

# **Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Program**

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# Research Areas

- Chemical
- Biological
- Radiological (DNDO)
- Nuclear (DNDO)
- High Explosives
- Cyber Security
- Emergency Preparedness and Response
- Borders and Transportation Security



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# SBIR/STTR Participating Agencies

(\$2.5B FY 06)

- DOD SBIR/STTR
- HHS SBIR/STTR
- NASA SBIR/STTR
- DOE SBIR/STTR
- NSF SBIR/STTR
- **DHS SBIR/STTR**
- USDA SBIR
- DOC SBIR
- EPA SBIR
- DOT SBIR
- ED SBIR

FY04 SBIR \$19.6M

FY05 SBIR \$ 23 M

FY06 SBIR \$ 27 M

FY06 STTR \$ 3 M



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# DHS S&T SBIR Strategy

- Engage all S&T portfolios and programs
- Design topics with:
  - Medium width topics (not point solutions, not open topics)
  - Near term commercialization potential
- Award multiple Phase I's and II's
- Reduce or eliminate the gap between Phase I and II
- Active involvement to reach Phase III
  - Encourage teaming and collaboration
  - Involve ultimate user



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# DHS S&T SBIR Program

- Two solicitations per year
  - Published in FedBizOpps and [www.hsarpasbir.com](http://www.hsarpasbir.com)
  - 30 day posting and 30 day proposal period
  - ~6 topics per solicitation
- Awards
  - Multiple contract awards based on evaluation, funds available and programmatic considerations
  - ~30 Phase I's and ~10 Phase II's per solicitation
- Electronic Processing
  - Proposals submitted/evaluated via our website
  - Electronic notification of proposal receipt/results
  - Submission of reports via website



# SBIR/STTR – A Three Phase Program

- Phase I – Scientific and Technical Feasibility
  - SBIR - NTE 6 months and \$100K
  - STTR – NTE 12 months and \$100K
- Phase II – Concept Development
  - NTE 24 months and \$750K
- Phase III – Product Development
  - Private or non-SBIR government funding

*For Domestic Nuclear Detection Office topics, limits are \$150K (I) and \$1M (II) in FY06 (06.1-0010)*



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# HSARPA Evaluation Process

- Evaluators determine if the proposal is appropriate and **relevant** to the topic area and if the proposed research is **unique**
- Each proposal evaluated on its merit and relevance to the specific SBIR topic area rather than against other proposals
- Evaluators use a point scoring system
  - Maximum of twenty points or a minimum of zero points per proposal



# HSARPA Evaluation Criteria

- The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- The qualifications of the proposed principal 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.
- The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization.

| Phase I | Phase II |
|---------|----------|
| 10      | 10       |
| 6       | 4        |
| 4       | 6        |
| 20      | 20       |



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# HSARPA Evaluation Process (cont.)

- Evaluators use the following ratings:



- Highest Priority (20 points) Strongly Recommended for Funding
- High priority (18-19 points) Recommended for Funding
- Priority (16-17 points) Fund Availability
- Selectable (13-15 points) Fund Availability



- Not Selectable (0-12 points) Not Recommended for Funding

Technical merit essentially equal, tie breaker is **cost** to the government or length of **schedule**



