



Testimony

Before the Subcommittee on Border and
Maritime Security, Committee on
Homeland Security, House of
Representatives

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BORDER SECURITY

DHS Surveillance Technology, Unmanned Aerial Systems and Other Assets

Statement of Rebecca Gambler, Director
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GAO Highlights

Highlights of [GAO-16-671T](#), a testimony before the Subcommittee on Border and Maritime Security, Committee on Homeland Security, House of Representatives

Why GAO Did This Study

CBP employs surveillance technologies, UAS, and other assets to help secure the border. For example, in January 2011, CBP developed the Arizona Border Surveillance Technology Plan, which includes seven acquisition programs related to fixed and mobile surveillance systems, among other assets. CBP has also deployed UAS, including Predator B aircraft, as well as tactical aerostats to help secure the border. In recent years, GAO has reported on a variety of CBP border security programs and operations.

This statement addresses (1) GAO findings on DHS's efforts to implement the Arizona Border Surveillance Technology Plan and (2) preliminary observations related to GAO's ongoing work on CBP's use of UAS and tactical aerostats for border security. This statement is based on GAO products issued from November 2011 through April 2016, along with selected updates conducted in May 2016. For ongoing work related to UAS, GAO reviewed CBP documents and analyzed Predator B flight hour data from fiscal years 2011 through 2015, the time period when all Predator B centers became operational. GAO also conducted site visits in Texas and Arizona to view operation of Predator B aircraft and tactical aerostats and interviewed CBP officials responsible for these operations.

What GAO Recommends

GAO has previously made recommendations to DHS to improve its management of plans and programs for surveillance technologies and DHS generally agreed.

View [GAO-16-671T](#). For more information, contact Rebecca Gambler at (202) 512-8777 or GamblerR@gao.gov.

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BORDER SECURITY

DHS Surveillance Technology, Unmanned Aerial Systems and Other Assets

What GAO Found

GAO reported in March 2014 and April 2015 that U.S. Customs and Border Protection (CBP), within the Department of Homeland Security (DHS), had made progress in deploying programs under the Arizona Border Surveillance Technology Plan (the Plan), but could take additional actions to strengthen its management of the Plan and its related programs. Specifically, in March 2014 GAO reported that CBP's schedules and life-cycle cost estimates for the Plan and its three highest-cost programs—which represented 97 percent of the Plan's total estimated cost—met some but not all best practices. GAO recommended that CBP ensure that its schedules and cost estimates more fully address best practices, such as validating cost estimates with independent estimates, and DHS concurred. As of May 2016, CBP has initiated or completed deployment of technology for each of the three highest-cost programs under the Plan, and reported updating some program schedules and cost estimates. For example, in May 2016, CBP provided GAO with complete schedules for two of the programs, and GAO will be reviewing them to determine the extent to which they address GAO's recommendation. GAO also reported in March 2014 that CBP had identified mission benefits of technologies under the Plan, such as improved situational awareness, but had not developed key attributes for performance metrics for all technologies, as GAO recommended in November 2011. As of May 2015, CBP had identified a set of potential key attributes for performance metrics for deployed technologies and expected to complete its development of baselines for measures by the end of 2015. In March 2016, GAO reported that CBP was adjusting the completion date to incorporate pending test and evaluation results for recently deployed technologies under the Plan.

GAO's ongoing work on CBP's use of unmanned aerial systems (UAS) for border security shows that CBP operates nine Predator B aircraft in U.S. airspace in accordance with Federal Aviation Administration (FAA) requirements. Specifically, CBP's Air and Marine Operations operates the aircraft in accordance with FAA certificates of waiver or authorization for a variety of activities, such as training flights and patrol missions to support the U.S. Border Patrol's (Border Patrol) efforts to detect and apprehend individuals illegally crossing into the United States between ports of entry. Predator B aircraft are currently equipped with a combination of video and radar sensors that provide information on cross-border illegal activities to supported agencies. CBP data show that over 80 percent of Predator B flight hours were in airspace encompassing border and coastal areas from fiscal years 2011 through 2015. CBP officials stated that airspace access and hazardous weather can affect CBP's ability to utilize Predator B aircraft for border security activities. GAO's ongoing work shows that CBP has deployed six tactical aerostats—relocatable unmanned buoyant craft tethered to the ground and equipped with cameras for capturing full-motion video—along the U.S.-Mexico border in south Texas to support Border Patrol. CBP operates three types of tactical aerostats, which vary in size and altitude of operation. CBP officials reported that airspace access, hazardous weather, and real estate (e.g., access to private property) can affect CBP's ability to deploy and utilize tactical aerostats. Border Patrol has taken actions to track the contribution of tactical aerostats to its mission activities.

