

**THE DEPARTMENT OF HOMELAND SECURITY  
SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM**

**PHASE I PROGRAM SOLICITATION FY 10.1  
Science and Technology (S&T) Directorate**

**Closing Date: January 6, 2:00 PM Eastern Standard Time (EST)**

**Important:**

- **Solicitation Number: DHS SBIR-2010.1**
- **November 2, 2009:** Pre-release issued
- **November 18, 2009:** Full Solicitation issued
- **November 18, 2009 through January 6, 2010: Phase I Proposals Submitted and Accepted**
  - **January 6, 2010: Deadline for Submission of Phase I Proposals is 2:00 PM Eastern Standard Time (EST)**
- **Contract Specialist: Patrice Coleman**
- **Contracting Officer: Susan Eicher**
- **FAR Clauses 52.209-2 and 52.222-54 are incorporated into this Solicitation**

**Classified proposals are not accepted under the DHS S&T Directorate SBIR Program.**

**Contact with Technical Point of Contact:** Please note that contact with the Technical Points of Contact for each topic is limited to 15 days prior to issuance of the full-solicitation. **No contacts are permitted after November 17, 2009.**

**Deadline for Receipt.** *Proposals must be completely submitted and electronically date stamped no later than 2:00 PM EST on January 6, 2010.*

**Vendor Questions.** Vendors may submit questions to [STSBIR.PROPOSALS@dhs.gov](mailto:STSBIR.PROPOSALS@dhs.gov) no later than 10:00PM EST, December 13, 2009. DHS will post replies no later than December 20, 2009 on <https://www.fbo.gov>.

**No Printed Solicitation Books.** Solicitations are available only in electronic format from the FedBizOpps website, [www.fedbizopps.gov](http://www.fedbizopps.gov), in accordance with the Government Paperwork Elimination Act (GPEA). For convenience, the Solicitation will be available at <https://www.sbir.dhs.gov> after it is posted on the FedBizOpps website.

**Information:** If you have questions about the DHS SBIR Program, please submit your questions via email [STSBIR.PROGRAM@dhs.gov](mailto:STSBIR.PROGRAM@dhs.gov). If you have questions or problems related to the electronic submission of your proposal, please contact the SBIR Help Desk at [sbirhd@sainc.com](mailto:sbirhd@sainc.com) or call 1-800-754-3043.

11.23.09 Amendment 00001

**About this DHS S&T Directorate SBIR FY 10.1 Solicitation:** There are six (6) topics in this Solicitation.

**Notice:** For administrative purposes only, submissions to this Solicitation will be handled by a DHS Support Contractor.

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## **DHS S&T DIRECTORATE SOLICITATION FOR THE SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM**

### ***1.0 SBIR PROGRAM DESCRIPTION***

#### ***1.1 SBIR Introduction***

The Department of Homeland Security (DHS) Science & Technology (S&T) Directorate, hereafter referred to as DHS S&T, invites small business concerns to submit proposals under this Solicitation for the Small Business Innovation Research (SBIR) Program. Small business concerns with the capability to conduct research or research and development (R/R&D) in any of the homeland security-related topic areas described in Section 8.0, and to commercialize the results of that R/R&D are encouraged to participate.

Objectives of the DHS S&T SBIR Program include stimulating technological innovation, strengthening the role of small business in meeting DHS research/research and development needs, fostering and encouraging participation of socially and economically disadvantaged persons and women-owned small business concerns in technological innovation, and increasing the commercial application of DHS supported research or R&D results.

The Federal SBIR Program is mandated by Public Laws (PL 97-219, PL 99-443, PL 102-564, PL 106-554, PL 110-235, and PL 111-10). The basic design of the DHS SBIR Program is in accordance with the Small Business Administration (SBA) SBIR Policy Directive, 2002. The DHS SBIR Program presented in this Solicitation encourages scientific and technical innovation in areas specifically identified by the Science and Technology (S&T) Directorate. The guidelines presented in this Solicitation incorporate and exploit the flexibility of the SBA Policy Directive to encourage proposals based on scientific and technical approaches most likely to yield results important to DHS and the private sector.

#### ***1.2 SBIR Three Phase Program***

The DHS S&T FY10.1 SBIR Program Solicitation is issued pursuant to the Small Business Innovation Development Act of 1982, PL 97-219, PL 99-443, PL 102-564, PL 106-554, PL 110-235, and PL 111-10. SBIR Policy is provided by the Small Business Administration through the SBA Policy Directive. The purpose of Phase I is to determine, insofar as possible, the scientific, technical, and commercial merit and feasibility of ideas submitted under the SBIR Program. Phase I awards are up to \$100,000 in cost and up to a six-month period of performance. Proposals must concentrate on that research or research and development (R/R&D) which will significantly contribute to proving the scientific, technical, and commercial feasibility of the proposed effort, the successful completion of which is a prerequisite for further DHS support in Phase II. Several different proposed solutions to a given topic may be funded. The measure of Phase I success includes evaluations of the extent to which Phase II results would have the potential to yield a product or process of continuing importance to DHS and/or the private sector. Proposers are encouraged to consider whether the research or research and development they are proposing to DHS also has private sector potential, either for the proposed application or as a base for other applications.

Subsequent Phase II awards will be made to small business concerns on the basis of results of their Phase I efforts and the scientific, technical, and commercial merit of the Phase II Proposal. Phase

II awards are up to \$750,000 in cost, and up to a 24-month period of performance. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. A more comprehensive proposal will be required for Phase II. Further details are provided in Section 3.7 of this Solicitation.

SBIR Phase III refers to work that derives from, extends, or logically concludes effort(s) performed under prior SBIR funding agreements. Phase III is typically oriented towards commercialization of SBIR research or technology. SBIR awardees may seek contracts with the private sector or the Federal government (non-SBIR federal government sources) to further develop or supply goods or services related to the work performed under a concerns SBIR contract(s).

***This Solicitation is for Phase I Proposals only.*** Only proposals submitted in response to this Solicitation will be considered for Phase I awards. Only proposals submitted in response to topics contained in this Solicitation will be accepted and considered for Phase I award. Proposers who were not awarded a contract in response to a prior SBIR solicitation may update or modify and re-submit the same or modified proposal if it is responsive to any of the topics listed in Section 8.0 of this Solicitation.

A separate solicitation will not be issued for Phase II of this SBIR Phase I Program Solicitation, **Only those concerns that were awarded Phase I contracts are eligible to participate in Phases II and III.**

DHS will select and invite Phase I awardees to submit a Phase II Proposal to continue the research and maintain the momentum of the Phase I R&D. DHS uses the invitation process to accomplish an expeditious review leading to a Phase II award. Phase II Proposals shall be submitted online in accordance with Section 6.0 of this Solicitation.

DHS is not obligated to make any awards under either Phases I, II, or III, and all awards are subject to the availability of funds. DHS is not liable for any costs expended by the proposer before award of any contract.

### **1.3 SBIR Proposer Eligibility and Limitations**

Each proposer must qualify as a small business for research or research and development purposes as defined in Section 2.0 of this Solicitation and must certify to this on the Cover Sheet of its Proposal. For both SBIR Phases I and II, the primary employment of the principal investigator must be with the small business concern at the time of the award and during the conduct of the proposed effort. Primary employment means that more than one-half of the principal investigator's time is spent with the small business. Primary employment with a small business concern precludes full-time employment at another organization. For both Phase I and Phase II, all research or research and development work shall be performed by the small business concern and its subcontractors in the United States. Deviations from the requirements in this paragraph must be approved in writing by the Contracting Officer (during contract negotiations).

Joint ventures and limited partnerships are permitted, provided that the entity created qualifies as a small business in accordance with the Small Business Act, 15 USC 631, and the definition included in Section 2.2 of this Solicitation.

#### **1.4 SBIR Research and Analytical Work**

a. **For Phase I**, a minimum of two-thirds of the research and/or analytical work shall be performed by the proposing firm. The percentage of work is usually measured by both direct and indirect costs for Phase I.

b. **For Phase II**, a minimum of one-half of the research and/or analytical work shall be performed by the proposing firm, unless otherwise approved in writing by the Contracting Officer. The percentage of work is usually measured by both direct and indirect costs for Phase II.

#### **1.5 SBIR Conflicts of Interest**

Awards made to concerns owned by or employing current or previous Federal Government employees could create conflicts of interest for those employees and could be in violation of federal law. Such proposers should contact the cognizant Ethics Counselor from the employee's Government agency for further guidance.

#### **1.6 Questions about the SBIR Solicitation Topics and Proposal Submission**

- a. **Where to Get Help.** All general questions about this Solicitation and other program-related areas, as well as proposal preparation, should be submitted via email to [STSBIR.PROPOSALS@dhs.gov](mailto:STSBIR.PROPOSALS@dhs.gov). Questions about the electronic submission of proposals should be submitted to the Help Desk toll free number: 1-800-754-2943, or via email to [sbirhd@sainc.com](mailto:sbirhd@sainc.com). The Help Desk may be contacted from 8:30 a.m. to 5:00 p.m. EDT.
- b. **The DHS SBIR Website.** The DHS SBIR website at <https://www.sbir.dhs.gov> offers electronic access to SBIR solicitations, frequently asked questions (FAQs), answers to FAQs, abstracts of previously funded SBIR Phase I and Phase II projects, the latest updates on the SBIR Program, and hyperlinks to other useful information. Phase I award information is posted on the website generally four months after the close of the solicitation.
- c. **Electronic Proposal Submission.** All Phase I and Phase II Proposals shall be submitted via the electronic submission website at <https://www.sbir.dhs.gov>. Proposals received by any other means will not be evaluated or considered for award. The DHS proposal submission procedure is a four (4) step process before final submission is complete. Upon completion of the cover sheets, technical proposal, and cost proposal, proposers must select "Submit Proposal" for the complete proposal to be electronically date stamped and officially received by the DHS SBIR Program Office. Once the "Submit Proposal," button has been selected, an email confirmation receipt will be forwarded to your email account upon successful submission of your proposal.
- d. **General Questions about the DHS SBIR Program or the Science and Technology (S&T) Directorate.** General questions pertaining to the DHS SBIR Program or the S&T Directorate should be submitted to

[STSBIR.PROGRAM@dhs.gov](mailto:STSBIR.PROGRAM@dhs.gov) or by calling the DHS SBIR Program contact: Ms. Elissa I. Sobolewski, SBIR Program Director, 202-254-6768.

- e. **Technical Questions about Solicitation Topics.** From November 2, 2009 through November 17, 2009, this Solicitation is issued for pre-release on the Federal Business Opportunities (FedBizOpps) website ([www.fedbizopps.gov](http://www.fedbizopps.gov)) and the DHS SBIR website (<https://www.sbir.dhs.gov>) with the names of the Technical Point of Contact for each technical topic. During the period November 2, 2009 through November 17, 2009, proposers have an opportunity to contact Technical Points of Contact by telephone or by email to ask technical questions about specific technical topics contained in this Solicitation. Questions should be limited to specific information related to improving the understanding of a particular topic's requirements. If information given in response to a question is deemed necessary for the preparation of proposals, that information will be made available in an updated topic description(s). Proposers may not ask for advice or guidance on its solution approach, nor submit additional material to the Technical Points of Contact.

No further direct contact between proposers and Technical Points of Contact shall occur from November 18, 2009 through **January 6, 2010** for reasons of competitive fairness. However, proposers may submit written questions to [STSBIR.PROPOSALS@dhs.gov](mailto:STSBIR.PROPOSALS@dhs.gov). Questions must be limited to technical information related to improving the understanding of a particular topic's requirements; any other questions, such as those asking for advice or guidance on solution approach, will not receive a response.

If information given in response to a question is deemed necessary for the preparation of proposals, that information will be made available to the public for general viewing on the FedBizOpps website at <http://fedbizopps.gov> and on the DHS website at <https://www.sbir.dhs.gov>. Responses to the questions received after November 17, 2009 will be posted as an amendment to the Solicitation.

- f. **All proposers are advised to monitor the <http://www.fedbizopps.gov> and <https://www.sbir.dhs.gov> websites during the solicitation period for questions and answers, and other information relevant to the topic under which they are proposing.**

### **1.7 Outreach Conferences and Events**

The DHS S&T SBIR Program participates in the National SBIR Conferences and in many state-organized and regional conferences for small business. For information on these events, visit the website, <https://www.sbir.dhs.gov> located under "What's New," or refer to the <http://www.sbir.gov> website for upcoming SBIR outreach events. The DHS Program Office encourages small disadvantaged, women-owned, veteran-owned, service-disabled veteran-owned, and socially and economically disadvantaged small businesses to participate.

