JOINT TESTIMONY OF

TODD C. OWEN
Executive Assistant Commissioner
Office of Field Operations

and

SCOTT A. LUCK
Acting Deputy Chief
U.S. Border Patrol

and

DENNIS J. MICHELINI
Acting Executive Director, Operations
Air and Marine Operations

U.S. Customs and Border Protection
Department of Homeland Security

BEFORE

U.S. House of Representatives
Committee on Homeland Security
Subcommittee on Border and Maritime Security

ON

"Deter, Detect and Interdict: Technology's Role in Securing the Border"

July 25, 2017
Washington, DC

Chairwoman McSally, Ranking Member Vela, and distinguished Members of the Committee. It is a pleasure to appear before you today on behalf of U.S. Customs and Border Protection (CBP) to discuss how border security technology enables us to achieve our strategic and operational border security objectives, specifically in combating the flow of illegal aliens and dangerous contraband into the United States.

Along the more than 5,000 miles of border with Canada, 1,900 miles of border with Mexico, approximately 95,000 miles of shoreline, and at 328 ports of entry (POE) and more than 40 countries across the globe, CBP's U.S. Border Patrol (USBP), Air and Marine Operations (AMO), and Office of Field Operations (OFO) secure our borders and associated airspace and maritime approaches to prevent illegal entry of people and materials, including dangerous drugs, into the United States. The border environment in which CBP works is dynamic and requires continual adaptation to respond to emerging threats and changing conditions. We appreciate the partnership and support we have received from this Committee, whose commitment to the security of the American people has enabled the continued deployment of advanced technology assets needed to secure the border.

As President Trump has stated, "Homeland Security is in the business of saving lives, and that mandate will guide our actions." Through a series of Executive Orders (EOs), the President has taken steps to enhance border security, promote public safety, minimize the threat of terrorist attacks by foreign nationals, and protect American workers from unfair foreign competition. The President's Fiscal Year (FY) 2018 Budget proposes significant investments to support all of those goals while implementing the EOs.

In January, the President signed the Executive Order entitled *Border Security and Immigration Enforcement Improvements* (EO 13767). Included in the Budget is a total of $2.6 billion in enhancements in high-priority border security technology, tactical infrastructure, assets, and equipment, including $975 million for border security technology, assets, and equipment.

Our testimony today discusses some of the advanced technology used by CBP frontline agents and officers to deter, detect, and interdict illegal cross-border activity, at and between POEs. Technology enhances CBP's operational capabilities by increasing our ability to detect and apprehend individuals illegally crossing the border, to detect dangerous goods and materials concealed in cargo and vehicles, and to detect and interdict illegal activity in the air and maritime domains. Advanced detection and surveillance technology is a critical element of CBP's multi-layered border security strategy to deploy the right mix of personnel, technology, and tactical infrastructure to enable us to meet the everyday challenges of a dynamic border threat environment. For CBP, the use of technology in the border environment is an invaluable force multiplier that increases situational awareness and allows us to detect illegal activity -- including unauthorized border-crossers -- and interdict dangerous drugs – and those who attempt to smuggle them – faster and safer.

Technology at the Ports of Entry
Smugglers use a wide variety of tactics and techniques for concealing drugs and other contraband through POEs. CBP officers regularly find drugs concealed in body cavities, taped to bodies (body carriers), hidden inside vehicle seat cushions, gas tanks, dash boards, tires, packaged food, household and hygiene products, checked luggage, and concealed in construction materials on

commercial trucks. CBP incorporates advanced detection equipment and technology, including the use of Non-Intrusive Inspection (NII) equipment and radiation detection technologies to maintain robust cargo, commercial conveyance, and vehicle inspection regimes at our POEs.

NII technology is a critical element in CBP's ability to detect contraband as well as materials that could pose nuclear and radiological threats. These systems enable CBP officers to examine cargo conveyances such as shipping containers, commercial trucks, and rail cars, as well as privately owned vehicles, for the presence of contraband without physically opening or unloading them. This allows CBP to work smarter and faster in detecting contraband, while expediting legitimate trade and travel. NII technologies deployed to our Nation's land, sea, and air POEs include large-scale X-ray and gamma-ray imaging systems, as well as a variety of portable and handheld technologies.