Chairwoman McSally, Ranking Member Vela, and Members of the Subcommittee:

I am pleased to be here today to discuss the Department of Homeland Security's (DHS) efforts to acquire and deploy various technology and assets to secure U.S. borders. Within DHS, U.S. Customs and Border Protection's (CBP) U.S. Border Patrol (Border Patrol) is the federal agency with primary responsibility for securing the national borders between U.S. ports of entry (POE).¹ CBP's Air and Marine Operations (AMO) has primary responsibility for detecting, interdicting, and preventing acts of terrorism and the unlawful movement of people, illegal drugs, and other contraband toward or across U.S. borders utilizing aviation and maritime assets. In the last 3 fiscal years, over 70 percent of all annual apprehensions of illegal entrants by Border Patrol have occurred along the Arizona and south Texas borders.² Seizures of marijuana and cocaine (in pounds) along the Arizona and south Texas borders reported by Border Patrol, as a percentage of all annual seizures, has ranged between 88 to 91 and 24 to 55 percent over the last three years, respectively.³

DHS has employed a variety of technology and assets to assist with its efforts to secure the border. For example, in November 2005, DHS announced the launch of the Secure Border Initiative (SBI) program, which was responsible for developing a comprehensive border protection system using technology, known as the Secure Border Initiative Network (SBInet). In January 2011, in response to internal and external assessments that identified concerns regarding the performance, cost, and schedule for implementing the systems, the Secretary of Homeland

¹Ports of entry are facilities that provide for the controlled entry into or departure from the United States. Specifically, a port of entry is any officially designated location (seaport, airport, or land border location) where DHS officers or employees are assigned to clear passengers and merchandise, collect duties, and enforce customs laws, and where DHS officers inspect persons applying for admission into the United States pursuant to U.S. immigration law.

²These apprehensions were reported by CBP for fiscal years 2013 through 2015 in the Tucson, Laredo, and Rio Grande Valley Border Patrol sectors.

³These seizures of marijuana and cocaine (in pounds) were reported by CBP for fiscal years 2013 through 2015 in the Tucson, Laredo, and Rio Grande Valley Border Patrol sectors.

Security announced the cancellation of further procurements of SBInet systems. After the cancellation of SBInet, CBP developed the Arizona Border Surveillance Technology Plan (the Plan), in January 2011, which includes a mix of radars, sensors, and cameras to help provide security for the Arizona border to support Border Patrol. Additionally, AMO operates a fleet of air and marine assets in support of federal border security efforts, including surveillance through Predator B unmanned aerial systems (UAS).⁴ CBP also operates tactical aerostats along the border, which are relocatable unmanned buoyant craft tethered to the ground and equipped with surveillance technologies.

Over the years, we have reported on the progress and challenges DHS faces in implementing its border security efforts. My statement discusses our findings on (1) DHS's efforts to implement the Arizona Border Surveillance Technology Plan and (2) preliminary observations related to our ongoing work for this subcommittee on the use of UAS and tactical aerostats for border security.

This statement is based on reports and testimonies we issued from 2011 through April 2016 that examined DHS efforts to secure the U.S. border. It also includes selected updates we conducted in May 2016 on DHS's efforts to address our previous recommendations related to its Arizona Border Surveillance Technology Plan. Our reports and testimonies incorporated information we obtained and analyzed from officials from various DHS components. More detailed information about our scope and methodology can be found in our reports and testimonies. For the updates on our Arizona Border Surveillance Technology Plan work, we reviewed documents from DHS on actions it has taken to address findings and recommendations made in our prior reports on which this statement is based.