## **2.0 DEFINITIONS**

The following definitions apply for the purposes of this Solicitation:

### **2.1 Research or Research and Development**

Any activity that is:

- a. **Basic Research.** Scientific study and experimentation to provide fundamental knowledge required for the solution of problems.
- b. **Exploratory Development.** A study, investigation or minor development effort directed toward specific problem areas with a view toward developing and evaluating the feasibility and practicability of proposed solutions.
- c. **Advanced Development.** Proof of design efforts directed toward projects that have moved into the development of hardware for test.
- d. **Engineering Development.** Full-scale engineering development projects for DHS or first responder use but which have not yet received approval for production.
- e. **For the purposes of Human Research Protection, "research" is defined as a systematic investigation including RDT&E, designed to develop generalizable knowledge (32 CFR 219).**

### **2.2 Small Business Concern**

A small business concern is one that, on the date of award for both Phase I and Phase II funding agreements, meets all of the following criteria:

- a. Is organized for profit, with a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the United States economy through payment of taxes or use of American products, materials, or labor;
- b. Is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that where the form is a joint venture, there can be no more than 49 percent participation by foreign business entities in the joint venture;
- c. Is (1) at least 51 percent owned and controlled by one or more individuals who are citizens of the United States or permanent resident aliens in the United States, (2) at least 51% owned and controlled by another business concern that is itself at least 51% owned and controlled by individuals who are citizens of, or permanent resident aliens in the United States; or (3) a joint venture in which each entity to the venture must meet the requirements of either (1) or (2) of this section; and
- d. Has, including its affiliates, not more than 500 employees.

Control can be exercised through common ownership, common management, and contractual relationships. The term "affiliates" is defined in greater detail in 13 CFR 121.103. The term "number of employees" is defined in 13 CFR 121.106.

A business concern may be in the form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust, or cooperative. Further information may be obtained at <http://sba.gov/size>, or by contacting the Small Business Administration's Government Contracting Area Office or Office of Size Standards.

### **2.3 *Research Institution***

A Research Institution is any organization located in the United States that is:

- a. A university;
- b. A nonprofit institution as defined in section 4(5) of the Stevenson-Wydler Technology Innovation Act of 1980; or
- c. A contractor-operated federally funded research and development center (FFRDC), as identified by the National Science Foundation in accordance with the government-wide Federal Acquisition Regulation issued in accordance with section 35(c)(1) of the Office of Federal Procurement Policy Act. (See <http://www.nsf.gov/statistics/ffrdc/> for a list of eligible FFRDCs.)

### **2.4 *Socially and Economically Disadvantaged Small Business Concern***

A socially and economically disadvantaged small business concern is one that is at least 51% owned and controlled by one or more socially and economically disadvantaged individuals, or an Indian tribe, including Alaska Native Corporations (ANCs), a Native Hawaiian Organization (NHO), or a Community Development Corporation (CDC). Control includes both the strategic planning (as that exercised by boards of directors) and the day-to-day management and administration of business operations. See 13 CFR 124.109, 124.110, and 124.111 for special rules pertaining to concerns owned by Indian tribes (including ANCs), NHOs or CDCs, respectively.

### **2.5 *Women-Owned Small Business Concern***

A women-owned small business is one that is at least 51 percent owned and controlled by one or more women, or in the case of a publicly owned business, at least 51 percent of the stock of which is owned by women, and who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management of the business.

### **2.6 *Funding Agreement***

Any contract, or grant, or cooperative agreement entered into between any Federal Agency and any small business concern for the performance of experimental, developmental, or research work funded in whole or in part by the Federal Government.

### **2.7 *Subcontract***

A subcontract is any agreement, other than one involving an employer-employee relationship, entered into by an awardee of a funding agreement calling for supplies or services for the performance of the original funding agreement. This includes consultants. See Section 3.5.b (9) of this Solicitation.

### **2.8 *Commercialization***

Commercialization is the process of developing marketable products or services and delivering products or services for sale (whether by the originating party or by others) to Government or commercial markets.

## **2.9 *Essentially Equivalent Work***

This occurs when (1) substantially the same research is proposed for funding in more than one contract proposal or grant application submitted to the same Federal agency; (2) substantially the same research is submitted to two or more different Federal agencies for review and funding consideration; or (3) a specific research objective and the research design for accomplishing an objective are the same or closely related in two or more proposals or awards, regardless of the funding source.

## **2.10 *Historically Black Colleges and Universities/Minority Institutions (HBCU/MI)***

Listings for the Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are available through the Department of Education website, <http://www.ed.gov/about/offices/list/ocr/edlite-minorityinst.html>.

## **2.11 *Historically Underutilized Business Zone (HUBZone) Small Business Concern***

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration. See <https://eweb1.sba.gov/hubzone/internet/general/approved-firm.cfm> for more details.

## **2.12 *Service-Disabled Veteran***

A veteran with a disability that is service connected as defined in Section 101 (16) of Title 38, United States Code.

## **2.13 *Small Business Concern Owned and Controlled by Service-Disabled Veterans***

A small business concern that:

- a. not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and
- b. the management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such a veteran.

## **2.14 *Small Business Concern Owned and Controlled by Veterans***

A small business concern that:

- a. not less than 51 percent of which is owned by one or more veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more; and
- b. the management and daily business operations of which are controlled by one or more veterans.

## **2.15 *United States***

"United States" means the fifty states, the territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, and the District of Columbia.

**2.16 *Manufacturing-related R&D as a Result of Executive Order 13329***

Manufacturing-related R&D as a result of Executive Order 13329 relates to: (i) manufacturing processes, equipment and systems; or (ii) manufacturing workforce skills and protection.

**2.17 *Energy Independence and Security Act of 2007***

On December 19, 2007, the President signed into Law the “Energy Independence and Security Act of 2007” which allows preference to be given to proposals that address research for renewable energy or energy efficiency.

**2.18 *Foreign National (Foreign Person) means any person who is not:***

- a. a citizen or national of the United States; or
- b. a lawful permanent resident; or
- c. a protected individual as defined by 8 U.S.C.1324b(a)(3).

"Lawful permanent resident" is a person having the status of having been lawfully accorded the privilege of residing permanently in the United States as an immigrant in accordance with the immigration laws and such status not having changed.

"Protected individual" is an alien who is lawfully admitted for permanent residence, is granted the status of an alien lawfully admitted for temporary residence under 8 U.S.C.1160(a) or 8 U.S.C.1255a(a)(1), is admitted as a refugee under 8 U.S.C. 1157, or is granted asylum under section 8 U.S.C.1158; but does not include (i) an alien who fails to apply for naturalization within six months of the date the alien first becomes eligible (by virtue of period of lawful permanent residence) to apply for naturalization or, if later, within six months after November 6, 1986, and (ii) an alien who has applied on a timely basis, but has not been naturalized as a citizen within two (2) years after the date of the application, unless the alien can establish that the alien is actively pursuing naturalization, except that time consumed in the Service's processing the application shall not be counted toward the 2-year period.

**2.19 *Research Involving Human Subjects***

DHS has adopted Department of Health and Human Services (HHS) policies governing human subjects research, as set forth in 45 C.F.R. Part 46 (Subparts A-D). Subpart A of 45 C.F.R. part 46 is HHS' codification of the Federal Policy for the Protection of Human Subjects (also known as The Common Rule) which represents the basic foundation for the protection of human subjects in most research conduct or supported by U.S. Federal departments and agencies. All research involving human subjects shall be conducted in accordance with DHS Management Directive Number 10300.

**2.20 *Research Involving Animal Subjects***

DHS has adopted the principles of the U.S. Department of Agriculture (USDA) implementation of the Animal Welfare Act, the Public Health Service (PHS) implementation of the Health Care extension Act, and the other related federal principles and guidelines as they represent the ethical foundation for the care and use of animals in research. All research involving the care and use of

animals in research shall be conducted in accordance with DHS Management Directive Number 10200.1.

### **3.0 PROPOSAL PREPARATION INSTRUCTIONS AND REQUIREMENTS**

#### **3.1 Proposal Requirements**

A proposal to any topic under the DHS S&T SBIR Program must provide sufficient information to persuade the Science and Technology Directorate that the proposed work represents an innovative approach to the investigation of an important scientific or engineering problem and is worthy of support under the stated criteria. The proposed research or research and development must be responsive to the chosen topic, although need not use the exact approach specified in the topic (see Section 4.1 of this Solicitation). Any small business contemplating a proposal for work on any specific topic shall determine that (a) the technical approach has a reasonable chance of meeting the topic objective, (b) this approach is innovative, not routine, with commercial application, and (c) the company has the capability to implement the technical approach, i.e., has or can obtain people and equipment suitable to the task.

Classified proposals are not accepted under the DHS SBIR Program. Classified proposals will not be accepted under this DHS S&T SBIR Solicitation and will be appropriately destroyed upon receipt.

#### **3.2 Administrative and Technical Checklist**

Read and follow all instructions contained in this Solicitation.

- a. Submit your proposal electronically via the website (<https://www.sbir.dhs.gov>) and prepare your SBIR Proposal as instructed on the website. A complete Proposal consists of the Proposal Cover Sheets, Technical Proposal and Cost Proposal. Your Proposal is not a complete submission unless it has been finalized within the electronic submission system. You will receive email confirmation that your proposal has been submitted. If you do not receive an email, contact the Help Desk or the SBIR Program as instructed in Section 1.6 of this Solicitation.
- b. The Technical proposal adheres to the topic criteria and the Cost proposal adheres to the funding thresholds specified in this Solicitation. The cost on the cover sheets matches the cost on the Cost Proposal.
- c. The Project Summary on the cover sheets contains NO proprietary information. In the event of an award, this project summary will be posted at <https://www.sbir.dhs.gov>. Mark proprietary information within the Technical Proposal as instructed in Section 5.6 of this Solicitation.
- d. The content in the Technical Proposal, including supporting data (if applicable), must include all of the items in Section 3.5(b) of this Solicitation in the order specified.
- e. The header on each page of your Technical Proposal must contain your company name, topic number, and proposal number. (The header may be included in the one-inch margins.)

- f. Limit your proposal to the page limitations established for Phase I and/or Phase II proposals.
- g. Use a type size no smaller than a 12-point font on standard 8 1/2 " X 11" paper with one (1) inch margins
- h. The Technical Proposal must not be in two-column or more format. The Technical Proposal must be submitted in Portable Document Format (PDF) format.

Note: Public access to the internet is available at most public libraries, local schools or a Small Business Development Center (SBDC) in your area.

### ***3.3 Proprietary Information***

If information is provided that the proposer believes constitutes a trade secret, proprietary commercial or financial information, or personal information or data, it will be treated in confidence to the extent permitted by law, provided that it is clearly marked in accordance with Section 5.6 of this Solicitation.

### ***3.4 Limitations on Length of Proposal***

This Solicitation is designed to reduce the investment of time and cost to small business concerns in preparing a formal proposal. Those who wish to respond must submit a direct, concise, and informative research or research and development proposal of no more than the page limitations established for Phase I and/or Phase II Proposals, including proposal cover sheets and cost proposal. Promotional and non-project related discussion is discouraged. The space allocated to each section will depend on the problem chosen and the principal investigator's approach. In the interest of fairness, pages in excess of the Phase I, 25-page limitation (and Phase II, 50-page limitation) (including attachments, appendices, or references) will not be considered for review or award.

