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***Addendum to the  
Request for Expression of Interest (RFEI)  
For furnishing After Market Safety Devices  
and Roadside Equipment for V2V and V2I  
DSRC based safety applications for the  
New York City Connected Vehicle Pilot Deployment Project***

July 1, 2016  
**Addendum #1**

Responses due July 6, 2016  
Demonstrations Week of July 11, 2016  
**NYC-CVPD-RFEI @transcore.com**

Project: NYCDOT Connected Vehicle Pilot Deployment Program  
 Subject: **Addendum #1 to the Request for Expression of Interest** (RFEI) for  
 Furnishing Connected Vehicle field devices

## General

The RFEI provides background material (pages 2-6) as a general overview for the project for consideration by perspective bidders to determine if the project, New York City (NYC) *Connected Vehicle Pilot Deployment* (CVPD) project is of interest. As noted in the RFEI, the purpose of the RFEI is to assess vendor interest in providing the major elements of the CVPD project. Most of the questions in **Addendum #1** request details that will be addressed as part of the final bid specifications; those details will be available at a later date. While we have addressed some of these questions herein, all such information is subject to change without notice until the final bidding documents are published.

Potential responders are also directed to the *Concept of Operations* which can be received directly from TransCore, USDOT or NYCDOT; the ConOps document provides information with respect to many of the questions listed below.

The questions received are listed below will be addressed first. This addendum then provides additional information regarding the demonstration site, schedule, and route(s).

## Question Set #1:

QS1-(a.)

Page 2 - The RSE note at the bottom of the page states antennas along with other devices need to be added to the existing controller cabinet, antennas will need to be mounted on the pole for proper signal reception. Please clarify.

This will be determined during the development of the specifications for the final deployment and is not relevant to the demonstrations. For the RFEI demonstrations, the vendor is required to provide whatever equipment they need to perform their demonstrations. What equipment is placed where is up to the vendor; we can discuss this further with the vendors during the demonstrations. One of the reasons for the RFEI is to get feedback from the vendors on such issues. NYCDOT will address the specifics for the final design during the development of the procurement specifications

QS1-(b.)

Page 2 - The RFEI states the term RSE is used to include all equipment that must be ADDED to the existing traffic controller cabinets to support the CV applications proposed for the NYC Pilot Deployment. Thus, this includes DSRC radios, GPS, antennas, DSRC/CV application processing unit(s), power supply, and supplemental network devices. Will this be the same for the vehicle "barns" at the bus, taxi and fleet depots that will house some Roadside Equipment (RSE's)?

This will be determined during the development of the specifications for the final deployment and is not relevant for the demonstrations. For the RFEI demonstrations the vendor is required to provide whatever equipment they need to perform the demonstrations. What equipment is placed where is up to the vendor – and will be discussed with the vendors during the demonstrations. NYCDOT will address the specifics for the final design during the development of the procurement specifications. Vehicle barn locations are not likely to , but may include a traffic controller.

- QS1-(c.) Page 3 - The RFEI states the City is planning to install CV technology in approximately 10,000 vehicle – 1,500 MTA buses, 500 UPS delivery trucks, 500 NYCDOT vehicles, 500 Sanitation vehicles and ~ 7,500 taxicabs. The RFI also notes it is “for furnishing” ASD’s and RSE’s.
- What role is expected for the selected vendor as it relates to the deployment, integration, testing of ASD’s by agency?
  - What role is expected for the selected vendor as it relates to the deployment, integration and testing of RSE’s?

This will be described in the specifications for the final deployment and is not relevant to the demonstrations. The City currently plans to work with local service providers and the maintenance facilities and handle the installation of all ASDs and the RSEs – with the installation kits provided by the ASD and RSE vendors. For the RFEI demonstrations the vendor is required to provide whatever equipment they need to perform the demonstrations. One of the reasons for the RFEI is to get feedback from the vendors on such issues. NYCDOT will address the specifics for the final design and responsibilities during the development of the procurement specifications.