For ongoing work related to UAS, we analyzed CBP policies, reports, requirements, and Predator B flight hour data from fiscal year 2011 through 2015, covering the time period when all Predator B centers became operational. We also interviewed CBP officials responsible for Predator B and tactical aerostat operations. To assess the reliability of

⁴CBP uses the term "unmanned aircraft systems" for these assets. A UAS is composed of a remotely piloted aircraft, a ground control station, a digital network, and other ground support equipment and personnel required to operate and maintain the system.

Predator B flight hour data, we reviewed guidance for reporting flight hours, interviewed CBP officials about their policies and procedures related to tracking flight hours, and compared monthly report data with data from other CBP flight hour reports. We found the data were sufficiently reliable for the purposes of reporting how CBP allocates its Predator B flight hours. As part of our ongoing work, we also conducted site visits to Arizona in February 2016 and south Texas in March 2016 where we observed Predator B and tactical aerostat operations and interviewed CBP officials that operate and utilize these assets.

We conducted our past and ongoing work in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

**CBP Has Made
Progress in
Implementing the
Arizona Border
Surveillance
Technology Plan, but
Could Take Additional
Actions to Strengthen
Management of the
Plan**

CBP Has Initiated or Completed Deployment of Technologies under the Plan and Has Taken Actions to Update Program Schedules and Cost Estimates

In March 2014 and April 2015, we reported that CBP had made progress in deploying programs under the Arizona Border Surveillance Technology Plan, but that CBP could take additional action to strengthen its management of the Plan and the Plan's programs.⁵ As of May 2016, CBP has initiated or completed deployment of technology to Arizona for each of the programs under the Plan.⁶ Additionally, as discussed further below, CBP has reported taking steps to update program schedules and life-cycle cost estimates for the three highest-cost programs under the Plan. For example, in May 2016, CBP provided us with complete schedules for two of the programs, and we will be reviewing them to determine the extent to which they address our recommendation.

In March 2014, we found that CBP had a schedule for deployment of each of the Plan's seven programs, and that four of the programs would not meet their originally planned completion dates. We also found that some of the programs had experienced delays relative to their baseline schedules, as of March 2013.⁷ Further, in our March 2016 assessment of DHS's major acquisitions programs,⁸ we reported on the status of the Plan's Integrated Fixed Tower (IFT) program, noting that from March

⁵GAO, *Arizona Border Surveillance Technology Plan: Additional Actions Needed to Strengthen Management and Assess Effectiveness*, [GAO-14-368](#) (Washington, D.C.: Mar. 3, 2014), and *Homeland Security Acquisitions: Major Program Assessments Reveal Actions Needed to Improve Accountability*, [GAO-15-171SP](#) (Washington, D.C.: Apr. 22, 2015).

⁶The Plan's seven acquisition programs include fixed and mobile surveillance systems, agent portable devices, and ground sensors. Its three-highest cost programs, which represent 97 percent of the Plan's estimated cost are the Integrated Fixed Tower (IFT), Remote Video Surveillance System (RVSS), and Mobile Surveillance Capability (MSC). The IFT consists of towers with, among other things, ground surveillance radars and surveillance cameras mounted on fixed (that is, stationary) towers. The RVSS includes multiple color and infrared cameras mounted on monopoles, lattice towers, and buildings and differs from the IFT in, among other things, the RVSS does not include radars. The MSC is a stand-alone, truck-mounted suite of radar and cameras that provides a display within the cab of the truck.

⁷The baseline schedule is to represent the original configuration of the program plan and to signify the consensus of all stakeholders regarding the required sequence of events, resource assignments, and acceptable dates for key deliverables. The current schedule is to represent the actual plan to date.

⁸GAO, *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, [GAO-16-338SP](#) (Washington, D.C.: Mar. 31, 2016).

2012 to January 2016, the program's initial and full operational capability dates had slipped.⁹ Specifically, we reported that the initial operational capability date had slipped from the end of September 2013 to the end of September 2015, and the full operational capability to the end of September 2020. We also reported that this slippage in initial operational capability dates had contributed to slippage in the IFT's full operational capability—primarily as a result of funding shortfalls—and that the IFT program continued to face significant funding shortfalls from fiscal year 2016 to fiscal year 2020.