### ***3.5 Phase I Proposal Format***

***The Phase I Proposal length is limited to 25 pages.***

- a. **Proposal Cover Sheets.** Prepare the Proposal Cover Sheets (as provided on the electronic submission website <https://www.sbir.dhs.gov>), including a brief technical abstract of the proposed R&D project and a discussion of anticipated benefits and potential commercial applications. Once you save the cover sheets, the system will assign a proposal number. You may edit the cover sheets as often as necessary until the Solicitation closes. Your cover sheets will count as the first two pages of your proposal no matter how they print out. If your proposal is selected for award, the technical abstract and discussion of anticipated benefits will be publicly released on the DHS S&T SBIR website; therefore, do not include proprietary or classified information in these sections.
- b. **Technical Proposal.** Create a single file that covers the following items in the order given below. Begin your Technical Proposal on Page 3 (since the cover sheets are pages 1 and 2) and put your company name, topic number, and proposal number in the header of each page. (The header may be included in the one-inch margins.) The Technical Proposal file must be in Portable Document Format (PDF) for evaluation purposes. You cannot upload the Technical Proposal to the DHS S&T submission website until you have created the

cover sheets and have been assigned a proposal number. Perform a virus check before uploading the Technical Proposal file. If a virus is detected, it may cause rejection of the proposal. The Technical Proposal must be a single file, including graphics and attachments. **Do not lock, password protect, or encrypt the file you upload.**

- (1) **Identification and Significance of the Problem or Opportunity.** Define the specific technical problem or opportunity addressed and its importance. (Begin on Page 3 of your Proposal.)
- (2) **Phase I Technical Objectives.** Enumerate the specific objectives of the Phase I work, including the questions it will try to answer to determine the feasibility of the proposed approach.
- (3) **Phase I Work Plan.** Provide an explicit, detailed description of the Phase I approach. The Plan must indicate what is planned, how, when, and where the work will be carried out, a schedule of major events, the final product to be delivered, and the completion date of the effort. The Phase I effort must determine the technical feasibility of the proposed concept. The methods planned to achieve each objective or task must be discussed explicitly and in detail. This section must be a substantial portion of the total proposal.
- (4) **Related Work.** Describe significant activities directly related to the proposed effort, including any conducted by the principal investigator, the proposing firm, consultants, or others. Describe how these activities interface with the proposed project and discuss any planned coordination with outside sources. The proposal must persuade reviewers of the proposer's awareness of the state-of-the-art in the specific topic. Describe previous work not directly related to the proposed effort but similar. Provide the following: (a) short description, (b) client for which work was performed (including individual to be contacted and phone number), and (c) date of completion.
- (5) **Relationship with Future Research or Research and Development.** (a) State the anticipated results of the proposed approach, assuming project success. (b) Discuss the significance of the Phase I effort in providing a foundation for Phase II research or research and development effort.
- (6) **Commercialization Strategy.** Describe, in approximately two (2) pages, your company's strategy for commercializing this technology in the DHS, other Federal Agencies, and/or private sector markets. Provide specific information on the market need the technology will address and the size of the market. Also, include a schedule showing the quantitative commercialization results from this SBIR project that your company expects to achieve and when (i.e., amount of additional investment, sales revenue, etc.).
- (7) **Key Personnel.** Identify key personnel who will be involved in the Phase I effort including information on directly related education and experience. A concise resume of the principal investigator, including a list of relevant publications (if any), must be included. All resumes will count toward the 25-page limitation. In addition to Key Personnel, identify any non-U.S. citizen(s) that you expect to be involved on this project (including subcontractors and consultants), their country of origin, and level of involvement.

- (8) **Facilities/Equipment.** Describe available instrumentation and physical facilities necessary to carry out the Phase I effort. Items of equipment to be purchased (as detailed in the Cost Proposal) must be justified under this section. Also state whether or not the facilities where the proposed work will be performed meet environmental laws and regulations of federal, state (name), and local governments for, but not limited to, the following groupings: airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid and bulk waste disposal practices, and handling and storage of toxic and hazardous materials.
- (9) **Subcontractors/Consultants.** Involvement of a university or other subcontractors or consultants in the project may be appropriate (see Section 2.3 of this Solicitation). If such involvement is intended, it must be described in detail and identified in the Cost Proposal. A minimum of two-thirds of the research and/or analytical work in Phase I, as measured by direct and indirect costs, must be carried out by the proposing small business concern. No portion of an SBIR award may be subcontracted back to any Federal Government Agency or Federally Funded Research and Development Center (FFRDC). SBA may issue a case-by-case waiver to this provision after review of the DHS written justification that includes the following information: (a) an explanation of why the SBIR research project requires the use of the Federal/FFRDC facility or personnel, including data that verifies the absence of non-Federal facilities or personnel capable of supporting the research effort; (b) why the Agency will not and cannot fund the use of the Federal/FFRDC facility or personnel for the SBIR Project with non-SBIR money; and (c) the concurrence of the small business concern's chief business official to use the Federal/ FFRDC facility or personnel. Award is contingent on the Sponsoring Agency obtaining a waiver.
- (10) **Prior, Current, or Pending Support of Similar Proposals or Awards.** *Warning --* While it is permissible, with proposal notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work (see Section 2.9 of this Solicitation) for consideration under numerous federal program solicitations, it is unlawful to enter into contracts or grants requiring essentially equivalent effort. If there is any question concerning this, it must be disclosed to the soliciting agency or agencies before award.
- If a proposal submitted in response to this Solicitation is substantially the same as another proposal that has been funded, is now being funded, or is pending with another Federal Agency, the proposer must so indicate on the Proposal Cover Sheet and provide the following information:
- (a) Name and address of the Federal Agency(s) to which a proposal was submitted, will be submitted, or from which an award is expected or has been received.
  - (b) Date of proposal submission or date of award.
  - (c) Title of proposal.
  - (d) Name and title of principal investigator for each proposal submitted or award received.

- (e) Title, number, and date of Solicitation(s) under which the proposal was submitted, will be submitted, or under which award is expected or has been received.
- (f) If award was received, state contract number.
- (g) Specify the applicable topics for each SBIR Proposal submitted or award received.

Note: If Section 3.5.b (10) of this Solicitation does not apply, state in the Proposal "No prior, current, or pending support for proposed work."

- c. **Cost Proposal.** Complete the Cost Proposal in the format shown in the Cost Breakdown Guidance, using the online Cost Proposal Form on the electronic submission website. Some items in the Cost Breakdown Guidance at <https://www.sbir.dhs.gov/reference/DHS%20SBIRSTTR%20COST%20PROPOSAL%20BREAKDOWN%20ITEMS%20GUIDANCE.pdf> may not apply to the proposed project. If such is the case, there is no need to provide information on each and every item. What matters is that enough information be provided to allow DHS to understand how the proposer plans to use the requested funds if the contract is awarded. Note: there is a 20-minute timeout limit for entering cost proposal data via the electronic submission system. You may want to peruse the Cost Breakdown Guidance prior to initiating your Cost Proposal to become familiar with the information that you must provide.
- (1) List all key personnel by name as well as by number of hours dedicated to the project as direct labor.
  - (2) Special tooling and test equipment and material cost may be included under Phases I and II. The inclusion of equipment and material will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with DHS unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by DHS.
  - (3) Cost for travel funds must be justified and related to the needs of the project. DHS requests that you budget, as a minimum, travel to attend a one day meeting with Science & Technology Directorate program management personnel. Reasonable travel costs may include this one day meeting. This meeting may consist of a Phase I Kick-Off meeting or a presentation of your project findings to your Phase I Program Manager. Travel will typically be performed at the beginning of your Phase I award or at the conclusion of the Phase I effort; depending on the Science & Technology Directorate Program Manager's determination.

- (4) Cost sharing is permitted for proposals under this Solicitation; however, cost sharing will not be considered nor will it be an evaluation factor in the consideration of a Phase I proposal.
- (5) The Cost Proposal template on the electronic submission website is required to complete the Cost Proposal. If additional Cost Proposal information is required, it may be placed at the end of your Technical Proposal (and included in the page count limitation).

If applicable, a brief explanation of cost estimates for equipment, materials, and consultants or subcontractors can be included in the Cost Proposal. However, when a proposal is selected for award, the proposer must be prepared to submit further documentation to the Contracting Officer to substantiate costs (e.g., a detailed explanation of cost estimates for equipment, materials, and consultants or subcontractors).

The Cost Proposal will count as one page of your proposal no matter how it prints out. For more information about cost proposals and accounting standards, see the DCAA publication called "Information for Contractors" available at <http://www.dcaa.mil>.

### **3.6 Page Numbering**

Number all pages of your proposal consecutively. The cover sheets are pages 1 and 2. The Technical Proposal begins on page 3.

### **3.7 Phase II Proposal Invitation**

This Solicitation is for Phase I only. A Phase II Proposal can be submitted only by a Phase I awardee and only in response to a request from the Contracting Officer. DHS S&T Directorate Program Managers for the applicable topic may recommend that Phase I participants be invited to submit Phase II Proposals based upon site visits, the monthly and/or final reports, and progress made towards the accomplishment of Phase I technical objectives and plans for Phase II. Not all Phase I participants will be invited to submit a Phase II Proposal. The number of Phase II Proposal invitations will depend upon the number of Phase I awards made in the topic, the availability of funding, and the quality of the Phase I research. DHS reserves the right to invite all, some, or none of the Phase I awardees in a topic to submit Phase II proposals.

The DHS S&T SBIR Program may recommend to a Contracting Officer that a Phase I contractor be invited to submit a Phase II Proposal, beginning no earlier than two thirds (2/3) into the Phase I period of performance (DHS S&T's SBIR Jump Start feature). (*Example: four months into a six month period of performance.*) While some Phase II invitations will be made prior to completion of the Phase I period of performance, other Phase II invitations will be extended at the end of the period of performance. DHS will evaluate each Phase II Proposal when received, and if the proposal is deemed to be highly rated, will enter into negotiations for award. The goal is to accelerate the technology development and reduce, or eliminate, the gap between the Phase I and Phase II efforts.

An invitation to submit a Phase II proposal is the onset of the Phase II review process and is not a commitment for award. An invitation to submit a Phase II proposal does not qualify as a Phase

II award; each Phase II Proposal must meet the SBIR Phase II criteria in this Solicitation, as well as undergo the DHS evaluation and source selection process. Phase II Proposals must be received no later than the date specified in the Phase II invitation status notification.

Phase I awardees that do not receive an invitation to submit a Phase II proposal may submit a Phase II proposal. However, non-invited Phase I awardees may conclude that DHS assessed the accomplishments of the Phase I effort and determined it did not demonstrate further consideration beyond the Phase I funding level.

All Phase I awardees not invited under the Jump Start feature will be notified of Phase II invitation status after the Phase I period of performance has been completed.

### **3.8 Phase II Proposal Format**

As stated previously, a separate solicitation will not be issued for Phase II. These proposals instructions are provided as information only for those organizations who may receive a Phase I award and may be invited to submit a Phase II proposal. Phase II proposal is limited to 50 pages, using a type size no smaller than a 12-point font on standard 8 1/2" x 11" paper with one (1) inch margins. Two-column or more format is not allowed.

- a. **Each Phase II** proposal must contain Proposal Cover Sheets, a Technical Proposal, a Cost Proposal and a Company Commercialization report, if applicable. See Section 3.8 (d) of this Solicitation. In addition, each Phase II proposal must contain approximately two pages of a Commercialization Strategy in the Technical Proposal.
- b. **Commercialization Strategy. The Commercialization Strategy must address the following questions:**
  1. What is the first product that this technology will go into?
  2. Who will be your customers, and what is your estimate of the market size?
  3. How much money will you need to bring the technology to market, and how will you raise that money?
  4. Does your company contain marketing expertise and, if not, how do you intend to bring that expertise into the company?
  5. Who are your competitors, and what is your price and/or quality advantage over your competitors?

The Commercialization Strategy must also include a schedule showing the quantitative results from the Phase II project that your company expects to report in its Company Commercialization Report Updates one year after the start of the Phase II, at the completion of Phase II, and after the completion of Phase II (i.e., amount of additional investment, sales revenue, etc. – see Sections 4.4 and 5.4 of this Solicitation).

- c. **Cost Match.** Proposers that request Phase II Cost Match funds have an opportunity in the Commercialization Strategy to present the compelling value of the proposed Phase II project. The Commercialization Strategy should provide qualitative and quantitative information directly related to the Cost Matching; explaining the improved time interval or acceleration between the completion of Phase II work and the of launching of the

innovative products, processes, or services into the marketplace. Additional Phase II Cost Match guidance can be found in Section 3.10 of this Solicitation

#### **d. Company Commercialization Report**

For those concerns that have received prior SBIR Phase II funding, a succinct Commercialization Report must be included with the Proposal. The Company Commercialization Report is submitted online in accordance with Section 3.8 (a) of this Solicitation. The following are examples of company commercialization data expected in the Commercialization Report. Additional Commercialization Reporting requirements and Commercialization Update requirements can be found in Sections 4.4 and 5.4 of this Solicitation.

1. Any business concern or subsidiary established for the commercial application of a product or service for which an SBIR award is made.
2. Revenue from the sale of new products or services resulting from the research conducted under each Phase II award;
3. Additional investment from any source, other than Phase I or Phase II awards, to further the research and development and/or commercialization conducted under each Phase II award.
4. Whether the Phase II technology has been used in a fielded DHS system or acquisition program, and, if so, which system or program.
5. The number of patents resulting from the contractor's participation in the SBIR Program.
6. Whether the company has completed an initial public offering (IPO) of stock resulting, in part, from the Phase II Project.

Update the information in the Company Commercialization Report for any prior Phase II award received by the company. The company may apportion sales or additional investment information relating to more than one Phase II award among those awards, if it notes the apportionment for each award.

#### **3.9 False Statements**

Knowingly and willfully making any false, fictitious, or fraudulent statements or representations, may be a felony under the False Statement Act (18 U.S.C. §1001), punishable by a fine of up to \$10,000, up to five years in prison, or both.

#### **3.10 SBIR Phase II Cost Match**

- a. **General Provisions of the DHS SBIR Cost Match Feature.** The DHS SBIR Program includes a Cost Match feature for SBIR projects that attract matching cash from an outside investor for the Phase II SBIR effort. The purpose is to focus SBIR funding on those projects that are most likely to be developed into viable new products that DHS and

others will buy and that will thereby make a major contribution to homeland security and/or economic capabilities. The cost match can occur at the time of award, or during the Phase II period of performance.