As of July 1, 2017, 301 Large-Scale (LS) NII systems are deployed to, and in between, our POEs. In FY 2016, LS-NII systems were used to conduct more than 6.45 million examinations resulting in more than 2,600 seizures and over 359,000 pounds of seized narcotics. NII systems are particularly valuable in detecting concealed contraband in vehicles and cargo containers. With the help of NII, on July 22, 2017, CBP officers assigned to the San Ysidro POE seized 4.54 kilograms (10 pounds) of fentanyl, 11.31 kilograms (24.96 pounds) of methamphetamine, and 1.10 kilograms (2.43 pounds) of mannitol hidden in the quarter panels of a 2012 Toyota Corolla driven by a 26-year old female U.S. citizen accompanied by a 27-year old female U.S. citizen passenger. The Budget proposes $109.2 million to build upon prior year investments and will be used to recapitalize the current small-scale (SS) and LS NII technology fleet. This funding will allow CBP to remain on track to ensure the NII fleet is operating within its service life by FY 2024, and will help CBP continue to use NII to safely, quickly, and effectively detect a wide range of contraband imported using a variety of conveyances, thereby facilitating lawful trade and travel.

Personal vehicles are not the only means by which smugglers attempt to transport illegal drugs and other contraband across the border. For example, just a couple of weeks ago, CBP officers using NII equipment and canine teams at the Pharr International Bridge cargo facility discovered 2,746 pounds of marijuana and 50.70 pounds of cocaine, worth almost $1 million, over the course of just three days.[1]

Furthermore, as an integral part of the DHS comprehensive strategy to combat nuclear and radiological terrorism, CBP scans all arriving conveyances and containers with radiation detection equipment prior to release from the POE. In partnership with the DHS Domestic Nuclear Detection Office (DNDO), CBP has deployed nuclear and radiological detection equipment, including Radiation Portal Monitors (RPM), Radiation Isotope Identification Devices (RIID), and Personal Radiation Detectors (PRD) to 328 POEs nationwide.[2] Utilizing RPMs, CBP is able to scan 100 percent of all mail and express consignment mail and parcels; 100 percent of all truck cargo; 100 percent of personally-owned vehicles arriving from Canada and Mexico; and nearly 100 percent of all arriving sea-borne containerized cargo for the presence of radiological or nuclear materials. Since the inception of the RPM program in 2002 through June 2017, CBP has

---

[1] https://www.cbp.gov/newsroom/local-media-release/cbp-field-operations-seizes-over-900k-marijuana-and-cocaine-commercial

[2] As of June 30, 2017, CBP currently has 1,276 RPMs, 3,316 RIIDs, and 34,387 PRDs operational systems deployed nationwide.

scanned approximately 1.4 billion conveyances for radiological contraband, resulting in more than 6.1 million alarms, all of which have been successfully resolved at the proper level.

In conjunction with CBP's many other initiatives, advancements in cargo and conveyance screening technology provide CBP with a significant capacity to detect dangerous materials and other contraband and continue to be a cornerstone of CBP's multilayered security strategy.

Technology Investments Along the Border
Thanks to the support of Congress, CBP continues to deploy proven, effective technology to strengthen border security operations between the POEs — in the land, air, and maritime environments. With enhanced detection and surveillance capabilities, USBP and AMO can improve their situational awareness remotely, direct a response team to the best interdiction location, and warn the team of any additional danger otherwise unknown along the way. As a result, these investments increase CBP's visibility of illegal activity along the border, our operational capabilities, and the safety of frontline law enforcement personnel. The terrain along the border between the United States and Mexico is extremely diverse, consisting of desert landscape, mountainous terrain, and urban areas. Tailored to address an area's risk and environmental challenges, CBP deploys a combination of fixed and mobile technology assets, with short-, medium-, and long-range persistent surveillance capabilities to maintain situational awareness of the varying border environments.

