June 26, 2017

The Honorable John Boozman  
Chairman  
Subcommittee on Homeland Security  
Committee on Appropriations  
U.S. Senate  
Washington, DC 20515

The Honorable Jon Tester  
Ranking Member  
Subcommittee on Homeland Security  
Committee on Appropriations  
U.S. Senate  
Washington, DC 20515

Dear Chairman Boozman and Ranking Member Tester:

As the Directors of the Department of Homeland Security (DHS) Centers of Excellence (COE) from across the nation, we collectively write to urge your continued strong support of the COE program as you consider funding for fiscal year (FY) 2018 appropriations.

Our centers play a crucial role in carrying out the DHS Science and Technology Directorate’s mission and serve as the only university research program dedicated to solving critical homeland security challenges. **We ask that you support the Office of University Programs, which funds the COE program, at $40 million in FY 2018 in order to continue to fund all existing COEs at current funding levels.** This funding will allow DHS to fully fund the current centers and begin a fair and transparent competition in FY 2018 for new COEs to replace those expiring, while retaining the depth and breadth of focus of the COE program. In addition, we ask that you ensure that dollars appropriated by Congress for the specific purpose of operating DHS Centers of Excellence focused on research to solve critical homeland security challenges are not diverted to other activities that undermine this clear Congressional intent.

At a time when the U.S. faces increased threats to our security and safety, it is imperative that our nation does not reduce our investment in the COE program, which serves a critical responsibility of advancing our nation’s technical capabilities in protection against terrorism, securing our borders, and responding to natural disasters. The COEs bring together universities, industry, and public agencies to generate basic and applied research that can be rapidly developed into innovative technologies for the homeland security community. The COE business model provides DHS, our first responders, and the nation with affordable products and analysis without the longer term costs of conducting the work in-house. The centers also serve as training grounds for the current and next generation of homeland security experts. It is important that Congress maintains strong funding levels for the program in order to sustain technological advances and knowledge base that will defend the U.S. homeland.

The centers have produced many important research and technology breakthroughs, including:

- **The Center for Risk and Economic Analysis of Terrorism Events (CREATE)**
  
  CREATE’s applications of game theory to homeland security operations have received awards and recognitions from professional associations and law enforcement and government agencies including the U.S. Coast Guard (USCG), Federal Air Marshal Service (FAMS), and the city of Los Angeles.

- **The Center for Visualization and Data Analytics (CVADA)**
  
  At the 2017 Presidential Inauguration, the intelligence staff of a DHS component needed a tool to monitor social media to fulfill their maritime public safety mission. A DHS S&T OUP COE, Visual Analytics for Command, Control, and Interoperability Environments (VACCINE), which is one half of CVADA, provided the Social Media Analytics and Reporting Toolkit (SMART). In many cases, SMART was the first indication
of a public safety incident, alerting personnel 10-15 minutes in advance of open source media alerts. It was used exhaustively to maintain awareness of key protest groups, and when incidents were detected, this information was used to vector public safety personnel to a specific area. When 28 hoax calls from the same male voice sent the US Coast Guard scrambling to respond, it cost the agency roughly $500,000 to respond. The Coast Guard reached out to the Command, Control and Interoperability Center (CCICADA), the other half of CVADA, for assistance and our voice-forensics tools were able to provide highly specific information about the physical characteristics of the hoax caller and the environment from which the caller was calling. While the Coast Guard has not publicly announced any prosecutions in which CCICADA’s voice-forensics work has played a role, the COE’s data now figures in several ongoing investigations that are close to being finalized.

- **Food Protection and Defense Institute (FPDI)**
  The Food Protection and Defense Institute (FPDI), led by the University of Minnesota, is a multidisciplinary and action-oriented research consortium. FPDI addresses the vulnerability of the global food system protecting the humans, animals, and the economy from catastrophic disruptions. FPDI takes a comprehensive, farm-to-table view of the food system, encompassing all aspects from primary production through transportation and food processing to retail and food service. Work at the institute focuses on deployable solutions to support the industry and government operations to protect our food supply. Recent work has included development of predictive analytics to identify food supply disruptions as well as determining critical food infrastructure vulnerable to cyber threats.

- **The Awareness and Localization of Explosives-Related Threats (ALERT)**
  Over the last 8 years, ALERT has made the traveling public safer by developing systems and algorithms to improve checked and carry-on luggage threat detection, such as automatic video person tracking and anomalous behavior recognition algorithms to identify suspicious actions of people in realistic crowd environments. ALERT has systematically improved the performance capabilities of luggage X-ray systems through sharing advances with the industrial community and TSA in our unique ADSA Workshops (Advanced Development for Security Applications), which involve interactive state-of-the-art presentations from experts in the field of transportation security including TSA, airlines, vendors, academia and National Labs. Now ALERT is working to provide greater safety by adapting its performance to the threat of the day, Adjustable Automatic Threat Detection and directing the improvements in luggage threat detection to apply to air, train and sea palletized cargo.

