



R -- Operation and Use of the Detroit Vehicle Infrastructure Integration Initiative (VII) - Developmental Test Environment (DTE)

- [Synopsis](#) - Posted on Feb 13, 2008

General Information

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Contracting Office Address

Department of Transportation, Federal Highway Administration (FHWA), Office of Acquisition Management, HAAM, Mail Stop E65-101 1200 New Jersey Avenue, SE, Washington, DC, 20590, UNITED STATES

Description

Department of Transportation (DOT)

Research and Innovative Technology Administration (RITA)

Intelligent Transportation Systems/Joint Program Office (ITS/JPO)

Operation and Use of the Detroit Vehicle Infrastructure Integration Initiative Developmental Test Environment (DTE) following the Proof of Concept Test

Agency: RITA, DOT

Action: Notice, Request for Information (RFI)

Summary: For approximately 4 years USDOT has conducted research in Vehicle Infrastructure Integration (VII). VII supports secure two-way communication between vehicles and between vehicles and the transportation infrastructure. Potential application areas include safety (e.g., advanced brake warning between vehicles, intersection collision avoidance), public sector mobility (e.g., improved signal control and coordination) and commercial (e.g., off-board navigation, e-payment for services). In order to operationally test the VII concept, USDOT established a VII Developmental Test Environment (DTE) in Detroit, Michigan and will conduct a Proof of Concept (POC) test in the winter and spring of 2008. Following the POC, the US DOT may keep the Detroit Development Test Environment (DTE) operational, so that both US DOT sponsored VII testing can continue and so that other organizations may conduct live VII testing as well. The USDOT is interested in receiving 1) input and expressions of interest in using the DTE by other private and public sector entities and 2) input and expressions of interest on options for continuing to operate and maintain this VII DTE.

The responses to this RFI may result in the government releasing a Request for Proposals (RFP) for a potential award of a contract to operate and maintain the DTE Michigan test site.

Due Date: Comments and responses to the Questions should be received in writing on or before: March 13, 2008. Submissions received after this date will also be considered to the extent possible.

Addresses: Contracting Officer, HAAM-30A
Federal Highway Administration
1200 New Jersey Ave., SE
Room E66-314
Washington, D.C. 20590

For further information contact: Mike Schagrin, RITA, (202) 366-2180, mike.schagrin@dot.gov or Valerie Briggs, RITA, (202) 366-5015, valerie.briggs@dot.gov .

Purpose of the Notice:

The purpose of this request for information is:

- 1) To gauge interest in use of the DTE following the conclusion of the POC testing;
- 2) To determine how the DTE facility should be operated post POC;
- 3) To determine interest from both commercial and non-commercial entities in operating, managing, and maintaining the DTE, including potential mechanisms (e.g., contract, cooperative agreement) and opportunities for cost sharing and/or cost-reimbursement basis;
- 4) To determine a business model for managing the DTE that is acceptable both to the potential user community and to the USDOT.

Summary of questions:

Answers to the following questions will help RITA to determine if and how the Detroit DTE should be maintained and operated post POC. For clarity, the questions are divided into two areas - those for potential users and those with an interest in operating, managing, and maintaining the DTE. However, it is recognized that an organization may fall into both categories, and therefore, respond to all questions.

Questions for Potential Users

- 1) Do you feel that continued use of the Detroit DTE will be worthwhile and of value to your VII-related work?
- 2) If the Detroit DTE were available for use, would you use it? What types of VII tests would you conduct? Examples might include new applications, new technologies, new equipment, research, etc.
- 3) Do you agree with the proposed DTE usage principles defined below? What changes or alternatives, if any, would you recommend?
- 4) If the DTE were only available on a full fee-for service basis, recovering all costs, would you make use of it?
- 5) Is the current configuration of the Detroit DTE adequate or is additional or less size/capability/capacity required for your possible use? If changes are necessary to support your specific testing, what modifications do you feel should be made?

6) What recommendations, if any, do you have on the type of organization (e.g., for profit, not for profit, university, governmental, etc.) that should manage the Detroit DTE?

Questions for Potential Operators

- 1) Do you agree with the proposed DTE usage principles defined below? What changes or alternatives, if any, would you recommend?
- 2) What recommendations do you have concerning the business model for the operation of the DTE?
- 3) What cost sharing models should be considered?

Background:

Linking vehicles and the transportation infrastructure into an integrated, nationwide system has been a vision of the U.S. Department of Transportation (USDOT) for almost two decades. Multiple studies indicate that doing so would provide significant safety benefits in preventing crashes as well as mobility benefits through the provision of real-time information on the road network, traffic flow, and weather conditions. This information would enable travelers to make better decisions and allow transportation managers to more effectively manage the transportation system. Accordingly, the Vehicle-Infrastructure Integration (VII) initiative was created to improve safety, mobility and commerce by deploying a secure communications infrastructure on roadways nationwide and in all production vehicles.

Because of the need for priority access to support safety critical-messages, initial efforts began with obtaining radio spectrum from the Federal Communications Commission (FCC) for safety applications in the 5.9GHz DSRC band. While DSRC is the only communication media currently being used in the Detroit DTE, other means of communication between the vehicle and infrastructure may be considered. Early program activities focused on definition of the VII system, its requirements, and architecture. An initial set of applications was defined and use cases were generated for them. Some of these applications are considered public-sector applications; others such as e-payment are under the purview of the private-sector. Several trial use standards were developed for the communications protocols. During 2007, roadside and onboard vehicle equipment was designed and prototypes were constructed. These were first tested in a laboratory environment at the component and integration levels and then tested on a closed test track. Recent activities have focused on the establishment and use of a Development Test Environment in Michigan for continuation of Proof of Concept (POC) testing in a field environment. During POC testing, application stubs will be used to test the capability of the VII architecture. This POC testing will occur in the winter and spring of 2008.

