NOFO: Vehicle Inspection for Early Warning (VIEW)

APPENDIX

TITLE: Vehicle Inspection for Early Warning (VIEW)

TECHNOLOGY AREAS: Under Vehicle Inspection (UVI); border protection; force protection; scanning; detection; critical infrastructure key resources (CIKR)

OBJECTIVE:

Develop low-cost, automated, under vehicle inspection system (fixed and mobile) for roadway mounting at facility access points, road border crossing locations, checkpoints and other vehicle inspection vulnerabilities locations and critical infrastructure for early warning.

The Federal Government owns and leases office space in 9,600 buildings in more than 2,200 communities nationwide. In addition to office buildings, government properties include: land ports of entry, courthouses, laboratories, post offices, and data processing centers. The Nation relies upon Critical Infrastructure Key Resources (CIKR) assets that are essential for the functioning and continuity of society and economy. CIKR resiliency is a shared responsibility among public and private owners and operators with thousands of assets nationwide. Contraband smuggling (e.g. drugs, weapons, explosives, human trafficking, etc.) often use vehicles with alterations, clone vehicle markings and traps to conceal their contents.

APPROACH:

The Notice of Funding Opportunity Announcement for this Cooperative Agreement will be a three (3) Phased approach to:

Phase I: Develop, produce and demonstrate two (2) Prototype VIEW (Alpha) Units (e.g. one fixed and one mobile) with functional capability based upon initial stakeholder requirements;

Phase II: Prepare four (4) enhanced VIEW (Beta) Operational Units (e.g. two fixed and two mobile) for field test and evaluation based upon stakeholder requirements; and

Phase III: Production VIEW capability commercialization and transition for adoption and operational use by DHS Components and CIKR industry partners.

The result of this Cooperative Agreement is intended to provide additional security and screening measures for DHS Components and CIKR partners as well as promote industry commercialization for the development and integration of a ***low-cost***, fixed and mobile non-intrusive inspection capability using an under vehicle inspection system for automated and visual vehicle modification detection and early warning. Functional requirements, Prototype development and Operational Unit refinement and deployment will be performed with select

DHS Component stakeholders. DHS stakeholder will participate in both the requirements as well as the test and evaluation aspects of the initiative, and serve as transition partners for operational use of the VIEW technology.

Functional capabilities, performance measures and estimated cost structure (e.g. unit cost, training, operation and maintenance, etc.) will be proposed as part of the response to this Cooperative Agreement solicitation.

PHASE I: Prototype VIEW (Alpha) Capability (6 months from award)

Task 1. Project Management

The Recipient(s) will provide project management services to ensure the success of the cooperative agreement. The Recipient(s) shall provide periodic reports that shall be filed monthly with the appropriate point of contact at DHS, concurrent with usage statistics, engagement reports, and evaluation monitoring documentation. The Recipient(s) shall develop an initial Project Work Plan that address all Tasks within Phase I and Phase II. Upon approval of the Work Plan, the Recipient(s) will execute the Phase I Task requirements.

Task 1 Project Management activities shall include, but are not limited to:

- Project Kick-Off (award + 7 days);
- Project Work Plan with schedule, milestones, Performance Metrics and deliverables (award + 10 days);
- Final Work Plan (award + 15 days)
    - The Project Work Plan will include, but not limited to: technical approach for each Task, schedule, milestone, deliverable, Performance Metrics and a work breakdown structure.
- Standing bi-weekly Technical Status Conference Call (date TBD) with Quad Reports (government provided) which shall include the Time Period, Work Performed, Technical Progress, Task Status, Challenges/Risks, Task Milestones and Schedule;
- Fiscal Reporting and Financial Management (monthly on the 15th day);
- Monthly Technical Status Reports (monthly on the 15th day);
- Project Management Services which shall include data calls, delivery of all reports, meeting minutes (if requested), technical documents, etc. (upon COR request);
- The Recipient(s) shall provide a final Report of Findings and briefing presentation of VIEW Phase I deliverables and overall program metrics at the completion of performance period and provide a proposed Phase II implementation approach and Project Work Plan.

Task 2: VIEW (Alpha) Operational Requirements and Performance Metrics

The Recipient(s) will coordinate through the DHS Program Manager to facilitate the coordinated outreach with government stakeholders (e.g. Customs and Border Protection (CBP), Federal Protection Service (FPS) and other government identified stakeholders). Requirements will reflect existing and proposed practices used by CBP and FPS to ensure the maximum benefit and value to both programmatic objectives. The requirements collection will result in the development and validation of an Operational Requirements Document (ORD) and include Performance Metrics for each Task. The Recipient(s) will work with the government stakeholders to define the Performance Metrics for each task that will be used to assess and the associated Task deliverables and resulting selection of the Phase 2 initiative. The Performance Metrics will expand upon the Evaluation Criteria contained in Table 1.