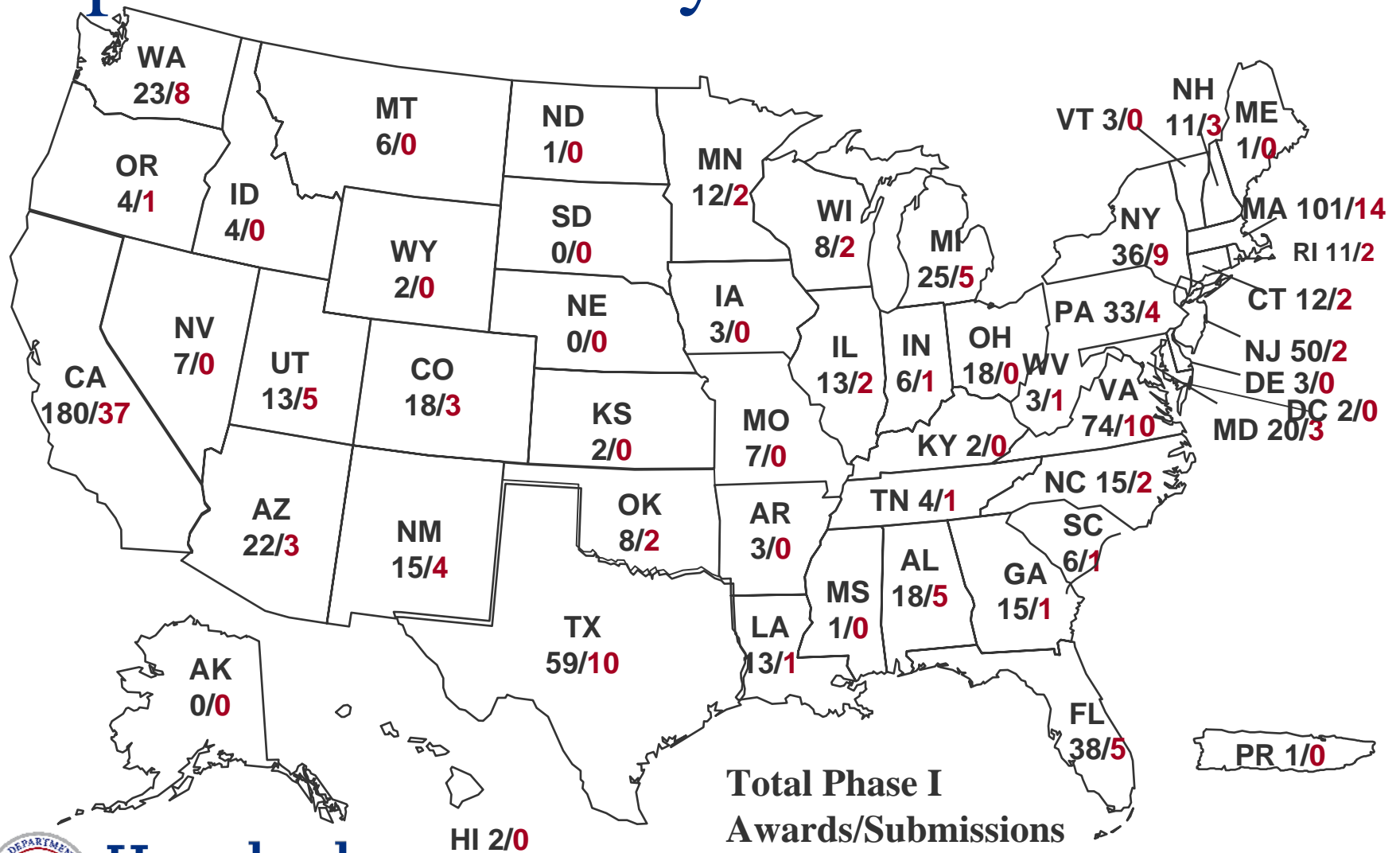
# HSARPA SBIR Statistics

|                  | FY04<br>\$19M |     | FY05<br>\$23M |     | FY06<br>\$27M |     |
|------------------|---------------|-----|---------------|-----|---------------|-----|
| Solicitation     | 4.1           | 4.2 | 5.1           | 5.2 | 6.1           | 6.2 |
| Topics           | 8             | 6   | 6             | 6   |               |     |
| Phase I Proposal | 368           | 157 | 215           | 208 |               |     |
| Phase I Awards   | 66            | 31  | 32            | 30  |               |     |
| Phase II         | 21            | 13  | 11            |     |               |     |
| Cost-Match       | 2             |     |               |     |               |     |

Award Average  
Phase I 17 %  
Phase II 28 %



# Phase I (4.1/4.2/5.1/5.2) Proposals/Awards by State



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# “Jump-Start” to Phase II

- Invitation (at the discretion of HSARPA PM) to submit Phase II proposal before the completion of Phase I
- Only for meritorious Phase I’s with clear potential for Phase II
- Invitation basis:
  - Performance toward Phase I technical objectives
  - Monthly and/or final reports
  - Site visits
  - Plans for Phase II
- Invitation no earlier than 2/3 of period of performance (ex. Invite in 4<sup>th</sup> month of 6 month effort)
- Phase II proposals evaluated and awarded incrementally
- Decreases/eliminates funding gap between phases
- Accelerates development of technology



# “Jump Start” Statistics

|                 | FY04<br>\$19M |     | FY05<br>\$23M |     |
|-----------------|---------------|-----|---------------|-----|
| Solicitation    | 4.1           | 4.2 | 5.1           | 5.2 |
| Phase II Invite | 30            | 18  | 17            |     |
| Phase II Select | 21            | 13  | 11            |     |
| Pre-Contract    | 10            | 10  |               |     |
| Cost-Match      | 2             | 1   |               |     |
| Phase III       | 1             |     |               |     |

Phase II award Average  
69 %



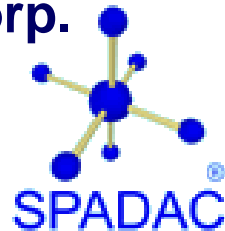
# Cost Matching (Fast Track)