Fixed, Persistent Surveillance

Integrated Fixed Tower (IFT) systems are one of technologies used by USBP that are being deployed to the Southwest border in Arizona. IFTs provide long-range, persistent surveillance. An IFT system automatically detects with radars, identifies and classifies items of interest with day and night cameras, and tracks the items of interest at the Command and Control Center using a COP that integrates data, video and geospatial locations of selected items of interest. The first IFT system became operational in the Nogales Area of Responsibility in August 2015. The second IFT system became operational in May in the Douglas Area of Responsibility. The third system has been installed and will undergo system acceptance testing this September in the Sonoita Area of Responsibility. The Budget supports these critical assets by including $22.4 million in FY 2018 for operations and maintenance of the IFT program and $17.4 million for IFT program procurement, construction, and improvements.

Remote Video Surveillance Systems (RVSS) are another fixed technology asset used by USBP in select areas along the Southwest and Northern borders. These systems provide short-, medium-, and long-range, persistent surveillance from towers or other structures. The RVSS uses cameras, radio, and microwave transmitters to send video to a control room, enabling the control room operator to remotely detect, identify, classify, and track targets using the video feed. Existing RVSSes are being upgraded with newer cameras and additional towers. The Budget includes $20.0 million in FY 2018 to sustain RVSS. An additional $46.2 million is provided for procurement, construction, and improvements. This funding will be used to support the deployment of the RVSS capability to the Rio Grande Valley Sector.

In some areas along the Southwest border, USBP also uses Unattended Ground Sensors (UGS), which provide short-range, persistent surveillance. These sensors support our capability to detect, and, to a limited extent, track and identify subjects. Sensor capabilities include seismic, passive

infrared, acoustic, contact closure, and magnetic, although these capabilities are not necessarily available in all deployed UGS. When a ground sensor is activated, an alarm is communicated to an operations center. Some UGS are used in conjunction with Imaging Sensors (IS). The UGS/IS include an imaging capability to transmit images or video back to the operations center. As with UGS, UGS/IS are monitored in a centralized system and geospatially tracked.

Fixed systems provide persistent surveillance coverage to efficiently detect unauthorized border crossing and incursions by suspected drug smugglers. Once detection is confirmed, USBP can quickly deploy the appropriate personnel and resources to interdict. Without fixed-system technology such as IFT, RVSS, and UGS, USBP's ability to detect, identify, classify, and track illicit activity would be significantly limited.

Mobile and Relocatable Capabilities

Working in conjunction with fixed surveillance assets, USBP also uses mobile and relocatable systems to address areas where rugged terrain and dense ground cover may allow adversaries to exploit blind spots or avoid the coverage of fixed systems. Mobile and relocatable technology assets provide USBP with the flexibility to adapt to changing border conditions and threats.

Along the Southwest border, Mobile Surveillance Capability (MSC) systems provide long-range, mobile surveillance. They include radar and camera sensors mounted on USBP vehicles. An agent deploys with the vehicle to operate the system, which automatically detects and tracks items of interest and provides the agent/operator with data and video of the observed subject.

Mobile Vehicle Surveillance Systems (MVSS) are short-, and medium-range, mobile surveillance equipment. They consist camera sensors on telescoping masts mounted on USBP vehicles. A USBP agent deploys with the system, which detects, tracks, identifies, and classifies items of interest using the video feed. The agent/operator observes activity on the video monitor to detect intrusions and assist agents/officers in responding to those intrusions. The Budget includes $3.2 million to provide operation and sustainment for MVSS, and an additional $1.6 million for procurement, construction, and improvements to fulfill operational needs on the Southern and Northern borders.

Another system is the Agent Portable Surveillance System (APSS). Mounted on a tripod, it provides medium-range, mobile surveillance and can be transported by two or three USBP agents. Two agents remain on-site to operate the system, which automatically detects and tracks items of interest and provides the agent/operator with data and video of selected items of interest.