Despite these delays, as of May 2016 CBP reported that it has initiated or completed deployment of technology to Arizona for each of the three highest-cost programs under the plan—IFT, the Remote Video Surveillance System (RVSS), and the Mobile Surveillance Capability (MSC). Specifically, CBP officials stated that MSC deployments in Arizona are complete and that in April 2016, requirements to transition sustainment from the contractor to CBP had been finalized. CBP also reported that the RVSS system has been deployed, and testing on these systems is ongoing in four out of five stations. Further, CBP reported it had initiated deployment of the IFT systems and as of May 2016 has deployed 7 out of 53 IFTs in one area of responsibility. CBP conditionally accepted the system in March 2016 and is working to deploy the remaining IFT unit systems to other areas in the Tucson sector.

With regard to schedules, we previously reported that CBP had at least partially met the four characteristics of reliable schedules for the IFT and RVSS schedules and partially or minimally met the four characteristics for the MSC schedule. Scheduling best practices are summarized into four characteristics of reliable schedules—comprehensive, well constructed, credible, and controlled (i.e., schedules are periodically updated and

⁹Initial operational capability is defined as the deployment of seven IFT systems in the area of responsibility for the Nogales Border Patrol station. Full operational capability is defined as deployment of the IFT system in the additional areas of responsibility of the Sonoita, Douglas, Ajo, Casa Grande, and Wellton Border Patrol stations.

progress is monitored).¹⁰ We assessed CBP's schedules as of March 2013 for the three highest-cost programs and reported in March 2014 that schedules for two of the programs at least partially met each characteristic (i.e., satisfied about half of the criterion), and the schedule for the other program at least minimally met each characteristic (i.e., satisfied a small portion of the criterion).¹¹ For example, the schedule for the IFT program partially met the characteristic of being credible in that CBP had performed a schedule risk analysis for the program, but the risk analysis did not include the risks most likely to delay the project or how much contingency reserve was needed. For the MSC program, the schedule minimally met the characteristic of being controlled in that it did not have valid baseline dates for activities or milestones by which CBP could track progress. We recommended that CBP ensure that scheduling best practices are applied to the IFT, RVSS, and MSC schedules. DHS concurred with the recommendation and stated that CBP planned to ensure that scheduling best practices would be applied, as outlined in our schedule assessment guide, when updating the three programs' schedules. In May 2016, CBP provided us with complete schedules for the IFT and RVSS programs, and we will be reviewing them to determine the extent to which they address our recommendation.

In March 2014, we also found that CBP had not developed an Integrated Master Schedule for the Plan in accordance with best practices. Rather, CBP had used separate schedules for each program to manage

¹⁰GAO, *GAO Schedule Assessment Guide: Best Practices for Project Schedules*, [GAO-16-89G](#) (Washington, D.C.: Dec. 2015). We developed this guide through a compilation of best practices that federal agencies and industry use. According to this guide, for a schedule to be comprehensive, among other things, the schedule should (1) capture all activities, as defined in the work breakdown structure; (2) reflect what resources are needed to do the work; and (3) establish the duration of all activities and have specific start and end dates. To be well constructed, among other things, a schedule should have all of its activities sequenced in the order that they are to be implemented with the most straightforward logic possible. To be credible, the schedule should reflect the order of events necessary to achieve aggregated products or outcomes, and activities in varying levels of the schedule map to one another. Moreover, a schedule risk analysis should be conducted to predict a level of confidence in meeting the program's completion date. For a schedule to be controlled, the schedule should be updated periodically using actual progress and logic to realistically forecast dates for program activities, and a baseline schedule should be maintained to measure, monitor, and report the program's progress.

¹¹[GAO-14-368](#).

implementation of the Plan, as CBP officials stated that the Plan contains individual acquisition programs rather than integrated programs. However, collectively these programs are intended to provide CBP with a combination of surveillance capabilities to be used along the Arizona border with Mexico, and resources are shared among the programs. According to scheduling best practices, an Integrated Master Schedule is a critical management tool for complex systems that involve a number of different projects, such as the Plan, to allow managers to monitor all work activities, how long activities will take, and how the activities are related to one another. We concluded that developing and maintaining an Integrated Master Schedule for the Plan could help provide CBP a comprehensive view of the Plan and help CBP better understand how schedule changes in each individual program could affect implementation of the overall plan.

