



# DHS Emeritus Centers of Excellence

*November 16, 2022*

Fiscal Year 2022 Report to Congress



**Homeland  
Security**

*Science and Technology Directorate*

# Message from the Under Secretary

November 16, 2022

I am pleased to present the following report, “DHS Emeritus Centers of Excellence,” which has been prepared by the Science and Technology Directorate (S&T).

This document responds to legislative language in House Report 117-87, which accompanies the Fiscal Year 2022 Department of Homeland Security (DHS) Appropriations Act (P.L. 117-103). This report provides information on the ongoing use of the Emeritus Centers of Excellence (COE).

Pursuant to congressional requirements, this report is being provided to the following Members of Congress:



The Honorable Lucille Roybal-Allard  
Chairwoman, House Appropriations Subcommittee on Homeland Security

The Honorable Chuck Fleischmann  
Ranking Member, House Appropriations Subcommittee on Homeland Security

The Honorable Chris Murphy  
Chair, Senate Appropriations Subcommittee on Homeland Security

The Honorable Shelley Moore Capito  
Ranking Member, Senate Appropriations Subcommittee on Homeland Security

Inquiries about this report may be directed to the Office of Legislative Affairs at 202-447-5890.

Sincerely,

A handwritten signature in black ink, appearing to be "Dimitri Kusnezov". The signature is stylized with a large loop at the beginning and a long horizontal stroke extending to the right.

Dimitri Kusnezov  
Under Secretary for Science and Technology

# Executive Summary

S&T oversees the implementation and management of DHS’s university-based COEs. S&T’s Office of University Programs (OUP) oversees the COEs.

COEs are university-led research networks that anticipate threats and challenges to the homeland and its operations. COEs leverage their unique access to multidisciplinary expertise to conduct groundbreaking research resulting in rigorous, objective knowledge and solutions for DHS.

At any given time, 10 active COEs work with DHS under cooperative agreements, which provide them with annual management and research funding over the duration of the award. OUP also maintains relationships with Emeritus COEs—centers that have completed the term of their cooperative agreement successfully. These COEs no longer receive management or research funding from DHS, but OUP maintains Basic Ordering Agreements (BOA) with them. BOAs provide a mechanism by which DHS and other federal stakeholders can continue to access and leverage the expertise of Emeritus Centers for project work.

This report provides data on the ongoing use of the Emeritus COEs, and current efforts to examine the challenges related to the active Emeritus COE construct currently utilized by OUP, including the potential applicability of lessons learned from other government agencies that maintain entities similar to the COEs.



# DHS Emeritus Centers of Excellence

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# I. Legislative Language

This document responds to legislative language in House Report 117-87, which accompanies the Fiscal Year (FY) 2022 Department of Homeland Security (DHS) Appropriations Act (P.L. 117-103).

House Report 117-87 states:

The Committee underscores that Emeritus COEs remain valuable resources for homeland security science and technology solutions and training the next generation of homeland security experts. S&T shall report to the Committee not later than 60 days after the date of enactment of this Act on how DHS is leveraging Emeritus COEs to address homeland security challenges.

## II. Background

The Science and Technology Directorate (S&T) Office of University Programs (OUP) was established in 2003 to harness the intellectual power of America’s universities to provide innovative research, development, and education to the Homeland Security Enterprise (HSE). OUP is responsible for identifying emerging trends and pursuing groundbreaking research through the DHS Centers of Excellence (COE), university-led academic consortia that are charged with anticipating and addressing threats and challenges to the homeland and its operations. The COEs are one of DHS’s most forward-leaning capabilities; their research brings awareness of emerging trends to our operational partners, helping DHS to protect the Homeland more efficiently and effectively. Additionally, each COE actively contributes to workforce development initiatives through the development of educational resources and training.

There are currently 10 active COEs, each working with DHS under a cooperative agreement that provides them with annual management and research funding over the duration of the award. Each COE is led by an accredited, U.S.-based academic institution that partners with a consortium of other universities over the duration of its performance.

