

SUBWAY TRAIN LOCATION OVERLAY SYSTEM

AGENCY: Federal Transit Administration (FTA), DOT

ACTION: Notice for Request for Applications (RFA)

SUMMARY: FTA is seeking research proposals for an operational test and evaluation of a Subway Train Location Overlay System capable of providing reliable location of railcars in a subway system with much greater precision than typical block control systems. A subway train location system that operates independently of the train control system could significantly enhance response time and effectiveness in emergencies involving railcars in subways.

DATES: An applicant must submit a proposal electronically to <http://www.grants.gov> by November 12, 2008 for consideration. All potential applicants are advised to begin the <http://www.grants.gov> registration process immediately, if they have not previously submitted Federal assistance applications through <http://www.grants.gov>, in order to be able to meet the deadline. FTA expects to award funds through a cooperative agreement in January 2009. In the event of a system problem or technical difficulty with the application submittal, the applicants should contact the FTA Project Manager for delivery instructions.

ADDRESSES: The website <http://www.grants.gov> allows applicant organizations to electronically find and apply for competitive opportunities from all Federal agencies that award Federal assistance. This website is the single access point for over 1000 Federal assistance programs administered by the 26 Federal agencies.

FOR FURTHER INFORMATION CONTACT: Technical, program management and administrative questions should be directed to Terrell Williams, Office of Technology (TRI-20), E43-469, Federal Transit Administration, U.S. Department of Transportation, 1200 New Jersey Ave, SE, Washington, D.C. 20590; email address: Terrell.Williams@dot.gov, or by phone at 202-366-0232.

SUPPLEMENTARY INFORMATION: A Request for Applications titled '*Wireless Communications With Subway Passengers*' is currently posted on <http://www.grants.gov> as funding opportunity **D2008-WCSP-TRI** and on the FTA website at http://www.fta.dot.gov/funding/grants_financing_7829.html. FTA will entertain applications combining these two demonstrations as well as separate applications. Reports from the Transit Cooperative Research Program on advanced train location technology should be referenced.

Objectives

This project will support development, operational testing and evaluation of a Subway Train Location Overlay System capable of providing reliable location of railcars in a subway system with much greater precision than typical block control systems. An accurate, real-time subway train location system could significantly enhance response time and effectiveness in emergencies involving railcars in subways. Recent rail transit incidents, in which trains in subways could not be located accurately enough to dispatch emergency personnel promptly, underscored the need

for a proven subway train location technology for rail transit systems. The location system should operate independently of the subway train control and signal systems.

Background

Rail transit system control centers rely on information from the train operator for location information. In some cases, train control system information is also available. Existing train control signal systems generally provide signal block occupancy location, but signal blocks may be 0.5 mile long or greater. Next generation train control systems should provide much more precise train location information, but these systems will not be deployed until several years from now.

During an emergency, rail control center personnel need to know the exact position of a stopped train in order to correctly configure ventilation schemes and to direct emergency personnel to deal with the incident and assist the passengers. Information from the train operator can be unreliable, and the operator may be a casualty in the incident and unable to communicate. Train control and signal system data are often too imprecise to pinpoint the train's location in a subway.

For example, in its investigation into a derailment, electrical arcing and emergency evacuation in a Chicago Transit Authority subway, the National Transit Safety Board recommended that FTA urge rail transit agencies to improve their ability to identify the exact location of trains in subways. The technology envisioned for this opportunity (existing Wi-Fi, radio and cell phone technology) will support industry efforts to achieve the recommended enhancement in subway train location.

FTA's research activities are authorized by 49 USC 5312, Research, Development, Demonstration, and Deployment Projects. Improving Safety and Emergency Preparedness is one of FTA's five Strategic Research Goals. Under this goal, FTA has set forth the objective of identifying solutions to improve transit emergency preparedness. Rail transit operations (commuter, heavy and light rail) comprise over 50% of transit service, and many rail transit systems carrying heavy passenger loads operate at least partially in subways.

Project Description

This project will support development, operational testing and evaluation of a Subway Train Location Overlay System capable of providing reliable information to a control center about the location of a train in a subway system, with much greater precision than typical block control systems. A subway train location system that operates independently of the train control and signal systems could significantly enhance response time and effectiveness in emergencies involving railcars in subways. .

The selected organization shall conduct the following tasks;

- 1) Examine and document the state of practice, internationally, regarding precise location of rail transit vehicles in tunnels;

- 2) Identify and elaborate evaluation factors capable of discriminating among available location systems in terms of accuracy of location, reliable performance (including performance during power outages affecting traction, train control, signals and lighting), ease of implementation and integration into existing subway transit systems, positive and negative evaluation factors, and costs of implementation and operation;
- 3) Identify and select potential transit partner(s) and equipment vendors for operational testing and evaluation of location systems at demonstration site(s);
- 4) Deploy and conduct operational testing of an accurate and reliable tracking and location technology that is capable of accurately locating trains within transit tunnels; and,
- 5) Evaluate and document the results of the deployment and operational testing.