We recommended that CBP develop an Integrated Master Schedule for the Plan. CBP did not concur with this recommendation and maintained that an Integrated Master Schedule for the Plan in one file undermines the DHS-approved implementation strategy for the individual programs making up the Plan, and that the implementation of this recommendation would essentially create a large, aggregated program, and effectively create an aggregated “system of systems.” DHS further stated that a key element of the Plan has been the disaggregation of technology procurements. However, as we noted in the 2014 report, collectively these programs are intended to provide CBP with a combination of surveillance capabilities to be used along the Arizona border with Mexico. Moreover, while the programs themselves may be independent of one another, the Plan’s resources are being shared among the programs. We continue to believe that developing an Integrated Master Schedule for the Plan is needed. Developing and maintaining an integrated master schedule for the Plan could allow CBP insight into current or programmed allocation of resources for all programs as opposed to attempting to resolve any resource constraints for each program individually.

In addition, in March 2014, we reported that the life-cycle cost estimates for the Plan reflected some, but not all, best practices. Cost-estimating best practices are summarized into four characteristics—well documented, comprehensive, accurate, and credible. Our analysis of CBP’s estimate for the Plan and estimates completed at the time of our review for the two highest-cost programs—the IFT and RVSS programs—showed that these estimates at least partially met three of these characteristics: well documented, comprehensive, and accurate. In terms of being credible, these estimates had not been verified with independent

cost estimates in accordance with best practices. We concluded that ensuring that scheduling best practices were applied to the programs' schedules and verifying life-cycle cost estimates with independent estimates could help better ensure the reliability of the schedules and estimates, and we recommended that CBP verify the life-cycle cost estimates for the IFT and RVSS programs with independent cost estimates and reconcile any differences. DHS concurred with this recommendation, but stated then that it did not believe that there would be a benefit in expending funds to obtain independent cost estimates and that if the costs realized to date continued to hold, there may be no requirement or value added in conducting full-blown updates with independent cost estimates.

We recognize the need to balance the cost and time to verify the life-cycle cost estimates with the benefits to be gained from verification with independent cost estimates. CBP officials stated that in fiscal year 2016, DHS's Cost Analysis Division would begin piloting DHS's independent cost estimate capability on the RVSS program. According to CBP officials, this pilot is an opportunity to assist DHS in developing its independent cost estimate capability and that CBP selected the RVSS program for the pilot because the program is at a point in its planning and execution process where it can benefit most from having an independent cost estimate performed as these technologies are being deployed along the southwest border, beyond Arizona. CBP officials stated that details for an estimated independent cost estimate schedule and analysis plan for the RVSS program have not been finalized. CBP plans to provide an update on the schedule and analysis plan as additional details become available, and provide information on the final reconciliation of the independent cost estimate and the RVSS program cost estimate once the pilot has been completed at the end of fiscal year 2017. Further, CBP officials have not detailed similar plans for the IFT. We continue to believe that independently verifying the life-cycle cost estimates for the IFT and RVSS programs and reconciling any differences, consistent with best practices, could help CBP better ensure the reliability of the estimates.¹²

¹²GAO, *2015 Annual Report: Additional Opportunities to Reduce Fragmentation, Overlap, and Duplication and Achieve Other Financial Benefits*, [GAO-15-404SP](#) (Washington, D.C.: Apr. 14, 2015).

