

Meeting Date: 2/2/2016

Report Type: Consent

Report ID: 2016-00117

Title: Smart Cities Challenge Grant Application

Location: Citywide

Recommendation: Pass a Resolution authorizing the City Manager or his designee to submit a grant application to the U.S. Department of Transportation "Smart Cities Challenge" program.

Contact: Ryan Moore, Principal Engineer, (916) 808-6629; and Jerry Way, Director of Public Works, (916) 808-6381, Department of Public Works

Presenter: None

Department: Public Works Department

Division: Business Operations

Dept ID: 15001021

Attachments:

1-Description/Analysis

2-Background

3-Resolution

City Attorney Review

Approved as to Form

Joe Robinson

1/20/2016 2:58:12 PM

Approvals/Acknowledgements

Department Director or Designee: Jerry Way - 1/12/2016 2:04:03 PM

Description/Analysis

Issue: The United States Department of Transportation (U.S. DOT) has advertised a Notice of Funding Opportunity (NOFO) for the “Beyond Traffic: The Smart City Challenge” grant program. The application due date for this program is February 4, 2016.

Policy Considerations: The project identified in this report is consistent with the City’s General Plan goals to provide a comprehensive transportation system, increase multimodal accessibility, remove operational barriers to safe travel, and reduce reliance on the private automobile.

Economic Impacts: None

Environmental Considerations:

California Environmental Quality Act (CEQA): This activity involves submitting an application for the grant. Since submitting grant applications does not have a potential for causing significant effects on the environment, it is not subject to CEQA pursuant to CEQA Guidelines Section 15061(b)(3). Any projects funded with the subject grant will undergo appropriate environmental review.

Sustainability: The project identified for the grant application is consistent with the City’s Sustainability Master Plan and is aimed at addressing the goals and targets set forth in the Transportation Infrastructure and Air Quality Focus Areas by improving and optimizing transportation infrastructure.

Commission/Committee Action: None.

Rationale for Recommendation: As the employment center and transportation hub for the region, the City of Sacramento bears a large burden of the area’s traffic congestion. While the City does have a partnership with Sacramento Regional Transit, which defrays this congestion to some extent, transit ridership on our regional light rail system is stymied by the “first mile/last mile” dilemma. Travelers who do not live within a close proximity to light rail stations find it easier to use private automobiles for their transportation needs. This problem is endemic among U.S. cities which have light rail systems. The U.S. DOT Smart City Challenge grant program offers an opportunity to explore options for enhancing transit ridership as well as upgrading City traffic management and operations infrastructure. The maximum grant award of \$50 million has the potential to allow the City to make a quantum leap in terms of the technological sophistication with which we are able to manage traffic in our City, as well as become a model for

“smart” urban transportation in the U.S. At the pilot phase, the project would target disadvantaged neighborhoods, providing new and more convenient transportation options in those locations.

Financial Considerations: The proposed project is a collaboration between the City of Sacramento and Sacramento Regional Transit. Project costs would be divided between the two agencies as appropriate in proportion to the transit related items vs. the non-transit related items. The project is only conceptual at this time, and no cost estimate exists.

The application process has two phases. During the first phase, cities submit a concept application. Five cities will be selected to receive a \$100,000 stipend, which will be used to fund feasibility work and the preparation of a final, phase 2 application. During this phase, the project scope will be clarified and costs identified. The final phase 2 grant award amount is \$50 million which is planned to be awarded to one city. During the phase 2 feasibility and scoping work, the project will be tailored to meet the \$50 million budget.

Council is requested to authorize that staff submit a phase 1 application for \$100,000. The solicitation for applications for the final \$50 million award will not be available until March of 2016.

Local Business Enterprise (LBE): Not applicable, as no goods or services are being procured with this action.

Background

The U.S. DOT has recently completed a study evaluating the future of surface transportation on our nations' roadway system. Titled "Beyond Traffic 2045: Trends and Choices", the study concludes that if no changes are made to the way we build and utilize our roadway network, by the year 2045 that network will become congested to the point of near uselessness, thereby compromising our nations' ability to stay competitive in the global marketplace. This congestion and its associated greenhouse gas emissions will be a major contributor to climate change and have significant detrimental effects to the quality of life in the United States.

