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Introduction

Good morning, Chairman McCaul, Ranking Member Keating, and distinguished Members of the Subcommittee. I am honored to appear before you today on behalf of the Department of Homeland Security's (DHS) Science and Technology Directorate (S&T) and Under Secretary Tara O'Toole. My testimony will focus on the Directorate's role in the Department's requirements gathering and acquisition management processes, and how these processes leverage existing technology across the DHS Components and the rest of the federal government including the Department of Defense.

On March 15th of this year, Under Secretary O'Toole appeared before the House Committee on Science, Space and Technology Subcommittee on Technology and Innovation to describe the results of an extensive S&T strategic planning process, which are captured in five strategic goals and reflected in an organizational realignment which took effect last November. Those five strategic goals are:

- Goal #1 – Rapidly develop and deliver knowledge, analyses, and innovative solutions that advance the mission of the Department;
- Goal #2 – Leverage technical expertise to assist DHS Components' efforts to establish operational requirements and select and acquire needed technologies;
- Goal #3 – Strengthen the Homeland Security Enterprise and First Responders' capabilities to protect the homeland and respond to disasters;
- Goal #4 – Conduct, catalyze, and survey scientific discoveries and inventions relevant to existing and emerging homeland security challenges; and
- Goal #5 – Foster a culture of innovation and learning in S&T and across DHS that addresses challenges with scientific, analytic, and technical rigor.

In support of goal two, the realignment established the Acquisition Support and Operations Analysis Group (ASOA), bringing together all of S&T's requirements and acquisition related activities under one Director who reports directly to the Under Secretary. ASOA is able to leverage S&T's knowledge, expertise, and other technical resources across DHS and work closely with the Under Secretary for Management to improve the requirements gathering process and acquisition support to the components. As the Director of ASOA, I am also S&T's Component Acquisition Executive. This provides me with the ability to participate in the Acquisition Review Boards of other

Component programs and represent S&T at these critical decision-making forums.

S&T will be a Key Player in the Department's New Requirements Process

Decades of federal acquisition management shows that a thorough and comprehensive requirements process is indispensable to the effective and efficient delivery of operational benefits to end users. Before significant investment in pursuing a solution, one needs to invest time and effort to thoroughly understand the problem and develop detailed requirements. When this doesn't happen, the government may end up with solutions that do not meet actual needs, costing more in the long run.

To maximize the Department's resources, it is critical to have an enterprise-level requirements process to provide a top-down framework where the most pressing needs can be identified and prioritized. Through the leadership of Under Secretary Borras, the Department is implementing its Integrated Investment Life Cycle (IILC) Model which provides the enterprise-level requirements setting process.

The IILC includes two key groups: the Department Strategy Council and the Strategic Requirements Council. The Department Strategy Council brings together components to set strategic, high-level requirements. These strategic requirements must then be refined to operational concepts that can be implemented.

The Strategic Requirements Council (SRC) makes trade-off decisions between potential solutions. While requirements are being set and alternatives are being analyzed, it is critical that technologists work closely with operators to come up with viable solutions. In some cases, the desired technology may be beyond the state-of-the-art. In those cases, S&T may take the project on as a research and development effort, and the SRC can elect a more feasible option or opt to hold off the acquisition. In other cases, there may be more appropriate technologies than initially proposed.

By being involved across the Department's IILC, S&T will be able to assist in developing technically specific and feasible requirements, setting the stage for acquisitions that are completed on schedule and within budget. Moving S&T into a stronger support role for this "front end" of acquisition has been a priority for both Under Secretary O'Toole and Secretary Napolitano. We look forward to S&T's active engagement in the Capabilities and Requirements Council and other forums of the Model.

S&T Has Ongoing Efforts Across the Acquisition Lifecycle

<u>S&T Provides Support for Requirements Development</u>

S&T currently assists Components with requirements analysis. The first way we have been doing this is through the sponsorship and management of the Department's two federally-funded research and development centers: the Homeland Security Studies and Analysis Institute (HSSAI) and the Systems Engineering and Development Institute

(SEDI). These two world-class organizations provide requirements analysis support to every DHS Component. For example, between April 2010 and May 2011, HSSAI issued nearly 50 analytic reports developed for four operational Components and three headquarters Components, and is currently engaged in four Analyses of Alternatives for three operational Components. Similarly, SEDI is providing support to 13 major acquisition programs[1] at five operational and three headquarters Components.

The second way S&T assists in the requirements process is by working with Components to define S&T research and development projects. Over the last few years this process has functioned through the Capstone Integrated Product Teams (IPT) process. A refocused approach to the IPTs will establish Science and Technology Investment Councils (STIC), which elevate participation to the most senior levels of our Directorate and of each Component. The goal of these STICs is to engage S&T and the Components in a systematic manner regarding their critical operational needs, through the creation of new S&T-funded projects or by modifying existing projects that will address critical needs and underlying technology gaps. The Under Secretary for Science and Technology and Component heads will co-chair the STICs and agree on their key outputs, namely, approved requirements and corresponding research and development projects. The STIC process is being developed over the summer and we will have several of the Component STICs in place by the end of fall.