CBP's Tactical Aerostats and Re-locatable Towers program, originally part of the Department of Defense (DOD) re-use program, uses a mix of aerostats, towers, cameras, and radars to provide USBP with increased situational awareness over a wide area. This capability has proven to be a vital asset in increasing USBP's ability to detect, identify, classify, and track activity. Since initial deployment in 2012, these systems have been responsible for detecting more than 180,000 illegal border incursions of aliens and smugglers, leading to the seizure of approximately 180 tons of narcotics and related contraband. In this fiscal year alone, USBP agents, with the assistance of existing aerostats and re-locatable towers, have seized 62 tons of narcotics, and caught more than 20,000 illegal border crossers detected by aerostats. The Budget includes $34.8 million in FY

2018 for the Tactical Aerostats and Re-locatable Towers Program to fund continued operations and maintenance costs.

Technology is critical to USBP border security operations. A tailored blend of complementary fixed, mobile, and portable surveillance systems increases USBP's effectiveness in targeting a high-risk areas, enabling rapid-response strategies to maximize limited manpower, and adjusting to seasonal and periodic traffic patterns.

Technology in the Air and Maritime Domains
AMO increases CBP's situational awareness, enhances its detection and interdiction capabilities, and extends our border security zones, offering greater capacity to stop threats before they reach our shores. Through the use of coordinated and integrated surveillance capabilities – including aviation, marine, tethered aerostats, and integrated, ground-based radars – AMO detects, interdicts, and prevents acts of terrorism and the unlawful movement of people, illegal drugs, and other contraband toward or across the borders of the United States. These assets provide multi-domain awareness for our partners across the Department, as well as critical aerial and maritime surveillance, interdiction, and operational assistance to our ground personnel.

AMO's maritime assets are tailored to the conditions of the environments in which we operate, and are equipped with the capabilities required to interdict attempted illicit smuggling of drugs and undocumented aliens. Often there is little time to interdict inbound suspect vessels, and AMO has honed its maritime border security response capability around rapid and effective interception, pursuit, and interdiction of these craft.

AMO employs high speed Coastal Interceptor Vessels (CIV) that are specifically designed and engineered with the speed, maneuverability, integrity, and endurance to intercept and engage a variety of suspect non-compliant vessels in offshore waters, as well as the Great Lakes. Furthermore, AMO's Small Vessel Standoff Detection radiation detection capability increases the probability of detecting radiological and nuclear materials that might be used to attack the country. The transportable equipment is effective against small private or commercial vessels and can indicate a potential threat in advance of a boarding.

The Budget also seeks significant investments in our aircraft fleet. For example, the Budget includes $55.5 million in FY 2018 to purchase two KA-350ER multirole enforcement aircraft (MEA). The MEA is the optimal sensor-equipped aircraft for surveillance operations in regions such as the Southern border, Northern border, and maritime environments where terrain, weather, and distance pose significant obstacles to border security operations. The MEA further serves as a force multiplier for law enforcement and emergency response personnel, facilitating the rapid-response deployment of equipment, canines, and people. The multiple roles of the MEA include presently maritime with planned ground and air surveillance as well as air-to-air tracking and LETC.

P-3 Long Range Trackers and Airborne Early Warning Aircraft provide critical detection and interdiction capability in both the air and marine environment. Their sophisticated sensors and high endurance capability greatly increase AMO's range to counter illicit trafficking. CBP P-3s are an integral part of the successful counter-narcotic missions operating in coordination with the Joint Interagency Task Force - South. The P-3s patrol a 42 million-square-mile area that includes

more than 41 nations, the Pacific Ocean, Gulf of Mexico, Caribbean Sea, and seaboard approaches to the United States. In FY 2016, CBP's P-3 operational efforts led to the total seizure or disruption of more than 193,000 pounds of cocaine with an estimated wholesale value of $2.5 billion.