- QS1-(d.) Page 3 - The stated applications on pages 3 and 4 of the RFEI differ from those listed in the NYC CV ConOps. Can NYCDOT clarify what CV applications are to be provided by the selected vendor?

All software within the ASD and RSE necessary to support all of the applications listed will be required of the vendor. This will be described in the specifications for the final deployment and is not relevant to the demonstrations. For the RFEI demonstrations the vendor is required to provide whatever equipment and software they need to perform the demonstrations. One of the reasons for the RFEI is to get feedback from the vendors on such issues. NYCDOT will address the specifics for the final design and responsibilities during the development of the procurement specifications.

- QS1-(e.) Page 3 – Are ped apps included in the scope of this contract?

The RFEI is not a contract and the elements of the contract for the procurement of the ASDs and RSEs are yet to be determined. There are two types of PED applications; the first is in in-vehicle application that uses the PED in crosswalk indication in the SPaT message to determine the risk of a potential PED injury based on the vehicle location and speed and the stop bar location indicated in the MAP message. The second PED application is for the PID and may be part of the CV bid for the ASD and RSE or it may be bid separately. As noted in the RFEI, a separate RFEI is being issued for the PID PED application.

- QS1-(f.) Page 4 - Will the selected vendor develop the configurable data collection application?

Yes – see the answer to QS1-(c.).

- QS1-(g.) Page 4 - The RFEI asks support for over-the-air (OTA) software updates, and OTA changes to the operating parameters [of all the applications] to be able to adjust thresholds and warnings, and traffic data collection to support Midtown-In-Motion. Is the OTA requirement to support the two pedestrian oriented applications (which information is being requested under a separate RFEI)?

This is expected to be the case, but as noted above, the RFEI is for the demonstrations and to provide input from the vendor community on our approach and the future procurement

contracts. Questions such as these will be answered when NYCDOT actually issues the procurement documents for the CV equipment and application software.

QS1-(h.) Page 5 - The RFEI says a number of maintenance support functions have been added to the system and hence must be added to both the ASD and RSU. Can the City specify the functionality to be added to both devices?

This is discussed in the ConOps and the requirements document. It is suggested that vendors obtain both as described in the RFEI and review their contents.

QS1-(i.) Page 5 - Is it correct that the RSEs and ASD's will contain two radios? Does the demo need to include demo of the use of 2 radios on the ASD?

The demonstration should include the use of 2 radios since that is a critical element of the ASD design for the NYC CVPD, however, it is not critical at this time. From our investigation, most vendors have included 2 radios and clearly the ASD will require 2 radios to handle the DSRC communications.

QS1-(j.) Page 5 - The RFEI states that channel 172 will be used to listen to BSM's only but the table on Page 9 indicates that this channel is used by SPaT, MAP, RTCM and BSM. Please clarify which is correct.

This is an error in the RFEI language; channel 172 will be used for the SPaT, MAP, RTCM, and BSM. The balance of the document makes this clear along with the channel allocation being developed by SAE DSRC group.

QS1-(k.) Page 7 - How do we demo location accuracy? Do we have to show it using an application or just by collecting the GPS location points and plotting it afterward? If the data is to be provided, what data format is requested?

The requirement (section 5.7) is to demonstrate the accuracy of the location tracking mechanism developed by the vendor; the vehicle will drive along the prescribed route and log its position (using the BSM data objects - text CSV file will be fine) at 10 times per second using sophisticated algorithms, auxiliary inputs, GPS, etc. that the vendor considers necessary to achieve the accuracy required (ref. J2945/1) for the V2V and V2I applications – in the urban environment. The vendor should also indicate when the location accuracy is not sufficient (J2945/1) for the broadcast of BSM messages, and whether there is GPS lock or not. The vehicle should have front camera that shall be recording the street front view during the test.

QS1-(l.) Page 7 - Can we use a signal controller simulator in lieu of an actual controller because of portable power requirements?

Yes – the vendor is required to supply the traffic controller or simulator and any other hardware necessary to demonstrate one or more of the I2V related applications.