The U.S. DOT is encouraging cities to put forward their best and most creative ideas for innovatively addressing these challenges. The vision of the Smart City Challenge is to demonstrate and evaluate a holistic, integrated approach to improving surface transportation performance within a city and integrating this approach with other smart city domains such as public safety, public services, and energy. The U.S. DOT intends for this challenge to address how emerging transportation data, technologies, and applications can be integrated with existing systems in a city to address transportation challenges. The U.S. DOT is seeking bold and innovative ideas for proposed demonstrations to effectively test, evaluate, and demonstrate the significant benefits of smart city concepts.

The program will make one award of up to \$50 million to the U.S. City which is ultimately selected.

Program Guidelines and Criteria: All U.S. Cities and Counties are eligible to apply. However, they have listed attributes which they feel represent the characteristics of an ideal "Smart City":

- Population between approximately 200,000 and 850,000 people within city limits as of the 2010 Census;
- A dense urban population typical for a mid-sized American city;
- Represents a significant portion (more than 15%) of the overall population of its urbanized area using 2010 Census data;
- An existing public transportation system;
- An environment that is conducive to demonstrating proposed strategies;
- Continuity of committed leadership and capacity to carry out the demonstration throughout the period of performance;
- A commitment to integrating with the sharing economy; and

- A clear commitment to making open, machine-readable data accessible, discoverable and usable by the public to fuel entrepreneurship and innovation.

In recognition of the fact that every city has unique attributes, and each city’s proposed project will be tailored to their specific needs and challenges, the U.S. DOT has made the criteria for project concepts very flexible. Rather than soliciting for a specific type of project, U.S. DOT has identified twelve vision elements they would like to see reflected in proposed project concepts, and also the priority they place on those vision elements:

Vision Element	Priority
Technology Elements	
Vision Element #1: Urban Automation	Highest Priority
Vision Element #2: Connected Vehicles	Highest Priority
Vision Element #3: Intelligent, Sensor-Based Infrastructure	Highest Priority
Innovative Approaches to Urban Transportation Elements	
Vision Element #4: Urban Analytics	High Priority
Vision Element #5: User-Focused Mobility Services and Choices	High Priority
Vision Element #6: Urban Delivery and Logistics	High Priority
Vision Element #7: Strategic Business Models and Partnering Opportunities	High Priority
Vision Element #8: Smart Grid, Roadway Electrification, and Electric Vehicles	High Priority
Vision Element #9: Connected, Involved Citizens	High Priority
Smart City Elements	
Vision Element #10: Architecture and Standards	Priority
Vision Element #11: Low-Cost, Efficient, Secure, and Resilient Information and Communications Technology	Priority
Vision Element #12: Smart Land Use	Priority

Recommended Project: Due to the broad scope of the NOFO and its emphasis on cutting edge technological solutions, some of which only exist in experimental form, no currently planned or programmed projects appear to lend themselves to the development of a competitive project concept. Staff formulated a variety of project ideas which were vetted internally and with the support of partner agencies such as SACOG, Sacramento RT, and Caltrans. Ultimately, staff from the City of Sacramento Public Works Department, in partnership with Sacramento Regional Transit, has developed a project concept which addresses the expressed U.S. DOT vision for the Smart Cities grant. The proposed project is the deployment of a semi-autonomous electric transit vehicle (SAETV) fleet and the associated smart traffic management infrastructure required to operate it. The SAETV's would serve relatively small areas in the vicinity of selected light rail stations with the goal of decreasing congestion and greenhouse gas emission associated with conventional automotive traffic by providing a "first mile/last mile" transit service. The proposed project has three main elements:

