Vehicle Electronic Systems Safety

ACTIVE Contract Opportunity Notice ID 693JJ920R000020 Related Notice Department/Ind. Agency TRANSPORTATION, DEPARTMENT OF Sub-tier NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION Office 693JJ9 NHTSA OFFICE OF ACQUISTION

General Information View Changes

- Contract Opportunity Type: Presolicitation (Updated)
- All Dates/Times are: (UTC-05:00) EASTERN STANDARD TIME, NEW YORK, USA
- Updated Published Date: Jan 31, 2020 07:48 am EST
- Original Published Date: Jan 30, 2020 04:22 pm EST
- Updated Response Date:
- Original Response Date:
- Inactive Policy: Manual
- Updated Inactive Date: Feb 14, 2020
- Original Inactive Date: Feb 14, 2020
- Initiative:
 - o None

Classification

- Original Set Aside:
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- **Product Service Code:** AJ11 R&D- GENERAL SCIENCE/TECHNOLOGY: PHYSICAL SCIENCES (BASIC RESEARCH)
- NAICS Code:
- Place of Performance:

USA

DescriptionView Changes

<u>Synopsis</u>

This synopsis, in accordance with FAR 5.203(a), issues a 15-day public notification prior to the issuance of solicitation **693JJ920R000020**. The National Highway Traffic Safety Administration (NHTSA) intends to issue a solicitation for a **Full and Open Competition** in support of the NHTSA, Electronic Systems Safety Division of the Office of Vehicle Crash Avoidance and Electronic Controls Research.

Introduction and Background

The National Highway Traffic Safety Administration (NHTSA) is an agency of the U.S. Department of Transportation (DOT). NHTSA's mission is to save lives, prevent injuries and reduce traffic-related health care and other economic costs. The agency develops, promotes and implements effective educational, engineering and enforcement programs with the goal of ending preventable tragedies and reducing economic costs associated with vehicle use and highway travel.

The National Highway Traffic Safety Administration, Electronic Systems Safety Division (NSR-330) of the Office of Vehicle Crash Avoidance and Electronic Controls Research (NSR-300), conducts studies, testing and other research to identify and evaluate how vehicle electronic subsystems can affect vehicle safety risk and what countermeasures would minimize that risk.

In 2017, motor vehicle-related crashes on U.S. highways claimed 37,473 lives. Analysis of crash causation factors imply that the vast majority of serious crashes are due to dangerous choices or errors people make behind the wheel. In addition to the historical contributors to these statistics, such as impaired driving and failing to use seat belts, we are now faced with increased distraction resulting in avoidable deaths and injuries.

The Advanced Driver Assistance Systems (ADAS) research plan represents National Highway Traffic Safety Administration's (NHTSA) Office of Vehicle Safety Research's plan for conducting research to advance the safe development and deployment of crash avoidance (CA) technologies (SAE Level 0) as well as driver assistance systems that require full driver engagement (SAE automation levels 1 & 2).

The overall objective of NHTSA's ADAS Research program is to provide automotive industry stakeholders with information, analyses and tools to help advance the safe development and deployment of these systems, and when appropriate, removing regulatory barriers that may prevent introduction of advanced technology driver assistance systems. The research is being aligned with industry stakeholder's current key research topics and focus areas. The NHTSA's research activities are not intended to replace or duplicate other research community efforts, but will complement the current state of ADAS research.

Advanced driver assistance and automated driving systems (ADS) technologies seek to mitigate, if not remove, these errors and save lives. ADS additionally offers mobility accessibility to the previously underserved community of people with disabilities and physical challenges. It is envisioned that the ingenuity and innovation accompanying ADS technologies will be harnessed to provide safe transportation options for all of the traveling public.

The vision of NHTSA's Automated Driving Systems (ADS) research is to establish a research framework, contribute to the body of knowledge, and provide leadership that advances the safe testing and deployment of ADSs such that their benefits are optimized and risks appropriately mitigated.

This research addresses the technical challenges associated with safe testing and deployment of SAE automation levels 3 through 5—conditional, high, and full-driving automation, collectively referred to as Automated Driving Systems (ADSs). See Figure 1. ADSs include systems for which there is no human driver, or for which the human driver can give up control to the ADS and is not expected to perform any driving-related tasks for a period of time.

Ever since digital electronics were first introduced into vehicles in the 1970s and 1980s for engine ignition and injection control, their use has been continually expanded to include many new safety, mobility, and efficiency features commonly included in modern cars today. These software-intensive functions, and wired and wireless data exchange interfaces, introduce cybersecurity challenges and potential safety concerns. While cybersecurity is germane to data security, intellectual property, and privacy, NHTSA's primary focus in its vehicle cybersecurity work are the safety implications.

The vehicle cybersecurity research being conducted by NHTSA emphasizes the importance of partnering with industry to broadly implement cybersecurity best practices throughout the vehicle lifecycle, thus addressing potential safety risks to the motoring public. To this end, this research considers the vehicle as a principal element within a complex, connected ecosystem. The research covers the need to identify risks, defensive methods, test tools, and ecosystem factors impacting vehicle security; lifecycle cybersecurity risk management; processes that manage associated safety and security risks; and a look forward to emerging research opportunities that have the potential to facilitate continuous improvement in the cybersecurity of motor vehicles.

