

**DEPARTMENT OF THE NAVY (DON)  
16.B Small Business Technology Transfer (STTR)  
Proposal Submission Instructions**

**INTRODUCTION**

Responsibility for the implementation, administration, and management of the Department of the Navy (DON) STTR Program is with the Office of Naval Research (ONR). If you have questions of a general nature regarding the DON's STTR Program, contact Mr. Steve Sullivan ([steven.sullivan@navy.mil](mailto:steven.sullivan@navy.mil)). For program and administrative questions, please contact the Program Managers listed in Table 1; **do not** contact them for technical questions. For technical questions about a topic, you may contact the Topic Authors listed for each topic during the period **22 April 2016 through 22 May 2016**. Beginning **23 May 2016**, the SBIR/STTR Interactive Technical Information System (SITIS) (<https://sbir.defensebusiness.org/>) listed in Section 4.15.c of the DoD STTR Program Solicitation must be used for any technical inquiry. For inquiries or problems with electronic submission, contact the DoD SBIR/STTR Help Desk at 1-800-348-0787 (9:00 a.m. to 6:00 p.m. ET).

**TABLE 1: DON SYSTEMS COMMANDS (SYSCOM) STTR PROGRAM MANAGERS**

<u>Topic Numbers</u>	<u>Point of Contact</u>	<u>Activity</u>	<u>Email</u>
N16B-T026	Mr. Marty Machniak (Acting)	SPAWAR	<a href="mailto:martin.machniak@navy.mil">martin.machniak@navy.mil</a>

The DON's STTR Program is a mission-oriented program that integrates the needs and requirements of the DON's Fleet through R&D topics that have dual-use potential, but primarily address the needs of the DON. Companies are encouraged to address the manufacturing needs of the defense sector in their proposals. Information on the DON STTR Program can be found on the DON SBIR/STTR Web site at [www.navy.com](http://www.navy.com). Additional information pertaining to the DON's mission can be obtained from the DON website at [www.navy.mil](http://www.navy.mil).

**PHASE I GUIDELINES**

Follow the instructions in the DoD STTR Program Solicitation at <https://sbir.defensebusiness.org/> for program requirements and proposal submission guidelines. Please keep in mind that Phase I should address the feasibility of a solution to the topic. It is highly recommended that proposers follow the DON proposal template located at [www.navy.mil/sbir/submission.htm](http://www.navy.mil/sbir/submission.htm) as a guide for structuring proposals. Inclusion of cost estimates for travel to the sponsoring SYSCOM's facility for one day of meetings is recommended for all proposals.

**DON STTR PHASE I PROPOSAL SUBMISSION REQUIREMENTS**

The following MUST BE MET or the proposal will be deemed noncompliant and will be REJECTED.

- **Technical Volume.** Technical Volumes shall not exceed **20** pages. The DON requires proposers to include, within the **20-page limit**, an Option that furthers the effort and will bridge the funding gap between the end of the Phase I and the start of the Phase II. Phase I Options are typically exercised upon selection of the Phase II. Tasks for both the Base and the Option should be clearly identified in the 20-page Technical Volume. Any other information provided (e.g. table of contents, letters of support, references, appendices) will count toward the 20-page limitation.

- **Cost.** The Phase I Base amount shall not exceed \$80,000 and the Phase I Option amount shall not exceed \$70,000. Costs for the Base and Option should be separate and identified on the Proposal Cover Sheet and in the Cost Volume.
- **Period of Performance.** The Phase I Base Period of Performance shall not exceed seven (7) months and the Phase I Option Period of Performance shall not exceed six (6) months.