Outside investors may include such entities as another company, a venture capital firm, an individual investor, or a non-SBIR government program; they do not include the owners of the small business, their family members, and/or affiliates of the small business. In order to be considered for DHS S&T SBIR cost match, the outside investors must commit a minimum of \$100,000 up to a maximum of \$500,000. DHS will, at its option, match up to 50% of funds received. The SBIR Phase II basic awards will be made for a maximum of \$750,000 and the cost match award will be made for a maximum of \$250,000. The total cumulative SBIR funding for the Phase II award plus DHS cost match cannot exceed \$1,000,000. Outside investors may contribute funding above the \$500,000 cost match ceiling, however, DHS SBIR will only match 50% up to the \$250,000 maximum.

The additional work proposed should be an expansion of the technical work being performed in the Phase II project and must fall within the general scope of the present Phase II project.

- b. **How to Qualify for the SBIR Phase II Cost Match.** To qualify for the SBIR Cost Match feature, a company must be a Phase I awardee submitting a Phase II proposal or a Phase II awardee. The company is encouraged to discuss the application with their SBIR Program Manager and the DHS SBIR Program Director. The awardee is to follow Phase II Proposal instructions and guidance, and also provide the cost match documentation and request for matched funding.
1. A Phase II Proposal must be submitted electronically on the DHS Electronic Submission website (<https://www.sbir.dhs.gov>).
  2. The proposing company must:
    - a. State that the outside investor will match funding in the SBIR Phase II proposal, in cash, and state the amount of the outside investment, contingent on the company's selection for Phase II award.
    - b. Certify that the outside funding proposed in the application qualifies as a Cost Match investment, and the investor qualifies as an "outside investor," as defined above.
    - c. Provide a brief statement (less than one page) describing that portion of the effort that the investor will fund. The investor's funds may pay for additional research and development on the company's SBIR project or, alternatively, they may pay for other activities not included in the Phase II Statement of Work, provided these activities further the development and/or commercialization of the technology (e.g., marketing).

- d. Provide qualitative and quantitative information reflecting any additional Period of Performance to complete the new or expanded effort. Provide a concise Statement of Work for the Cost Match effort (less than four pages) and detailed Cost Proposal (less than one page).
3. The outside investor must provide:
    - a. A brief statement describing the investor's experience in evaluating companies' abilities to successfully commercialize technology, the investor's assessment of the market for this particular SBIR technology, and of the ability of the company to bring this technology to market.
    - b. A letter of commitment, signed by the investor(s), containing a commitment to provide a minimum of \$100,000 or up to \$500,000 Phase II Cost Match funding, in cash, contingent on the company's selection or performance of the Phase II award. An investor may contribute above the \$500,000 Phase II Cost Match; however Government matching funds will not exceed 50% up to the \$250,000 maximum.
  4. The Transfer of Investor Funding:

The company shall certify within 60 days that the entire amount of the matching funds from the outside investor has been transferred to the company. The Certification consists of a letter, signed by both the company and its outside investor, stating that "\$\_\_\_\_\_ in cash has been transferred to our company from our outside investor in accord with the SBIR Cost Match procedures." The letter must be sent to the DHS appointed Contracting Officer, along with a copy of the company's bank statement showing the funds have been deposited. The transfer of investor funds from another Government agency will be coordinated with the DHS SBIR designated Contracting Officer. **IMPORTANT:** If the Contracting Officer does not receive this certification showing the transfer of funds within 60 days, the company will be ineligible to compete for Phase II Cost Match funding, unless a specific written exception is granted by the DHS SBIR Program Director.

Failure to meet these conditions in their entirety and within the time frames indicated may disqualify a company from participation in the SBIR Cost Match. DHS maintains the right to award some, all, or none of the Phase II Cost Match requests. Phase II Cost Match funding is contingent upon the number of applications, availability of funds, and proper certification of investor funds.

**c. Additional Reporting Requirement.**

In the company's final Phase II Progress Report, a brief accounting must be included (in the company's own format or format that has been provided by the DHS PM) of how the investor's funds were expended to support the project.

#### **4.0 METHOD OF SELECTION AND EVALUATION CRITERIA**

##### **4.1 Introduction**

SBIR Proposals will be processed and made available to the appropriate technical program manager within DHS for evaluation and action. DHS Program Managers may seek technical advice from Federal Government employees and/or from technical and business experts who may be non-Federal Government employees. In all cases, evaluators and advisors will be required to sign Certificates of Non-Disclosure and Statements of Financial Interest and will receive training regarding Procurement Integrity and Conduct required during the Source Selection process. Non-Government personnel may be used to handle the administrative functions for the SBIR Program. The support contractors will be bound by appropriate non-disclosure agreements to protect proprietary and source-selection information. They will not be permitted to release any source selection information to third parties, including others in their organization. DHS will select proposals for funding based on technical merit and the evaluation criteria contained in this Solicitation document.

Phase I SBIR proposals will be evaluated on a competitive basis and will be considered to be binding for six (6) months from the date of closing of this Solicitation unless the proposer states otherwise. If selection has not been made prior to the proposal's expiration date, proposers may be asked to extend their proposal for an additional period of time. Proposals meeting stated Solicitation requirements will be evaluated by scientists and/or engineers knowledgeable in the topic area. A proposal that meets the goals of a solicitation topic but does not use the exact approach specified in the topic will be considered relevant. (Prospective proposers should contact the DHS SBIR Program as described in Section 1.5 of this Solicitation to determine whether submission of such a proposal would be useful.)

Proposals will be evaluated using the criteria listed in Section 4.2 of this Solicitation (and Section 4.3 of this Solicitation for Phase II). Final decisions will be made based upon these criteria and consideration of other factors including possible duplication of other work and program balance. In the evaluation and handling of proposals, every effort will be made to protect the confidentiality of the proposal and any evaluations. There is no commitment by DHS to make any awards on any topic, to make a specific number of awards, or, to be liable for any costs expended by the proposer prior to award of any contract.

For proposals that have been selected for contract award, a Contracting Officer will prepare a contract to be signed by both parties before work begins. Any negotiations that may be necessary will be conducted between the proposer and the Contracting Officer. It should be noted that only a duly appointed Contracting Officer has the authority to enter into a contract on behalf of the U.S. Government.

Prior to receiving a contract award, the proposer must be registered in the Central Contractor Registration (CCR) database. For information regarding registration, call 1-888-227-2423 or visit <http://www.ccr.gov>.

Phase II proposals will be subject to a technical review process similar to Phase I. Final decisions will be made by DHS based upon the scientific and technical evaluations and other factors, including a commitment for Phase III follow-on funding, the possible duplication with other research or research and development, program balance, budget limitations, and the potential of a

successful Phase II effort leading to a product of continuing interest to DHS. DHS is not obligated to make any awards under Phase II, and all awards are subject to the availability of funds. DHS is not liable for any costs expended by the proposer prior to award of a contract.

Upon written request and after final award decisions have been announced, evaluation results (in the form of the consensus review) will be provided to unsuccessful proposers on their Phase I and Phase II Proposals (see Section 6.4 of this Solicitation).

Restrictive notices notwithstanding, Phase I and Phase II proposals may be handled, for administrative purposes only, by support contractors. All support contractors will be subject to the terms of their signed non-disclosure agreements.

Phase I and Phase II proposals will be evaluated for strengths, weaknesses, and deficiencies using the following definitions:

- a. Strength - An aspect of a proposal that benefits the Government in terms of the quality of the Proposer's performance, cost effectiveness, or reduced risk and is expected to contribute to successful contract performance.
- b. Weakness - A flaw in the proposal that increases the risk of unsuccessful contract performance. A "significant weakness" in the proposal is a flaw that appreciably increases the risk of unsuccessful contract performance.
- c. Deficiency - A material failure of a proposal to meet a Government requirement or a combination of significant weaknesses in a proposal that increases the risk of unsuccessful contract performance to an unacceptable level.

The following adjectival ratings will be used in the evaluation of Phase I and Phase II proposals:

**Excellent:** A convincing demonstration that all SBIR FY 10.1 requirements are met or exceeded by the proposer's display of the highest levels of innovation, technical competence, personnel expertise, and potential for commercialization. The proposal fully and completely meets the expectations and sets forth plans and approaches that show a high probability of meeting DHS' S&T Directorate requirements. Proposals in this category are strongly recommended for funding. Has strengths that will significantly benefit the Government.

**Very Good:** Approach and planning considerations demonstrate that the proposer is able to interpret goals and project them clearly into concise plans. Proposer demonstrates an awareness of the subtle interactions influencing system design; technical and planning efforts show strong promise of meeting DHS' S&T Directorate requirements. Proposals in this category are recommended for funding. Has one or more strengths that will benefit the Government.

**Good:** Plans and approaches are provided to the extent requested, and key or pivotal points have been satisfactorily addressed in the proposal. The proposer has presented an orderly plan to meet the stated goals, but the proposal does not necessarily demonstrate any exceptional features, innovations, or originality. The technical analyses satisfactorily meet requirements and are technically correct. Funding of proposals in this category is dependent on availability of funds. Few or no strengths.

**Fair:** The proposal indicates a shallow understanding of the problem. The technical analyses only marginally meet the goals, and the proposer fails to demonstrate a reasonable probability of successfully performing the desired task or commercializing the resulting product. Funding of proposals in this category is dependent on availability of funds.

**Unacceptable:** Does not meet the SBIR FY 10.1 criteria. Not recommended for funding.

#### **4.2 Evaluation Criteria - Phase I**

DHS plans to select for award those proposals offering the best value to the Government and the Nation considering the following factors in decreasing order of importance:

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- b. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.
- c. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization as assessed utilizing the criteria in Section 4.4 of this Solicitation.
- d. The cost realism and reasonableness of the Cost Proposal. The Cost Proposal will not be adjectively graded.

Members of the evaluation team may presume that the technical approach provided by the proposer serves as a rationale for the labor mix and labor hours used.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the proposer or key individuals or any referenced experiments. Relevant supporting data such as journal articles, literature, including Government publications, etc., should be contained or referenced in the proposal and will count towards the 25-page limit.

#### **4.3 Evaluation Criteria – Phase II**

The Phase II proposal will be reviewed for overall merit based upon the criteria below in decreasing order of importance:

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- b. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization as assessed utilizing the criteria in Section 4.4 of this Solicitation.
- c. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.
- d. The cost realism and reasonableness of the cost proposal. The cost proposal will not be adjectively graded.

Members of the evaluation team may presume that the technical approach provided by the proposer serves as a rationale for the labor mix and labor hours used.

Phase II Proposal evaluations may include on-site evaluations of the Phase I effort by Government personnel.

#### **4.4 Assessing Commercial Potential of Proposals**

The commercial potential of a proposal will be assessed using the following criteria:

- a. The proposer's commercialization strategy [see Section 3.5.b (6) of this Solicitation] and, as discussed in that strategy:
  - (1) any commitments of additional investment in the technology during Phase II from the private sector, prime contractors, non-SBIR programs, or other sources, and
  - (2) any Phase III follow-on funding commitments; and
- b. The proposer's record of commercializing its prior SBIR Projects.

A Company Commercialization Report showing that the proposing company has no prior Phase II awards will not affect its ability to receive an award. Such a company's proposal will be evaluated for commercial potential based on its commercialization strategy in item 4.4(a) of this Solicitation, above.

Government transition of the proposed effort is very important. The small business shall include its transition vision in the Commercialization Strategy. The small business must demonstrate an understanding of the planned use of their effort and the needs of the DHS customer/end user.

#### **5.0 CONTRACTUAL CONSIDERATIONS**

Note: Eligibility and Limitation Requirements (Section 4.3 of this Solicitation) will be enforced.

##### **5.1 Phase I Awards**

- a. **Number of Phase I Awards.** The number of Phase I awards will be consistent with the Science and Technology Directorate's budget and the number of anticipated Phase II contracts. No Phase I contracts will be awarded until all qualified proposals (received in accordance with Section 4.2 of this Solicitation) on a specific topic have been evaluated. Proposers will be notified of selection by a DHS designated Contracting Officer. After the Phase I awards are made, proposers will be notified of non-selection, generally within four months of the close of the Solicitation.
- b. **Type of Funding Agreement.** All winning proposals will be funded under negotiated contracts and may include a reasonable fee or profit consistent with normal profit margins provided to profit-making concerns for R/R&D work. The firm-fixed-price acquisition vehicle will be used for all Phase I awards.
- c. **Average Dollar Value of Awards.** Phase I awards to small businesses will typically cover a one-half person-year effort over a period not to exceed six months (subject to negotiation). Public Law 102-564 allows agencies to make Phase I awards up to \$ 100,000 without justification.
- d. **Timing of Phase I Awards.** The anticipated time between the date that this Solicitation closes and the award of the Phase I contract is approximately four (4) months.