In the area of vehicle cybersecurity, the research covers a broad range of motor vehicles, such as passenger vehicles, light-, medium-, and heavy-duty trucks and buses, motorcycles, and low-speed vehicles. The purpose of this research is to communicate gaps identified through stakeholder engagement and address the areas where NHTSA can provide value by bridging the gaps.

NHTSA's research activities are intended to complement research undertaken by industry, academia, and other government agencies to advance the state of cybersecurity knowledge and practice to enhance the security posture of the automotive sector.

Objective/Scope of Work

The objective of this Indefinite Delivery, Indefinite Quantity (IDIQ) Contract is to provide NHTSA with the capability to award Task Orders that require a range of research skills, which could be called into use to quickly plan, conduct, and document studies concerning vehicle safety to address any and all aspects of vehicle safety technologies, reliability, cybersecurity, automated driving systems, testing and simulation of vehicle safety systems, conducting of large scale data collection studies, and evaluation of safety benefits. Offerors may qualify for one or more of the subject areas and need not be pre-qualified in all of the areas below to be selected for a task order in a particular area only the research area of interest to that task. The tasks and experiments performed under this IDIQ Contract will provide the support needed by NHTSA in seven major research areas performed through the Electronic System Safety Division.

These major research areas are:

1. Controlled-Environment Evaluation Methods

- Test-track research and associated advanced tool development (including remote controlled GSTs, etc.)
- Driving simulator studies

2. Functional Safety Assessments, and Electronic Component Level Testing

- Functional safety assessments of vehicle electronic sub-systems perception systems (sensors) research support,
- Other electronic, control, & component level testing support (may include HIL, Software -in the-Loop (SIL), and Vehicle-in-the-Loop (VIL) modeling and simulation)

3. Management of Filed Operational Tests (FOTs) and Naturalistic Studies

- Planning and managing operation of Field Studies
- Vehicle-level instrumentation and data collection
- ADS Pilot concepts and support
- Collection and analysis of vehicle data

4. Safety Impact Assessment Support and Vehicle Safety Related Components

- Crash data acquisition and analysis
- Crash causation and crash modeling studies
- Countermeasure modeling and simulation
- Safety benefits analysis
- Support for research on vehicle systems that may impact safety (tires; lighting, mirrors, steering or braking components)

5. Cybersecurity

- Development of cybersecurity guidelines and best practices
- Incident research support
- Development of cyber-resiliency evaluation methods
- Software Assurance and testing

6. Vehicle Safety Communications

- Communication technologies
- Spectrum research
- Mapping & related technologies
- Communications Security

7. Standards Development and Adaptation of Requirements

- Adapting technical requirements for ADS vehicles
- Research into removing regulatory barriers for technology innovations
- Support the development and implementation of voluntary industry-based standards and guidelines

Contract Type, Period of Performance, and NAICS Code

NHTSA intends to award one Indefinite Delivery/Indefinite Quantity (IDIQ) Contract on a Time & Material (T&M) basis, whereby individual Task Orders will be issued in accordance with FAR 16.5 to obtain professional and technical services.

The anticipated period of performance is 60-Months, inclusive of three (3) consecutive, 12month Base Years and two (2) Option Years to be exercised at the Government's discretion. The NAICS Code for this anticipated contract is 541712 (Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)) with a size standard of \$15M.

Place of Performance/Physical Location

The work performed under the proposed Contract and any Task Orders issued under the Contract shall be accomplished at the Contractor's facilities and those facilities shall be located within the continental United States. There shall be no deviation from or waiver of this requirement.

System for Award Management Registration

Contractors must be registered in the System for Award Management (SAM) database located at www.sam.gov in order to receive an award in response to the solicitation.

THIS NOTICE OF SYNOPSIS IS NOT A REQUEST FOR PROPOSAL. This notice is for informational purposes only and is not to be construed as a commitment by the Government. The solicitation will be released electronically via this Government Point of Entry (GPE) otherwise known as Federal Business Opportunities or beta.sam.gov. As such, no written, telephonic or other type of request for an advance copy of the solicitation will be entertained. Potential offerors/vendors are encouraged to register on beta.sam.gov to receive any further information in reference to the subject action inclusive of any announcements, and/or amendments to the solicitation after its release. The anticipated award date is July 10, 2020. The solicitation will be issued on or about April 3, 2020.

Attachments/Links

Download All Attachments/Links

Attachments	Filo Sizo	Accoss	Undeted Date
Document	The Size	Access	Opuated Date
Synopsis_693JJ920R000020_Elec Sys Safety_fnl_2.doc (opens in new window)	160 KB	Public	Jan 31, 2020
Synopsis_693JJ920R000020_Elec Sys Safety_fnl.doc	159 KB	Public	Jan 31, 2020

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