

Index to Charts: Guidance to Dept of Homeland Security (DHS) Funding

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USC MAPS

http://web-app.usc.edu/web/ra_maps

The DC Office of Research Advancement has created the Federal Mission Agency Program Summaries (MAPS) website to:

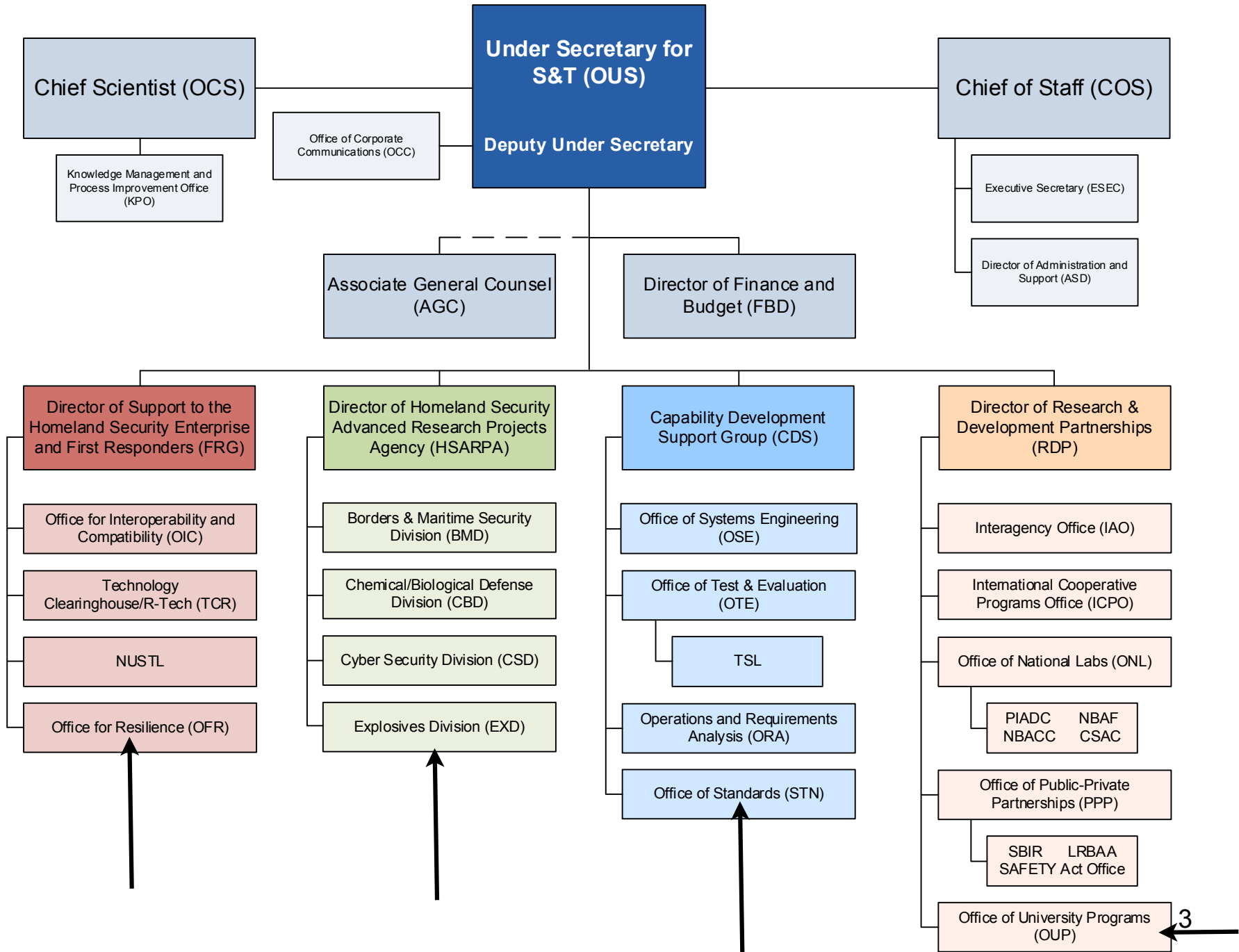
1. Connect PIs with appropriate funding agency programs/program officers
2. Assist in development of white papers/charts/elevator pitches

The website can be accessed using one's USC NetID and Password.

It has the following resources:

1. *Search Tab* for a searchable database of programs/program officers
At that website one can do keyword searches to locate the associated mission agency (DHS, DOD, DOE, DOT, ED, EPA, INTEL, NASA, NIST, NOAA and USDA) programs and program officers.
2. *Mission Agency Tab* (DHS, DHHS, DOD, DOJ, DOE, DOT, ED, EPA, INTEL, NASA, NIST, NOAA, USDA)
Guide to Agency Funding for FYXX
Agency Research Program Charts
Agency Planning Documents
Chart numbers in the text above reference the Agency Research Program Chart files.
3. *Presentation Tab* for charts from recent USC Center of Excellence in Research workshops
4. *Proposal Tab* for report / guides on writing proposals
5. *Email Alerts Tab* for URLs at which one can arrange for automatic solicitation updates
6. *Grantee Tab* for URLs at which one can find previous agency awardees