## 5.2 *Phase II Awards*

- a. **Number of Phase II Awards.** The number of Phase II awards will depend upon the results of the Phase I efforts and the availability of funds. DHS anticipates that approximately 30 percent of its Phase I awards will result in Phase II projects. This is merely an advisory estimate and DHS reserves the right and discretion not to award any or to award less than or more than this percentage for each topic area.
- b. **Type of Funding Agreements.** Each Phase II proposal selected for an award will be funded under a negotiated contract and may include a reasonable fee or profit consistent with normal profit margins provided to profit-making concerns for R/R&D work. The firm-fixed price acquisition vehicle or the cost-plus-fixed-fee acquisition vehicle may be used for the Phase II awards.
- c. **Average Dollar Value of Awards.** Phase II awards will typically cover two (2) to five (5) person-years of effort over a period generally not to exceed 24 months. PL 102-564 states that the Phase II awards may be up to \$750,000 each without justification.
- d. **Timing of Phase II Awards.** Phase II awards will be made incrementally, as quickly as possible, to maintain the momentum of the Phase I effort. The Phase II proposal invitation process is an attempt to identify expeditiously those Phase I awardees deserving of Phase II awards. DHS reserves the right to evaluate individual Phase II proposals when received and make Phase II proposal invitations incrementally to some, all, or none of the Phase I participants.

## 5.3 *Phase I Report*

- a. **Content.** A Final Report is required for each Phase I project. The Report must contain in detail the project objectives, work performed, results obtained, and estimates of technical feasibility. In addition, Monthly Status Reports and Progress Reports will be required by DHS. The format for these reports will be mutually agreed upon between DHS and the potential awardee prior to contract award. Please keep in mind that the Monthly Status and Progress Reports and/or Final Reports will be used as a basis to determine progress made towards the accomplishments of Phase I technical objectives when DHS is considering its invitation of contractors to submit Phase II proposals.
- b. **Preparation.**
  - 1) If desirable, language used by the company in its Phase II proposal to report Phase I progress may also be used in the Final Report.
  - 2) For each unclassified report, the company submitting the Report shall specify one of the following statements it will use:
    - a) Approved for public release; distribution unlimited.
    - b) Distribution authorized to U.S. Government Agencies only; contains proprietary information (SBIR Data Rights).

Note: Data developed under SBIR contract is subject to SBIR Data Rights which allow for protection under FAR 52.227-20. DHS, after reviewing the company's recommended distribution statement, has final responsibility for assigning a distribution statement.

- c. **Submission.** The company shall submit an electronic copy of the monthly reports and final report on each Phase I project in accordance with the Phase I contract and negotiated delivery schedule via the DHS website: <https://www.sbir.dhs.gov>. Submission of the monthly reports are normally every 30 days after the project start date, and the final report submission schedule will normally be within 15 days after completion of the Phase I technical effort. Contractors shall include the company name, topic number, proposal number and contract number in each report. Submission instructions will be provided in the awarded contract.

#### **5.4 Commercialization Updates in Phase II**

If, after completion of Phase I, the contractor is awarded a Phase II contract, the contractor shall be required to periodically update the following commercialization results of the Phase II project through the website at <https://www.sbir.dhs.gov>. Updates shall include the following:

- a. Sales revenue from new products and non-R&D services resulting from the Phase II technology;
- b. Additional investment from sources other than the federal SBIR Program in activities that further the development and/or commercialization of the Phase II technology;
- c. Whether the Phase II technology has been used in a fielded DHS system or acquisition program and, if so, which system or program;
- d. The number of patents resulting from the contractor's participation in the SBIR Program;
- e. Growth in number of firm employees; and
- f. Whether the firm has completed an initial public offering of stock (IPO) resulting, in part, from the Phase II project.

These updates on the project will be required one year after the start of Phase II, at the completion of Phase II, and subsequently when the contractor submits a new SBIR proposal to DHS. Contractors that do not submit a new proposal to DHS will be asked to provide updates on an annual basis for five (5) years after the completion of Phase II.

#### **5.5 Payment Schedule**

The specific payment schedule (including payment amounts) for each contract will be incorporated into the contract upon completion of negotiations between the Government and the successful Phase I or Phase II proposer. Successful proposers may be paid periodically as work progresses in accordance with the negotiated price and payment schedule. Phase I contracts are primarily firm-fixed-price R&D contracts, under which monthly payments may be made. Final payment will follow completion of contract performance and acceptance of all work required under the contract.

Phase II funding awards may be Cost Reimbursement type contracts. Interim payments will be permitted in accordance with the negotiated price and payment schedule. Provisions for payment of a fee or profit will be permitted. Final payment will follow completion of contract performance and acceptance of all work required under the contract. Milestone billing payments may be used by DHS in the Phase II contract awards.

## **5.6 *Markings of Proprietary Proposal Information***

The proposal submitted in response to this Solicitation may contain technical and other data that the proposer does not want disclosed to the public or used by the Government for any purpose other than proposal evaluation. Information contained in unsuccessful proposals will remain the property of the proposer except for the proposal cover sheet. The Government may, however, retain copies of all proposals. Public release of information in any proposal submitted will be subject to existing statutory and regulatory requirements.

If proprietary information is provided by a proposer in a proposal that constitutes a trade secret, proprietary commercial or financial information, or personal information or data affecting homeland security, it will be treated in confidence, to the extent permitted by law, provided that the "Proposal Contains Proprietary Information" checkbox on the Proposal Cover Sheet is checked and the information contained on each page is clearly marked by the proposer with the term "PROPRIETARY" (do not use "Company Confidential"), as discussed below. Note: the Cover Sheet cannot be marked as "Proprietary", as the abstract will be publically disclosed if the proposal results in contract award. By checking the "Proposal Contains Proprietary Information" check box on the Proposal Cover Sheet, the following legend is assumed.

"This data, except the proposal cover sheet, shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed in whole or in part for any purpose other than to evaluate the proposal. If a contract is awarded to the proposer as a result of or in connection with the submission of these data, the Government shall have the right to duplicate, use or disclose the data to the extent provided in the contract. This restriction does not limit the Government's right to use information contained in the data if it is obtained from another source without restriction. The data subject to this restriction is contained on the pages of the proposal listed on the line below."

Use of any restrictive legend except that provided above will be unacceptable to the Government and may constitute grounds for removing the proposal from further consideration. The Government will limit dissemination of properly marked information to within official channels.

In addition to checking the "Proposal Contains Proprietary Information" box on the Cover Sheet, each page of the proposal containing proprietary data which the proposer wishes to restrict must be marked with the following legend:

"Use or disclosure of the proposal data on lines specifically identified by asterisk (\*) are subject to the restriction on the Cover Sheet of this proposal."

If all of the information on a particular page is proprietary, the proposer should so note by including the word "PROPRIETARY" (do not use "Company Confidential") in both the header and footer on that page. The Government assumes no liability for disclosure or use of unmarked data and may use or disclose such data for any purpose.

In the event properly marked data contained in a proposal in response to this Solicitation is requested pursuant to the Freedom of Information Act, 5 USC §552, the proposer will be advised of such request and prior to such release of information will be requested to expeditiously submit to DHS a detailed listing of all information in the proposal which the proposer believes to be exempt from disclosure under the Act. Such action and cooperation on the part of the proposer will ensure that any information released by DHS pursuant to the Act is properly determined.

### **5.7 Copyrights**

With prior written permission from the Contracting Officer, the awardee may copyright and publish (consistent with appropriate homeland security considerations, if any) material developed with DHS support. DHS receives a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

### **5.8 Patents and Invention Reporting**

Small business concerns normally may retain the principal worldwide patent rights to any invention developed with Government support. The Government receives a royalty-free license for its use, reserves the right to require the patent holder to license others in certain limited circumstances, and requires that anyone exclusively licensed to sell the invention in the United States must normally manufacture it domestically. SBIR awardees shall report inventions to the awarding agency within two months of the inventor's report to the awardee. Awardees may report inventions to DHS through the Edison Invention Reporting Systems at [www.iedison.gov](http://www.iedison.gov). Use of the Edison System satisfies all invention reporting requirements mandated by any award.

### **5.9 Technical Data Rights**

Rights in technical data, including software, developed under the terms of any contract resulting from proposals submitted in response to this Solicitation, generally remain with the contractor, except that the Government obtains a royalty-free license to use such technical data only for Government purposes during the period commencing with contract award and ending four years after completion of the project under which the data were generated. Upon expiration of the four-year restrictive license, the Government has unlimited rights in the SBIR data. During the license period, the Government may not release or disclose SBIR data to any person other than its support services contractor except: a) for evaluation purposes; b) as expressly permitted by the contractor; or c) a use, release, or disclosure that is necessary for emergency repair or overhaul of items operated by the Government. Please refer to FAR clause 52.227-20, "Rights in Data -- SBIR Program."

### **5.10 Contractor Commitments**

Upon award of a contract, the contractor shall be required to make certain legal commitments through acceptance of Government contract clauses in the Phase I Contract. The outline that follows is illustrative of the types of provisions required by the Federal Acquisition Regulations that will be included in the Phase I contract. This is not a complete list of provisions to be included in Phase I contracts, nor does it contain specific wording of these clauses. Copies of complete general clauses and provisions will be made available prior to contract award.

- a. **Standards of Work.** Work performed under the contract must conform to high professional standards.
- b. **Inspection.** Work performed under the contract is subject to Government inspection and evaluation at all reasonable times.
- c. **Examination of Records.** The Comptroller General (or a fully authorized representative) shall have the right to examine any directly pertinent records of the contractor involving transactions related to this contract.

- d. **Default.** The Government may terminate the contract if the contractor fails to perform the work contracted or fails to make progress during performance under the contract.
- e. **Termination for Convenience.** The contract may be terminated at any time by the Government if it deems termination to be in its best interest, in which case the contractor will be compensated for work performed and for reasonable termination costs.
- f. **Disputes.** Any dispute concerning the contract that cannot be resolved by agreement may be decided by the Contracting Officer with a right of appeal.
- g. **Contract Work Hours.** The contractor may not require an employee to work more than eight hours a day or forty hours a week unless the employee is compensated accordingly (that is, receives overtime pay).
- h. **Equal Opportunity.** The contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
- i. **Affirmative Action for Veterans.** The contractor shall not discriminate against any employee or applicant for employment because he or she is a disabled veteran or veteran of the Vietnam era.
- j. **Affirmative Action for Handicapped.** The contractor shall not discriminate against any employee or applicant for employment because he or she is physically or mentally handicapped.
- k. **Officials Not to Benefit.** No member of, or delegate to, Congress, shall benefit from the contract.
- l. **Covenant Against Contingent Fees.** No person or agency has been employed to solicit or secure the contract upon an understanding for compensation except bona fide employees or commercial agencies maintained by the contractor for the purpose of securing business.
- m. **Gratuities.** The contract may be terminated by the Government if any gratuities have been offered to any representative of the Government to secure the contract.
- n. **Patent Infringement.** The contractor shall report each notice or claim of patent infringement based on the performance of the contract.
- o. **Security Requirements.** The contractor shall safeguard any classified information associated with the contracted work in accordance with applicable regulations.
- p. **American-Made Equipment and Products.** When purchasing equipment or a product under the SBIR funding agreement, purchase only American-made items whenever possible.
- q. **Publications Approval.** Government review and approval will be required prior to any dissemination or publication, except within and between the contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract.

### **5.11 Contractor Registration**

Before a contract can be awarded to a successful proposer under this Solicitation, the proposer must be registered in the Central Contractor Registration (CCR) database and the Online Representations and Certifications Application (ORCA). The CCR allows Federal Government

contractors or concerns interested in conducting business with DHS to provide basic information on business capabilities and financial information. To register, visit <http://www.ccr.gov> or call 1-888-227-2423. Follow instructions found on the CCR website on how to obtain a Commercial and Government Entry (CAGE) code and DUNS number. ORCA is a web-based system that centralizes, standardizes, and moves the collection and storing of contractor representation and certifications online. To register in ORCA, visit <http://orca.bpn.gov/>.