CBP Has Made Progress toward Assessing Performance of Surveillance Technologies, but Has Not Fully Applied Performance Metrics or Assessed the Contributions of Its Technologies

We reported in March 2014 that CBP had identified mission benefits of its surveillance technologies to be deployed under the Plan, such as improved situational awareness and agent safety. However the agency had not developed key attributes for performance metrics for all surveillance technologies to be deployed as part of the Plan, as we recommended in November 2011.¹³ Further, in March 2014, we found that CBP did not capture complete data on the contributions of these technologies, which in combination with other relevant performance metrics or indicators, could be used to better determine the impact of CBP's surveillance technologies on CBP's border security efforts, and inform resource allocation decisions. Although CBP had a field within its Enforcement Integrated Database for data on whether technological assets, such as SBI-net surveillance towers, and nontechnological assets, such as canine teams, assisted or contributed to the apprehension of illegal entrants and seizure of drugs and other contraband, according to CBP officials, Border Patrol agents were not required to record these data. This limited CBP's ability to collect, track, and analyze available data on asset assists to help monitor the contribution of surveillance technologies, including its SBI-net system, to Border Patrol apprehensions and seizures and inform resource allocation decisions. We recommended that CBP require data on asset assists to be recorded and tracked within its database, and once these data were required to be recorded and tracked, that it analyze available data on apprehensions and technological assists—in combination with other relevant performance metrics or indicators, as appropriate—to determine the contribution of surveillance technologies to CBP's border security efforts. CBP concurred with our recommendations and has implemented one of them. Specifically, in June 2014, CBP issued guidance informing Border Patrol agents that the asset assist data field within its database was now a mandatory data field. Agents are required to enter any assisting surveillance technology or other equipment before proceeding.

Further, as of May 2015, CBP had identified a set of potential key attributes for performance metrics for all technologies to be deployed under the Plan. However, CBP officials stated that this set of performance metrics was under review as the agency continued to refine the key

¹³See [GAO-14-368](#), and *Arizona Border Surveillance Technology: More Information on Plans and Costs Is Needed before Proceeding*, [GAO-12-22](#) (Washington, D.C.: Nov. 4, 2011).

attributes for metrics to assess the contributions and impacts of surveillance technology on its border security mission.¹⁴ In our March 2016 update on the progress made by agencies to address our findings on duplication and cost savings across the federal government, we reported that CBP had modified its time frame for developing baselines for each performance measure and that additional time would be needed to implement and apply key attributes for metrics. According to CBP officials, CBP expected these performance measure baselines to be developed by the end of calendar year 2015, at which time the agency planned to begin using the data to evaluate the individual and collective contributions of specific technology assets deployed under the Plan. Moreover, CBP planned to use the baseline data to establish a tool that explains the qualitative and quantitative impacts of technology and tactical infrastructure on situational awareness in specific areas of the border environment by the end of fiscal year 2016. While CBP had expected to complete its development of baselines for each performance measure by the end of calendar year 2015, as of March 2016 the actual completion is being adjusted pending test and evaluation results for recently deployed technologies on the southwest border. Until CBP completes its efforts to fully develop and apply key attributes for performance metrics for all technologies to be deployed under the Plan, it will not be well positioned to fully assess its progress in implementing the Plan and determining when mission benefits have been fully realized.

CBP Utilizes Unmanned Predator B Aircraft and Tactical Aerostats for a Variety of Border Security Activities

¹⁴[GAO-15-404SP](#).

Preliminary Observations on CBP's Utilization of Predator B Aircraft

Our ongoing work shows that as of May 2016, CBP operates nine Predator B from four AMO National Air Security Operations Centers (NASOC) located in Sierra Vista, Arizona; Grand Forks, North Dakota; Corpus Christi, Texas; and Jacksonville, Florida.¹⁵ Three Predator B aircraft are assigned to the NASOCs in Arizona, North Dakota, and Texas while the NASOC in Florida remotely operates Predator B aircraft launched from the other NASOCs. AMO began operation of Predator B aircraft in fiscal year 2006, and all four NASOCs became operational in fiscal year 2011. See figure 1 for a photograph of a CBP Predator B aircraft.

¹⁵AMO's NASOCs perform specialized missions nationwide and in the Caribbean, eastern Pacific, and Central America, using Predator B, long-range patrol aircraft, and other aircraft. From 2010 to 2013, AMO operated a NASOC in Cape Canaveral, Florida, for UAS operations.