#### **DON STTR PHASE I PROPOSAL SUBMISSION CHECKLIST**

- **Proposal Template.** It is highly recommended that proposers follow the DON proposal template located at [www.navybir.com/submission.htm](http://www.navybir.com/submission.htm).
- **Subcontractor, Material, and Travel Cost Detail.** In the Cost Volume, firms shall provide sufficient detail for the subcontract, material and travel costs. Use the “Explanatory Material Field” in the DoD Cost Volume worksheet for this information. Material costs should include at a minimum listing of items and cost per item. Travel costs should include at a minimum the purpose of the trip, number of trips, location, length of trip, and number of personnel. When a proposal is selected for award, you must be prepared to submit further documentation to the Component Contracting Officer to substantiate costs (e.g., an explanation of cost estimates for equipment, materials, and consultants or subcontractors).
- **Performance Benchmarks.** Firms must meet the two benchmark requirements for progress towards Commercialization as determined by the Small Business Administration (SBA) on June 1 each year. Please note that DON applies performance benchmarks at time of proposal submission, not at time of contract award.
- **Discretionary Technical Assistance (DTA).** If DTA is proposed, the information required to support DTA should be added in the “Explanatory Material Field” of the DoD Cost Volume worksheet. If proposing DTA, a combined total of up to \$5,000 may be added to the Base or Option period.

#### **DISCRETIONARY TECHNICAL ASSISTANCE (DTA)**

The STTR Policy Directive section 9(b), allows the DON to provide DTA to its awardees to assist in minimizing the technical risks associated with STTR projects and commercializing into products and processes. Firms may request, in their Phase I and Phase II proposals, to contract these services themselves in an amount not to exceed \$5,000 per year. This amount is in addition to the award amount for the Phase I or Phase II project.

Phase I awardees that propose more than \$150,000 in total funding (Base, Option and DTA) may not receive a purchase order. Purchase orders are a type of Simplified Acquisition Procedure (SAP) intended to reduce administrative costs, promote efficiency and economy in contracting, and avoid unnecessary burdens for agencies and contractors. The need to issue a Firm Fixed Price (FFP) contract may result in contract delays if the SYSCOM normally issues purchase orders for Phase I awards.

**FOR ONR TOPICS ONLY:** The total Phase I award amount, including DTA, cannot exceed \$150,000.

Approval of direct funding for DTA will be evaluated for approval by the DON STTR office if the firm’s proposal (1) clearly identifies the need for assistance, (2) provides details on the provider of the assistance (name and point of contact for performer); and unique skills/specific experience to carry out the

assistance proposed, and (3) the cost of the required assistance (costs and hours proposed or other details on arrangement that would justify the proposed expense). This information must be included in the firm's cost proposal specifically identified as "Discretionary Technical Assistance" and cannot be subject to any profit or fee by the requesting STTR firm. In addition, the provider of the DTA may not be the requesting firm, an affiliate of the requesting firm, an affiliate of the requesting firm, an investor of the requesting firm, or a subcontractor or consultant of the requesting firm otherwise required as part of the paid portion of the research effort (e.g. research partner, consultant, tester, or administrative service provider). Failure to include the required information in the proposal will result in the request for DTA being disapproved. Exceeding proposal limits identified for Phase I (\$150,000 for Base, Option, and DTA) without including the required identification of DTA will result in the proposal's REJECTION without evaluation.

If a firm requests and is awarded DTA in a Phase II proposal, it will be eliminated from participating in the DON SBIR/STTR Transition Program (STP), the DON Forum for SBIR/STTR Transition (FST), and any other assistance the DON provides directly to awardees.

All Phase II awardees not receiving funds for DTA in their award must attend a one-day DON STP meeting during the first or second year of the Phase II. This meeting is typically held in the summer in the Washington, D.C. area. Information can be obtained at: <http://www.navysbir.com/Transition.htm>. Awardees will be contacted separately regarding this program. It is recommended that Phase II cost estimates include travel to Washington, D.C. for this event.

## **EVALUATION AND SELECTION**

The DON will evaluate and select Phase I and Phase II proposals using the evaluation criteria in Sections 6.0 and 8.0 of the DoD STTR Program Solicitation respectively, with technical merit being most important, followed by qualifications of key personnel and commercialization potential of equal importance. Due to limited funding, the DON reserves the right to limit awards under any topic and only proposals considered to be of superior quality will be funded. **NOTE: The DON does NOT participate in the FAST Track program.**

One week after Phase I solicitation closing, e-mail notifications that proposals have been received and processed for evaluation will be sent. Consequently, e-mail addresses on the proposal coversheets must be correct.

Requests for a debrief must be made within 15 calendar days of non-award notification. Please note the DON debrief request period is shorter than the DoD debrief request period specified in section 4.10 of the DoD Instructions.