- **The Maritime Security Center of Excellence (MSC)**
  MSC has been a national resource for maritime security applications and technology development, education and training. For instance, MSC has been conducting research and providing expertise for enhancing the operational needs of the Coast Guard, Customs and Border Protection, and Immigration and Customs Enforcement for addressing illicit activities along both maritime and land borders. It is also conducting research for strengthening port resilience and maritime commerce.

- **The Center of Excellence for Zoonotic and Animal Disease Defense (ZADD)**
  The Institute for Infectious Animal Diseases (IIAD), co-lead of the Zoonotic and Animal Disease Defense Center of Excellence (ZADD) develops innovative technologies customized for the livestock industries, veterinary diagnostic laboratories, and Wildlife Services. Specifically, IIAD has worked with multiple stakeholders to pilot AgConnect®, a robust technology concept that supports numerous phases of the emergency response cycle, business continuity efforts, biosurveillance, laboratory management at the Natio9nal Animal Health Laboratory Network and elsewhere, management of healthy herds, and phylogenetics.
This past year, efforts focused on further testing and evaluating the technology under varied conditions and demonstrating how the AgConnect® system would allow for more efficient communication and sharing of data to support informed decision making during an animal health emergency. In addition, IIAD further expanded the toolbox of capabilities available to veterinary practitioners and State Animal Health Officials by developing a mobile application that allows veterinarians to create and submit certificates of veterinary inspection from the field, allowing for greater situational awareness during a disease event. AgConnect® has been successfully piloted with nearly 2,000 users across 42 states.

- **Borders, Trade, and Immigration Institute (BTI)**
  Researchers funded through Borders, Trade, Immigration (BTI) Institute are working on knowledge and capability gaps to both secure and facilitate flows of people and goods through the U.S. Border. One team has produced software for automatic facial recognition from image/video in adverse conditions. The current prototype code outperforms state-of-the-art academic and COTS systems in a variety of poses. Another team has produced a ConOps for automating the measurement of border wait times at land ports of entry in a reliable and systematic manner. The team has successfully conducted preliminary feasibility tests of selected emerging technologies. At the same time, BTI is working closely with DHS components to produce comprehensive reports and actionable recommendations for R&D on emerging opportunities. The latest report was produced at the request of the Office of Biometric Identity Management by a panel of leading experts on blockchain technology from academia, industry, and government.

- **Coastal Resilience Center of Excellence (CRC)**
  When tropical storms and hurricanes threaten coastal communities, a Coastal Resilience Center computer model, developed at UNC-Chapel Hill, helps ensure that these communities have the best possible information about the risk they face. The ADCIRC storm surge model is the basis for all FEMA coastal flood hazard maps from New England to Texas and also helps DHS components and local officials get people and property out of the way of life-threatening conditions. Five CRC partners are currently working to improve ADCIRC including speeding up its execution time and adding in flooding due to rainfall. ADCIRC has been used to develop designs for the past two coastal master plans for the state of Louisiana (2012, 2017); for the levee system for New Orleans; and to design a surge protection system for Houston/Galveston, Texas, to prevent damage from storms such as Hurricane Ike, which cost 74 lives and nearly $30 billion in property damage. Providing improved decision-making tools helps protect property and guides evacuation decisions that save lives.

- **Critical Infrastructure Resilience Institute (CIRI)**
  The Critical Infrastructure Resilience Institute (CIRI)—led by the University of Illinois at Urbana-Champaign and launched in July 2015—is addressing the broad range of issues affecting the security and resilience of the Nation’s critical infrastructure. CIRI’s current foci are on Insurance and the Business Case for Resilience, Macro and Micro Industrial Supply Chains, Infrastructure Dependencies and Interdependencies, and Communication. CIRI research establishes the business case for increasing investment in security and resilience; informs and guides the regulatory process for strengthening intra- and cross-sector resilience; identifies critical issues impacting resiliency within industrial operations and between inter-dependent infrastructures, and delivers the tools and technologies needed by the owners and operators of critical infrastructure to strengthen the security and resilience of their systems—both human and technological.
The COE program is a vital investment toward supporting and advancing DHS’s mission and goals of solving homeland security-specific research and technology challenges while developing our next-generation security workforce. With this in mind, we strongly urge Congress to fund the program at $40 million for FY 2018.

Sincerely,

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