



US BORDER SECURITY

Timothy Compston shines a spotlight on the measures being deployed in the air and on the ground to secure the US/Mexico border

With President Trump's campaign promise to "build a wall", and issuing a Presidential Memorandum directing the US Department of Homeland Security and the Department of Defense to address national security threats along the US South-West Border and, more recently declaring an emergency to seek more funding for his policy – when other avenues were blocked – the security situation on

the 1,954 mile border with Mexico has been high on the political agenda across the Atlantic.

Away from all the intrigue and point scoring between the Republicans and Democrats on border security, every day US Border Patrol agents and US Customs and Border Protection officers face a massive challenge as they seek to close the door to illegal immigration, drug smuggling, gang activity, people trafficking and even terrorism on the most frequently crossed border in the world.

US Border Patrol stands watch during border wall reinforcement

Putting the scale of the problem into perspective, Scott Luck, deputy chief of US Border Patrol, told attendees at the recent Border Security Expo in San Antonio at the end of March about an upsurge in illegal aliens with 66,000 apprehended during February alone in and around the South-West border: "So far this fiscal year, we have apprehended more than 300,000. That's about double over this time last year, and the numbers are projected to keep growing."

DEMOGRAPHIC SHIFT

Deputy chief Luck also highlighted a marked change in who is actually crossing illegally, pointing out that whereas 20 years ago the vast majority of the more than one million illegal aliens apprehended on the South-West border were adult males from Mexico, on their own: "Today, nearly 80 percent of apprehensions are of people from countries other than Mexico, and more than 60 percent are unaccompanied children or members of family units from the Central America's Northern Triangle – Honduras, Guatemala and El Salvador." This demographic shift, pointed out Luck, has meant more Border Patrol resources having to be shifted to take care of those in custody.

Luck went on to stress, in his speech at Border Security Expo, that in his view the only enduring way

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to impede and deny illegal traffic is with a physical barrier: "While we have more than 650 miles of wall and other physical barriers in place today, we know that's not enough." He noted that several new projects were in the works to beef up the wall. Luck also credited partnerships with state and local law enforcement, as well as the US military, for expanding "situational awareness exponentially". Luck acknowledged that border security is a complex issue requiring a complex solution, with resources such as a wall system and facilities now being employed alongside technology and additional personnel.

Looking in more detail at the sort of physical barriers in place on the South-West border with Mexico, the US Custom and Border Protection (CBP) agency – the unified agency with the Department of Homeland Security – confirms that as of December 2018 these included picket fence, concrete levee wall with steel bollards, floating fences, steel bollards, vehicle bollards and 'Normandy' barriers. Maintaining and expanding such barriers does not come cheap. In the 2018 fiscal year CBP received \$1.375 billion for border infrastructure projects on the US South-West border. For the Rio Grande Valley, \$641 million was appropriated for all costs associated with planning, land acquisition, and construction of eight to 12 miles of new border wall system in Starr County and 25 miles of new levee wall system in Hidalgo County. On average, CBP says that the cost to construct a new border wall or replace existing legacy fence is approximately \$6.5 million per mile.

Drilling down into the range of technological solutions that it is now deploying to defend the border, above and beyond physical barriers, the CBP Border Security Report for 2018 notes that Border Patrol completed deployment of a range of border surveillance technologies in FY18. This included: eight new fixed surveillance tower units in Tucson sector; 11 remote video surveillance system towers and five command and control facilities on the Southern border; nearly eight miles of linear ground detection technology and five mobile video surveillance system units in the Rio Grande Valley sector.

For its part, Elbit Systems of America LLC has been working with CBP on the roll out of integrated fixed tower border security systems. As the system integrator, Elbit Systems of America furnishes the sensor towers with radar, day/night cameras and command and control software that combines data into a single operating picture. Information from all the towers is networked into Border Patrol Station command and control centres, which increases situational awareness for Border Patrol Agents. To date, according to Elbit Systems, 31 integrated fixed tower systems have been installed, covering 114 miles of border.

According to media reports, another vendor Anduril Industries – which was co-founded by Palmer Luckey who sold his previous company Oculus to Facebook for \$2 billion in 2014 – has seen its Lattice tower solution, which incorporates innovations like AI, sensor fusion and mesh networking being trialled on the border.