### 5.12 *Additional Information*

- a. **General.** This Program Solicitation is intended for informational purposes and reflects current planning. If there is any inconsistency between the information contained herein and the terms of any resulting SBIR Contract, the terms of the contract are controlling.
- b. **Small Business Data.** Before award of an SBIR contract, the Government may request the proposer to submit certain organizational, management, personnel, and financial information to confirm responsibility of the proposer in accordance with FAR Part 9.
- c. **Proposal Preparation Costs.** The Government is not liable for any costs expended by the proposer before award of any contract.
- d. **Government Obligations.** This Solicitation is not an offer by the Government and does not obligate the Government to make any specific number of awards. Also, awards under this program are contingent upon the availability of funds.
- e. **Duplication of Work.** If an award is made pursuant to a proposal submitted under this Solicitation, the contractor shall be required to certify that he or she has not previously been, nor is currently being, paid for essentially equivalent work by an agency of the Federal Government.
- f. **Unsolicited Proposals.** Unsolicited Proposals **will not** be accepted under the DHS SBIR Program in either Phase I or Phase II. Phase III awards can only be made to recipients of Phase I or Phase II awards.
- g. **Classified Proposals.** Classified proposals will not be accepted under this DHS SBIR Solicitation.
- h. **Human/Animal Testing.** Funds cannot be released or used for any portion of the project involving human/animal testing until all of the proper approvals have been obtained in accordance with applicable regulations (see Section 2.0 of this Solicitation).
- i. **Adequate Accounting System.** In order to reduce the risk to the small business and avoid potential contracting delays, it is suggested that companies interested in pursuing Phase II SBIR contracts and other contracts similar in size with DHS, have an adequate accounting system per General Accepted Accounting Principles (GAAP), Generally Accepted Government Auditing Standards (GAGAS), Federal Acquisition Regulation (FAR) and Cost Accounting Standards (CAS) in place. The accounting system will be audited by the Defense Contract Audit Agency (DCAA). DCAA's requirements and standards are available at the DCAA website [www.dcaa.mil](http://www.dcaa.mil); click on "Publications" and then on "Information for Contractors".
- j. FAR Clauses 52.209-2 and 52.222-54 are incorporated into this Solicitation.

## **6.0 SUBMISSION OF PROPOSALS**

Each Proposal must be submitted via the DHS electronic submission website at <https://www.sbir.dhs.gov> and contain a completed:

- Proposal Cover Sheet,
- Technical Proposal,
- Cost Proposal, and
- Commercialization Report (Phase II Proposals only).

### **6.1 Electronic Proposal Submission**

For complete electronic proposal submission on the DHS electronic submission website, first prepare the Proposal Cover Sheets (select "Prepare/Edit Phase I Cover Sheet" from the Main Menu). The website will assign the Cover Sheet a Proposal Number, which will be used for tracking throughout the submission process. Prepare the Technical Proposal in a single Portable Document Format (PDF) file, check it for viruses, and upload it to the submission website, following instructions on the website. Do not lock, password protect, or encrypt your file. The Cost Proposal must be submitted on-line.

Technical Proposals must be a single file, including all graphics and attachments, should have the company name and proposal number (from the cover sheets) in the header, and must be in PDF. Proposers shall conduct a virus check on each Technical Proposal prior to uploading. Every uploaded file will be scanned for viruses by the DHS. If a virus is detected, the file will be deleted and may cause rejection of the proposal.

Once uploaded, the Technical Proposal file may be viewed or downloaded from the website by clicking on the Check Upload button. Proposers are responsible for verifying that the Technical Proposal was received and converted properly. Technical Proposals may be uploaded as often as necessary, each time overwriting the file previously submitted. Once a file is overwritten, the previous version is NOT retrievable. Proposers electing to modify their proposals in any way shall allow enough time to upload a complete updated proposal. Failure to provide a complete modification by the Solicitation closing will render the proposer's proposal as "late" regardless of whether the proposer had previously submitted a complete proposal. Proposals received after the deadline will not be accepted or evaluated.

Upon successful submission of your proposal, an email confirmation receipt will be forwarded to your email account. Signatures are not required on the Cover Sheets and Cost Proposal for electronic submission. If your proposal is selected for award, the DHS designated Contracting Officer will contact you for all appropriate signatures. Proposers are encouraged, but not required, to have a CAGE code and DUNS number at the time of proposal submission; however, companies must obtain these before a contract can be awarded to the company.

### **6.2 Proposal Deadline**

Proposals will be accepted from **November 18, 2009 – January 6, 2010**. The Deadline for electronic receipt of proposals is 2:00 PM EST January 6, 2010. Proposals must be completely submitted to the DHS submission website by the specified closing time of 2:00 PM EST, on

**January 6, 2010.** Complete submission means that the entire proposal (including the following three (3) parts: Cover Sheets, Technical Proposal, and Cost Proposal) has been properly completed and fully transmitted to the DHS submission website and electronically date stamped. The Solicitation deadline is firm. Late proposals will not be accepted or evaluated. Proposals received via any other means except the DHS submission website will not be accepted or evaluated. As the close date draws near, heavy traffic on the web server may cause delays. Plan ahead and leave ample time to prepare and submit your proposal. Proposers bear the risk of website inaccessibility due to heavy usage in the final hours before the Solicitation closing time. **In accordance with FAR 52.215-1, proposers are responsible for submitting proposals, and any modification, or revisions, so as to reach the Government office designated in the solicitation by the time specified in the Solicitation.**

### **6.3 Notification of Proposal Receipt**

Notification of receipt of each proposal will be provided via e-mail.

### **6.4 Information on Proposal Status**

Evaluation of Phase I proposals and award of contracts will be expedited, but no information on proposal status will be available until the final selections are made. However, Contracting Officers may contact any and all qualified proposers prior to contract award. Selections will be posted on the DHS SBIR website when all selected proposals have been negotiated for award, generally within four months of the Solicitation closing date.

Evaluation of Phase II proposals will begin upon receipt of the proposals. DHS reserves the right to make Phase II awards incrementally as Phase II proposals are received and evaluated. Selections will be posted on the DHS SBIR website as awards are made.

### **6.5 Evaluation Results and Debriefing of Unsuccessful Proposers**

Any proposer that submits a request within three (3) days of being notified of their proposal being selected or non-selected for award will be provided a copy of the evaluation results (i.e., the consensus review). The request must be emailed to [STSBIR.PROPOSALS@dhs.gov](mailto:STSBIR.PROPOSALS@dhs.gov). Be advised that a proposer that fails to submit a timely request is not entitled to a debriefing, although untimely debriefing requests may be accommodated at the Government's discretion.

### **6.6 Correspondence Relating to Proposals**

All correspondence relating to proposals must cite the SBIR Solicitation Number, contractor's proposal number, and the specific Topic Number.

## **7.0 SCIENTIFIC AND TECHNICAL INFORMATION ASSISTANCE**

### **7.1 SAFETY Act**

Congress enacted the Support Anti-terrorism by Fostering Effective Technologies Act of 2002 (the "SAFETY Act") as part of the Homeland Security Act of 2002. The SAFETY Act provides limitations on the potential liability of those concerns that develop and provide qualified anti-terrorism technologies. The DHS Science and Technology Directorate, acting through its Office of SAFETY Act Implementation, encourage the development and deployment of anti-terrorism

technologies by making available the SAFETY Act's system of "risk management" and "liability management."

Proposers submitting proposals in response to this Solicitation are encouraged to submit SAFETY Act applications on their existing technologies and are invited to contact the Office of SAFETY Act Implementation (OSAI) for more information at 1-866-788-9318 or visit OSAI's website at [www.safetyact.gov](http://www.safetyact.gov).

## **7.2 Scientific and Technical Reference**

Scientific and technical reference information is provided with each individual topic provided in Section 8.0 of this Solicitation.

## **7.3 State and Other Assistance Available**

Many states have established programs to provide services to those small concerns and individuals wishing to participate in the Federal SBIR Program. These services vary from state to state, but may include:

- o Information and technical assistance.
- o Matching funds to SBIR recipients.
- o Assistance in obtaining Phase III funding.

Contact your State SBIR Support office at [www.ed.gov/offices/OLRI/SBIR/statelink.html](http://www.ed.gov/offices/OLRI/SBIR/statelink.html) for further information.

Small businesses may seek general administrative guidance from small and disadvantaged business utilization specialists located in various activities throughout the continental United States.

## **8.0 TECHNICAL TOPICS**

This Section contains detailed topic descriptions outlining the technical areas in which DHS requests proposals under this Solicitation for innovative R/R&D from small businesses. Topics are listed and numbered separately. A list of the topics currently eligible for proposal submission is included in this Section followed by full topic descriptions. These are the only topics for which proposals will be accepted at this time.

DHS invests in programs offering the potential for revolutionary changes in technologies that promote homeland security or accelerates the prototyping and deployment of technologies that reduce homeland vulnerabilities. Thus, the DHS SBIR goal is to pursue as many innovative research ideas and concepts that promote homeland security with the potential for commercialization.

The technical topics provided in this S&T SBIR FY 10.1 Solicitation to which small businesses may respond are UNCLASSIFIED. Classified Phase I Proposals will **not be accepted**. Although the topics are unclassified, the subject matter may be considered to be a "critical technology." If a contractor plans to employ non-U.S. citizens in the performance of a DHS SBIR Contract, the contractor shall identify these individuals (including subcontractors and consultants) in its proposal as specified in Section 3.5.b (7) of this Solicitation.

ELECTRONIC SUBMISSION of Cover Sheet, Technical and Cost Proposal **IS REQUIRED**. Only proposals submitted through the on-line submission website at <https://www.sbir.dhs.gov> will be accepted or considered for award by the DHS. Proposals must be prepared and submitted in accordance with the instructions below.

**HELPFUL HINTS:**

Consider the file size of the technical proposal to allow sufficient time for uploading.

- Perform a virus check.
- Signature is not required at the time of submission.
- If you encounter problems during electronic submission call toll free at 1-800-754-3043.
- Facsimile (fax) or e-mail proposals submissions will not be accepted or evaluated.
- Proposals received after the deadline will not be accepted or evaluated.

Phase I SBIR Proposals shall not exceed \$100,000 and must be a **six-month or less effort**.

DHS Phase II Proposals may be recommended by the respective DHS S&T Phase I Program Manager and invited by the Contracting Officer. Phase II invitations will be based upon progress toward meeting the Phase I technical objectives, the technical results reflected in the monthly and/or final reports, site visits conducted by DHS, and plans for Phase II.

Prior to receiving a contract award, the small business **MUST** be registered in the Central Contractor Registration (CCR) Program. You may obtain registration information by calling 1-888-227-2423 and pressing 3 or at <http://www.ccr.gov>.

As funding is limited, DHS reserves the right to select and fund only those proposals considered to be superior in overall technical quality and highly relevant to the DHS mission. As a result, DHS may fund more than one proposal in a specific topic area if the technical quality of the proposal(s) is deemed superior, or it may not fund any proposals in a topic area.

Each proposal submitted to DHS must have a topic number and must be responsive to only one topic.

Cost proposals will be considered non-binding for 180 days from closing date of this Solicitation.

Successful proposers will be expected to begin work no later than 30 days after contract award.

For planning purposes, the Phase I contract award process is normally completed within 30 to 45 days from issuance of the selection notification letter to Phase I proposers. Unsuccessful proposers will be notified after all contracts are awarded. Phase I award information is posted on the website generally four months after the close of the solicitation.

DHS holds kick-offs meetings with all successful proposers approximately two weeks after contract award to discuss the SBIR Program and reporting, invoicing, technical objectives and other subjects.

**DHS S&T DIRECTORATE TOPICS -- DHS Small Business Innovation Research (SBIR)  
Fiscal Year 10 Publication 1**

- H-SB010.1-001      Rechargeable, High Efficient, High Capacity Energy Storage**
- H-SB010.1-002      Rare Variant Detection Using Next Generation Sequencing  
Technology**
- H-SB010.1-003      Precision Information Environments**
- H-SB010.1-004      Molecular Recognition for Explosives Detection**
- H-SB010.1-005      Synthetic Biometrics**
- H-SB010.1-006      GPS Resolution in Denied Location (GRIP-OC)**

**CLOSED**

**8.1 SBIR TOPIC NUMBER: H-SB010.1-001**

**TITLE:** Rechargeable, High Efficient, High Capacity Energy Storage

**TECHNOLOGY AREAS:** Energy Storage, Power Management, Power Generation, Rechargeable Batteries

**OBJECTIVE:** Develop rechargeable, high efficient, high capacity energy storage devices suitable for use in hand-held or small appliance applications.

**DESCRIPTION:**

The technical challenge is to develop small, ultra-lightweight, high efficient, high capacity rechargeable energy storage devices that can provide electrical power to hand-held or small appliances for long periods of time. Examples would be to provide battery storage to hand-held cell phones for use up to several months at a time without requiring recharging. Other applications may be for larger appliances such as radio-controlled (toy/model) cars capable of continuous operation for 12+ hours. It is desired that such devices could be recharged multiple times using the conventional residential power grid or (preferred) from untethered energy sources such as solar photovoltaic cells or other exotic technologies.

The deliverable item would be demonstration of a prototype technology that could have the potential to store electrical energy to power a typical cell phone for up to 12+ hours talk time and up to 2400+ hours (more than 3 months) standby time without recharging. It must also be shown that the prototype technology could be sufficiently miniaturized to fit the form factor of a typical cell phone and the storage approach can be recharged 100+ times without degradation.

**PHASE I:** Develop an understanding of technology approaches that could satisfy the energy storage requirements. Deliver a final report discussing/weighing various technology options, a simulation of the recommended approach(s) that demonstrate the technology, and specifications that could be used to build advanced prototype devices.