Protests of Phase I and II selections and awards shall be directed to the cognizant Contracting Officer for the DON Topic Number. Contact information for Contracting Officers may be obtained from the DON SYSCOM SBIR Program Managers listed in Table 1.

## **CONTRACT DELIVERABLES**

Contract deliverables are typically progress reports and final reports. Deliverables required by the contract, shall be uploaded to <https://www.navysbirprogram.com/navydeliverables/>.

## **AWARD AND FUNDING LIMITATIONS**

The DON typically awards a Firm Fixed Price (FFP) contract or a small purchase agreement for Phase I. In accordance with STTR Policy Directive section 4(b)(5), there is a limit of one sequential Phase II

award per firm per topic. Additionally, in accordance with STTR Policy Directive section 7(i)(1), each award may not exceed the award guidelines (currently \$150,000 for Phase I and \$1 million for Phase II, excluding DTA) by more than 50% (SBIR/STTR program funds only) without a specific waiver granted by the SBA.

### **TOPIC AWARD BY OTHER THAN THE SPONSORING AGENCY**

Due to specific limitations on the amount of funding and number of awards that may be awarded to a particular firm per topic using SBIR/STTR program funds (see above), Head of Agency Determinations are now required (for all awards related to topics issued in or after the SBIR 13.1/STTR 13A solicitation) before a different agency may make an award using another agency's topic. This limitation does not apply to Phase III funding. Please contact the original sponsoring agency before submitting a Phase II proposal to an agency other than the one that sponsored the original topic. (For DON awardees, this includes other DON SYSCOMs.)

### **TRANSFER BETWEEN SBIR AND STTR PROGRAMS**

Section 4(b)(1)(i) of the STTR Policy Directive provides that, at the agency's discretion, projects awarded a Phase I under a solicitation for STTR may transition in Phase II to SBIR and vice versa. A firm wishing to transfer from one program to another must contact its designated technical monitor to discuss the reasons for the request and the agency's ability to support the request. The transition may be proposed prior to award or during the performance of the Phase II effort. Agency disapproval of a request to change programs will not be grounds for granting relief from any contractual requirements. All approved transitions between programs must be noted in the Phase II award or an award modification signed by the contracting officer that indicates the removal or addition of the research institution and the revised percentage of work requirements.

### **ADDITIONAL NOTES**

Due to the short time frame associated with Phase I of the STTR process, the DON does not recommend the submission of Phase I proposals that require the use of Human Subjects, Animal Testing, or Recombinant DNA. For example, the ability to obtain Institutional Review Board (IRB) approval for proposals that involve human subjects can take 6-12 months, and that lengthy process can be at odds with the Phase I goal for time to award. Before the DON makes any award that involves an IRB or similar approval requirement, the proposer must demonstrate compliance with relevant regulatory approval requirements that pertain to proposals involving human, animal or recombinant DNA protocols. It will not impact the DON's evaluation, but requiring IRB approval may delay the start time of the Phase I award and if approvals are not obtained within two months of notification of selection, the decision to award may be terminated. If the use of human, animal, and recombinant DNA use is included under a Phase I or Phase II proposal, please carefully review the requirements at <http://www.onr.navy.mil/About-ONR/compliance-protections/Research-Protections/Human-Subject-Research.aspx>. This webpage provides guidance and lists approvals that may be required before contract/work can begin.

Due to the typical length of time for approval to obtain Government Furnished Equipment (GFE), it is recommended that GFE is not proposed as part of the Phase I proposal. If GFE is proposed and is determined during the proposal evaluation process to be unavailable, proposed use of GFE may be considered a weakness in the proposal.

For topics indicating ITAR restrictions or the potential for classified work, there are generally limitations placed on disclosure of information involving topics of a classified nature or those involving export control restrictions, which may curtail or preclude the involvement of universities and certain non-profit

institutions beyond the basic research level. Small businesses must structure their proposals to clearly identify the work that will be performed that is of a basic research nature and how it can be segregated from work that falls under the classification and export control restrictions. As a result, information must also be provided on how efforts can be performed in later Phases if the university/research institution is the source of critical knowledge, effort, or infrastructure (facilities and equipment).