UNMANNED AIRCRAFT

There is little doubt that border protection is a difficult task, thanks to the vast areas involved and the US/Mexico border is no exception. So, given this reality, back in 2005 CBP and its Office of Air Marine (now called Air and Marine Operations) was keen to embrace unmanned aircraft systems as an added weapon in their armoury. CBP first employed the MQ-9 Predator B to support law enforcement operations on the South-West border and in 2009 on the Northern border.

When I interviewed the executive director for National Air Security Operations a few years ago about the Predator, he recalled the frustrations in the early days of operations as, even with an electro-optical camera, it was like "looking through a soda straw" when flying the platform over a vast desert. A change for the better came, he recalled, when other sensors were married to the aircraft to make it a more capable border security system. Enhancements to the Predator included the addition of a radar system called VADAR that allowed the Predator to cover a larger portion of the border and work in a strategic as well as tactical sense. Now patrols on the ground could be directed to where things were happening, such as a group of people walking across the desert. Ultimately, this was highlighted as a much more efficient use of CBP manpower and resources.

Touching on operations at a strategic level, the executive director for National Air Security Operations told me that the Predator normally operates at a height of between 19,000 and 21,000

feet covering a couple of hundred miles in a night. For tactical deployments closer to the ground, the Predator can, he said, be tasked to stay in a busy area. Once radar picks up a group the electro-optical and infra-red sensors swing into action to validate that the targets are people and to point them out to Border Patrol agents on the ground.

As well as calling on the Predator for situational awareness above the ground, CBP continues to deploy a wide array of aerial assets – from aircraft to helicopters – and, for the future, small drones are also likely to feature. On the small UAS (Unmanned Aerial System) front the availability of compact sensors such as Ecodyne's MESA (Metamaterial Electronically Scanning Array) radar, thermal cameras and facial recognition capabilities, are making these more potent, cost effective platforms for border security. The fact that it's possible to carry such systems in a border patrol vehicle and only one person is needed to prepare them for flight is also likely to drive their increased deployment.

PERSISTENT AERIAL SURVEILLANCE

Of course, by their nature, aircraft and drones are limited in the time they can be on station so for persistent above-the-ground surveillance, strategic and tactical aerostats have been a valuable resource that CBP can call upon. At the larger end of the scale, Customs and Border Protection is now responsible for the long-serving tethered aerostat radar system (TARS), which were transferred from the Department of Defence to the Department of Homeland Security, under whose umbrella CBP falls.

First deployed a quarter of a century ago, TARS units stretch over the Southern US border at 10,000 feet from Yuma, Arizona, to Lajas, Puerto Rico, and are able to use a powerful 200-mile range radar to pick up light aircraft, which are frequently used in drug smuggling and other nefarious activities. TARS

can fly higher than tactical aerostats and it has a wider area surveillance radar, which accesses air and surface. At altitude it provides a much larger look than any aircraft that CBP has and it overcomes the curvature of the earth and any obstructions with terrain masking *etc.*

At the tactical level, from talking to those in the US Border Patrol working with these platforms, they are reporting positive results in key sectors like the Rio Grande thanks to the deterrence – being high visibility – and detection capabilities being unlocked by the aerostats. Crucially, Border Patrol agents reiterate the point that, unlike drones or helicopters, an aerostat can stay on station for hours or even days at a time – depending on the weather. The tactical aerostats also fly at an altitude – 1,000 to 5,000 feet – that a surveillance tower cannot reach and, significantly, are causing those

THE COST TO CONSTRUCT A NEW BORDER WALL IS APPROXIMATELY \$6.5 MILLION PER MILE

engaged in illegal activities at the border to change their tactics. In one case in the Rio Grande City area, for instance, aerostat operators detected narcotics smugglers that came across the river in rafts. The smugglers loaded up the narcotics in a vehicle and drove away. However, the aerostat operators were able to track the vehicle to a 'stash house' and to vector in both Border Patrol and Texas state local partners to seize the narcotics and more drugs in the vicinity.

While a great deal of attention and debate has centred around the construction of physical barriers, this is only part of the story. There is, as we have seen, a wide array of other measures that are well placed to enhance security here – measures that will continue to benefit from fast-track advances in technology ●

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Layers of concertina wire are added to existing barrier infrastructure along the US/Mexico border

