in saving time, saving money and in driving more safely; and specialized services such as dynamic ridesharing

which will be rolled out by NYSDOT and 511 NYRideshare in the near future. In addition, the advent of pay-as-you-drive insurance (the subject of a previous RFEI which NYCDOT released on December 21, 2010), will hopefully offer opportunities to reduce driving costs to motorists and provide incentives to consolidate trips and use transit where available. Although not widely used in the transportation arena as yet, social networking and crowd sourcing have the potential to provide further opportunities to improve the operation and use of transportation networks.

Wider deployment of these technologies and programs can help individual New Yorkers make better use of the City's extensive multimodal transportation systems, bringing benefits to them individually, and in the process improving the overall efficiency of system operations. Yet many of these services are not well-developed, and they typically lack integration, ease of use and convenience.

Given projected growth in population and jobs in New York City, and understanding the City's limited ability to build new road infrastructure, it will become ever more important for the City and its residents to make smarter, more efficient use of existing roadway capacity. NYCDOT is thus interested in better understanding opportunities created by emerging technologies in New York City and to identify how the City can help advance their development and implementation in the City's dense, multi-modal environment.

Also relevant to this discussion is the increasing national attention to the problem of inadequate funding for road and transit maintenance and improvements, a problem that will only be exacerbated over time as improved fuel efficiency drives down gas tax revenues. In-vehicle technology can be used to test options for mileage-based user fees (MBUF) recently recommended by several national commissions and incorporated into proposed federal transportation legislation. Mileage-based road charges would replace the gas tax with a fee based on some combination of mileage and potentially congestion levels, fuel efficiency and vehicle weight. A recent NCHRP/RAND Corporation report concluded that combining driver information and mobility benefits with introduction of an MBUF program offers a promising path for phasing in mileage-based road charges. Under this approach, motorists would be attracted to participate in an opt-in MBUF program because of the value of the benefits it offers to them. This approach also provides the means to link funding decisions directly to infrastructure improvements.

3. Project Overview

The new technologies discussed above have the potential to deliver tangible benefits to drivers individually and transportation system users collectively through better, smarter use of the City's multimodal transportation system. NYCDOT envisions benefits would encompass:

- Cost savings
- Time savings
- Safety
- Improved travel time reliability
- Congestion reduction
- Enhanced means of system funding

As described in more detail in this RFEI, NYCDOT seeks information from interested firms on effective technology and system development approaches that would accomplish these goals, taking into account the demanding New York City operating environment.

Based in part on information obtained through the PAYDI RFEI process, NYCDOT has provisionally identified a program concept that involves integration of existing and future software applications on an in-vehicle device that would serve as a common platform, utilizing an open architecture. The device would be connected to the vehicle's OBD II port, thus providing the opportunity to integrate vehicle speed, fuel consumption and other real-time vehicle-specific information with traveler applications. The device would also be suitable for testing mileage-based fee schedules as a replacement for the gas tax, on a trial basis. Key technology elements of this program could include (but are not necessarily limited to) the following:

- In-vehicle device that includes GPS and communication capabilities;
- A back-end system for data processing, software applications and customer care,

These technologies would enable the public and private sector to develop the following programmatic elements, applications, and benefits:

- Pay-as-you-drive insurance through one or more industry partners;
- Software applications that provide opportunities for additional financial savings to drivers, such as personalized feedback on fuel efficiency and information on the total costs of alternative routes and modes;
- Software applications that provide "Smart Motorist" information (e.g., fastest route or most reliable route based on real-time traffic conditions, pre-trip traffic alerts, personalized feedback on safety, summaries of overall travel covering mileage, travel time, estimated delay, fuel usage, etc.);
- Crowd-sourcing applications that enhance real-time information and provide benchmarks for individual motorists to compare their fuel efficiency, travel time and cost savings and driving safety with anonymized data from other users;
- Social media applications for individual drivers and groups of drivers interested in "greening" their travel;
- Programs that provide mobility enhancement such as the ability to utilize virtual HOT lanes on current HOV facilities as well as parking payments; and
- Provisions for administering a mileage-based pricing structure (participants will be credited for gas taxes paid).

Finally, the technology and programmatic elements need to be developed in concert with the following principles:

- An identifiable entity or entities responsible for customer care, regardless of the shape and dimension of public/private partnership;
- An open architecture that lends itself to participation by multiple benefit providers within the public and private sectors; and
- Options for drivers to maintain appropriate levels of control of their personal information.

The City envisions that public-private trials of individual components, and combinations of components could take place in the near term, providing all parties with lessons learned that could inform the strategic, long-term development of the program. The City's 8.4 million residents, 6,000 miles of streets, and wide range of transportation choices provide an ideal test bed to demonstrate the effectiveness and readiness of individual and multiple components.

4. The role of this RFEI and points of interest to NYCDOT

This RFEI will allow us to engage with technology providers in an open but structured way, providing the City with insight into current industry best practices. The interaction with industry will be iterative (including written responses to this RFEI, follow up interviews and meetings, and opportunities for field tests), with an overall focus on:

- Improving the City's understanding of the technology components required to foster the program of benefits described in this document, and
- Determining what role the City can and should play in developing and rolling out these benefits.

