NCHRP 20-102 [RFP]

Impacts of Connected Vehicles and Automated Vehicles on State and Local Transportation Agencies--Task-Order Support

Posted Date: 12/11/2014

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<th>Project Data</th>
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<td>Funds:</td>
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<td>Contract Time:</td>
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<td>(includes 24 months for completing the work begun during the first 24 months)</td>
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<td>Authorization to Begin Work:</td>
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BACKGROUND

Connected vehicle technologies are being developed to enable safe, interoperable networked wireless communications among vehicles (V2V), the infrastructure (V2I), and travelers’ personal communication devices (V2X). These technologies are intended to reduce highway crashes; provide data for assessing the performance of the transportation system; provide continual access to accurate information on the operation of the system to travelers; and reduce unnecessary stops, delays, and emissions.

Automated vehicle technologies are also under development that will significantly change fundamental planning, design, and operational characteristics for the road network. Level 2 technologies (e.g., adaptive cruise control, blind-spot warning) are available on vehicles today. Level 3-5 technologies are at various levels of development and a deployment schedule is difficult to predict. The automotive industry sees great promise in these technologies and several manufacturers intend to bring them to market.

For Level 4 automation, “the vehicle is designed to perform all safety-critical driving functions and monitor roadway conditions for an entire trip. Such a design anticipates that the driver will provide destination or navigation input, but is not expected to be
available for control at any time during the trip.” (NHTSA, Preliminary Statement of Policy Concerning Automated Vehicles) Level 5 automation is essentially the same as Level 4, but without any driver supervision (e.g., there is no expectation that the driver will be engaged). These vehicles will be much safer than current models and will significantly increase a road’s throughput capacity.

In July 2014, The Automated Vehicles Symposium, the third in an annual series, included participants from a broad mix of countries and types of organizations. Breakout sessions were held on automated transit and shared mobility, regional planning and modeling implications, roadway management and operations, truck automation, legal accelerators and brakes, human factors, near-term deployment opportunities, commercialization of automation for personal vehicles, technology roadmap maturity and performance, and digital and physical infrastructure needs. Some of the themes that emerged were a greater understanding of the challenges of transitioning control back to a driver, a greater emphasis on V2V and V2I for higher levels of automation, a strong interest in digital mapping and positioning, and considerable attention to the shared use of vehicles and transportation as a service rather than private ownership of vehicles. It is expected that the earliest deployments of automated vehicles will be truck platooning, low-speed driverless shuttles in restricted environments, and cars on restricted access freeways.

Connected vehicles and automated vehicles are conceptually different approaches, though some of the challenges they present to transportation agencies will be similar. These two technologies may converge or diverge from each other based largely on developments in the private sector (e.g., vehicle manufacturers, third-party vendors). While some actors envision a completely autonomous vehicle that does not require communication with other entities, others see synergies between the two technologies. This project will address both approaches (including the combination) under the umbrella term of CV/AV. The individual tasks that compose the project will clearly identify which technologies are to be addressed.

RESEARCH OBJECTIVES

The objectives of NCHRP Project 20-102 are to (1) identify critical issues associated with connected vehicles and automated vehicles that state and local transportation agencies and AASHTO will face, (2) conduct research to address those issues, and (3) conduct related technology transfer and information exchange activities. This request for statements of qualifications is expected to lead to three or four task-order contracts to provide readily available support to NCHRP in carrying out activities related to these objectives.

NCHRP Project 20-24(98) has developed a draft research roadmap for addressing CV/AV issues (available at http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3752). The panel for NCHRP Project 20-102 is responsible for maintaining this roadmap and will be selecting tasks from it to carry out. Tasks may be rescoped, added, or deleted from the roadmap at the discretion of the panel.

For the individual tasks selected by the NCHRP Project 20-102 panel, the selected task-order contractors will be asked to propose a short research plan, a Disclosure statement describing any possible sources of financial or organizational conflict of interest that may affect the contractor’s objectivity in conducting the research, a staffing plan, a budget to carry out the task, and a plan for promoting the implementation of the results of the research in a timely fashion. These proposals will be evaluated to determine
which team will be awarded the task under its task-order contract.

Responses developed in response to this announcement should offer multidisciplinary teams capable of conducting tasks described in the draft NCHRP 20-24(98) research roadmap. Proposers are expected to demonstrate significant in-house expertise, as well as the ability to assemble additional expertise as needed. Although no tasks are included in this request for statements of qualifications, each task-order contractor will be expected to propose on future Project 20-102 task-order requests that are announced by the NCHRP.

During the course of the contract, task-order contractors will be expected to submit quarterly progress reports that include: (1) brief status reports on tasks currently underway (including a table of milestones and deliverables, significant findings, a description of any problems encountered, and recommended solutions to such problems); (2) summary of significant events in the CV and AV industries that may affect the research roadmap; and (3) recommendations for updates to the research roadmap.

The NCHRP will decide in approximately 2 years whether to readvertise for task-order contractors or to extend the ones that are in place.