Finally, we provide Components with requirements development support at their request. Two specific examples are the Science and Technology Operational Research and Enhancement (STORE) project and the Tactical Communications (TACCOM) program. STORE, which is a high-visibility "Apex" project,[2] is conducting detailed operations research, evaluating alternative enhanced solutions against dynamic threats and fielding actual prototype capabilities for the U.S. Secret Service. In the TACCOM program, we are managing a Technology Demonstration activity for DHS's U.S. Customs and Border Protection (CBP) that will feed real-world data on technology capabilities into an analysis of alternatives.

S&T Provides Support to Components During Acquisitions

S&T performs a variety of roles in the Department's acquisition process. First and most visibly is our statutory Department-wide role in test and evaluation.

Just as a thorough and comprehensive requirements process is indispensable to the effective and efficient delivery of operational benefits to end users, so is a thorough and comprehensive test and evaluation process. Testing and evaluation, although present

[1] The Department defines "major acquisition programs" to include "Level 1" and "Level 2" programs. Level 1 and Level 2 programs are those with over $1 billion and $500 million lifecycle costs respectively.
[2] To meet Components strategic needs, and to provide Component leaders with an understanding of S&T capabilities, we have instituted "Apex Projects". Apex Projects must solve a problem of high-level operational importance. Best practices learned in these projects will be documented and infused through the rest of our activities. In addition to the USSS project described, S&T has initiated an Apex project with Customs and Border Protection to develop a secure transit corridor for goods between Mexico, the U.S., and Canada.

throughout the entire life cycle of an acquisition, is most critical on the "back end." It is the final step before the Department makes significant investment into final production and fielding of the acquired system, and ensures that the system meets its documented operational requirements and provides the required capability. As a member of the DHS Acquisition Review Board, S&T's Director of Operational Test and Evaluation provides independent inputs into the Department's acquisition decision-making forums.

S&T's Test and Evaluation organization is currently engaged with 24 programs from across the DHS Components that have Test and Evaluation activities underway. This includes development and operational testing and program test and evaluation plans. S&T has assessed six Component Operational Test and Evaluation activities in the past twelve months that are at the final stage of acquisition, and is currently involved in three others. S&T's role also includes serving as the Department lead for all Test and Evaluation policies and establishing a career ladder program for Test and Evaluation professionals.

Standards also play an important support role in acquisitions. Providing standards that can be used by multiple technology vendors to develop solutions drives market competition, resulting in improved products at lower costs to the Federal government, first responders, and other Homeland Security Enterprise owners and operators. The Standards branch is currently engaged in three efforts that support acquisitions including biodetection and radiation/nuclear detection.

S&T also provides acquisition program management expertise to Components at their request. This is a new function, and we will be expanding our capacity in the months ahead. Currently we are supporting CBP on their Automated Commercial Environment (ACE) program where we have dedicated a senior systems engineer. Working with the ACE program office, our engineer is developing a revised system architecture and providing best-practices software development guidance.

S&T Leverages Existing Technology Capabilities from Across the United States and Interagency Partners

To ensure that S&T and DHS are leveraging research and development from other organizations, S&T created the Research and Development Partnerships group as part of its reorganization. The director of this group also reports directly to the Under Secretary, and manages offices within S&T that reach outside of DHS and oversee a number of joint projects and interagency processes to maximize the Federal Government's work, along with the work of our international, private sector, and university partners.

In addition to these programs, S&T works closely with the Department of Defense (DOD) and the Department of Energy (DOE) on a number of partnerships and participates in the Committee on Homeland and National Security run by the White House Office of Science and Technology Policy. This group and its subcommittees develop interagency Research and Development strategies that ensure all organizations across the Federal government are utilizing each other's technology efforts.

While S&T always does a "horizon scan" before starting a new project, including evaluating DOD efforts, it is rare that DOD and DHS mission needs, operating environments, and budget constraints line up exactly together. For example, both organizations are concerned about Improvised Explosive Devices (IED). However, the IED problem in Afghanistan requires very different solutions than those in the United States. To continue the example, front line law enforcement in the U.S. cannot use wireless jammers in the middle of a city as DOD has done in Afghanistan. On the other hand, we may be able to collaborate on updated handheld devices that detect homemade explosives.

Conclusion

DHS is the third largest federal agency with an extremely diverse operational portfolio. It is vital that the Department builds and maintains a comprehensive requirements and acquisition process with proper due diligence and strategic execution. At the same time, our requirements and acquisition process must be flexible and adaptable to constantly changing threats and operational needs.

One of the keys to the Department's path forward is through a stronger integration of S&T into the requirements and acquisition processes. The continued implementation of Under Secretary O'Toole's strategic goals and demonstrated partnership with DHS's Under Secretary for Management shows a clear path of transformation and progress.

Thank you for inviting me to appear before you today. I look forward to answering your questions and to working with you on S&T's requirements gathering and acquisition management processes.