DHS Science and Technology Organization Chart



DHS

Science and Technology Strategic Plan - 2015-2019

Visionary Goals

Screening at Speed: Security that Matches the Pace of Life

A Trusted Cyber Future: Protecting Privacy, Commerce and Community

Enable the Decision Maker: Actionable Information at the Speed of Thought

Responder of the Future: Protected Connected and Fully Aware

Resilient Communities: Disaster-proofing Society

Objectives / Initiatives

Deliver Force Multiplying Solutions

- Identify and Prioritize Operational Requirements and Capability Gaps

- Make Strategic Investments in High-Impact, Priority Areas

- Partner with the Homeland Security Enterprise (HSE)

Energize the Homeland Security Industrial Base (HSIB)

- Optimize Markets by Pooling Demand and Developing Standards

- Engage the HSIB through a Deliberate, Continuous, and Transparent Approach

- Improve Programs Designed to Increase Collaboration with Innovative Companies

Establish a Strong and Healthy Leadership Culture

Department of Homeland Security
Science and Technology Directorate - Long Range BAA

<http://www.dhs.gov/directorate-science-and-technology>

What: Within its Basic Research Portfolio, S&T generally funds quality research projects that meet at least one of these selection criteria:

- Addresses an important Department issue without a near-term solution.
- Pursues a creative solution that addresses a unique, long-term need, which is not addressed elsewhere.
- Exploits new scientific breakthroughs (for example, from universities, laboratories, or industry) that could strengthen homeland security.

Basic science ideas which hold promise for transformative performance improvements. Generic areas of interest are identified via amendments; they are shown in the following charts

A pre-submission inquiry is optional, but White Papers are required - full proposal only if invited

How Much: nothing specified

When: anytime up to 31 Dec 2018

Where: DHSST-LRBAA14-02 DHS S&T Long Range Broad Agency Announcement
Amendment 9 - Dec 2015

Resources

DHS S&T Long Range Broad Agency Announcement: Topics

DHSST-LRBAA-14-02 (Amendment 9, Dec 2015)

First Responder Group (FRP)

- FRG.01 Identify Trends, Patterns and Content from Large Volumes of Data
- FRG.02 Share Video from Incident Scene to Medical Services Personnel
- FRG.03 Analyze the Performance of a Video Systems Transport Component
- FRG.04 Respond and Recovery from Radological/Nuclear Incident
- FRG.05 Monitor Airborne Radioactive Fallout Particles in Atmosphere
- FRG.06 Flood Forecasting/Modeling

Explosives Division (EXD)

- EXD.01 Standoff Detection of Explosives
- EXD.02 Trace Detection of Explosives
- EXD.03 Cargo Security
- EXD.04 Data Fusion and Automated Detection for Aviation
- EXD.05 Advanced Detection Technologies
- EXD.06 Risk-based Screening
- EXD.07 Improved X-Ray System Components
- EXD.08 Canine Explosive Detection Technologies
- EXD.09 Homemade Explosives
- EXD.10.1 Checkpoint Passenger Screening
- EXD.10.2 Checkpoint Baggage Screening
- EXD.10.3 Special Purpose Screening
- EXD.10.4 Algorithms and Software

DHS S&T Long Range Broad Agency Announcement: Topics

DHSST-LRBAA-14-02 (Amendment 9, Dec 2015)

Cyber Security Division (CSD)

- CSD.01 Internet Infrastructure Security
- CSD.02 National Research Infrastructure for Cyber Security/Experimentation
- CSD.03 Homeland Open Security Technology
- CSD.04 Forensics Support to Law Enforcement
- CSD.05 Identity Management
- CSD.06 Data Privacy Technologies
- CSD.07 Software Assurance
- CSD.08 Cyber Security Education
- CSD.09 Cyber-physical control and Critical Infrastructure Systems and Security
- CSD.10 Internet Measurement and Attack Modeling Techniques
- CSD.11 Securing the Mobile Workforce
- CSD.12 Insider Threat - hinder misuse
- CSD.13 Experiments and Pilots - test in operational environments
- CSD.14 Cybersecurity insurance and cyber behaviors
- CSD.15 Data Analytics
- CSD.16 Predictive Analysis
- CSD.17 Distributed Denial of Service Defense
- CSD.18 Cloud Computing Security
- CSD.19 Next Gen Cyber Infrastructure

DHS S&T Long Range Broad Agency Announcement: Topics

DHSST-LRBAA-14-02 (Amendment 9, Dec 2015)

Border and Maritime Security (BMD)

Land Border Security

- BMD1.1 Noninvasive, minimally disruptive sensors and systems
- BMD1.2 Cost-effective airborne sensors
- BMD1.3 Small, covert sensors for detection and classification of personnel
- BMD1.4 Sensors for detection and/or tracking of personnel in dense foliage
- BMD1.5 Border illegal flow pattern recognition
- BMD1.6 Border illegal flow prediction
- BMD1.7 Border illegal flow risk assessment
- BMD1.8 Forensic Analysis Tools

Maritime Border Security

- BMD2.1 Improved visualization and tools
- BMD2.2 Improved situational awareness by automated or assisted behavior analysis
- BMD2.3 Improved quality of data via sensor performance or near real-time processing to improve detection
- BMD2.4 Approaches that utilize public as well as private data to increase detection/tracking
- BMD2.5 Improved communication devices or methods for shared radar, video and other info

~~Resilient Systems Division (RSD) removed as a HSARPA Division~~

~~Human Factors/Identification Systems~~

- ~~RSD1.1 Behavior based models/methods/training/technologies to enhance community resilience~~
- ~~RSD1.2 Detection/analysis/understanding/mitigation of violent extremists~~
- ~~RSD1.3 Non-invasively identifying deceptive and suspicious behavior~~
- ~~RSD1.4 Biometrics~~