Helicopters are also critical components of AMO's aircraft fleet. UH-60 Black Hawk helicopters are critical to border security operations, being the only helicopters in our fleet with medium-lift capability (i.e., the ability to carry eight agents with full gear). The UH-60 is rugged enough to support interdiction and life-saving operations in hostile environments, at high altitudes in the desert, over open water, and in extreme cold. The Budget includes $14.1 million in FY 2018 to purchase one UH-60 Medium Lift Helicopter (MLH).

Another important asset is the DHC-8 Maritime Patrol Aircraft (MPA). It bridges the gap between strategic assets, such as the P-3 and Unmanned Aircraft System (UAS), and the smaller assets providing support in littoral waters.

AMO's aircraft have received a number of technological upgrades to increase their utility. Avionics upgrades to the AS-350 helicopter allow operators to focus more of their attention on the mission, making them more effective. AMO has also added electro-optical infrared detection technology to its fixed-wing, light observation aircraft, greatly increasing its tactical capabilities.

UASs are an increasingly important part of CBP's layered and integrated approach to border security. The UAS consists of an unmanned aircraft, sensors, communication packages, pilots, and ground control operators. UASs are used for surveillance, detection and other mission requirements along the Southwest border, Northern border, and in the drug source and transit zones. The UAS program has achieved over 43,500 flight hours since it began in FY 2006 and has been credited with interdicting or disrupting the movement of cocaine and marijuana with an estimated wholesale value of $170 million. CBP can equip four UAS aircraft with Vehicle and Dismount Exploitation Radar (VADER) sensor systems, which can detect human movement along the ground. Since 2012, VADER has detected over 51,600 people moving across the Southwest border.

UAS and P-3 aircraft are equipped with technology that provides full-motion video capture for real-time and forensic analysis. This advanced detection and communication system enables AMO to disseminate live images and other sensor data to operational users, increasing response effectiveness and speed.

The Budget proposes $2.5 million to expand the small Unmanned Aircraft Systems (sUAS) pilot projects and develop an official program of record. USBP needs this capability to surveil locations between the POEs in remote, isolated, and inaccessible portions of our borders. The sUAS needs to provide ground reconnaissance, surveillance, and tracking capabilities to support the USBP surveillance tasks of predicting, detecting, tracking, identifying, and classifying suspected items of interest. The ability to persistently and discreetly surveil remote areas along portions of the border is critical to USBP's ability to secure the border.

Perhaps the most important advancements come in the area of data integration and exploitation. New downlink technology allows AMO to provide a video feed and situational awareness to its

law enforcement partners in real-time. In addition, the Minotaur mission integration system will allow multiple aircraft to share information from multiple sources, providing a never-before-seen level of air, land, and maritime domain awareness. As the Minotaur system evolves, it will provide even greater awareness for a larger number of users.

AMO also combats airborne and maritime smuggling with an integrated long-range radar architecture comprised of ground-based radars and elevated radars deployed on tethered aerostats. AMO, in partnership with DOD, operates and maintains a network of more than 120 long-range radars providing a wide-area, persistent surveillance capability to detect and identify cooperative and non-cooperative aircraft travelling within or near the United States and crossing its borders. This network provides AMO the capability to detect and respond to air and maritime threats to the homeland, including organizations attempting to traffic contraband into the United States.

AMO's Tethered Aerostat Radar System (TARS) monitors the low-altitude approaches to the United States. With eight aerostat sites – six along the Southwest border, one in the Florida Keys, and one in Puerto Rico – the TARS elevated sensor mitigates the effect of the curvature of the earth and terrain-masking limitations associated with ground-based radars, enabling maximum long-range radar detection capabilities. In FY 2014 through FY 2016, TARS was responsible for detecting 86 percent of all suspected air smuggling flights approaching the Southwest border from Mexico. The Budget provides support for the Tethered Aerostat Radar System program. The $41.2 million requested will provide for the annual system operations, system upkeep, maintenance and supply of government personnel, and real property needs such as site and facility leases and expenses, for the full program. This funding will sustain the steady-state operations of the system while also retiring major threats from technical and program risks to system operations and health stemming from aging technology, diminishing manufacturing sources, and emerging regulatory requirements.

