



● ● AeroVironment's RQ-11B Raven Small Unmanned Aircraft Systems. Photo courtesy of Business Wire

## Border security: An American focus ● ●

Border security has never been a more pressing issue for governments than it is today. Maintaining the security of a nation is paramount. Whether it be drugs, weapons, explosives or unauthorised personnel, it is vital that security teams keep unwelcome elements at bay. As such, most borders have several security systems in place, which need to be both effective and efficient, to ensure safety and reduce congestion. Here, we take a look at how one of the world's largest federal agencies manages its border security.

**Border security is a complex thing.** In high traffic areas where they might be tens of thousands of people crossing a border each day, it's important to have a well-trained team with smoothly-operating systems in place to ensure the safe and timely passage of permitted personnel and goods. Meanwhile, in low-traffic areas, it can be a tricky balancing act between maintaining a cost-efficient system that is still effective.

As threats evolve, it's vital that the systems in place, and the technology for detecting threats, evolve too. The best border security teams know this, and utilise a mixture of traditional measures such as information exchange between partner foreign national agencies, and the latest in surveillance technology, such as unmanned aerial systems (UAS) and non-intrusive detection techniques.

### Managing national border security needs

The US Customs and Border Protection (CBP) is the United States Department of Homeland Security's largest federal law enforcement agency, and one of the largest federal agencies in the world. It is tasked with regulating and facilitating international trade, collecting import duties and enforcing US regulations, including immigration, customs and trade. The entity takes a unified and comprehensive approach to border management and control, combining customs, immigration, border security and agricultural protection into one coordinated and supportive activity.

On the average day, CBP welcomes almost one million visitors, screens more than 67,000 cargo containers, arrests more than 1,100 people, and seizes almost six tons of illegal drugs. That's a lot to achieve in one day by anyone's standards, even with a team of more than 60,000 employees.

In the first four days of October alone, CBP reported the following incidents:

- A woman was arrested at the Willcox Station in Tuscany with three illegal immigrants, one Mexican and two Belize nationals, in the trunk of her vehicle after a dog alerted officers to the scent.
- A Mexican man was arrested at the Hidalgo International Bridge traversing Texas and Mexico with more than US\$300,000 of unreported currency concealed in his vehicle. The money was found with the use of a non-intrusive imaging system inspection (NI).
- At the Beecher Falls Border Patrol Station in Swanton, Vermont, eight illegal immigrants from Bulgaria, Ecuador, El Salvador and Guatemala were arrested, and drugs paraphernalia including 71.3g of marijuana, 297.4g of marijuana edibles, and 5oz of hash oil were seized in just three days.
- Live larvae were discovered by CBP agriculture specialists in foreign cargo at the Houston Seaport. The cargo was ordered to be immediately re-loaded onto the vessel, since the species were considered dangerous to neighbourhood trees, wildlife and forestry.
- A man was arrested at the Carrizo Springs Station, Texas, with three illegal immigrants from Mexico, Honduras and El Salvador, in the trunk of his vehicle. CBP agents found the immigrants following a vehicle stop with the assistance of a canine.
- Three Salvadoran nationals were arrested by the Rio Grande Valley Sector agents in Texas for illegally trying to enter the USA. The first was found to be a member of the 18<sup>th</sup> Street



● ● US Border Patrol agent scans Imperial Valley for signs of illegal crossings

Gang, a Los Angeles Street gang comprised primarily of illegal immigrants, while the second was a confirmed member of the Mara Salvatrucha gang (also known as MS-13). The third had been previously arrested by the San Francisco Sheriff's Office for lewd or lascivious acts with a child under 14 years of age, for which he was sentenced to three years of prison confinement.

- In a separate incident, CBP agents from the Rio Grande Valley Sector arrested two wanted fugitives from Guatemala and Mexico, as well as a Honduran national member of the MS-13 gang, for trying to illegally enter the USA.

With this level of ill intent, and more than 11,000km of border shared with Mexico and Canada to patrol, CBP continues to enhance and improve the systems and checks it has in place to keep its borders secure. According to CBP's Vision Strategy 2020: "Since the volume of people and cargo crossing our borders continues to grow, and enforcement resources are finite, CBP will employ an outcome-focused approach in developing integrated, risk-informed strategies to target enforcement and operational capabilities to meet the highest priority threats in the border environment."

One of the agency's key action plans to maintain and improve its border security capabilities is to increase situational awareness of the air, land and maritime borders. Ensuring coordination with foreign law enforcement partners such as

North and Central American and Caribbean Basin entities is vital for sustaining situational awareness, and will enable CBP to better predict actions, movements and intents of potential threats. While invaluable, these traditional situational awareness tactics are being augmented with hands-on tactics such as periodic reconnaissance patrols, sign-cutting and tracking and UAS flights.