~~Physical Security Systems~~

- ~~RSD2.1 Surveillance Systems~~
- ~~RSD2.2 Resilient and Sustainable Critical Infrastructure Sectors~~

~~Decision Support Systems~~

- ~~RSD3.1 Agile Decision Aid Analytics~~
- ~~RSD3.2 Modeling, Simulation and Gaming Technologies~~
- ~~RSD3.3 Geospatial and Remote Sensing~~
- ~~RSD3.4 Emergency Management~~
- ~~RSD3.5 Information Sharing~~

DHS S&T Long Range Broad Agency Announcement: Topics

DHSST-LRBAA-14-02 (Amendment 9, Dec 2015)

Office of Standards (CDS) - in Acquisition Support and Operations Analysis

CDS.01 Development and Integration of Consensus Standards

Chemical/Biological Division (CBD) none in amendment 9

~~Chemical/Biological Detection~~

~~CBD.02 — Rapid Diagnostic Tests~~

~~CBD.03 — Facility Protection~~

~~CBD.04 — CBRN Threat Characterization~~

~~AGRO Defense~~

~~CBD.09 — not in current solicitation — Diagnostics for Foreign Animal Disease~~

~~CBD.10 — not in current solicitation — Modeling and Analysis of Foreign Animal Diseases~~

~~CBE.13 — Biological based Countermeasures for Foreign Animal Disease~~

~~CBE.15 — Collect and Analyze Data to Support Development/Validation of Livestock Disease Models~~

DHS / S&T Directorate

HSARPA

<http://www.dhs.gov/st-hsarpa>

HSARPA uses innovation and modernization to push scientific limits and produce front line products that support organizations like the Secret Service, bomb squads, first responders, Transportation Security Administration, and officers along our borders. HSARPA conducts analysis to understand these organizations' current missions, systems, and processes and ultimately identifies operational gaps where new technologies can have the most impact. Program managers lead teams of national experts to develop, test, and evaluate these new homeland security technologies and capabilities.

HSARPA Divisions:

- **Borders and Maritime Security Division (BMD)** Ms Ahn Duong, Director
Prevent contraband, criminals and terrorists from entering the U.S. while permitting the lawful flow of commerce and visitors.
- **Chemical and Biological Defense Division (CBD)** Dr. John Fischer, Director
CBD performs analyses and countermeasures, including improved characterization and prioritization of threats, innovative or revolutionary methods for surveillance and detection for early attack warning that minimize exposure and speed treatment of victims, new forensic methods to support attribution, and novel concepts for decontamination and restoration, agro-defense, and food defense.
- **Cyber Security Division (CSD)** Dr. Douglas Maughan, Director
CSD focuses on research for advanced cyber security and information assurance solutions to secure the Nation's current and future cyber and critical infrastructures against persistent threats and dynamic attacks. These solutions include secure protocols, end system security, user identity and data privacy technologies, research infrastructure, law enforcement forensic capabilities, competitions, and education.
- **Explosives Division (EXD)** TBD (Feb 2016)
EXD countermeasures include the detection, mitigation, and response to explosive threats including: all modes of transportation within the transportation systems sector; in checked and carry-on baggage; home made explosives (HME); improvised explosive devices (IEDs), vehicle borne (VBIED) and person borne (PBIED); and response and defeat technologies.

DHS / Science and Technology Directorate / HSARPA
Cybersecurity Division Specific
Generic BAA - Applied Research

What: Cybersecurity Research and Development - the BAA is generic, submission of proposals must wait for amendments to the BAA that will identify topics. Anticipated technical topic areas (TTA) of interest:

- Security for Cloud-Based Systems
- Data Privacy Technologies
- Mobile Wireless Investigations
- Mobile Device Security
- Next-Generation DDOS Defenses
- Cyber-Physical Systems
- Application Security Threat Attack Modeling (ASTAM)
- Static Tool Analysis Modernization Project (STAMP)
- Network Reputation and Risk Analysis
- Data Analytics Methods for Cyber Security
- New Models for Cyber Security Learning
- Designed-In Security
- Finance Sector Cyber Security
- Cyber Security Measures and Risk Management
- Data Provenance for Cyber Security
- Rapid Indicators for Cyber Threats
- Domain Name System Security (DNSSEC) Applications
- National Initiative for Cyber Security Education

Type I (New Technologies) Type II (Prototype Technologies) Type III (Mature Technologies)

How Much: it is anticipated that the CSD program will have a total of \$95M over the next 5 years 2014-2019

When: Amendments will specify specific topics and due dates.

Where: DHS BAA HSHQDC-14-R-B0005 and subsequent amendments

DHS / Science and Technology Directorate / HSARPA
Chemical Biological Defense Division Specific
Generic BAA - Applied Research

What:

The over-arching strategy of this BAA involves the use of this 3.5-year Open BAA (OBAA) to quickly and efficiently execute research and development to deliver practical solutions to urgent chemical and biological defense priorities. This strategy will provide DHS an acquisition tool with the flexibility to solicit proposals and make awards to perform rapid prototyping of technical solutions to meet present and compelling chemical and biological defense needs, as ever-changing urgent operational issues and capability gaps are identified.

It is anticipated that the majority of awards issued under this BAA Award type will be in the form of Cost Reimbursement type contracts. The anticipated initial period of performance for each award is 12 months, with extensions possible through the exercise of options.