A vital component of DHS's domain awareness capabilities, AMO's Air and Marine Operations Center (AMOC) integrates surveillance capabilities and coordinates a response to threats to national security with other CBP operational components, including USBP, Federal, and international partners[3] to detect, identify, track and support interdiction of suspect aviation and maritime activity in the approaches to U.S. borders, at the borders, and within the interior of the United States. Coordinating with extensive law enforcement and intelligence databases and communication networks, AMOC's command and control operational system, the Air and Marine Operations Surveillance System (AMOSS), provides a single display capable of processing up to 700 individual sensor feeds and tracking over 50,000 individual targets simultaneously. The eight TARS sites represent approximately two percent of the total integrated radars in AMOSS, yet were able to account for detecting 53 percent of all suspect target detections.

CBP is also pursuing improved border surveillance capabilities in the air domain. AMO is performing a formal Analysis of Alternatives (AOA) to review and assess multiple opportunities for extending a TARS-like surveillance capability beyond the next decade. A field test of promising key technologies is planned to take place in FY 2018. In addition, AMO is

---

[3] AMOC partners include the Federal Aviation Administration (FAA), the Department of Defense (including the North American Aerospace Defense Command (NORAD)), and the governments of Mexico, Canada, and the Bahamas.

participating in an interagency effort to assess the feasibility of moving its current air surveillance radar capabilities out of the L-Band spectrum so that the L-Band spectrum can be auctioned off for private sector use. If the move proves feasible, the proceeds of the auction would be used to transition to the new air surveillance capability.

As we continue to deploy border surveillance technology, particularly along the Southwest border, these investments in fixed and mobile technology, as well as enhancements of domain awareness capabilities provided by the AMOC allow CBP the flexibility to shift more agents from detection duties to interdiction of illegal activities across our borders.

Border Technology Requirements Development
CBP is committed to effective and efficient resource allocation and works closely with other elements of DHS headquarters and fellow Department components to ensure strategy-led, operationally informed requirements development. This process enables DHS to effectively and efficiently execute acquisition strategies and budgets that address the broad range of complex border threats and challenges, including illegal migration, smuggling of illegal drugs, human and arms trafficking, and the threat of terrorist exploitation of border vulnerabilities.

For example, CBP works closely with the DHS Science & Technology (S&T) Directorate to identify and develop technology to improve our surveillance and detection capabilities along our land and maritime borders. This includes investments in tunnel detection and tunnel activity monitoring technology; tactical communication upgrades, sUAS; low-flying aircraft detection and tracking systems, land and maritime data integration/data fusion capabilities, and border surveillance tools tailored to the Southwest and Northern border, including unattended ground sensors/tripwires, upgrades for mobile surveillance systems, slash camera poles, and wide-area surveillance.

In addition to collaboration with our DHS partners, as part of CBP's efforts to seek innovative ways to acquire and use technology, CBP formed a partnership with DOD to identify and reuse excess DOD technology. To date, CBP has acquired several types of technology, including thermal imaging equipment, night vision equipment, and tactical aerostat systems, which increase CBP's situational awareness and operational flexibility in responding to border threats. We will continue to pursue additional opportunities to leverage DOD excess equipment. We will do this in a sustainable way by considering the full life-cycle costs of the DOD equipment we are considering before acquiring it.

Conclusion
Technology is a primary driver of all land, maritime, and air domain awareness. CBP's risk-based deployment of technology allows us to achieve our strategic and operational enforcement objectives at our POEs, along U.S. borders, and in the air and maritime approaches. The information obtained from NII, RPMs, fixed and mobile surveillance systems, ground sensors, imaging systems, and other advanced aerial and maritime technologies enhances domain awareness, informs situational awareness, and better enables CBP to monitor, detect, identify, and appropriately respond to unauthorized crossings and contraband smuggling.

Chairwoman McSally, Ranking Member Vela, thank you for the opportunity to testify today. We look forward to your questions.