Figure 1: U.S. Customs and Border Protection (CBP) Predator B Aircraft



Source: CBP. | GAO-16-671T

CBP's Predator B aircraft may be equipped with video and radar sensors utilized primarily to support the operations of other CBP components, and federal, state, and local law enforcement agencies.¹⁶ CBP's Predator B operations in support of its components and other law enforcement agencies include patrol missions to detect the illegal entry of goods and people at and between U.S. POEs and investigative missions to provide aerial support for law enforcement activities and investigations. For example, CBP's Predator B video and radar sensors support Border

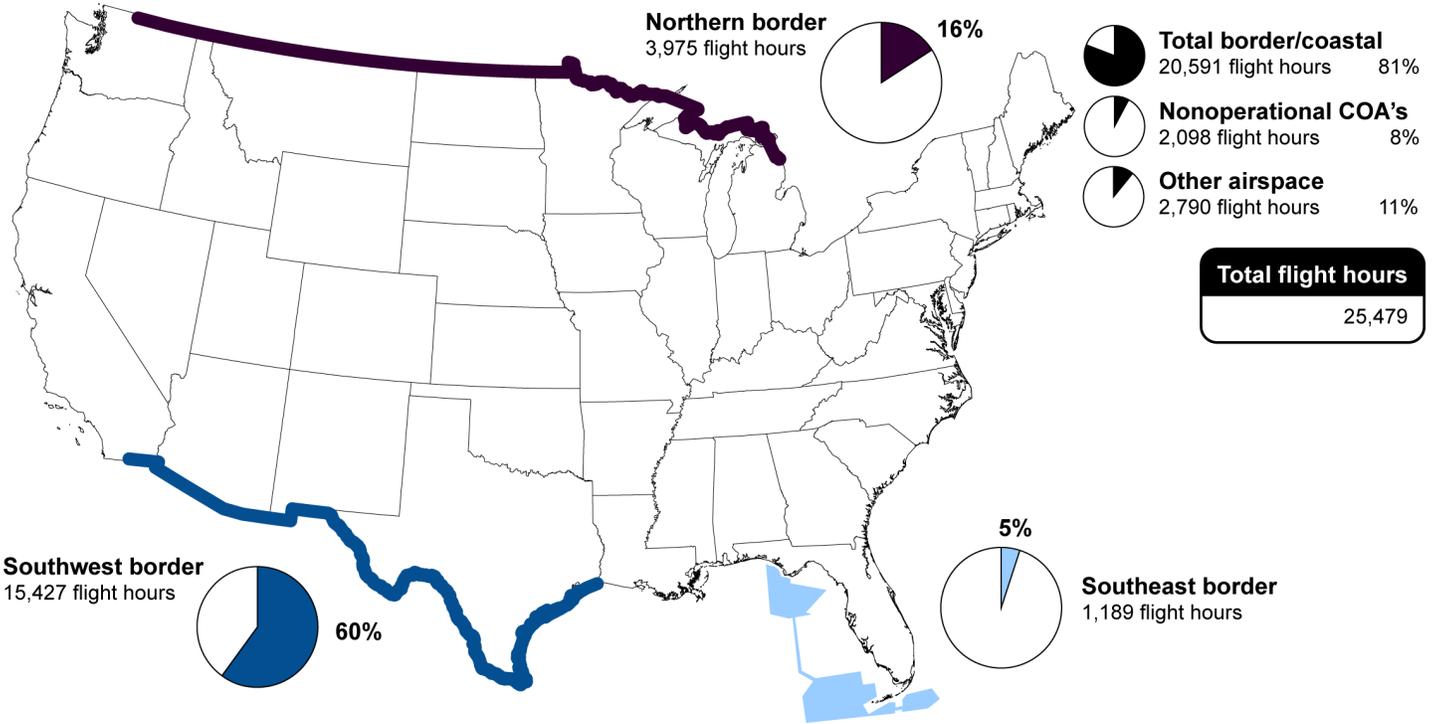
¹⁶Predator B sensors include: electro-optical and infrared camera that collects full-motion video, Vehicle and Dismount Exploitation Radar (VADER) which collects radar images of moving objects, synthetic-aperture radar that collects radar images that show terrain and structures and allow for analysis to detect change over time, and SeaVue radar which collects radar images of maritime vessels.