- 1. SAETV vehicles.** At the pilot stage, several light rail stations would be selected based on their proximity to housing and employment centers, and also based on the demographics of users in the stations' tributary area. These stations would become bases to several SAETV's which would charge at inductive charging stations located at the light rail station, while not in use. A dozen or more locations within a several mile radius of the light rail station would be designated as SAETV hubs, which would function similarly to traditional bus stops. They would be different than traditional bus stops in the sense that SAETV vehicles would only arrive to pick up or drop off passengers when called through an on-line service, similar to those currently used by Transportation Network Companies (TNC's) such as UBER or LYFT.
- 2. SAETV Software.** The program would include the development of an application which would be a "one stop shop" for regional transportation. The app would allow users to not only schedule SAETV pickups and drop-offs at the beginnings and ends of light rail trips, but it would also interface with Sacramento RT rail and traditional bus schedules, private taxi cabs, and TNC's. The app would provide recommendations on the most efficient routes and travel times, as well as allowing users to pay for their entire trip in one on-line purchase. The software would also coordinate with SAETV vehicles in real time to optimize routes and minimize wait times for users.
- 3. Smart Sensor/Controller Technology.** Preliminarily, SAETV vehicles would operate on fixed routes in their service areas. Traffic signals along fixed routes would be upgraded with new controllers which would provide several advancements relative to conventional controllers:

- a. Controllers would have integrated sensors to serve as a back-up to on board vehicle navigation and collision avoidance systems
- b. Controllers would provide transit system priority for SAETV vehicles
- c. Controllers & sensor systems would be designed to be easily upgradeable as new technology becomes available.
- d. Controllers will eventually be part of a wireless Citywide “Smart” traffic signal network which will enhance traffic operations during peak hours, special events, and transit operations.

Ideally, the new smart controllers would become foundational to the City’s ultimate conversion to a smart traffic management grid, providing safer and more efficient transportation management. In the future, this smart grid will be controlled wirelessly from the City’s existing traffic operations center. This grant opportunity would allow the City to not only take a quantum leap in terms of initiating a smart grid program in Sacramento, it would also allow Sacramento to take part in some of the research and development of this technology, in order to ensure that it meets the specific needs of our City.

Selection Process: U.S. DOT has created a two phase application process. The application for phase 1 is due on February 4, 2016. Five applications will be selected by the U.S. DOT to receive a \$100,000 stipend for the preparation of a phase 2, final application. The \$100,000 stipend provides resources for finalist Cities to perform vetting and feasibility work on the concepts submitted in the phase 1 application in order to provide the most comprehensive material in the phase 2 applications. The best phase 2 application will be awarded between \$40 million and \$50 million for project implementation. The first \$40 million in U.S. DOT funding is anticipated to be awarded on the following timeline:

F Y2017:	\$15 million
F Y2018:	\$15 million
F Y2019:	\$10 million

An additional \$10 million is available through a private philanthropic source for projects with include infrastructure for electric vehicle charging features.

This Staff report is asking for authorization to submit a phase 1 application for \$100,000. The solicitation for applications for the final \$50 million award will not be available until March of 2016.

RESOLUTION NO.

Adopted by the Sacramento City Council

AUTHORIZATION TO APPLY FOR U.S. DOT SMART CITIES CHALLENGE GRANT

BACKGROUND

- A. The United States Department of Transportation (U.S. DOT) has announced a Notice of Funding Opportunity for the Smart Cities Challenge grant program.
- B. The Smart Cities Challenge grant program seeks to fund innovative technology based initiatives which provide avenues for the reduction of greenhouse gas emission and traffic congestion, and which enhance safety for users of the urban roadway network. In collaboration with Sacramento Regional Transit, the Sacramento Area Council of Governments, and Caltrans, staff has identified a Semi-Autonomous Electric Transit Vehicle pilot project which comports with the grant selection criteria and which represents an opportunity to incorporate next generation technology into the Cities traffic management infrastructure inventory.
- C. The total award associated with this grant application is \$100,000. Five U.S. Cities will be selected to receive a \$100,000 award and invited to use that award for the preparation of a second grant application for a subsequent solicitation. The subsequent application is for a \$40 million to \$50 million award for project implementation. The program does not require a local match.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

- Section 1. The City Manager or his designee is authorized to submit an application for phase 1 of the U.S. DOT Smart City Challenge grant program
- Section 2. Upon award of grant funding, the City Manager is authorized to a) establish the Smart City Intelligent Transportation Project (S15161900), b) accept the award of grant funding and appropriate to the project; and c) execute all necessary funding agreements.

Section 3. If the City of Sacramento's phase 1 application is successful and the City of Sacramento is selected as a finalist for phase 2, the City Manager or his designee is authorized to submit an application for phase 2 of the U.S. DOT Smart City Challenge grant program.