At a minimum, the Recipient(s) will perform the following:

- Participate in 2-4 DHS Component Stakeholder requirements briefings where Stakeholders will detail the current and desired operational procedures including, but not limited to; functional requirements, operational parameters and conditions, constraints, etc.
- Travel to two (2) DHS Component sites (location TBD) for Stakeholder requirements briefing where the current operational procedures will be detailed including, but not limited to; functional requirements, operational parameters and conditions, training, constraints, etc.
- Develop an Operational Requirements Document (ORD) including Performance Metrics
- Validate and update the ORD with those DHS Component Stakeholders involved in the requirements collection
- Prepare and brief the Final VIEW Operational Requirements Document

Task 3: VIEW (Alpha) Prototype Design

The Recipient(s) will design and develop two (2) Prototype VIEW (Alpha) units (e.g., one fixed and one mobile), based upon Stakeholder defined requirements detailed in the ORD and considerations listed below.

The Recipient(s) will develop and demonstrate a functioning Prototype (Alpha) unit, software, database and associated equipment to the DHS Component Stakeholders and provide a briefing on the functional capabilities and cost structures for consideration of Phase II approval and funding.

At a minimum the design specifications must consider and address the following considerations, and others as identified by the DHS Component Stakeholders:

- All weather conditions
- All light conditions
- Under vehicle lighting

- Weight of vehicles
- Weight of both fixed and mobile devices for ease of installation and transportation
- Single lane vs. multiple lane configurations
- Fixed vs. mobile dependencies
- Scan / imaging resolution(s)
- Vehicle speeds
- Scan / imaging resolution vs. vehicle speeds (ultra-high resolution vs. traffic speed velocities)
- Automation functions
- Anomaly identification
- Change detection
- Power requirements
- Communications requirements
- Roadside electronics
- Human Machine Interface (HMI)
- Display functionality
- Database storage
- Computer processing for networked and standalone configurations
- Cost structure(s)
- Other considerations or capabilities (e.g., License Plate Readers, image capture of vehicle and occupants, privacy concerns, etc.)

The Recipient(s) will prepare an Engineering Concept Report that includes the considerations listed above and those requirements identified by the DHS Component Stakeholders during the requirements collection task and detailed in the ORD. The Engineering Concept Report will include; initial VIEW schematic design, modular sensor engineering specifications, functional characteristics, performance and operational parameters and target unit cost estimations.

Task 4. VIEW (Alpha) Prototype and Demonstration

The Recipient(s) will deliver and demonstrate the two (2) Prototype VIEW (Alpha) units (e.g., fixed and mobile) at two DHS designated locations (TBD). The VIEW (Alpha) units will be fully functional and include all necessary accompanying; software; database; hardware configuration for operations; engineering concept report that includes all documentation, initial schematic design, modular sensor engineering specifications, functional characteristics, performance and operational parameters and target unit cost estimations.

The Recipient(s), working with the DHS Component Stakeholders, will develop Performance Test Plans, based upon the ORD requirements and considerations and provide them to DHS prior to the demonstration. The demonstration will allow DHS Components to assess the initial capabilities of the VIEW (Alpha) units as part of the Phase II determinations.

The Recipient(s) will provide the two (2) VIEW (Alpha) units and Engineering Concept Report.

Task 5. VIEW Report of Findings, Briefing and Phase II Proposed Approach

The Recipients shall prepare a Phase I Report of Findings document summarizing all Tasks, provide a briefing of the findings, and prepare a Phase II proposal and Project Work Plan for an enhanced VIEW (Beta) capability based upon the Task descriptions. The Report and Proposal shall address all Phase Tasks, VIEW capabilities and detailed cost structure(s) breakdown.

Phase I and Phase II Evaluation Criteria

Evaluation criteria will be applied to the Offerors submissions including; initial proposal, final Phase I briefing/presentation and proposed Phase II approach. Other criteria may also be included for the Phase I and Phase II evaluations. The government will assess the initial Offeror's proposals using the following weighted evaluation criteria.

The specific evaluation criterial for the tasks, personnel / organization and cost are weighted with a total value of 100 points. The criteria, description and value weight are provided in Table 1 below.