Key questions and response guidelines for each of the areas are shown below:

4.1 Improving the City's understanding of technology components

- 4.1.1 What travel decisions lend themselves to value-added information services? What information needs to be given to travelers to enable the benefits described in this document?
- 4.1.2 How can the information be aggregated and delivered to travelers in a way that is useful for making travel decisions?
- 4.1.3 How can applications be designed and integrated to encourage ongoing engagement of participants? What is the role of social media and crowd sourcing?
- 4.1.4 How can benefits be developed through a near-term field trial? What technologies are available now to provide these benefits, and what can be learned through field trials?
- 4.1.5 How can still-emerging technologies be integrated into a larger system of benefits in the long term? What technologies are still emerging? How can lessons learned from near-term trials inform the development and integration of technologies that are not ready today?

- 4.1.6 How can the initial rollout of program elements be structured in an open way to avoid path dependence, and to preserve the ability of new stakeholders to integrate components into the program?

Respondents are asked to provide a *concept-level diagram* of key system components, and how they work together. The diagram gives respondents an opportunity to highlight integration challenges, and to point out which components are available in the near-term, and which are still emerging.

4.2 Determining the role for the City

- 4.2.1 How can strategic decisions about technology (platform type, communications, privacy strategies) be sequenced properly? What decisions need to be made now, and what decisions can be deferred until more is learned from trials and other near-term activities?
- 4.2.2 How can public and private stakeholders be coordinated to deliver a cohesive system? How can integration of key components be handled?
- 4.2.3 How can field tests, using the unique test bed offered by the City's 8.4 million residents, be used strategically to address concerns about functionality, integration, and user acceptance and participant engagement of the benefits package described in this RFEI?
- 4.2.4 What role can city government play in fostering effective trials?

Respondents are asked to provide a diagrammatic *road map* showing a sequence of key decisions and actions for public and private partners in the system described in this RFEI. The road map should suggest roles for the City in the development process, particularly with respect to fostering effective field trials. Respondents should indicate interest in participating in field tests at no cost to the City, with proposed scope and timeframe.

5. Submission Requirements

5.1 Content

All submittals ("Submittals") must be in writing and in electronic format (CD or DVD) and delivered **by-hand or by a nationally recognized express mail carrier** to NYCDOT at the address designated in Section 5.2 below. Submittals should include the information listed below:

- Respondent's Information
 - Provide contact information, including, the legal name of your firm or entity, business address, name of contact, telephone and email.
 - Provide a summary of your firm's background and experience related to the development and deployment of in-vehicle device technology and related systems. Please do not submit standard marketing material.

- Response to NYCDOT Points of Interest
 - Attempt to address all the questions listed in Section 4, the concept-level diagram and road map, and any other information you deem critical and responsive to the City

5.2 Submission Details

Any inquiries concerning this RFEI should be directed by e-mail, under the subject line "Technology RFEI Q&A", to TechnologyRFEI@dot.nyc.gov. **Final Submissions are due June 30, 2011 at 4:00 pm EST.**

A pre-submission meeting will be held at 1:00 PM on May 25, 2011 at NYCDOT, 55 Water Street – Bid Room A, New York, NY. The deadline for submission of written requests for clarification is June 2, 2011 at 4:00 p.m. EST. NYCDOT will circulate questions and answers, including those asked at the pre-submission meeting, to respondents who provide e-mail addresses no later than June 15, 2011. DOT will post answers to all submitted questions on the NYCDOT webpage.

Final Submissions are due June 30, 2011 at 4:00 pm EST. Please submit three copies of your submission, printed on both sides (double-sided) on paper with no less than 20% post-consumer material content, as well as one electronic copy in PDF form on CD or DVD. Submissions should be mailed to:

**New York City Department of Transportation
 Division of Planning and Sustainability
 55 Water Street – 9th Floor
 New York, NY 10041
 Attn: Heather Richardson – Technology RFEI**

6. Additional Information

- 6.1 This RFEI is not intended as a formal offering for the award of a contract or for participation in any future solicitation.
- 6.2 NYCDOT does not intend to grant or issue any agreements on the basis of this RFEI.
- 6.3 NYCDOT, the City and their officials, officers, agents and employees make no representation or warranty and assume no responsibility for the accuracy of the information set forth in this RFEI.
- 6.4 Neither NYCDOT nor the City shall be liable for any costs incurred by any respondent in the preparation, submittal, presentation or revision of its submission. Neither NYCDOT nor the City shall be obligated to pay and shall not pay any costs in connection with the preparation of such submissions.

6.5 All submissions shall become the property of NYCDOT and the City and shall not be returned. Respondents should keep in mind that nothing will be deemed confidential and will likely be shared with other governmental entities. Therefore, please do not submit anything that you deem proprietary information. NYCDOT at its sole discretion reserves, without limitation, the right to:

6.5.1 Withdraw the RFEI at any time;

6.5.2 Use the ideas and/or submissions in any manner deemed to be in the best interests of NYCDOT and the City, including but not limited to soliciting competitive submissions relating to such ideas or proposals; and

6.5.3 Change any terms of the RFEI.