Anticipated Technical Topic Areas

- CBD 01: Diagnostics and Agent Characterization
- CBD 02: Surveillance and Detection
- CBD 03: Event Characterization, Response and Remediation
- CBD 04: System Studies - threat characterization
- CBD 05: Bioforensics and Chemical Forensics
- CBD 06: CBN Risk Analysis and Biological Threat Characterization
- CBD 07: Vaccines and Therapeutics

How Much: The value of this BAA will not exceed \$50 million dollars over its 3.5 year duration.

When: BAA is open for 3.5 years. Amendments will specify topics and due dates.
Call 0014 (released 9 Dec 2015) proposal due date 8 Mar 2016

Where: HSHQDC-14-R-B0009 OBAA 14-003 and subsequent amendments

DSH / Science and Technology Directorate / HSARPA
Explosives Division Specific
Advanced Trace Detection Instrumentation and Methodologies

What:

Technical Areas of Interest

- Retrofit of Current Explosive Trace Detection Systems
- Develop Advanced Desktop Explosive Trace Detection System
- Develop Portable Explosive Trace Detection System suitable for security screening
- Trace Explosives Detection Tools and Methods
- Advance Information Theoretical Analysis of Signatures
- Improved Trace Explosives Sampling Methods for cargo, checked baggage, or checkpoint

The work is not basic research, rather technology development. The funding will use a contract mechanism, not grants, and have test/evaluation deadlines.

White papers are required.

How Much: it is anticipated that DHS S&T will have approximately \$10.5M for all awards

When: TBD by amendment to BAA; solicitation open to Mar 2020

Where: HSHQDC-15-R-B0002 DHS BAA 13-03

DHS / Science and Technology Directorate / HSARPA
Resilient Systems Specific (no longer a Division in HSARPA, but the staff remain)
Generic BAA - Applied Research

What: Anticipated topic areas:

Critical Infrastructure Safety and Security

Improve Response Agility & Recovery Capacity

Understand, Manage, & Adapt to Evolving Risks

Behavioral and Social Science

Type I New Technologies/Solutions

Type II Prototype Technologies Solutions

Type III Mature Technologies /Solutions

How Much: RSP program anticipated to have \$45M over 5 years

When: Generic announcement open until 2019; specific amendments will provide details

Where: DHS RSD BAA HSHQDC-15-R-0002

DHS
Border and Maritime Security Division
<http://www.dhs.gov/science-and-technology/program-managers>

Program Officer	e-mail	Year Start	Interests
Charlotte Sullivan	charlotte.sullivan@hq.dhs.gov		Cargo container security, cargo security
David Masters			Cargo container security, cargo security, cargo validation, tunnel detection and surveillance; land border security
Dave Taylor			Cargo validation; cargo security
Leslee Shumway	leslee.shumway@dhs.gov		Ground-based technologies, land border security
Marilyn Rudzinsky	marilyn.rudzinsky@hq.dhs.gov	2014	Air-based technologies, land border security
Mark Kaczmarek	mark.s.kaczmarek@cbp.dhs.gov		Ground-based technologies, land border security
M.K. Tribbie			Arctic communications and technology, port and coastal surveillance; maritime border security

DHS

Chemical and Biological Defense Division

<http://www.dhs.gov/science-and-technology/program-managers>

Program Officer	e-mail	Year Start	Interests
Angela Ervin	angela.ervin@dhs.gov	2007	response and recovery, detection and diagnostics
David Hodge	David.Hodge@hq.dhs.gov		Detection and Diagnostics
David Shepherd			Threat Awareness
Don Bansleben	donald.bansleben@hq.dhs.gov	2006	Response and Recovery
George Famini	George.Famini@dhs.gov	2006	threat awareness
John Julius		2014	threat awareness; detection and diagnostics
John Korslund	john.korslund@hq.dhs.gov		biosurveillance
Kevin Anderson	kevin.anderson@dhs.gov	2010	Detection and Diagnostics
Matthew Moe		2011	Response and recovery; threat awareness
Michelle Colby	michelle.colby@dhs.gov	2009	Biosurveillance detection and diagnostics response and recovery, detection and diagnostics response and recovery
Robert Bull			Response and Recovery
Randolph Long	Randolph.long@dhs.gov		Topics of interest to the Division
Scott White	scott.white@dhs.gov	2013	threat awareness
Traci Pals	traci.pals@hq.dhs.gov	2014	Detection and Diagnostics; response and recovery

DHS

Cyber Security Division (CSD)