QS1-(m.) Page 8 - Section 5.2 talks to the nature of additions and modifications to the ASD and RSE are largely due to the need for benefits analysis and O&M support. What specific additions and modifications is to be provided?

These are identified in the ConOps and will be refined in the final procurement documents. The RFEI is intended to provide a forum for demonstrations and discussions with the vendors prior to the issuance of the detailed specifications.

QS1-(n.) Page 8 - Hardware Security Module? I am not sure what this is meant to be.

This is described in Chapter 6 of the Security Management and Operations Concept (SMOC) document which will be posted by USDOT. This concept should be well known to your device designers since security is now a part of the CV environment. It is not required for the demonstration. The requirements for the HSM are in the SMOC which will be circulated prior to any bid documents.

QS1-(o.) Page 10 - At the top of the page, the RFEI states the project will not accept any product which declares that its protocol is proprietary and subject to a license agreement. All protocols, messages, and MIBs shall be open to the public for use by any supplier in perpetuity without license fees. This is in conflict with Section 6.1 Content e) where the vendor is asked to indicate which software is considered prior IP, and what is being developed with NC CV project funding. Can NYCDOT clarify the project intent re: prior IP?

There is no conflict. The first statement refers to all **protocols** between and among devices. The second sentence clarifies that to mean **protocols, messages, and MIB objects** since the ASD and RSE are to be managed using SNMP3. The next sentence references **software** which may be prior IP (intellectual property) developed by the vendor at their expense. Responders must indicate if their application software is prior intellectual property or being developed specifically for the NY CVPD project.

## Question Set #2

QS2-(a.) Must a proposer include solutions which include both RSE and ASD or can the proposer submit an ASD or RSE only proposal?

The proposer may include solutions which are either RSE or ASD or both.

QS2-(b.) Is it a requirement to demonstrate on the week of 11<sup>th</sup> of July due to the short notice of the request?

Yes. We did not expect any vendor to demonstrate a complete solution either ASD or RSE – but only to demonstrate their current product(s) such that the City can determine the current state of the products. The time is short for the completion of Phase 1 of the project, and the time frame for the project deployment is rather compressed as well. Note that the “test” track will be available for setup and test for several days prior to the demonstrations and we hope to hold the demonstrations during the middle of the week.

## Question Set #3

QS3-(a.) [We] have a question on timing. The response the RFEI is due on Wednesday the 6th. You're planning to do demos the next week. We'll have travel arrangements and other commitments that week. When would you expect to be able to tell us what slots we've been assigned?

The test site will be available starting on Saturday morning (7/9) and be available all week. We have allocated ½ day for each vendor at the test, and require the Manhattan route be driven either prior to or immediately after the demonstrations. We will work with you to schedule based on the number of responders. **If you wish to submit your schedule requests sooner we will do our best to accommodate.** The test facility can accommodate multiple vendors if they want to use the site, but only one vendor will be expected to run their demonstration each ½ day. Each vendor will have at least 4 hours for their demonstrations - - including 30 minutes to remove their equipment. We can start as early as 8 AM and stay as late as 6 PM.

Note that our project schedule does not allow us additional time beyond the week of July 11 due to the deliverable schedule of USDOT for the CV Pilot Projects.