**PHASE II:** Develop an advanced prototype(s) from the proposed technologies/approaches resulting from the Phase I effort. Deliver a final report discussing the proposed technology, potential applications, and further steps that need to be taken to mature or commercialize the technology. Provide a working prototype system/device that demonstrates the technology meeting the requirements of the project, including engineering specifications. The prototype must show how the technology can be made scalable to fit the form of a typical cell phone.

**PHASE III: COMMERCIAL APPLICATIONS:** Potential commercial application would be for use in the hand-held cell phone industry or for hand-held navigation and tracking systems currently on the market.

**REFERENCES:**

Overview of batteries and other storage devices:

[http://en.wikipedia.org/wiki/Battery\\_\(electricity\)](http://en.wikipedia.org/wiki/Battery_(electricity))

Linden, David; Thomas B. Reddy (2001). *Handbook Of Batteries*. New York: McGraw-Hill. [ISBN 0-0713-5978-8](#).

U.S. Department of Energy:

[http://www.energy.gov/discovery/building\\_better\\_batteries.html](http://www.energy.gov/discovery/building_better_batteries.html)

**KEY WORDS:**

Battery; energy; power; electricity

CLOSED

## **8.2 SBIR TOPIC NUMBER: H-SB010.1-002**

**TITLE:** Rare Variant Detection Using Next Generation Sequencing Technology

**TECHNOLOGY AREAS:** Bioforensics, Microbiology

**OBJECTIVE:** Determine the maturity of next generation sequencing technologies in finding rare variants in a culture to support forensic attribution of a biocrime.

**DESCRIPTION:** Homeland Security Presidential Directive (HSPD) 10, “Biodefense for the 21<sup>st</sup> Century” established a dedicated central microbial forensic laboratory known as the National Bioforensics Analysis Center (NBFAC), as part of the Department of Homeland Security, to provide bioforensics analysis of evidence associated with the event. The NBFAC operates in partnership with the Federal Bureau of Investigation (FBI), the lead investigative agency in acts of terrorism. In support of this mission, the Science and Technology (S&T) Directorate’s Chemical Biological Division (CBD) is charged with pursuing research to improve response and restoration, conduct threat risk assessments, and invest in bioforensics research and development. Specifically S&T is seeking to apply next generation sequencing technology to rare variant detection within a bacterial sample collected from the scene of a biocrime.

Bacteria have relatively short generation times and as such, they can reproduce rapidly in a short amount of time, increasing the chance of mutation within a sample. This variation gives the sample a unique genetic fingerprint that can be useful as a forensic signature. However, this variation may comprise a very small percentage of the bacterial sample. The ability to detect these rare variants is difficult with traditional technologies and constitutes a capability gap in the field of microbial forensics. Classic sequencing is not only impractical for analyzing large numbers of samples, but studies have shown that traditional bulk PCR sequencing cannot detect variants that comprise less than 10% of the sample, while next generation sequencing technologies have shown the potential to detect rare variants below 1% through ultra-deep sequencing. This solicitation topic area seeks to determine the maturity of next generation sequencing platforms in terms of limits of detection of rare variants in a bacterial sample.

**PHASE I:** Provide a feasibility report that details the capabilities and limitations of the sequencing platform (to include signal to noise ratio and substitution error rates), the likelihood of detecting rare variants at the 1/50, 1/100, 1/500, and 1/5000 levels, the depth of sequencing required to detect rare variants and a research plan to address requirements.

**PHASE II:** Using the limits of detection specified for the platform in the Phase I report, demonstrate the ability to successfully detect rare variants starting from government supplied samples by performing a laboratory demonstration. Results will be verified by the government entity providing the sample. The deliverables will be a final standard

operating procedure (SOP) and the successful demonstration of the methodology to DHS, NBFAC and FBI personnel.

**PHASE III: COMMERCIAL APPLICATIONS:** The methodology developed in Phase I and Phase II will be transferred to and used by the National Bioforensics Analysis Center (NBFAC) and the Federal Bureau of Investigation (FBI) to support forensic analysis of a biocrime.

**REFERENCES:**

Budowle et al. Role of Law Enforcement Response and Microbial Forensics in Investigation of Bioterrorism. *Croatian Medical Journal* 2007 48:437-449.

Hall N. Advanced sequencing technologies and their wider impact in microbiology. *The Journal of Experimental Biology* 2007 209:1518-1525.

Kahvejian A., Quackenbush J., and Thompson JF., What would you do if you could sequence everything? *Nature Biotechnology* 2008 26(10):1125-1133.

Wang et al. Characterization of mutation spectra with ultra-deep pyrosequencing: Application to HIV-1 drug resistance. *Genome Research* 2007 17:1195-1201.

**KEY WORDS:** Microbial forensics; bioforensics; next generation sequencing; rare variants

CLOSED

### **8.3 SBIR TOPIC NUMBER: H-SB010.1-003**

**TITLE:** Precision Information Environments

**TECHNOLOGY AREAS:** Information Analysis

**OBJECTIVE:** Create an environment allowing multiple individuals, from the state or national-scale incident commanders to the public safety worker or emergency responder, to cooperate and collaborate and, more importantly, make specific decisions based on up-to-date and tailored information.

**DESCRIPTION:** The Precision Information Environment (PIE) represents a new way to engage first responders from multiple organizations and on multiple levels in preparing for and responding to homeland security incidents. It combines three-dimensional real world and synthetic world environments: GIS (geographical information system) capabilities; information, in the form of text documents, structured database records, video, images, audio, and instrumentation or sensor data; modeling and simulation capabilities; and visual analytics tools in a common real-time interactive environment. The PIE is also tailorable to the user; that is, it operates on multiple levels, ranging from the large-scale situation room (or COP) to analyst workstations to laptops to portable, handheld devices with the precision necessary to provide that user with relevant, immediate information. PIE would rely on the visual analytics and discrete science tools and technologies already being investigated by the Science and Technology Directorate's Command, Control and Interoperability Basic and Future Research efforts, but would integrate them into a comprehensive yet common set of capabilities usable by tribal, local, state, as well as federal officials. Ultimately, the PIE will allow multiple individuals, from the state or national-scale incident commanders to the public safety worker or emergency responder, to cooperate and collaborate and, more importantly, make specific decisions based on up-to-date and tailored information.

**PHASE I:** Define the parameters for a functional Precision Information Environment and design a framework usable for homeland security applications. Federal, state, and local collaborations need to be addressed. Document findings in the final report.

**PHASE II:** Demonstrate a functional capability, usable from multiple platforms or devices. Incorporate multiple data types and modes. Testing and evaluation in at least one real-world environment is required; to be useful, those evaluations will require the development of metrics.

**PHASE III: COMMERCIAL APPLICATIONS:** It is anticipated that a Precision Information Environment would be useful in a widespread of emergency applications.

#### **REFERENCES:**

National Visualization and Analytics Center website at <http://nvac.pnl.gov>

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**Illuminating the Path: The Research and Development Agenda for Visual Analytics**,  
edited by James J. Thomas and Kristin A. Cook. IEEE Press. ISBN 0-7695-2323-4.  
[http://nvac.pnl.gov/docs/RD\\_Agenda\\_VisualAnalytics.pdf](http://nvac.pnl.gov/docs/RD_Agenda_VisualAnalytics.pdf)

**KEY WORDS:** Visual analytics; data analysis; information environment

CLOSED

**8.4 SBIR TOPIC NUMBER: H-SB010.1-004**

**TITLE:** Molecular Recognition for Explosives Detection

**TECHNOLOGY AREAS:** Biological Sciences, Explosives Detection, Sampling

**OBJECTIVE:** Development of robust, enhanced explosives detection methods by using bio-inspired molecular recognition techniques.

**DESCRIPTION:** Fast, reliable, highly specific explosive detection methods are needed for homeland security applications. Detection methods should also be easily deployed, low cost and require minimum training to operate. Although much research has focused on immuno-, enzymatic-, biologically inspired-/biomimetic-, whole-cell-sensors along with using insects or animals to develop biosensors that detect explosives such as TNT, challenges such as inadequate selectivity and sensitivity remain. The Department of Homeland Security's Science and Technology (S&T) Directorate's Explosives Division is interested in developing novel explosives sensors using enhanced molecular recognition phenomenon with improved selectivity and sensitivity to what is currently available. Special attention should be paid to determining better sensing mechanisms and signal amplification mechanisms to apply to future detection improvements.

**PHASE I:** Demonstrate the feasibility of the proposed technical approach for enhanced explosives detection. A laboratory demonstration, although not required, is desirable. The scientific basis of the proposed technology should be described in the final report.

**PHASE II:** Develop the prototype system or adapt a Commercial Off the Shelf (COTS) system for testing. Analytical characterization of prototype system should be documented to quantitatively demonstrate enhanced explosives detection capability in under 30 minutes (over currently available bio-inspired methods such as immunosensors, enzymatic sensors and whole-cell biosensors).

**PHASE III: COMMERCIAL APPLICATIONS:** Commercial applications of this technology would potentially be fielded in the United States for use by various government agencies and First Responders.

**KEY WORDS:** Sensors; explosive detection; molecular recognition

**8.5 SBIR TOPIC NUMBER: H-SB010.1-005**

**TITLE:** Synthetic Biometrics

**TECHNOLOGY AREAS:** Biometrics, Identity Management, Simulation/Modeling, and Operations Research

**OBJECTIVE:** Demonstrate a prototype tool to create large-scale realistic synthetic biometric datasets (fingerprints, irises, and/or facial) matching the statistical and performance attributes of real-world data.

**DESCRIPTION:** DHS has a unique requirement to evaluate the performance of biometrics in extremely large systems and to encourage their continued technological improvement as the datasets grow even larger. DHS's operational biometric systems currently contain more than 100 million records and are anticipated to approach 500 million records, yet these databases are unavailable to the research and development community due to privacy concerns and security restrictions imposed on the data. The real world data is also of limited value to the research community because it lacks the metadata (information about conditions, quality, etc., of the data) and accuracy required to analyze the performance and factors limiting biometric technologies. Small multi-biometric data collection efforts have been conducted involving volunteer human subjects, but these are time consuming, expensive, require extensive privacy reviews, and do not represent the demographics or size of DHS's extremely large biometric repositories.

The objective of this effort is to demonstrate a prototype tool that can create large-scale synthetic datasets of fingerprints, irises, and/or facial biometrics. These synthetic, or artificial, biometrics would need to have a realistic appearance; match the performance, features, and demographic attributes of DHS real-world biometrics; and be able to scale up to represent extremely large datasets. This effort reaches beyond the typical biometrics community and may cross into multiple disciplines including mathematics and statistics; operations research, modeling, simulation, and gaming theory; physics-based and image-based modeling techniques; and pattern recognition and information theory. As the synthetic biometric tool matures, it is anticipated that it would be capable of simulating the effects that the environment (e.g., lighting, weather), human (e.g., pose, aging, and expression) and sensors have on the synthetic biometric.

**PHASE I:** Conduct a DHS needs and requirements assessment for synthetic biometrics, establish specific metrics for the synthetic biometrics tool, study candidate synthetic biometric approaches, and identify a viable technical approach for a prototype synthetic biometric creation tool meeting the needs and requirements. Document findings in the final report.

**PHASE II:** Develop, test, and deliver a prototype synthetic biometric tool meeting the performance metrics established in Phase I. This effort will include working with DHS

operational components to extract non-attributable features, data characteristics and demographics from the real-world biometric datasets that should be automatically reproduced in the synthetic generated biometrics data, and testing the synthetic data to ensure it accurately represents the real world data and performance within biometric systems.

**PHASE III: COMMERCIAL APPLICATIONS:** A synthetic biometric tool would have applications across the research community, federal government, and security industry for evaluation of biometric system performance. Realistic synthetic biometrics would be useful training aids for the forensics community and potentially to the gaming industry.

**REFERENCES:**

*Zuo J., Natalia A. Schmid, On Generation and Analysis of Synthetic Iris Images, IEEE Transactions on Information Forensics and Security, volume 2, issue 1, March 2007, pages 77 to 90. A synopsis and link to full article is available on the Center for Identification Technology Research (CITeR) web site at: [http://www.citer.wvu.edu/synthetic\\_iris\\_dataset\\_collection\\_model\\_based](http://www.citer.wvu.edu/synthetic_iris_dataset_collection_model_based)*

SFinGe (Synthetic Fingerprint Generator), Biometric System Laboratory, Department of Electronics and Information Systems (DEIS) – University of Bologna, <http://biolab.csr.unibo.it/Home.asp>

D. Maltoni, D. Maio, A.K. Jain, S. Prabhakar, Handbook of Fingerprint Recognition (Second Edition), "Synthetic Fingerprint Generation," pp. 261-302, Springer (London), 2009.