<http://www.dhs.gov/science-and-technology/program-managers>

<http://www.dhs.gov/science-and-technology/csd-team>

Program Officer	e-mail	Year Start	Interests
Ann Cox	ann.cox@hq.dhs.gov		Cybersecurity, Internet measurement, network security monitoring
Dan Massey	daniel.massey@hq.dhs.gov		Cybersecurity, cyber physical systems, smart devices, denial of service attacks, open source, security of Internet addressing and routing
Doug Maughan	Douglas.maughan@hds.gov		Cybersecurity, research data repository, cyber ethics
Ed Rhyne	edward.rhyne@hq.dhs.gov		Cybersecurity, cyber education, attack mitigation, moving target defense, cloud computing
Greg Wigton	Gregory.Wigton@dhs.gov		Cybersecurity, finance sector testing tool, security metrics and supporting tools and techniques, research testbed, oil and gas sector consortium, power grid security
Joe Kielman	joseph.kielman@dhs.gov		Cybersecurity, computer networks and information security, cyber economic incentives
Karyn Higa-Smith	Karyn.Higa-Smith@hq.DHS.gov	2007	Cybersecurity, identity, data privacy
Kevin Greene	kevin.greene@hq.dhs.gov		Cybersecurity, software assurance, security weaknesses and vulnerabilities, software analysis tools and testing
Megan Mahle	megan.mahle@hq.dhs.gov		Cybersecurity Forensics, Insider Threat
Mike Pozmantier	Michael.Pozmantier@hq.dhs.gov		Cybersecurity, transition to practice, commercializing technology
Scott Tousley	Scott.Tousley@hq.dhs.gov		Cybersecurity, cyber assessment and evaluation, Cybersecurity Incident Response Teams (CSIRTs)
Vincent Sritapan	Vincent.Sritapan@hq.dhs.gov		Cybersecurity, mobile technology, mobile security

DHS

Explosives Division (EXD)

<http://www.dhs.gov/science-and-technology/program-managers>

Program Officer	e-mail	Year Start	Interests
David Throckmorton			Air cargo screening, explosives trace detection, X-ray, mass spectrometry
Don Roberts			Test and evaluation, biological detector, person search canine, genetics, odor recognition testing, subway, ferry, buses, crowd screening, leave behind threats, unattended packages, improvised explosive devices, person borne threats
Elizabeth Obregon			Homemade explosives, improvised explosives, explosives precursors, explosives inerting
Jim Viar			Passenger screening, carry-on baggage, bottle screening
Joe Foster			Standoff detection, vehicle borne improvised devices, vehicles, facilities protection, suicide bomber
Laura Parker			secondary screening, swabbing, passenger screening
Mike Shepard			Standoff detection, vehicle borne improvised devices, vehicles, facilities protection, suicide bomber
Nelson Carey			Commercial aircraft explosives vulnerability, blast mitigation, blast containment, live-fire explosives testing,
Sharene Young			Luggage, screening, bags, X-ray, checked bags

DHS

“SHARPA” - was its Resilience Division

<http://www.dhs.gov/infrastructure-protection-and-disaster-management-projects>

Program Officer	e-mail	Year Start	Interests
Angela Blair		2008	Critical infrastructure, water, aging infrastructure, modeling and simulation, utilities, interdependencies
Chase Garwood	chase.garwood@hq.dhs.gov	2014	Modeling, simulation, real-time, cascading effects, situational aware
Chris Miles	christopher.miles@dhs.gov	2010	Identity, DNA, biometrics, family relationships
Darren Wilson	darren.wilson@dhs.gov		Threat detection decision making, training, Transportation Security Administration, Transportation Security Officer, training, training enhancement, best practices, X-ray, threat detection, performance improvement
John Fortune	john.fortune@dhs.gov	2008	Critical infrastructure, tunnel plug, flooding, blast protection, resilient materials, critical infrastructure, 360 degree camera, surveillance, video, high resolution, video analytics, rapid searching, video forensics, global supply chain
Kai-Dee Chu	Kai-Dee.Chu@dhs.gov		Behavioral screening, video-based observation analysis, targeting process, behavior detection, high-risk passengers
Patty Wolfhope	Patricia.Wolfhope@dhs.gov		Mobile biometrics, facial recognition, biometric testing
Sarah Mahmood	sarah.mahmood@dhs.gov	2009	Anti-jamming, anti-spoofing, position navigation and timing (PNT), GPS disruption detection and localization, jammer detection

DHS S&T Directorate

First Responders Group

<http://www.dhs.gov/st-frg>

The U.S. Department of Homeland Security Science and Technology Directorate's (S&T) Support to the Homeland Security Enterprise and First Responders Group (FRG) strengthens the response community's abilities to protect the homeland and respond to disasters.

In close partnership with first responders at all levels, FRG identifies, validates, and facilitates the fulfillment of needs through the use of existing and emerging technologies, knowledge products, and standards. Prioritized areas of FRG focus and initiatives include:

- Making First Responders Safer.
- Helping First Responders Share Data and Critical Information.
- Helping First Responders Communicate Through Interoperability.
- Engaging, Communicating, and Partnering with First Responders.

FRG Divisions:

National Urban Security Technology Laboratory (NUSTL): NUSTL tests, evaluates, and analyzes Homeland Security capabilities while serving as a technical authority to first responder, state and local entities in protecting our cities.

Office for Interoperability and Compatibility (OIC): OIC provides local, tribal, state, and Federal stakeholders with the tools, technologies, methodologies, and guidance to enable improved communications interoperability at all levels of government.

Technology Clearinghouse/R-Tech (TCR): TRC rapidly disseminates technology information on products and services in order to encourage technological innovation and facilitate the mission of the DHS. R-Tech provides information, resources, and technology solutions that address mission capability gaps identified by the emergency response community.

DHS /Science and Technology Directorate / First Responders Group

Generic BAA - Applied Research

What:

This announcement does not request any proposals at this time. Solicitations (or calls) for proposals will be accomplished via amendments to this BAA.

- Readily accessible, high-fidelity simulation tools to support training and exercises in incident management and response
- The ability to know the location of responders and their proximity to risks and hazards in real time
- The ability to communicate with responders in any environmental conditions (including through barriers, inside buildings, and underground)
- The ability to remotely monitor the tactical actions and progress of all responders involved in the incident in real time
- Protective clothing and equipment for all first responders that protects against multiple hazards

It is anticipated that a mix of contract types will be used.