Description of the Detroit DTE Facility: The DTE operates on the public highway network in a suburban area outside of Detroit Michigan. A FHWA contractor is currently operating and maintaining this facility through the June 2008. This network consists of 43 center-line miles of arterials and 32 center-line miles of freeways on I-96 and I-275. Roadside Equipment (RSE) has been placed at 57 sites along this network. The RSEs communicate with on-board equipment in vehicles using DSRC wireless communications. Various communications technologies, including G3 cellular, T1 lines, and WiMAX, provide backhaul connectivity from the RSEs to a Service Delivery Node located at the Road Commission for Oakland County Michigan's Traffic Operations Center, and an Enterprise Network Operations Center currently located at Booz Allen Hamilton's facility in Herndon Virginia. It is envisioned that future testbeds will be integrated into this overall VII network. There are also interfaces between the Detroit DTE and High Accuracy National Differential GPS test sites. Depending on the test environment requirements for follow-on use and available funding, the DTE could be maintained in its current configuration, reconfigured, downsized, or upsized.

Principles of use concept for the DTE: If it is determined that the Detroit DTE should be kept operational following the POC, the following are one possible set of operating principles. The purpose of these principles is to define the ground rules and basic expectations for post POC DTE access, use, and maintenance. They are provided in this RFI as additional information for consideration, and feedback on these or alternative operating principles is welcomed:

- 1 Priority for use will be given to any efforts funded or sponsored by US DOT.
- 2 All other parties wishing to use the DTE for testing purposes shall have equal access to the facility.
- 3 A process will be established for determining access schedules and for resolving schedule conflicts/overlapping access requests. In the event of conflicting requests, or if the DTE is oversubscribed, the DTE manager will attempt to arrange a compromise acceptable to all parties. If this cannot be done, the US DOT ITS JPO will make a final decision, based on their judgment of what is in the best interests of the overall VII program.

4 The DTE manager will be responsible for developing and maintaining the DTE access procedures. This will include the procedure for formally requesting access to the facility and the responsibilities of the requestor once use of the DTE is complete (e.g., tear down of the test setup).

5 A set of usage guidelines (rules) will be developed by the DTE manager and made publicly available for all requestors. The requestors are responsible for following the guidelines. Failure to follow the guidelines may result in their lack of access to the DTE.

6 The existing DTE facility will be available free of charge to the requesting party. Included in this shall be up to TBD hours of technical support and troubleshooting from the DTE manager. If any additional support is required, the requestor will pay for those services (see next item).

7 If the requesting party requires special services (e.g., data collection, use of technical staff, etc.) as part of their use of the DTE, the requestor will pay for those services. A list of available services and their cost/rates will be made publicly available. All requesting parties will be charged the same for the available services.

8 The requesting party will assume all liability for damages, etc. due to their use of the DTE. The requestor must demonstrate that they have sufficient liability insurance as part of requesting access to the DTE.

9 The requesting party will pay for any damage they cause to the DTE itself. If there is a dispute as to whether DTE failure is due to the DTE itself or the actions of the requestor, a third party arbitrator will determine responsibility (the requestor will pay for any damage they caused.) The DTE manager and the requestor shall agree to the decision of the arbitrator.

10 At the end of a requestor's testing activities, the DTE must be returned to its state when the requestor's testing began.

11 Requesters will use the DTE at their own risk. Neither the DTE manager nor the US DOT will be responsible for any costs or damages, etc. caused by use of the DTE, nor will they be responsible for any costs caused by failure of the DTE to operate or to operate correctly.

12 If the DTE is not functioning or not functioning fully or correctly during the scheduled test time, negatively impacting the requestor's tests, the requestor shall, at their request, be given 1st priority access to any previously unscheduled test capacity. No other compensation or consideration shall be provided.

13 The manager of the DTE will respect the confidentiality of the requestor's testing activities, and may enter into appropriate agreements to protect the requestor's intellectual property.

14 The DTE manager will be responsible for maintaining and providing access to DTE operational and technical manuals. The requestor agrees that neither the DTE manager nor any other party will be held financially responsible for any delays incurred due to errors in any of this technical documentation.

15 The requestor shall comply with any and all rules and regulations set down by the state and local jurisdictions in which the DTE resides.

16 The requestor is responsible for providing all vehicles and On Board Equipment to be used in any testing.

Original Point of Contact

Robert Robel, Contracting Officer/Team Leader, Phone (202) 366-4227, Fax (202) 366-3705, Email robert.robel@dot.gov - Charles Kotch, Contract Acquisition Support, Phone 202-366-6622, Fax 202-366-3705, Email charles.kotch@dot.gov

Current Point of Contact

Robert Robel, Contracting Officer/Team Leader, Phone (202) 366-4227, Fax (202) 366-3705, Email robert.robel@dot.gov

Place of Performance

Address: 1200 New Jersey Ave., SE Washington, D.C.

Postal Code: 20590

Country: UNITED STATES

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