### Active COEs

<p><b>ADAC</b></p> <p>Arctic Domain Awareness Center</p> <p><i>University of Alaska</i></p>	<p><b>CAOE</b></p> <p>Center for Accelerating Operational Efficiency</p> <p><i>Arizona State University</i></p>	<p><b>CBTS</b></p> <p>Cross-Border Threat Screening and Supply Chain Defense</p> <p><i>Texas A&amp;M University</i></p>	<p><b>CINA</b></p> <p>Criminal Investigations and Network Analysis Center</p> <p><i>George Mason University</i></p>	<p><b>CIRI</b></p> <p>Critical Infrastructure Resilience Institute</p> <p><i>University of Illinois at Urbana-Champaign</i></p>
<p><b>CRC</b></p> <p>Coastal Resilience Center</p> <p><i>University of North Carolina at Chapel Hill</i></p>	<p><b>MBA</b></p> <p>Masters of Business Administration - Security Technology Transition</p> <p><i>George Washington University</i></p>	<p><b>MSC</b></p> <p>Maritime Security Center</p> <p><i>Stevens Institute of Technology</i></p>	<p><b>NCITE</b></p> <p>National Counterterrorism Innovation, Technology, and Education Center</p> <p><i>University of Nebraska at Omaha</i></p>	<p><b>SENTRY</b></p> <p>Soft-Target Engineering to Neutralize the Threat Reality</p> <p><i>Northeastern University</i></p>

In addition to active COEs, OUP maintains relationships with Emeritus Centers that have successfully completed the DHS-funded period of performance of the cooperative agreement. S&T recognizes the commitment and resources that went into building these COEs. To ensure that DHS stakeholders and other government agencies can continue to leverage networks and expertise, S&T maintains a Basic Ordering Agreement (BOA) contract vehicle with the Emeritus COEs. BOAs provide a standing contracting mechanism by which components and other stakeholders can access Emeritus Centers easily and directly for projects. These BOAs allow stakeholders to develop discrete project efforts with the Emeritus COE and to provide funding that will be placed on a task order to be executed by the COE. There are currently 10 Emeritus COEs that maintain BOAs with OUP.

**Emeritus COEs**

<p align="center"><b>ALERT</b></p> <p align="center">Awareness and Localization of Explosives-Related Threats</p> <p align="center"><i>Northeastern University</i></p>	<p align="center"><b>BTI</b></p> <p align="center">Borders, Trade, and Immigration Institute</p> <p align="center"><i>University of Houston</i></p>	<p align="center"><b>CCICADA</b></p> <p align="center">Command, Control and Interoperability Center for Advanced Data Analysis</p> <p align="center"><i>Rutgers University</i></p>	<p align="center"><b>CEEZAD</b></p> <p align="center">Center of Excellence for Zoonotic and Animal Disease Defense</p> <p align="center"><i>Kansas State University</i></p>	<p align="center"><b>CHC</b></p> <p align="center">Coastal Hazards Center</p> <p align="center"><i>Jackson State University &amp; University of North Carolina</i></p>
<p align="center"><b>CREATE</b></p> <p align="center">Center for Risk and Economic Analysis of Threats and Emergencies</p> <p align="center"><i>University of Southern California</i></p>	<p align="center"><b>FPDI</b></p> <p align="center">Food Protection and Defense Institute</p> <p align="center"><i>University of Minnesota</i></p>	<p align="center"><b>IIAD</b></p> <p align="center">Institute for Infectious Animal Diseases</p> <p align="center"><i>Texas A&amp;M University</i></p>	<p align="center"><b>START</b></p> <p align="center">National Consortium for the Study of Terrorism and Responses to Terrorism</p> <p align="center"><i>University of Maryland</i></p>	<p align="center"><b>VACCINE</b></p> <p align="center">Visual Analytics for Command, Control, and Interoperability Environments</p> <p align="center"><i>Purdue University</i></p>



### III. Leveraging Emeritus COEs

Emeritus COEs utilize the networks established over their cooperative agreement period of performance to develop and solicit project efforts that will sustain them once they reach emeritus status. Each COE is overseen by an OUP Program Manager (PM) who works with the COE during its active period to identify contacts and to develop relationships that will aid this effort. These PMs continue to serve as a resource to Emeritus COEs should the COEs need assistance to identify new contacts, or to oversee the processing of task orders under the BOAs that will provide project requirements and funding to the Emeritus COEs.