- Allows SB's to seek additional funding from non-SBIR sources
- Matched by HSARPA SBIR up to \$250K in a 1:2 ratio
- Minimum of \$100K to maximum of \$500K of outside funding
- Example: \$500K of outside funding may generate an additional \$250K - total HSARPA funding \$1.0M and total effort \$1.5M
- Additional funds require additional scope – so either added R&D on SBIR contract or other development and commercialization activities (or some of both)
- Cost match is a motivator for, and an indicator of, commercial potential



# DHS SBIR Success Stories

**Spatial Data Analytics Corp.**  
Vienna VA



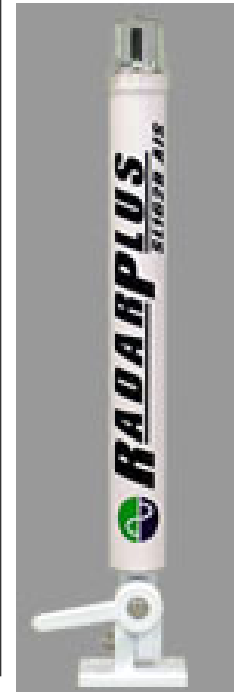
## ***Concurrent Phase II and III periods of performance***

A multilayer analysis of critical U.S. infrastructure and terrorist threats will predict potential events

Phase II continues model development

Phase III deploys model to DHS Information Analysis & Infrastructure Protection

**Shine Micro, Inc.**  
Port Ludlow, WA



## ***Phase II results in a Phase I and adding additional Phase II tasks***

Our first Phase II award will produce production units

A low cost Class B Automatic Identification System (AIS)

Maritime tracking of small vessels with the ability to see and transmit vital information to port security, law enforcement and other vessels

RadarPlus SL 162B  
Class B AIS Transponder



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# Zone Risk Assessment & Prediction

## Determining high risk geographic areas for terrorist attack

### Objective:

- **Identify Risk & Vulnerability Geographic Patterns**

- Example: Hamas suicide bombings from Tel Aviv & Netanya

- **Transfer Risk & Vulnerability Patterns**

- To Jerusalem
- To Washington, DC

- **Force Multiplier**

- Allows decision-makers to test and prioritize the impact of security strategies (physical, sensors & manpower)

### How we do this:

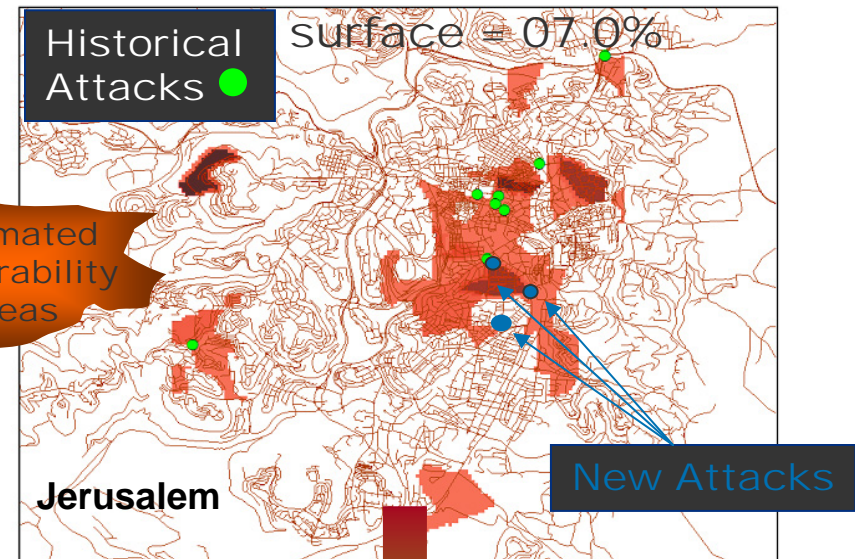
- **Rapid Data Fusion of information**

- Geo-spatial
- Infrastructure
- Dynamic and static behavior
- Cultural, Political, and Demographic
- Temporal