The CBP's Vision Strategy 2020 states: "The use of technology in the border environment is an invaluable force multiplier to increase situational awareness. The information gleaned from biometrics, mobile surveillance systems, radiation detectors, ground sensors, imaging systems, and other advanced technologies enhances situational awareness and better enables CBP to detect, identify, monitor, and appropriately respond to threats in the Nation's border regions. CBP will continually evaluate its situational awareness posture and adjust its capabilities as required. Effectively generating and sustaining up-to-date situational awareness enables CBP to plan effectively, enhance its agility, and execute law enforcement operations to secure our homeland."

### Second Integrated Fixed Towers system passes acceptance testing

CBP initiated the Integrated Fixed Towers (IFT) system in 2012 as a critical step forwards for border surveillance systems. Utilising the acquisition strategy, CBP leveraged a non-developmental off-the-shelf approach, featuring a network of towers 80-120 feet tall, each fitted with mounted radar and camera radar, as well as day and night cameras.

The cameras and sensor technologies integrate through an intuitive, easy-to-use common operating picture, which provides CBP agents with detailed, long-range, persistent surveillance, to detect, track, identify and classify items of interest. Information from the IFT towers is transmitted via microwave to various Border Patrol Stations, where CBP agents analyse the data and coordinate a response with agents in the field, to resolve situations as they arise. With the increased accuracy provided by the IFT system, agents can rapidly react to evolving threats, and monitor previously unobserved areas.

Elbit Systems of America won the US\$145 million IFT contract with CBP, and deployed the first IFT system in Nogales, Arizona in 2015, since when it has helped CBP agents monitor the Mexican border. Following the success of this first instalment, a second IFT system was integrated and passed CBP system acceptance testing in Douglas, Arizona, in July 2017.

"We achieved this important milestone by working closely with CBP and understanding their agents' needs," said Raanan Horowitz, CEO and President of Elbit Systems of America. "Border Patrol agents rely on our homeland security solutions to provide situational awareness and enhanced safety."

As the system integrator, Elbit Systems of America furnishes the sensor towers with radar, day and night cameras, and

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command and control software, which correlates sensor information to provide a single operating picture. Information from all the towers is networked into Border Patrol Station command and control centres, which increases situational awareness for CBP agents. The IFT's high reliability and proven contractor logistics support provides CBP with 24/7 surveillance coverage. The system also provides CBP with a platform to integrate existing and future sensors to improve border protection and agent safety.

### CBP undertakes small UAS testing for border security

As UASs become more commonplace and more affordable the world over, new applications are starting to take hold, and it's only logical that border security would be one such consideration. Accordingly, CBP began testing the use of small UASs (sUASs) for border control in September 2017, with the tests envisaged to continue through until 2018. Three small hand-launched UASs will patrol across selected Northern and Southern borders across the USA to establish whether a larger investment for wider deployment is warranted.

Three different UASs will be used in Tuscon, Arizona, the Rio Grande Valley, Texas and in Swanton, Vermont. CBP agents will evaluate the sUAS capabilities for intelligence, surveillance and reconnaissance (ISR), tracking and acquisition in areas that are too high-risk for ground personnel or manned aircraft.

A spokesman from the CBP told federal technology news agency FCW that this is the first time very small UASs have been tested by the agency. "The only drone aircraft being used operationally by CBP are the much larger UAVs flown by Air and Marine Operations," said the spokesman. "There are no sUAS drones being flown by CBP, outside the very limited scale of this operational test being conducted by the US Border Patrol."

CBP's existing UAS capabilities include MQ-9 Predator Bs, which require runways, and thus take longer to reach target areas than the smaller, more agile, small UASs. The sUASs being tested include AeroVironment's Raven and Puma systems, and PSI Tactical's InstantEye quadcopter. Each of the UAVs weigh less than 15lb and have wingspans smaller than 10 feet, and the latter weighs just 0.7lb. Two of the sUASs fit into the back of an SUV, while the third is small enough to fit into a backpack, making transportation extremely flexible. All of the small UASs are fitted with standard and infrared cameras and operated from the ground.

Each of the UASs will be tested in each zone (Arizona, Texas

and Vermont) until the end of January, ensuring a wide range of environments is accounted for.

The final review is expected to take place at the end of Spring in 2018, whereupon future investment and deployment opportunities will be assessed.