Call 4 topics

- Respiration Protection for Firefighters during Overhaul Operations
- Rapid Vehicle-Borne Improvised Explosive Device Assessment and Inspection
- Universal Operator Control Unit Platform
- Activation of Body-Worn Cameras without Responder Manipulation
- Drone-Based Wireless 360 Camera
- Enhanced Roadway Safety for First Responders
- Humanized 2-Arm Large 3D Robot
- Law Enforcement Capture and Restraining System

It is anticipated one award will be made for each topic area.

How Much: it is anticipated that the FRG program will have \$4 M per year with a total of \$20M over the next 5 years to support this BAA. Awards will not exceed \$1M. The anticipated period of performance for each award is 12 months with no award exceeding 15 months.

When: The BAA will remain "open" for 5 years (FY13-17); however, proposals will only be solicited and accepted during calls.

Call 4 closing Date – 30 Nov 2015

Where: Announcement No. HSHQDC-13-R-B0012 BAA 13-012 (call 4, 13 Oct 2015)

DHS S&T Directorate

Capability Development Support Group (CDS)

<http://www.dhs.gov/science-and-technology/cds>

The DHS Capability Development Support Group provides an innovative, systems-based approach to help operators define their needs and develop technologies and solutions that can be quickly deployed to frontline operators. CDS' analytic and systems engineering approach assess the operational environment and fiscal limitations to ensure the best solutions are chosen. CDS' expertise includes systems engineering, operations analysis, test and evaluations, standards and acquisition. CDS focuses on accuracy and analysis to make smart investment decisions that deliver enhance capabilities to the Homeland Security Enterprise.

Office of Test and Evaluation (OTE): CDS provides test and evaluation (T&E) oversight for 135 major acquisition programs housed by the DHS components

Office of Standards (STN): CDS develops and oversees DHS standards that ensure reliable, interoperable and effective technologies and processes. This includes coordination and representation on a number of standard-setting bodies and organizations.

The S&T CDS Office of Standards improves the technology development and acquisition process to accelerate the delivery of technologies, ensure performance requirements are met and reduce the development risk. The office addresses issues including: biometrics; geospatial information; emergency management; personal protection and operational equipment; and chemical, biological, radiological/nuclear and explosive (CBRNE) countermeasures.

Operations and Requirements Analysis (ORA): technical and analytic expertise to identify and prioritize cross-DHS capability gaps and find solutions for DHS component operations

Office of Systems Engineering (OSE): promotes a rigorous systems engineering process that transforms customer needs and requirements into operational capabilities.

DHS
Director of Research & Development Partnerships (RDP)
Office of University Programs (OUP)

<http://www.dhs.gov/st-oup>

<https://www.hsuniversityprograms.org/index.cfm/funding-opportunities/>

To maximize DHS' return on investment in university-based research and education, the OUP will:

- Build a stable community of homeland security researchers and educators at U.S. colleges and universities.
- Foster a homeland security culture within the academic community through research and educational programs.
- Strengthen U.S. scientific leadership in homeland security research and education.
- Generate and disseminate knowledge and technical advances to advance the homeland security mission.
- Integrate homeland security activities across agencies engaged in relevant academic research.
- Develop a permanent homeland security science and engineering workforce.

Programs:

- [Centers of Excellence](#) engage the academic community to deliver tools, technologies, knowledge products, training and talent to enhance the Department's homeland security capabilities.
- [Workforce Development Initiatives](#) educate and train homeland security science and engineering students and professionals for the current and future workforce.
- [Minority Serving Institutions \(MSI\) Programs](#) ensure that the face of America is reflected in the future of Homeland Security science and technology work force.

DHS S&T

University Centers of Excellence

<http://www.dhs.gov/science-and-technology/centers-excellence>

What:

The COEs have significant homeland security related science, technology, engineering, and mathematics capabilities to provide technical services to DHS including: subject matter expertise, laboratories, engineering and other testing facilities, data bases, computer models, computer software and hardware, analytical tools, etc. A listing of current CoE is on the following two charts.

The designation of “Center of Excellence” is awarded to a university who, in turn brings together leading experts and researchers from universities, other research institutions, agencies, laboratories, think tanks, and the private sector to conduct multidisciplinary research and education for homeland security solutions.

Centers are eligible (HSHQDC-14-RFI-COE (07/10/2014)) for Basic Ordering Agreements (BOA) with indefinite delivery and quantity to supplement cooperative agreements with each of the COEs. These vehicles enable DHS components to access the capabilities, experience, research results, technology, models and data that the COEs have developed with DHS funding. Characteristics:

- Versatile umbrella agreements between a federal agency (DHS in this case) and performing institutions (one lead university from each COE)
- Enables contracting officers within the funding agency to issue task orders to the performer that are within the scope of the BOA
- Designed to address the needs of DHS for specific research questions with deliverables on an identified cost and schedule
- Awarded for a five year period of performance

How Much: The BOAs have been a very successful vehicle with \$28 million in additional contracts for COE support of DHS mission requirements. In addition task order awards have been made to all 12 BOA contracts established in 2010.

When: Periodic competitions - solicitations for three new centers expected in 2016 time frame to replace four that are to be sunsetted (ten year lifetime reached).