FTA involvement will include approving key decisions and activities, attending review meetings, commenting on technical reports, maintaining frequent contact with the project manager and redirecting activities if needed. FTA intends to appoint a technical oversight panel, including representatives of government and industry with expert knowledge of rail transit design and operations, communications, safety, and emergency response, to assist in monitoring progress of this project and evaluating the significance of project results.

Award Information

FTA will fund one application under this program. The total available funding is up to \$400,000. Future funding will depend on appropriations. FTA will participate in activities by attending review meetings, commenting on technical reports, maintaining frequent contact with the project manager and approving key decisions and activities including redirecting activities if needed.

Cost Sharing or Matching

Federal transit funds are available to research projects at up to 100 percent of the project cost. However, cost sharing will be an evaluation criterion.

Eligibility Information

Eligible recipients include State and local government agencies, public and private transit agencies, universities, non-profit organizations, consultants, legally constituted public agencies, operators of public transportation services, and private for-profit organizations. In order to enable the operational testing and evaluation of the subway train location system, at least one partner in the proposed project must operate, or provide sufficient access to, trains in a subway system.

Proposal Content

This announcement includes all of the information that you need to apply. The following forms are available in grants.gov and are required to be completed:

1. SF 424 Mandatory

2. Other Attachments Form

1. SF 424 Mandatory

Most of SF424 is self explanatory. The application should answer the following items as follows:

- 1a – application
- 1b – annual
- 4a – Leave blank
- 4b – 26

2. Other Attachments Form:

1. The application should attach a pre-application (not more than 15 pages in length) as outlined in Chapter II (Item 9.b) of FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines. http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html

This pre-application should also address the seven criteria laid out below in the Application Review Information section. The project budget justification should include identification of any matching funds and their source. The Formal Application described in the Circular is not being requested at this time.

2. The application should attach information on the qualifications of key personnel, including biographies, and documentation of access to trains operating in subways for the operational testing portion of the project.

Anyone intending to apply should initiate the process of registering on <http://www.grants.gov> by November 12, 2008 for consideration. All potential applicants are advised to begin the <http://www.grants.gov> registration process immediately, if they have not previously submitted Federal assistance applications through <http://www.grants.gov>, in order to be able to meet the deadline.

Application Review Information

A review panel will be convened to review each proposal. Project proposals will be evaluated based on the following criteria;

1. Understanding of the problem to be addressed in this project, including knowledge of the capabilities and typical operational performance of various rail transit control and communication systems and how these systems interact with one another in an emergency situation involving a train in a subway. The proposed project must identify critical technological issues facing rail transit operations in subways and how they will be addressed.

2. Proposed research, which includes the applicability of the proposed research to meeting the requirements for real-time emergency location of subway trains, the creative application of off-the-shelf hardware and software in a manner likely to prove successful during operational testing; the relationship of the research proposed in this project to other completed or ongoing research; expected results and the uniqueness of the research approach. The project should be narrowly defined to explain how a particular practice or technology will accurately locate trains in tunnels.
3. Qualifications of key personnel, which includes knowledge of, and prior experience with, hardware and software systems involved in subway transit operations and communications, in both routine and emergency situations.
4. Technical Management Plan, which includes the management approach for planning, scheduling, administering, coordinating and conducting the work effort and evaluating and documenting the results. Of particular importance will be the portion of the plan describing operational testing of the selected subway train location system.
5. Past performance on activities relevant to the proposed work.
6. Cost and Cost Sharing.
7. Plan for evaluation and data collection. The proposal must address how success will be measured (e.g., system performance targets and metrics).

Award administration Information

The anticipated notification date for successful applications is the January 2009. Following receipt of the notification letter, the successful entities will be required to submit the Formal Application as outlined in Chapter II (Items 10-25) of FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines, http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html through the FTA Transportation Electronic Award Management (TEAM) system website.

Before FTA may award Federal financial assistance through a Federal cooperative agreement, the applicant must submit all certifications and assurances pertaining to itself and its project as required by Federal laws and regulations. Since Federal fiscal year 1995, FTA has been consolidating the various certifications and assurances that may be required of its awardees and the projects into a single document published in the Federal Register. Fiscal year 2008 Annual List of Certifications and Assurances for FTA Grants and Cooperative Agreements and guidelines is published in the Federal Register and posted on the FTA Web site at : http://www.fta.dot.gov/funding/apply/grants_financing_7411.html.

Recipients will be required to manage their projects in accordance with FTA Circular 6100.C: Transit Research and Technology Programs: Application Instructions and Program Management Guidelines. : http://www.fta.dot.gov/laws/circulars/leg_reg_4121.html This includes requirements on project management and administration including quarterly reporting, financial management, and payment.

FTA will manage the cooperative agreement through the TEAM system website.