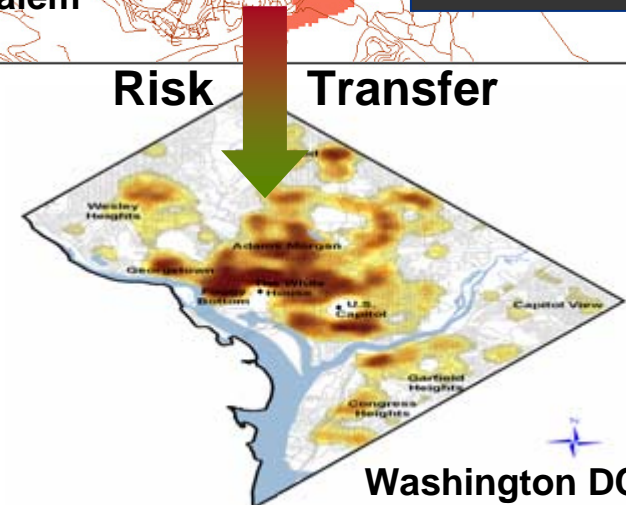
- **Technology also applicable to predicting illegal border crossings.**



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**Risk Transfer**





# FY 06 Schedule (tentative)

- 06.1
  - Solicitation posted 10 Feb 06
  - Proposals accepted 10 March 06 – 10 April 06
  - Contracts awarded May 06
- 06.2
  - Solicitation posted June 06
  - Proposals accepted July 06
  - Contracts awarded September 06



# SBIR 06.1 Topics

- **H-SB05AEROSOL COLLECTION INTO LOW ANALYSIS VOLUMES**
- **RELIABLE PEROXIDE-BASED EXPLOSIVES DETECTION WITH LOW FALSE ALARM RATE**
- **ENHANCED EXPLOSIVE SAMPLE COLLECTION AND/OR PRECONCENTRATION SYSTEMS**
- **SIGNAL PROCESSING FOR A SOUTHERN BORDER SURVEILLANCE SYSTEM**
- **HUMAN DETECTOR FOR CARGO SHIPPING CONTAINERS**
- **INSTANTANEOUS REMOTE SENSING DATA RECEIVING AND PROCESSING FOR EMERGENCY RESPONSE**
- **NETWORK-BASED BOUNDARY CONTROLLERS**
- **BOTNET DETECTION AND MITIGATION**
- **MANAGING MULTI-MEDIA SURVEILLANCE INFORMATION NETWORKS**
- **NON-NUCLEAR SOURCES OR TECHNIQUES TO REPLACE NUCLEAR SOURCES IN COMMERCIAL (NON-MEDICAL) APPLICATIONS (DNDO topic)**



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<http://www.DHSsbir.com>

**Other Funding Opportunities**

**Homeland Security Advanced Research Projects Agency**  
SBIR PROGRAM

Solicitation Deadlines

SBIR Solicitations

SBIR Awards

Proposal/Award Administration

Proposal Review

Reviewer Opportunities

Collaboration Opportunities

SBIR Contact Information

FAQ

Links

**Topic Recommendations**

Presentations

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[Invitations to Submit Phase II Proposals](#)

[HSARPA SBIR Announces Second Set of SBIR Awards](#)

**Homeland Security Advanced Research Projects Agency**  
**SBIR Program**

*Vision: Make America Safer*

*The top priority for everything HSARPA does is to enhance the safety and security of America's people, institutions and way of life.*

The Department of Homeland Security (DHS), Homeland Security Advanced Research Projects Agency (HSARPA) joined the Small Business Innovation Research (SBIR) program, in December 2003, our goal is to increase the participation of innovative and creative small businesses in Federal Research/Research and Development (R/R&D) programs and challenge industry to bring innovative homeland security solutions to reality.



All Federal agencies with an annual extramural R&D budget exceeding \$100M are required to participate in the SBIR Program. Each fiscal year, not less than 2.5 percent of the annual extramural budget, is reserved for awards to small businesses for R&D through a three

**Collaboration Opportunities**

**Topic Recommendations**

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# Using the [WWW.HSARPABAA.COM](http://www.hsarpabaa.com) Web Site

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SOLICITATIONS AND TEAMING PORTAL**  
**HSARPA SOLICITATIONS**

- [Home](#)
- [Current Solicitations](#)
  - [BAA 04-02 Detection Systems for Radiological and Nuclear Countermeasure](#)
  - [BAA 04-03, Bioinformatics and Assays Development Program](#)
  - [BAA 04-05, Automated Scene Understanding](#)
  - [BAA 04-06 Advanced Container Security Device](#)
- [Current Workshops & Drafts](#)
  - [BAA 04-18 Instantaneous Bio-Aerosol Detector Systems](#)
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## Home

## Current Solicitations

- BAA 04-10 Low Vapor Pressure Chemicals Detection Systems (LVPCDS) Program
- BAA 05-03 Prototypes and Technology for Improvised Explosives Device
- BAA 05-06 Food Biological Agent Detection Sensor (FBADS)

## Current Workshops & Drafts

## Past Solicitations

## Past Workshops

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