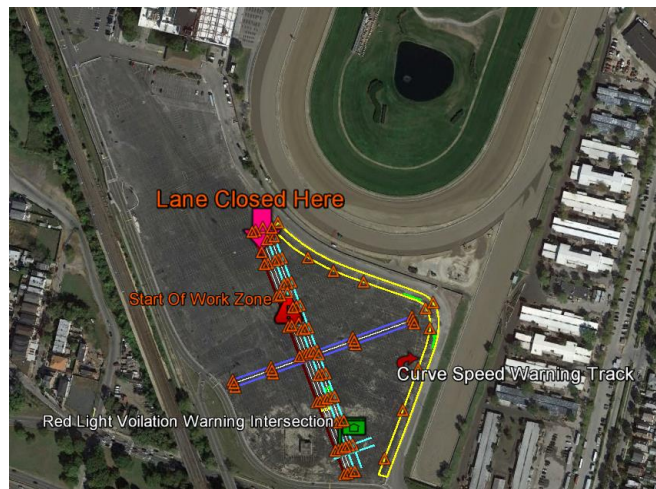
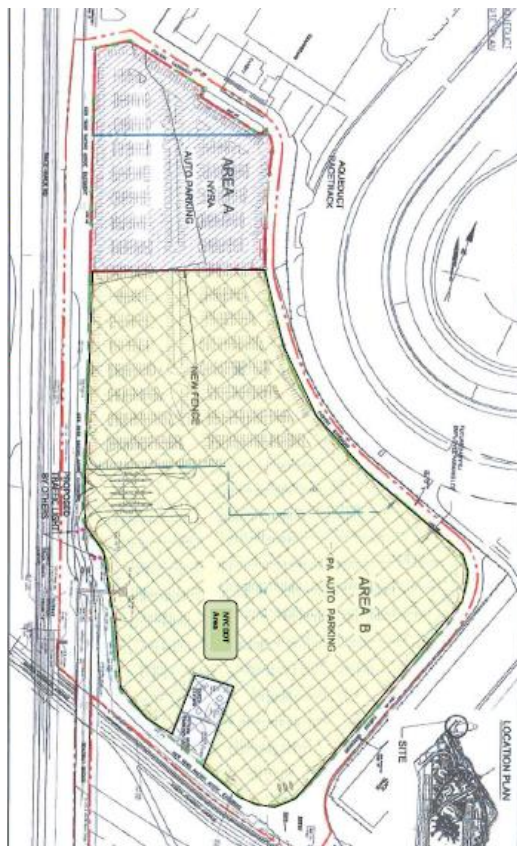
QS3-(b.) Also, will you expect / allow a presentation at that time or will it all be demonstrations?

We will provide some time at the test site for discussions and questions and answers for each vendor (separately) during the 4 hours assigned. If you have a “presentation”, we suggest you work from handouts at the meeting as we will have a table in the parking lot and chairs. TransCore and/or NYC will have representatives on site Saturday and Sunday for guidance.

### General comments on planning the demonstrations

As noted in the RFEI, NYCDOT has secured the use of the southern section of the Aqueduct Racetrack parking lot. The City will be at the racetrack parking lot with a tent (for city staff), a rented toilet, table and chairs, water, coffee, etc. starting Monday morning.

The City will assign times after we receive the responses to the RFEI or sooner if you want to state your available schedule (first come – first served). The City will provide 120 VAC power at our tent, but vendors should expect to manage [provide] their own power needs and any other needs such as RTCM information.



The City will provide barrels and cones as necessary – if you need a specific setup, we will assist you in setting up as best we can. The picture above is an example of one vendor’s request. This will be setup – it is about 1,000 feet long but could be longer if set more diagonal – the maximum distance is about 1,500 feet. This should provide enough distance to allow vehicles to achieve the

speeds necessary to support the alarms. This includes a curve, a work zone, a straight section, and an intersection.

Arrangements have been made to have the test area available starting Saturday (7/9/2016) morning – please make arrangements for use by contacting TransCore’s Gavin Maxwell who will be at the site in the morning; his cell is 801-828-8167. The site will be available for calibration, testing, setup etc. by all of the vendors from 8 AM to about 5 PM each weekend day. Note that the schedule for the demonstrations is not finalized yet – but each vendor will have an opportunity setup, and conduct their demonstration and meet with the City and TransCore to discuss the project.

The second part of the demonstration is to verify the location accuracy of the vendor’s overall in-vehicle system. This will be conducted by requiring that the vendor drive the prescribed route (below) and record the vehicle’s position 10 times per second using the data format for the BSM and creating a CSV file with the lat/lon and time-of-day. Note that depending on the equipment available to the vendor, this may run concurrently or at any time slot – and should take about 2 hours (72K-144K samples). A representative of the City and/or the consultant team will accompany the vendor during the Manhattan course to answer any questions where possible.