Evaluation Criteria	Description	Value Weight
Criteria 1. Project Management	1.1 How does applicant propose to manage team?	0-1
	1.2 How will applicant ensure government stakeholder coordination and communication?	0-1
Criteria 2. VIEW Operational Requirements and Performance Metrics	2.1 How will applicant collect, quantify and validate DHS Component Stakeholder operational requirements?	0-5
Criteria 3. VIEW Prototype Design	3.1 How will applicant design capabilities and specifications for: fixed vs. mobile; resolution vs. speed velocities; automation functions; anomaly identification; change detection, etc. to meet operational requirements?	0-35
	3.2 How will applicant resolve operational requirements against design capabilities.	0-10
Criteria 4. VIEW Prototype	4.1 How will applicant perform demonstration of VIEW capabilities?	0-5
	4.2 How will applicant validate effectiveness of VIEW unit design against operational requirements?	0-10
Criteria 5. Key Personnel and Organizations	5.1 Applicants demonstrated development, implementation and operations of under vehicle inspection systems.	0-10

Criteria 6. Cost/Price Proposal	6.1 Cost/price proposal will be evaluated for reasonableness and completeness of the proposed contract cost.	0-8
	6.2 VIEW Unit and associated performance costs meeting operational requirements	0-15

Table 1. Evaluation Criteria

- **Phase I Number of Award(s):** 1-2
- **Period of Performance:** 6 months from award date
- **Firm Fixed Price:** $250,000/awardee

PHASE II: Operational VIEW (Beta) Capability Refinement and Field Test & Evaluation

The Recipient(s) will successfully deliver all Phase II tasks described below:

Task 1. Project Management - The Recipient(s) will provide project management services to ensure the success of the cooperative agreement. The Recipient(s) shall provide periodic reports that shall be filed monthly with the appropriate point of contact at DHS, concurrent with usage statistics, engagement reports, and evaluation monitoring documentation. The Recipient(s) shall develop an initial Project Work Plan that address all Tasks within Phase I. Upon approval of the Work Plan, the Recipient(s) will execute the Phase I Task requirements.

Task 1 Project Management activities shall include, but are not limited to:

- Project Kick-Off (award + 7 days);
- Project Work Plan with schedule, milestones, Performance Metrics and deliverable (award + 10 days);
- Final Work Plan (award + 15 days)
    - The Project Work Plan will include, but not limited to: technical approach for each Task, schedule, deliverables and a work breakdown structure.
- Bi-weekly Technical Status Conference Call and Quad Reports (standing bi-weekly call date TBD) which shall include the Time Period, Work Performed, Technical Progress, Task Status, Challenges/Risks, Task Milestones and Schedule;
- Fiscal Reporting and Financial Management (monthly on the 15th day);
- Monthly Technical Status Reports (monthly on the 15th day);
- Project Management Services which shall include data calls, delivery of all reports, meeting minutes, technical documents, etc. (upon COR request);
- The Recipient(s) shall provide a final Report of Findings and briefing presentation of VIEW Phase II deliverables and overall program metrics at the completion of performance period and provide a proposed Phase III implementation approach and Project Work Plan.

Task 2: VIEW (Beta) Operational Capability Refinement

The Recipient(s) will engage the DHS Component stakeholders to determine the additional functionality enhancements needed for the VIEW (Beta) operational units that will be developed and deployed for test and evaluation at select DHS Component facilities. Stakeholder requirements development will be based, in part, on the original ORD, its validation, and the VIEW (Alpha) demonstrations and new Performance Metrics will be developed to reflect the refinements.

The Recipient(s) will also conduct four (4) additional DHS Component site visits and demonstrations with the VIEW (Alpha) units to verify the additional requirements for inclusion and update of the ORD document to include Performance Metrics.

The Recipient(s) will develop an enhanced VIEW (Beta) capabilities and Operational Requirements Documentation (ORD).

The Recipient(s) will brief the finding from the ORD update and present the proposed design and approach to develop the VIEW (Beta) operational units to the government management team.

Task 3: VIEW (Beta) Development and Operational Test & Evaluation

Based upon the updated ORD and associated Performance Metrics, the Recipient(s) will develop and deliver four (4) VIEW (Beta) operational units (e.g. 2 fixed and 2 mobile). Deployment, installation and training of VIEW (Beta) operational units will be a two (2) designated DHS Component stakeholder locations.

The Recipient(s), with input from the DHS Component stakeholder, will develop: user implementation/operators guidance; performance specifications; test plans including acceptance criteria; and reporting documentation for the field test and evaluation of the VIEW (Beta) operational units.