DHS OUP
University Centers of Excellence

- The **Center for Risk and Economic Analysis of Terrorism Events (CREATE)**, led by the [University of Southern California](#), develops advanced tools to evaluate the risks, costs and consequences of terrorism (initiated in 2004)
- The **Center of Excellence for Zoonotic and Animal Disease Defense (ZADD)**, led by [Texas A&M University](#) and [Kansas State University](#), protects the nation's agricultural and public health sectors against high-consequence foreign animal, emerging and zoonotic disease threats. (initiated in 2004)
- The **Food Protection and Defense Institute (FPDI)**, led by the [University of Minnesota](#), defends the safety and security of the food system by conducting research to protect vulnerabilities in the nation's food supply chain. (Initiated in 2004)
- The **National Consortium for the Study of Terrorism and Responses to Terrorism (START)**, led by the [University of Maryland](#), informs decisions on how to disrupt terrorists and terrorist groups through empirically-grounded findings on the human element of the terrorist threat. (initiated in 2005)
- The **Center for Visualization and Data Analytics (CVADA)** led by [Purdue University](#) (visualization sciences co-lead) and [Rutgers University](#) (data sciences co-lead) will create the scientific basis and enduring technologies needed to analyze massive amounts of information to detect security threats. (initiated in 2009)

DHS OUP

University Centers of Excellence - continued

- The **Center of Excellence for Awareness & Location of Explosives-Related Threats (ALERT)**, led by [Northeastern University](#) and the [University of Rhode Island](#) will develop new means and methods to protect the nation from explosives-related threat. (initiated in 2014)
- **Maritime Security Center of Excellence (MASC)**, co-led by [Stevens Institute of Technology](#), enhances Maritime Domain Awareness and develops strategies to support Marine Transportation System resilience and educational programs for current and aspiring homeland security practitioners; co-led by the [University of Alaska Anchorage](#), develops and transitions technology solutions, innovative products, and educational programs to improve situational awareness and crisis response capabilities related to emerging maritime challenges posed by the dynamic Arctic environment. (initiated in 2014)
- The **National Center for Borders Trade and Immigration Research (NCBTI)**, led by the [University of Houston](#), the University of Arizona and the [University of Texas at El Paso](#), are developing technologies, tools, and advanced methods to balance immigration and commerce with effective border security. (newly awarded in 2015)
- The **Center of Excellence for Coastal Resilience (CRC)**, led by the [University of North Carolina at Chapel Hill](#) and [Jackson State University](#) in Jackson, Miss., performs research and develops education programs to enhance the nation's ability to safeguard populations, properties, and economies from catastrophic natural disaster. (newly awarded in 2015)
- **Critical Infrastructure Resilience Institute (CIRI)** led by [UIUC](#) will provide the homeland security community a better understanding of the complex issue of managing catastrophic risks to critical infrastructure (newly awarded in 2015)

Chemical, Biological, Radiological, Nuclear and Explosive Office

to replace DNDO in 2017 - subsuming and expanding its functions

The Chemical, Biological, Radiological, Nuclear, and Explosives (CBRNE) Office is comprised of the following mission-oriented programs that support achievement of the DHS strategic missions, goals, and objectives.

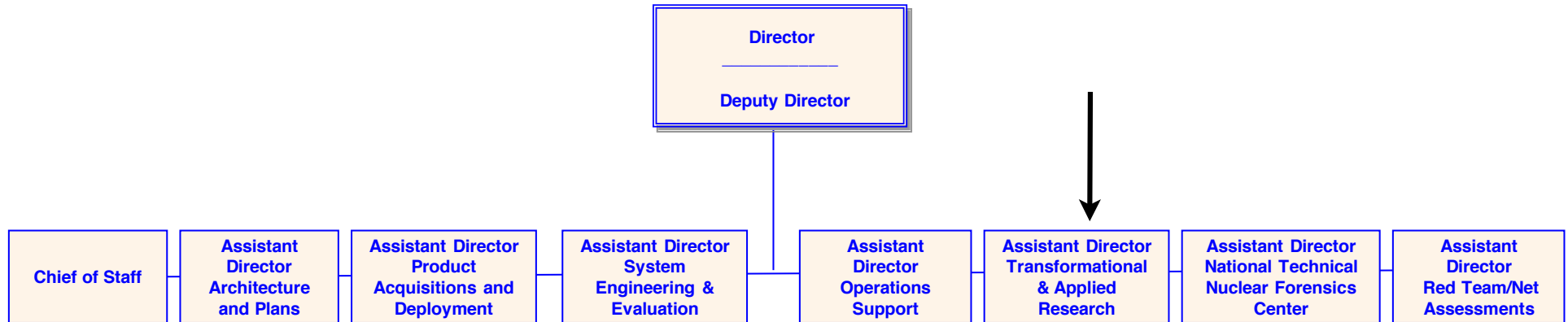
- **Radiological Nuclear Detection, Forensics, and Prevention Capability**
The Radiological Nuclear (Rad/Nuc) Detection, Forensics, and Prevention Capability program develops the Global Nuclear Detection Architecture and its domestic implementation, as well as coordinates and stewards technical nuclear forensics efforts.
- **Chemical, Biological, and Emerging Infectious Disease Capability (CBEIDC)**
Coordinates DHS efforts dedicated to national resilience against health incidents and supports DHS programs related to bio/chem defense. Manages BioWatch and the National Biosurveillance Integration Center.
- **Bombing Prevention**
The Bombing Prevention program leads and coordinates DHS efforts to protect life and critical infrastructure by building capabilities across the private and public sectors to prevent, protect against, respond to, and mitigate bombing incidents

DHS

Domestic Nuclear Detection Office (DNDO)

Transformational and Applied Research Directorate (TARD)

<http://www.dhs.gov/transformational-and-applied-research-directorate>



The Transformational & Applied Research Directorate consists of technical staff focusing in these areas:

Academic Research Initiative (ARI)

- Partnership with the National Science Foundation (NSF) to fund academic exploratory and basic research to stimulate many radiation detection sectors.
- TARD funded academic projects will help create the next generation of scientists and engineers needed to advance the field of radiation detection.