INVITATION

Research agencies are hereby invited to express interest in conducting future NCHRP 20-102 research tasks by submitting a statement of qualifications and availability. The response should highlight the specific experience and background of the key personnel. Respondents shall provide the following:

1. A discussion that clearly demonstrates the proposer's understanding of the connected vehicle and automated vehicle arena and how this project relates to other CV/AV efforts. This section of the proposal must be limited to 10 pages and shall be Item 4 in the response (see Special Note A).

2. The qualifications and experience of the Principal Investigator and other key team members. Information on each team member must be limited to 2 pages per team member. This shall be Item 5 in the response (see Special Note A).

3. Relevant research accomplishments by the Principal Investigator and other members of the research team that clearly relate to one or more of the research problem statements in the draft research roadmap and that illustrate experience with the type of work that will be involved with this project. This section must be limited to 10 pages and shall be Item 6 in the response (see Special Note A).

4. A list of other anticipated time commitments for the Principal Investigator and key staff during the proposed contract period of calendar years 2015 through 2017. This section shall be Item 7 in the response (see Special Note A).

BASIS FOR SELECTION
It is the intention of the NCHRP to select three or four task-order contractors based on the following criteria:

1. Demonstrated understanding of the connected vehicle and automated vehicle arenas and the ability to stay abreast of developments in the private and public sectors.

2. Demonstrated qualifications, experience, and availability of the Principal Investigator and key research team members. Proposers should carefully review the research roadmap developed by NCHRP 20-24(98) and address the key areas of expertise included therein. It should be recognized that this roadmap may be modified at any time.

3. Demonstrated ability to deliver clear, concise, and timely products in formats appropriate for transportation practitioners.

4. Demonstrated ability to draw appropriate expertise from across the field when additional resources are needed.

5. The respondent's plan for participation by Disadvantaged Business Enterprises—small firms owned and controlled by minorities or women.

SPECIAL NOTES

A. The essential features required in a proposal for research are detailed in the current brochure entitled "Information Required for Preparing Proposals" (see General Note 2). Item 4, Research Plan; Item 8, Equipment and Facilities; Item 9, Time Requirements; and Item 10, Itemized Budget, as described in the brochure are not required elements of a response to this Request for Qualifications. All other essential elements described in the brochure are required. The proposal shall include the following sections, in the following order: (1) Cover Page, (2) Summary Page, (3) Table of Contents, (4) Discussion Demonstrating Understanding of Research Concerning Connected and Automated Vehicles, (5) Qualifications of the Research Team, (6) Accomplishments of the Research Team, (7) Other Commitments of the Research Team, and (8) Plan for Participation for Disadvantaged Business Enterprises. Proposals that do not conform to these requirements will be rejected. This Special Note supersedes General Note 2 below.

B. Responses must be accompanied by an executed, unmodified copy of the Liability Statement found in this Request for Qualifications. Responses that do not include the signed Liability Statement or are not received by NCHRP by the response deadline will be rejected.

Proposals (20 single-bound copies) are due not later than 4:30 p.m. on 1/29/2015.

This is a firm deadline, and extensions are not granted. In order to be considered for award, all 20 copies of the agency's proposal accompanied by the executed, unmodified Liability Statement must be in our offices not later than the deadline shown, or the proposal will be rejected. Proposers may choose any carrier or delivery service for their proposals. However, proposers assume the risk of proposal rejection if the carrier or delivery service does not deliver
all the required documents by the deadline.

**Delivery Address:**

PROPOSAL-NCHRP  
ATTN: Christopher W. Jenks  
Director, Cooperative Research Programs  
Transportation Research Board  
500 Fifth Street, NW  
Washington, DC 20001

**Liability Statement**

The signature of an authorized representative of the proposing agency is required on the unaltered liability statement in order for the NCHRP to accept the agency's proposal for consideration. Proposals submitted without this executed and unaltered statement by the proposal deadline will be summarily rejected. An executed, unaltered statement indicates the agency's intent and ability to execute a contract that includes the provisions in the statement.


**General Notes**

1. According to the provisions of Title 49, Code of Federal Regulations, Part 21, which relates to nondiscrimination in federally assisted programs, all parties are hereby notified that the contract entered into pursuant to this announcement will be awarded without discrimination on the grounds of race, color, religion, sex, national origin, or disability.

2. The essential features required in a proposal for research are detailed in the current brochure entitled "Information and Instructions for Preparing Proposals" (updated November 2010). Proposals must be prepared according to this document, and attention is directed specifically to Section V for mandatory requirements. Proposals that do not conform with these requirements will be rejected. This brochure is available here.

3. The total funds available are made known in the project statement, and line items of the budget are examined to determine the reasonableness of the allocation of funds to the various tasks. If the proposed total cost exceeds the funds available, the proposal is rejected.

4. All proposals become the property of the Transportation Research Board. Final disposition will be made according to the policies thereof, including the right to reject all proposals.

**IMPORTANT NOTICE**

Potential proposers should understand clearly that the research project described herein is tentative. The final content of the program depends on the level of funding made available through States' agreements for financial support of the NCHRP. Nevertheless, to be prepared to execute research contracts as soon as possible after sponsors' approvals, the NCHRP is assuming that the tentative program will become
official in its entirety and is proceeding with requests for proposals and selections of research agencies.

To create a link to this page, use this URL: http://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=3824