The Recipient(s) will deliver, deploy and demonstrate the Operational VIEW units, including: software, hardware, associated database(s), application programming interfaces (APIs), etc., necessary to allow the DHS Component stakeholder to independently implement the sensors at their facility to perform the extended operational test and evaluation. The test and evaluation should be performed for no less than 30 days between months 10-11 of Phase II. The DHS stakeholders will provide in-kind services including; access to subject matter experts, facility and other architecture environments necessary to deploy, test and monitor the VIEW (Beta) units. The Recipient will provide telephonic support and one (1) follow-on site visit during the test and evaluation period.

The Recipient(s) will brief the findings from the operational test and evaluation of the field deployed VIEW (Beta) operational units to the government management team.

Task 4. VIEW (Beta) Report of Findings, Briefing and Phase III Proposed Approach

The Recipient(s) will deliver all supporting documentation for the independent installation, implementation and maintenance of the VIEW (Beta) unites including, but not limited to all necessary accompanying; software; database; hardware configuration for operations; engineering concept report that includes all documentation, final schematic design, modular sensor engineering specifications, functional characteristics, performance and operational parameters, training and user's guides and target unit cost estimations

The Recipient(s) will prepare cost structure(s) for the VIEW Units, training, operation and maintenance and potential support services. The cost structure will provide for both individual unit costs as well as multiple and bulk purchasing and associated training and operational services for the VIEW commercial capability. The cost structure(s) will also include options for software, database and hardware modules and upgrades as well as an Operations and Maintenance (O&M) plan for services.

The Recipient(s) will prepare a Report of Findings and brief from the operational test and evaluation of the field deployed VIEW (Beta) operational units to the government management team. The briefing will contain a summation for all Phase II tasks.

Number of Award(s): 1-2
Period of Performance = 12 months from acceptance and approval of Phase I
Firm Fixed Price = $1,000,000 - $2,000,000/awardee
Phase III: Conditional upon Phase II approval

PHASE III: VIEW Commercialization and Deployment.

(OPTIONAL based upon funding availability*)

The Recipient(s) *may* be called upon to perform one or more of the Tasks funded in Phase III described below. All task execution based upon funding availability*.

Phase III is designed to allow DHS Components to work directly with the Performer to acquire, deploy, enhance, operate and maintain the VIEW units in a commercially viable and user scalable environment. DHS will work with the Performer to identify Component stakeholders as well as potential CIKR industry stakeholders for the VIEW units. The Recipient(s) will provide production-level, VIEW units and support services to DHS Components and industry stakeholders.

Task 1. Project Management

The Recipient(s), if funded, will provide limited project management services to ensure the success of the cooperative agreement. The Recipient(s) shall provide status reports that shall be

filed monthly with the appropriate point of contact at DHS. The reports will help DHS quantify the technology transition of use and commercial impact and benefit of the cooperative agreement

If, funded, the Recipient(s) shall provide:

- Project Kick-Off (award + 7 days);
- If requested: Project Work Plan with schedule, milestones, Performance Metrics and deliverable (award + 10 days);
- If requested: Final Work Plan (award + 15 days)
    - The Project Work Plan will include, but not limited to: Technical approach for each Task, schedule, deliverables and a work breakdown structure.
- If requested: Bi-weekly Technical Status Conference Call and Quad Reports (standing bi-weekly call date TBD) which shall include the Time Period, Work Performed, Technical Progress, Task Status, Challenges/Risks, Task Milestones and Schedule;
- Monthly Fiscal Reporting and Financial Management Reports (monthly on the 15th day);
- Monthly Technical Status Reports (monthly on the 15th day);

Task 2: Production VIEW Enhancement

DHS Component stakeholder may require unique enhancements or modifications to the Production VIEW unit capability. If funded, the Recipient(s) may provide VIEM enhancement to include, but not limited to; software and database modifications; application programming interfaces (APIs); hardware configuration alterations for operations in both networked and standalone environments; modular sensor engineering additions or modifications; increased functional in performance and operational parameters; and other mechanical revisions.

Task 3: Production VIEW Units

If funded, the Recipient(s) will provide a cost schedule for the Production VIEW Units for both fixed and mobile units. The cost structure(s) will reflect individual and multiple unit sales as well as deployment, installation and associated cost options.

Task 4. Production VIEW Support Services

If funded, the Recipient(s) may provide support services for the Production VIEW Units to include, but not limited to; installations, Operations and Maintenance service plan, training, custom applications and database analytics, user and operator's documentation and other services defined by the DHS Component stakeholders.

Number of Award(s): 0-1-2
Period of Performance = 12 months from acceptance and approval of Phase III
Firm Fixed Price = **To Be Determined.** Based upon funding availability
Phase III: Conditional upon funding availability

Project Manager: Denis Gusty
Denis.Gusty@hq.dhs.gov