BOAs are awarded initially for a 5-year period of performance with the potential for renewal for an additional 5 years. DHS Components can access BOAs either through transfer of funds to S&T or directly through the Component’s procurement office. The BOAs allow DHS Components to conduct classified work and to set prescriptive requirements for projects using expertise, models, data, or technologies developed by the Emeritus COEs. Between FY 2019 and FY 2021, Emeritus COEs received \$20.2 million under 23 task orders (with 33 funding actions). This represents investment from five Components across DHS.

**Table 1: Emeritus COE BOA Funding FY 2019-2021**

<b>Emeritus COE BOA Funding FY 2019-2021</b>		
<b>Emeritus COE</b>	<b>BOA Actions</b>	<b>Sum of Total</b>
<b>ALERT Center</b>	<b>12</b>	<b>\$9,411,100.00</b>
S&T (Non-OUP Base)	12	\$9,411,100.00
<b>BTI</b>	<b>3</b>	<b>\$1,076,149.00</b>
U.S. Customs and Border Protection (CBP)	2	\$898,410.00
S&T (Non-OUP Base)	1	\$177,739.00
<b>CEEZAD</b>	<b>2</b>	<b>\$1,361,253.00</b>
Countering Weapons of Mass Destruction Office (CWMD)	1	\$500,000.00
S&T (Non-OUP Base)	1	\$861,253.00
<b>CCICADA</b>	<b>1</b>	<b>\$200,514.65</b>
Transportation Security Administration (TSA)	1	\$200,514.65
<b>FPDI</b>	<b>1</b>	<b>\$80,769.36</b>
S&T (Non-OUP Base)	1	\$80,769.36
<b>IIAD</b>	<b>2</b>	<b>\$514,082.00</b>
CWMD	2	\$514,082.00
<b>CREATE</b>	<b>6</b>	<b>\$3,145,273.00</b>
CBP	3	\$1,525,000.00
S&T (Non-OUP Base)	3	\$1,620,273.00
<b>START</b>	<b>6</b>	<b>\$4,424,073.01</b>
TSA	1	\$299,999.19
U.S. Immigration and Customs Enforcement (ICE)	3	\$125,000.00
S&T (Non-OUP Base)	2	\$3,999,073.82
<b>Grand Total</b>	<b>33</b>	<b>\$20,213,214.02</b>



<b>Total by DHS Component</b>	<b>Total BOA Actions</b>	<b>Sum of Total</b>
CBP	5	\$2,423,410.00
CWMD	3	\$1,014,082.00
ICE	3	\$125,000.00
S&T (Non-OUP Base)	20	\$16,150,208.18
TSA	2	\$500,513.84
<b>Grand Total</b>	<b>33</b>	<b>\$20,213,214.02</b>

**Examples of Emeritus COE Accomplishments**

Similar to active COEs, Emeritus Centers can be leveraged to provide key research to support DHS operational components. Examples of recent project accomplishments include:

**Agriculture and Veterinary Defense Readiness Assessment Capability Against a Set of End States and Targeted Capabilities Homeland Security Presidential Directive-9 (CEEZAD):**

The Nation’s agricultural infrastructure faces natural, unintentional, and terroristic threats that place national security and economic livelihood at risk. This project aims to assess veterinary, food, agriculture, and other critical infrastructures at federal, state, local, and territorial levels and to develop the tools necessary to increase readiness and to mitigate threats that may arise.

**Financial Networks Supporting Terrorism (START):** Research teams successfully completed a cross-national research study on terrorist organizations’ finances and their support networks. Developing a Relational Database Management System, codebook, and user guide, START equipped personnel at DHS’s Office of Intelligence and Analysis with vital tools to aid analysts and researchers in understanding the international linkages of terrorist finances.

**Mapping Human Smuggling Routes (BTI):** Key studies addressed the knowledge gaps in specific human smuggling routes and patterns from Guatemala to the United States using geographic information systems. BTI equipped ICE personnel with tools including a database and a framework that allows for visualization of the data for more efficient decision making.

**Orthogonal Sensors for Trace Development (ALERT):** False alarms during screening increase agent workloads and reduce traveler satisfaction. This project is developing an explosive trace detection system that employs built-in redundancies and orthogonal modalities to detect the presence of explosives in vapors continuously while mitigating false positives and negatives.

## IV. Discussion

Emeritus Centers do not receive base funding from S&T; funding is solely dependent upon the use of a BOA. BOA activity and amount will vary from year to year and by each Emeritus COE.