The Naval Academy, the Naval Postgraduate School and other military academies are government organizations but now qualify as partnering research institutions. However, DON laboratories DO NOT qualify as a research partner. DON laboratories may be proposed only IN ADDITION TO the partnering research institution.

## **PHASE II GUIDELINES**

All Phase I awardees will be allowed to submit an **Initial** Phase II proposal for evaluation and selection. The Phase I Final Report, Initial Phase II Proposal, and Transition Outbrief (as applicable), will be used to evaluate the offeror's potential to progress to a workable prototype in Phase II and transition technology in Phase III. Details on the due date, content, and submission requirements of the Initial Phase II proposal will be provided by the awarding SYSCOM either in the Phase I award or by subsequent notification.

**NOTE: All SBIR/STTR Phase II awards made on topics from solicitations prior to FY13 will be conducted in accordance with the procedures specified in those solicitations (for all DON topics, this means by invitation only).**

Section 4(b)(1)(ii) of the SBIR Policy Directive permits the Department of Defense and by extension the DON, during fiscal years 2012 through 2017, to issue a Phase II award to a small business concern that did not receive a Phase I award for that R/R&D. **NOTE: The DON will NOT be exercising this authority for STTR Phase II awards. Therefore, in order for any small business firm to receive a Phase II award, the firm must be a recipient of a Phase I award under that topic and submit an Initial Phase II proposal.**

The DON typically awards a cost plus fixed fee contract for Phase II. The Phase II contracts can be structured in a way that allows for increased funding levels based on the project's transition potential. To accelerate the transition of SBIR-funded technologies to Phase III, especially those that lead to Programs of Record and fielded systems, the Commercialization Readiness Program was authorized and created as part of section 252 of the National Defense Authorization Act of Fiscal Year 2006. The statute set-aside is 1% of the available SBIR funding to be used for administrative support to accelerate transition of SBIR-developed technologies and provide non-financial resources for the firms (e.g. the DON's SBIR/STTR Transition Program).

## **PHASE III GUIDELINES**

A Phase III STTR award is any work that derives from, extends, or completes effort(s) performed under prior STTR funding agreements, but is funded by sources other than the STTR Program. Thus, any contract or grant where the technology is the same as, derived from, or evolved from a Phase I or a Phase II SBIR/STTR contract and awarded to the company that was awarded the Phase I/II STTR is a Phase III STTR contract. This covers any contract/grant issued as a follow-on Phase III STTR award or any contract/grant award issued as a result of a competitive process where the awardee was an STTR firm that developed the technology as a result of a Phase I or Phase II STTR. The DON will give STTR Phase III status to any award that falls within the above-mentioned description, which includes assigning STTR Data Rights to any noncommercial technical data and/or noncommercial computer software delivered in Phase III that was developed under STTR Phase I/II effort(s). Government's prime contractors and/or

their subcontractors follow the same guidelines as above and ensure that companies operating on behalf of the DON protect the rights of the STTR company.

## **NAVY STTR 16.B Topic Index**

N16B-T026      Novel Nanosat Payloads for Naval Weather Needs

## NAVY STTR 16.B Topic Descriptions

N16B-T026      TITLE: Novel Nanosat Payloads for Naval Weather Needs

TECHNOLOGY AREA(S): Space Platforms

ACQUISITION PROGRAM: Naval Nanosat Program

OBJECTIVE: Develop novel Nanosat payloads for Naval weather needs.

DESCRIPTION: Beyond state of the art research and development is needed to drastically reduce the size, weight and power (SWaP) of payloads that have traditionally performed Naval weather sensing missions on much larger satellites. One example of larger systems is WindSat, a microwave radiometer which measures ocean surface vector winds. Other missions of Naval interest will also be considered. Smaller, more cost effective satellites will enable the Navy to continue vital space missions despite limited resources.