Svetlana N. Yanuschkevich (Editor), Patrick S. P. Wang (Editor), Marina L. Gavrilova (Editor), Sargur N. Srihari (Editor), "Image Pattern Recognition: Synthesis and Analysis in Biometrics," Series in Machine Perception and Artificial Intelligence – Vol. 67, World Scientific Publishing Co. Pte. Ltd., 2007.

D. Buettner, N. Orlans, "A Taxonomy for Physics Based Synthetic Biometric Models," autoid, pp.10-14, Fourth IEEE Workshop on Automatic Identification Advanced Technologies (AutoID'05), 2005.

**KEY WORDS:** Synthetic biometrics; image synthesis; physics-based modeling; operations research; information theory

**8.6 SBIR TOPIC NUMBER: H-SB010.1-006**

**TITLE:** GPS Resolution in Denied Location (GRIDLOC)

**TECHNOLOGY AREAS:** Border Security, Law Enforcement and First Responder Safety, Subterranean Location and Mapping

**OBJECTIVE:** Provide real time positioning of robotic equipment and/or first responder personnel operating in a GPS and short range radio frequency denied environment to the accuracy of current Commercial of the Shelf (COTS) Wide Area Augmentation System (WAAS) capable GPS. Primary emphasis should be placed on position resolution in a subterranean environment. Resultant technology application to above ground scenarios will be explored.

**DESCRIPTION:** Current positioning technologies used in GPS denied environments generally employ some form of inertial navigation and tracking, radio frequency ranging and positioning, or line of site/sound local area warning equipment such as the Personal Alert Safety System (PASS) used by fire departments nationwide. For law enforcement manned and unmanned operation in an unmapped subterranean environment, accurate position of subterranean features is required for interdiction, remediation, and rescue efforts. Typical position errors in portable inertial based navigation and tracking systems are inadequate for a timely surface-based rescue response for subterranean tunnels of response personnel or forensic teams should they become in extremis. Current position error also does not provide timely mapping capability to facilitate law enforcement interdiction and tunnel remediation efforts. Radio frequency ranging and positioning technologies do not exhibit the same accuracy limitations. However, implementation in an initial tunnel entry scenario where surface-based radio signals would be significantly attenuated present similar obstacles to rescue response and interdiction efforts. Although advertised WAAS capable GPS accuracy is better than three meters 95% of the time, it is desired to have one meter or better accuracy for both the subterranean law enforcement and surface emergency responder scenarios.

**PHASE I:** Phase I will result in a report of alternative solution sets, research and development risk associated with each alternative solution set and an informed recommendation on the optimal approach for further investment. This phase will culminate in a proof-of concept demonstration and technical report for the selected alternative solution set. Specifically, Phase I will consists of the following:

- Survey and provide analysis of potential technology solution sets applicable to the objective stated above. Provide analysis report to include research and development risk assessment of each alternative solution set and recommendations to DHS S&T.
- Develop DHS S&T selected technology solution set and provide evidence of feasibility that the solution set will provide real time position information in a GPS and short range radio frequency denied environment. Evidence will support assessing achievable accuracy of the technology solution set.

- Demonstrate selected solution set proof of concept, and provide demonstration report to DHS S&T.

**PHASE II:** Phase II is a prototyping effort of the selected alternative solution set culminating in a prototypical demonstration in an operationally relevant environment and a technical report. Phase II will consist of the following:

- Based on the proof of concept solution set, develop a GRIDLOC prototype. Prototype design will take into consideration both currently used robotic package power and size limitations and power and weight considerations for personnel use.
- Demonstrate GRIDLOC prototype in an operationally relevant environment for the subterranean application in both a robotic and personnel configuration.
- Prepare and provide DHS S&T a report of the demonstration to include accuracy performance achieved in the subterranean environment, surface environment applicability assessment based on subterranean results, and system modification recommendations for both subterranean and surface production unit application.

**PHASE III: COMMERCIAL APPLICATIONS:** It is envisioned that the prototypical solution set will be such that market forces will motivate private industry to pursue commercialization and sales to the law enforcement, fire responder, and emergency responder communities. Crossover applications in the mining industry, recreational and commercial diving industry, and public works sectors also present a potential market.

**REFERENCES:**

Loran-based underground geo-location, navigation and communication system description/claims, USPTO Patent Application 20090146864

**KEY WORDS:** GPS Denied Environment; geo-positioning; subterranean mapping; subterranean navigation; underground location

### DHS FY 10.1 Phase I SBIR Checklist

#### Page Numbering:

- Number all pages of your proposal consecutively; the Cover Sheets count as pages 1 and 2 no matter how they print out; the Technical Proposal begins on page 3
- Total for each Phase I proposal is 25 pages inclusive of Cover Sheets, Technical Proposal, Cost Proposal and resumes
- Beyond the Phase I 25-page limit, do not send appendices, attachments and/or additional references

#### Proposal Format:

- Cover Sheet, Technical and Cost Proposals MUST be submitted electronically at <https://www.sbir.dhs.gov>

#### The Technical Proposal Must Address:

- Identification and Significance of the Problem or Opportunity
- Phase I Technical Objectives
- Phase I Work Plan
- Related Work
- Relationship with Future Research or Research and Development
- Commercialization Strategy
- Key Personnel, Resumes
- Facilities/Equipment
- Subcontractors/Consultants
- Prior, Current, or Pending Support of Similar Proposals or Awards

#### Final Checklist:

- The Cover Sheet was prepared on-line
- The Technical Proposal was uploaded in pdf (file is not locked, password protected, or encrypted)
- The Cost Proposal was submitted on-line and shows detailed cost and fee/profit breakout and the total cost and fee/profit are also listed on the Cover Sheet. The total cost and fee/profit shown on the Cost Proposal matches the cost and fee/profit listed on the Cover Sheet.
- The "Submit Proposal" button was selected to transmit the proposal to DHS and time stamp the proposal
- Email confirmation of the receipt of your Proposal was received
- SBIR Help Desk. Phone: 1-800-754-3043; email: [sbirhd@sainc.com](mailto:sbirhd@sainc.com)

***FAR Clauses:***

**52.209-2 Prohibition on Contracting with Inverted Domestic Corporations - Representation. (Jul 2009)**

(a) *Definition.* “Inverted domestic corporation” means a foreign incorporated entity which is treated as an inverted domestic corporation under [6 U.S.C. 395\(b\)](#), *i.e.*, a corporation that used to be incorporated in the United States, or used to be a partnership in the United States, but now is incorporated in a foreign country, or is a subsidiary whose parent corporation is incorporated in a foreign country, that meets the criteria specified in [6 U.S.C. 395\(b\)](#), applied in accordance with the rules and definitions of [6 U.S.C. 395\(c\)](#).

(b) *Relation to Internal Revenue Code.* A foreign entity that is treated as an inverted domestic corporation for purposes of the Internal Revenue Code at [26 U.S.C. 7874](#) (or would be except that the inversion transactions were completed on or before March 4, 2003), is also an inverted domestic corporation for purposes of [6 U.S.C. 395](#) and for this solicitation provision (see FAR [9.108](#)).

(c) *Representation.* By submission of its offer, the offeror represents that it is not an inverted domestic corporation and is not a subsidiary of one.

(End of provision)

**52.222-54 Employment Eligibility Verification. (Jan 2009)**

(a) *Definitions.* As used in this clause—

“Commercially available off-the-shelf (COTS) item”—

(1) Means any item of supply that is—

(i) A commercial item (as defined in paragraph (1) of the definition at [2.101](#));

(ii) Sold in substantial quantities in the commercial marketplace; and

(iii) Offered to the Government, without modification, in the same form in which it is sold in the commercial marketplace; and

(2) Does not include bulk cargo, as defined in section 3 of the Shipping Act of 1984 ([46 U.S.C. App. 1702](#)), such as agricultural products and petroleum products. Per 46 CFR 525.1 (c)(2), “bulk cargo” means cargo that is loaded and carried in bulk onboard ship without mark or count, in a loose unpackaged form, having homogenous characteristics. Bulk cargo loaded into intermodal equipment, except LASH or Seabee barges, is subject to mark and count and, therefore, ceases to be bulk cargo.

“Employee assigned to the contract” means an employee who was hired after November 6, 1986, who is directly performing work, in the United States, under a

contract that is required to include the clause prescribed at [22.1803](#). An employee is not considered to be directly performing work under a contract if the employee—

- (1) Normally performs support work, such as indirect or overhead functions; and
- (2) Does not perform any substantial duties applicable to the contract.

“Subcontract” means any contract, as defined in [2.101](#), entered into by a subcontractor to furnish supplies or services for performance of a prime contract or a subcontract. It includes but is not limited to purchase orders, and changes and modifications to purchase orders.

“Subcontractor” means any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime Contractor or another subcontractor.

“United States”, as defined in [8 U.S.C. 1101\(a\)\(38\)](#), means the 50 States, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands.

(b) *Enrollment and verification requirements.*

(1) If the Contractor is not enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall—

(i) *Enroll.* Enroll as a Federal Contractor in the E-Verify program within 30 calendar days of contract award;

(ii) *Verify all new employees.* Within 90 calendar days of enrollment in the E-Verify program, begin to use E-Verify to initiate verification of employment eligibility of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); and

(iii) *Verify employees assigned to the contract.* For each employee assigned to the contract, initiate verification within 90 calendar days after date of enrollment or within 30 calendar days of the employee’s assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(2) If the Contractor is enrolled as a Federal Contractor in E-Verify at time of contract award, the Contractor shall use E-Verify to initiate verification of employment eligibility of—

(i) *All new employees.*

(A) *Enrolled 90 calendar days or more.* The Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

(B) *Enrolled less than 90 calendar days.* Within 90 calendar days after enrollment as a Federal Contractor in E-Verify, the Contractor shall initiate verification of all new hires of the Contractor, who are working in the United States, whether or not assigned to the contract, within 3 business days after the date of hire (but see paragraph (b)(3) of this section); or

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(ii) *Employees assigned to the contract.* For each employee assigned to the contract, the Contractor shall initiate verification within 90 calendar days after date of contract award or within 30 days after assignment to the contract, whichever date is later (but see paragraph (b)(4) of this section).

(3) If the Contractor is an institution of higher education (as defined at [20 U.S.C. 1001\(a\)](#)); a State or local government or the government of a Federally recognized Indian tribe; or a surety performing under a takeover agreement entered into with a Federal agency pursuant to a performance bond, the Contractor may choose to verify only employees assigned to the contract, whether existing employees or new hires. The Contractor shall follow the applicable verification requirements at (b)(1) or (b)(2) respectively, except that any requirement for verification of new employees applies only to new employees assigned to the contract.

(4) *Option to verify employment eligibility of all employees.* The Contractor may elect to verify all existing employees hired after November 6, 1986, rather than just those employees assigned to the contract. The Contractor shall initiate verification for each existing employee working in the United States who was hired after November 6, 1986, within 180 calendar days of—

(i) Enrollment in the E-Verify program; or

(ii) Notification to E-Verify Operations of the Contractor's decision to exercise this option, using the contact information provided in the E-Verify program Memorandum of Understanding (MOU).

(5) The Contractor shall comply for the period of performance of this contract, with the requirements of the E-Verify program MOU.

(i) The Department of Homeland Security (DHS) or the Social Security Administration (SSA) may terminate the Contractor's MOU and deny access to the E-Verify system in accordance with the terms of the MOU. In such case, the Contractor will be referred to a suspension or debarment official.

(ii) During the period between termination of the MOU and a decision by the suspension or debarment official whether to suspend or debar, the Contractor is excused from its obligations under paragraph (b) of this clause. If the suspension or debarment official determines not to suspend or debar the Contractor, then the Contractor must reenroll in E-Verify.

(c) *Web site.* Information on registration for and use of the E-Verify program can be obtained via the Internet at the Department of Homeland Security Web site:

<http://www.dhs.gov/E-Verify>.

(d) *Individuals previously verified.* The Contractor is not required by this clause to perform additional employment verification using E-Verify for any employee—

(1) Whose employment eligibility was previously verified by the Contractor through the E-Verify program;

(2) Who has been granted and holds an active U.S. Government security clearance for access to confidential, secret, or top secret information in accordance with the National Industrial Security Program Operating Manual; or

(3) Who has undergone a completed background investigation and been issued credentials pursuant to Homeland Security Presidential Directive (HSPD)-12, Policy for a Common Identification Standard for Federal Employees and Contractors.

(e) *Subcontracts*. The Contractor shall include the requirements of this clause, including this paragraph (e) (appropriately modified for identification of the parties), in each subcontract that—

(1) Is for—

(i) Commercial or noncommercial services (except for commercial services that are part of the purchase of a COTS item (or an item that would be a COTS item, but for minor modifications), performed by the COTS provider, and are normally provided for that COTS item); or

(ii) Construction;

(2) Has a value of more than \$3,000; and

(3) Includes work performed in the United States.

(End of clause)

CLOSED