### The Border Wall gains momentum

Anyone who reads the news is probably all too familiar with US President Trump's grand plan to build a Border Wall at the American-Mexican border. During the election campaign, Donald Trump announced: "I will build a great, great wall on our Southern border and I'll have Mexico pay for that wall." Whatever your thoughts on his political ideas (and the unlikelihood of Mexico ever agreeing to pay for such a wall), it's been shown that walls are an effective way of securing borders, and the President's Border Wall is already making progress.

The Executive Order: Border Security and Immigration Enforcement Improvements, issued on 25<sup>th</sup> January 2017, states that 'the [Department of Homeland Security] Secretary shall take steps to immediately plan, design and construct a physical wall along the southern border, using appropriate materials and technology to most effectively achieve complete operational control of the southern border.'

As such, in March CBP issued two Requests for Proposals (RFP) to acquire conceptual wall designs with the intent to construct multiple prototypes. One RFP called for a concrete wall design and the other called for an 'other than concrete' wall design. Through the construction of prototypes, CBP will partner with industry to identify the best means and methods to construct a border wall.

In August, CBP announced that the contracts for the four concrete wall prototypes for the Border Wall had been awarded to Caddell Construction Co., (DE), LLC, Fisher Sand & Gravel Co., DBA Fisher Industries, Texas Sterling Construction Co., and W. G. Yates & Sons Construction Company. This was followed in September with the contracts for the four 'other materials' walls prototypes, which went to Caddell Construction Co., (DE), LLC, KWR Construction, Inc., ELTA North America Inc., and W. G. Yates & Sons Construction Company. Each of the prototypes are designed to deter illegal crossings in the area, and will also allow CBP to evaluate the potential for new wall and barrier designs that could complement existing wall and barrier designs already in use along the border. Designed for the construction of an extremely long wall, making sure that the right materials and techniques are used for the terrain and environment are essential for the project to be successful.

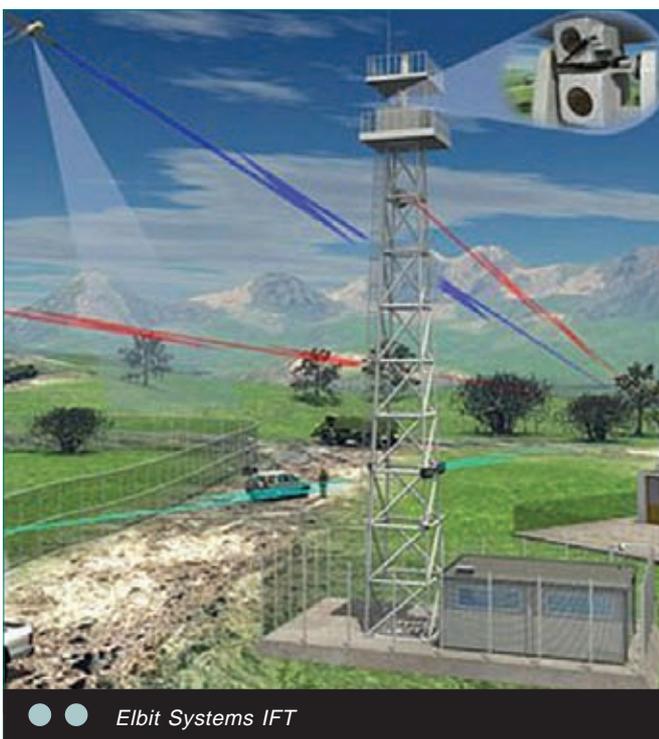
Later in September 2017, construction of the eight wall prototypes in San Diego began; four made of concrete, and four made of 'other materials.' Each of the eight prototypes will measure 18-30 feet high, and be 30 feet long.

"We are committed to securing our border and that includes constructing border walls. Our multi-pronged strategy to ensure the safety and security of the American people includes barriers, infrastructure, technology and people," said Ronald Vitiello, Acting Deputy Commissioner at CBP. "Moving forward with the prototypes enables us to continue to incorporate all the tools necessary to secure our border."

The eight wall prototypes were completed in October 2017; testing and evaluation is expected to last some two months, but cannot be started for another month as the concrete in the walls must cure prior to testing. According to US.CBP's Acting Deputy Commissioner, Ronald Vitiello, the testing period will try to answer the basic questions: Can it be climbed? Can it be dug under? Can it withstand cutting tools? Ultimately, there's no guarantee that any of the prototypes will be selected, or a combination of more than one design might be used.

It remains uncertain whether the funding required to build the entire Border Wall will ever materialise, and the opposition from the general public and Congress alike is significant. In any case, time will tell, and the entire world will be watching with bated breath.

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