Measurement capabilities of interest include:

- Cloud Characterization - specialized imagery at sufficient resolution to enable discernment of environmental phenomena within the visible, infrared, and passive microwave portions of the spectrum. Cloud characterization products are used in a broad spectrum of operations. Interest in detecting, identifying and classifying various cloud types for use in short, medium and long range cloud forecast models.
- Theater Weather Imagery - specialized imagery at sufficient resolution to enable discernment of environmental phenomena within the visible, infrared, and passive microwave portions of the spectrum. Theater Weather Imagery supports tactical weather forecasting, interest in identifying short duration or rapidly changing weather phenomena.
- Ocean Surface Vector Winds (OSVW) is used for real-time warnings of tropical cyclone position and analysis for assimilation into forecast models. Interest in detection of high winds and sea, most notably tropical cyclone wind fields.
- Tropical Cyclone Intensity - support nowcasts and forecasts to assure safety at sea and early warning. Currently measured by DMSP SSM/I and SSMI/S, AMSR, WindSat, and Tropical Rainfall Measuring Mission (TRMM) Microwave Imager (TMI).
- Sea Ice Characterization - data assimilated into sea ice prediction tools for safety of navigation in the Arctic. Currently derived by DMSP SSMI/S.
- Sea Surface Temperature - Used to measure climate change.

Novel technologies will enable nanosats to expand from university experiments to operational missions. Three unit (3U) and six unit (6U) Cubesat free flying mission designs will be considered. Hosted payloads of a similar size will also be considered. Specific spacecraft bus models or designs have not been chosen, although it can be assumed that approximately half of a 3U spacecraft or one third of a 6U spacecraft size, weight and power will be used for power management, attitude control, communications and other basic spacecraft functions. In general, proposed payloads should:

- Meet the CubeSat Design Specifications (reference 2)
- Fit within approximately 10x10x15 cm and have 2.5 kg or less mass for a 3U Cubesat design, or 10x10x30 cm and have 5 kg or less mass for a 6U design
- Operate on throughput limited UHF or S-band communications links
- Survive the Low Earth Orbit (LEO) space environment for at least two years
- Operate with significant power constraints, either very low duty cycle or very low instantaneous power

PHASE I: Determine project feasibility and develop a novel payload concept design for nanosats to support a Naval weather need. Use modeling and simulation or other suitable analysis techniques, to verify that the payload concept design can operate within the restrictions identified in the description section for a 3U or 6U Cubesat payload and that the payload can provide at least one of the weather related measurement capabilities of interest.

PHASE II: Build a protoflight Novel Nanosat Payload for Naval Weather Needs and test it in the space environment.

- Optimize the payload design based on feedback from Phase I
- Build a protoflight unit
- Demonstrate operation of the protoflight payload in a simulated space environment such as thermal vacuum.
- Evaluate measured performance characteristics versus expectations and make design adjustments as necessary.
- Prepare the protoflight payload for integration with an appropriate satellite bus for a flight demonstration
- Update payload and/or system performance models
- Refine cost estimates to produce the payload in large quantities over time with the ability to insert technological advances during the production lifecycle.

PHASE III DUAL USE APPLICATIONS: This phase will focus on integrating the technology into Naval Nanosat missions. Private Sector Commercial Potential: The technologies developed under this topic to reduce SWaP can be applied to a variety of commercial, military and space exploration nanosat missions. A number of low cost space missions have become commercial ventures in recent years.

#### REFERENCES:

1. Naval Open Architecture. <https://acc.dau.mil/oa>
2. CubeSat Design Specification, <http://cubesat.calpoly.edu/>
3. “The Navy's Needs in Space for Providing Future Capabilities”, 2005, National Academies Press, [http://www.nap.edu/catalog.php?record\\_id=11299](http://www.nap.edu/catalog.php?record_id=11299)
4. PEO Space Systems. <Http://www.public.navy.mil/spawar/PEOSpaceSystems/Pages/default.aspx>
5. Windsat. <Http://www.nrl.navy.mil/WindSat/>
6. Air Force Scientific Advisory Board “Microsatellite Mission Applications” study 2013. <http://www.sab.af.mil/library/index.asp>
7. Navy Meteorology and Oceanography Command. <Http://www.navmetocom.navy.mil/>

KEYWORDS: Nanosat, weather, space, remote sensing, meteorology, oceanography

Questions may also be submitted through DoD SBIR/STTR SITIS website.