COE transitions to Emeritus status are challenging for S&T. While S&T OUP maintains BOAs with Emeritus COEs to ensure that the COEs are available to DHS Components and other federal stakeholders seeking research conducted by the COEs, these organizations often are faced with their own limited research budgets. S&T frequently is asked to fund additional research efforts directly. This can lead to stakeholder demand for new COEs where research themes overlap with the remit of Emeritus COEs. Further, over time, the pool of Emeritus COEs has grown and will continue to grow. In 2022, the number of Emeritus COEs equaled the number of active COEs for the first time (10 each), and in 2023, the number of Emeritus COEs will overtake the number of active COEs. OUP has attempted to improve connectivity for the Emeritus COEs to DHS by spreading responsibility for their management across all of the office PMs. However, this will become more difficult to do as the number of Emeritus COEs increases and OUP staff positions remain static. These challenges have been discussed with both active and Emeritus COE Directors, as well as with DHS stakeholders.

Recognizing the challenges posed by the active/emergitus construct, OUP contracted with the Homeland Security Operational Analysis Center (HSOAC), a federally funded research and development center operated by the RAND Corporation, to conduct a comprehensive third-party assessment of the processes used to develop and contract for new COEs. It also identifies potential solutions and best practices related to the challenges observed. The assessment will entail:

- Identification of Challenges: HSOAC will meet with Directors and staff from active and Emeritus Centers to identify overarching challenges stemming from this bifurcated construct, including those related to staffing, business development, and maintaining a unique research offering.
- Identification of Best Business Practices: HSOAC will meet with representatives from other departments across the U.S. Government responsible for maintaining similar COE networks and will examine the networks. From these organizations, HSOAC will work to identify best practices related to contracting, encouraging COE network growth and incorporation of new academic institutions into active consortia, and will examine management and maintenance of COEs that have approached or ended their period-of-performance. They also will identify any best practices on how other agencies can work to avoid overlap or duplication between COEs, which may impact the ability of Emeritus COEs to compete for funding that leverages their research offerings.

This effort began in September 2022. An interim results brief is expected 6 months after study initiation (March 2023). The study will conclude 12 months after the contract is awarded, at which time OUP leadership will review for actionable recommendations.

## V. Conclusion/S&T Action Plan

OUP works diligently to address the unique challenges faced by the Emeritus COEs. In the past year, OUP leadership initiated a staff reorganization, in part to ensure that staffing for Emeritus COEs allows proper support to maintain the capabilities developed during a COE's active period. The third-party assessment is a key tool to gain deeper understanding of the challenges faced by these COEs and to provide best-practices on which to base potential adjustments to the current COE management structure utilized by OUP.

OUP reached its currently approved staff capacity at the end of FY 2022, which will enable more effective coverage of the Emeritus Centers; each OUP PM will manage two active and two Emeritus COEs. This is in sharp contrast to previous staffing alignment that required a single PM to support up to six Emeritus COEs in addition to two active COEs.

S&T looks forward to receiving the results of the third-party assessment by Fall 2023. OUP will review the recommended actions immediately for feasibility and will develop implementation plans for those recommendations that will improve current business practices.

## VI. Appendix: Abbreviations

ALERT	Awareness and Localization of Explosives-Related Threats
BOA	Basic Ordering Agreement
BTI	Borders, Trade, and Immigration Institute
CBP	U.S. Customs and Border Protection
CCICADA	Command, Control and Interoperability Center for Advanced Data Analysis
CEEZAD	Center of Excellence for Zoonotic and Animal Disease Defense
COE	Center of Excellence
CREATE	Center for Risk and Economic Analysis of Threats and Emergencies
CWMD	Countering Weapons of Mass Destruction Office
DHS	Department of Homeland Security
FPDI	Food Protection and Defense Institute
FY	Fiscal Year
HSE	Homeland Security Enterprise
HSOAC	Homeland Security Operational Analysis Center
ICE	U.S. Immigration and Customs Enforcement
IIAD	Institute for Infectious Animal Diseases
OUP	Office of University Programs
PM	Program Manager
S&T	Science and Technology Directorate
START	National Consortium for the Study of Terrorism and Responses to Terrorism
TSA	Transportation and Security Administration