<b>Manhattan Location Verification Route</b>	
<p><b>Start from the Aqueduct test area.</b></p> <p>Travel from Aqueduct to North Conduit westbound.                      Turn left onto Linden Blvd and continue west to Flatbush Ave via Canton Av                      Turn right onto Flatbush Ave northbound                      Begin recording location information (see RFEI location information requirements)                      Cross Manhattan Bridge into Manhattan                      Turn left onto Canal St westbound                      Turn right onto 6<sup>th</sup> Ave (Ave of Americas) northbound                      North on 6<sup>th</sup> Ave to W 28<sup>th</sup> St                      Turn right onto W 28<sup>th</sup> St                      East to 5<sup>th</sup> Ave                      Turn right onto 5<sup>th</sup> Ave southbound                      South on 5<sup>th</sup> Ave to W 21<sup>st</sup> St                      Turn right onto W 21<sup>st</sup> St                      West to 6<sup>th</sup> Ave                      Turn right onto 6<sup>th</sup> Ave northbound                      North on 6<sup>th</sup> Ave to W 34<sup>th</sup> St                      Turn right on W 34<sup>th</sup> St</p>	<p>East on W 34<sup>th</sup> St to 5<sup>th</sup> Ave                      Turn right onto 5<sup>th</sup> Ave southbound                      South on 5<sup>th</sup> Ave to W 31<sup>st</sup> St                      Turn right on W 31<sup>st</sup> St                      West on W 31<sup>st</sup> St to 6<sup>th</sup> Ave                      Turn right on 6<sup>th</sup> Ave                      North on 6<sup>th</sup> Ave to W 59<sup>th</sup> St                      Turn right on W 59<sup>th</sup> St                      East on 59<sup>th</sup> St to 2<sup>nd</sup> Ave                      Turn right on 2<sup>nd</sup> Ave                      South on 2<sup>nd</sup> Ave to E 7<sup>th</sup> St                      Turn right onto E 7<sup>th</sup> St westbound                      West on E 7<sup>th</sup> St to 3<sup>rd</sup> Ave southbound (Cooper Square)                      South on 3<sup>rd</sup> Ave (turns into Bowery)                      Turn left onto Manhattan Bridge                      Travel Flatbush Ave southbound                      Turn left onto Linden Blvd                      End recording location information  <b>Return to Aqueduct test site</b>                      End of route. – provide data to project team.</p>

At the conclusion of the Manhattan route, the vehicle will return to the Aqueduct test site and provide the information collected to the City or TransCore on a memory stick or similar device.

As stated above and in the RFEI, the demonstration is to allow the vendors to show the City what CV applications they have developed and tested and to discuss their operation and concerns. It is not expected that the responders will have the complete set of applications as stated in the NYC concept of operations since additional details will be forthcoming during phase 2. It is anticipated that each vendor can demonstrate several V2V and I2V applications.

The schedule for the demonstrations is shown on the following page. Vendors may run the Manhattan course at any time when NYCDOT or TransCore personnel are available to accompany the vehicle on the route.

It is expected that up to 20 people will want to experience the demonstration at the test site. This assumes that the vendor’s driver and up to three participants can handle the course in about 15 minutes

leaving an hour for discussions and an hour for setup by the vendor while the course is explained to the City participants.

Aqueduct Test Schedule							
	Sat	Sun	Mon	Tue	Wed	Thu	Fri
7-8 AM							
Morning 8 – 12	All vendors can work out what they want to setup and test aspects of the site (cooperatively)		All vendor access for planning & setup				
Lunch							
Afternoon 1-5							NYCDOT tear-down
5-6 PM							

If you have any questions before 2:00 PM (EDT) July 6 please submit them through email to **Mtalas@dot.nyc.gov** and **Robert.rausch@transcore.com**

After 2:00 PM (EDT) July 6, please contact the following people:

Bob Rausch 678-427-7834

Mohamad Talas 347-245-0059

The sooner you make your time request the sooner it will be scheduled – first come first served from this point forward.