Exploratory Research Program (ERP)

- Research driven by identified gaps in the Global Nuclear Detection Architecture.
- Investigations to show feasibility through Proof of Concept demonstrations.

Small Business Innovative Research (SBIR)

- Utilize small businesses to meet R&D needs and increase private sector commercialization.

Advanced Technology Demonstration (ATD)

- Program builds on technology concepts previously demonstrated under the Exploratory Research Program (ERP) or equivalent.
- Develop and characterize technology in a simulated operational environment to generate performance data for cost-benefit decision to transition to commercial system development and acquisition.

Domestic Nuclear Detection Office (DNDO) /
Transformational and Applied Research Directorate (TARD)
Academic Research Initiative

<http://www.dhs.gov/about-domestic-nuclear-detection-office>

What: Domestic Nuclear Detection Office (DNDO) within the Department of Homeland Security (DHS) invests in frontier research at academic institutions. The ARI Program has two primary objectives: 1) Engage the academic community to advance fundamental knowledge for nuclear and radiological threat detection, nuclear forensics and related sciences with emphasis on fundamental research to solve long-term, high-risk challenges and 2) Develop human capital for the nuclear science and engineering profession.

- ARI-TA-01: Materials Research Approaches to develop Cost Effective Monitoring Solutions for Radiological and Nuclear Threats
- ARI-TA-02: Approaches to Detect Shielded Special Nuclear Materials (SNM)
- ARI-TA-03: Threat Detection through Data Fusion, Informatics and/or Non-Radiological Signal/Signature Exploitation
- ARI-TA-04: Monitoring and Detection along Challenging Pathways
- ARI-TA-05: Science and Engineering of Nuclear Forensics

Priorities:

Cost effective equipment with sufficient performance to ensure wide spread deployment
Detection of special nuclear material, i.e. uranium or plutonium, especially when shielded
Enhanced wide area search capabilities in a variety of scenarios to include urban
Monitoring along challenging Global Nuclear Detection Architecture (GNDA) pathways
Forensics determination of the origin and history of interdicted nuclear materials

How Much: ~\$3M for new starts in FY15 with 8-10 grants; 2-5 year award duration
Single Investigator Awards will average approximately \$150K per year and
Multi-disciplinary Awards will average approximately \$300K per year

When: Full Proposal Deadline 12 June 2015

Where: DHS 15-DN-077-ARI-001 (released 12 May 2015)

DNDO

Academic Research Initiative

Generic Areas of Interest

Materials Research and Support Technology

This project focuses on fundamental, high-risk, long-term research aimed at developing greatly improved radiation detector materials such as semiconductors and scintillators that are highly sensitive, selective, low-cost, and rugged.

Alternative Neutron Detection Technologies

This project investigates new neutron detection approaches to greatly improve neutron detection capabilities over existing ^3He -based detection technologies and near term replacement alternatives.

Radiation Detection System Concepts, Approaches, and Architectures

Explores radically new approaches to threat detection, eventually leading to sensor or detection system concepts that are highly sensitive to radiological/nuclear signatures and selective in their ability to distinguish and locate these materials from naturally occurring background radiation.

Shielded SNM

This research area includes investigations to overcome the challenge of detecting shielded SNM, principally through advanced or enhanced nonintrusive inspection or active interrogation approaches for cargo scanning; vehicle scanning; and human portable scanning applications.

Modeling and Algorithms

This portfolio investigates innovative data processing and analysis techniques that will lead to significant performance improvements to include machine learning, signal processing, data fusion, predictive modeling, data visualization, and advisory theory.

Nuclear Forensics

This investigates advanced analytical techniques used to determine the processing history and transit route of pre-detonation nuclear materials.

Domestic Nuclear Detection Office (DNDO) /
Transformational and Applied Research Directorate (TARD)

Exploratory Research Program

<http://www.dhs.gov/exploratory-research-program>

What: This BAA solicits first white papers and then full proposals in the area of Preventing Nuclear and Radiological Terrorism that may lead to a dramatic improvement in national capabilities in nuclear/ radiological detection. Innovative concepts that successfully complete the exploratory R&D phases are typically brought to a Proof-of-Concept (PoC) demonstration – a minimal, but functional, realization of the technology for testing and demonstration, typically in a laboratory environment.

For this BAA, the technologies and methodologies are divided into three Research Topic Areas (RTA) as follows:

- RTA-01: Optimization for Low-Cost, Post-Growth, Processing and Packaging of Scintillators and Semiconductor Crystals
- RTA-02: Strategies, Techniques, Tools and Concepts of Operations for Enhanced Steady State Operations
- RTA-03: Radiographic Platform Agnostic Automatic Threat Detection Algorithms

How Much: Total funding for this BAA in FY15 is anticipated to be \$1.5M with additional funding potentially available in later years.

When: 18 Sep 2015 white paper due date
22 Jan 2016 full proposal due date

Where: HSHQDC-15-R-B0005 BAA15-101