Patrol activities to identify and apprehend individuals entering the United States between POEs. CBP collects and tracks information on the number of assists provided for apprehensions of individuals and seizures of contraband, including narcotics, in support of law enforcement operations by Predator B aircraft. In addition, CBP's Predator B aircraft have been deployed to provide aerial support for monitoring natural disasters such as wildfires and floods. For example, CBP's Predator B were deployed in 2010 and 2011 to support federal, state, and local government agencies in response to flooding in the Red River Valley area of North Dakota.

CBP's Predator B aircraft operate in the U.S. national airspace system in accordance with Federal Aviation Administration (FAA) requirements for authorizing all UAS operations in the National Airspace System.¹⁷ In accordance with FAA requirements, all Predator B flights must comply with a Certificate of Waiver or Authorization (COA). The COA-designated airspace establishes operational corridors for Predator B activity both along and within 100 miles of the border for the northern border, and along and within 25 to 60 miles of the border for the southern border, exclusive of urban areas. COAs issued by FAA to CBP also include airspace for training missions which involve take offs and landings around a designated NASOC and transit missions to move Predator B aircraft between NASOCs. As of May 2016, CBP has utilized the NASOC in North Dakota as a location to train new and existing CBP Predator B pilots. For our ongoing work, we analyzed CBP data on reported Predator B COA-designated flight hours from fiscal years 2011 to 2015 and found that 81 percent of flight hours were associated with COA-designated airspace along border and coastal areas. For more information on Predator B flight hours in COA-designated airspace, see figure 2.

¹⁷See Federal Aviation Administration, Notice N JO 7210.889: Unmanned Aircraft Operations in the National Airspace System (Oct. 27, 2015). The National Airspace System is the network of United States airspace that includes the interconnected and interdependent network of systems, procedures, facilities, aircraft, and people.

Figure 2: U.S. Customs and Border Protection's (CBP) Predator B Flight Hours in Operational Certificates of Waiver or Authorization (COA) Airspace Encompassing Border and Coastal Areas, Fiscal Years 2011 through 2015



Source: GAO analysis of U.S. Customs and Border Protection data; Map Resources (map). | GAO-16-671T

Note: Operational COAs were associated with the southwest, southeast, and northern borders. Airspace locations shown above are approximate and reflect COA-designated operational airspace active as of fiscal year 2015. Nonoperational COAs include training, transit, and disaster COAs. According to CBP officials, COA flight hours reported may include flight hours in other airspace; for example, Predator B flight hours in restricted airspace during transition in and out of COA-designated airspace. Other airspace includes Predator B operations in restricted, foreign, and international airspace; for example, CBP operates Predator B to conduct long-range surveillance for joint counter-narcotics operations in the Transit Zone, the area from South America through the Caribbean Sea and the eastern Pacific Ocean that is used to transport illicit drugs to the United States.

Based on our ongoing work, we found that airspace access and weather can impact CBP's ability to utilize Predator B aircraft. According to CBP officials we spoke with in Arizona, Predator B flights may be excluded from restricted airspace managed by the Department of Defense along border areas which can affect the ability of Predator B to support Border Patrol. CBP officials we spoke with in Arizona and Texas told us that Predator B missions are affected by hazardous weather conditions that can affect their ability to operate the aircraft. According to CBP officials we spoke with in Texas, CBP took steps to mitigate the impact of hazardous weather in January and February 2016 by deploying one

Predator B aircraft from Corpus Christi, Texas, to San Angelo, Texas, at San Angelo Regional Airport which had favorable weather conditions. CBP's deployment of a Predator B at San Angelo Regional Airport was in accordance with a FAA-issued COA to conduct its border security mission in Texas and lasted approximately 3 weeks. We plan to evaluate how these factors affect CBP's utilization of Predator B aircraft as part of our ongoing work.

Preliminary Observations on CBP's Utilization of Tactical Aerostats in South Texas

Our ongoing work shows that as of May 2016, CBP has deployed six tactical aerostats along the U.S.-Mexico border in south Texas to support Border Patrol. Specifically, CBP deployed five tactical aerostats in Border Patrol's Rio Grande Valley sector and one tactical aerostat in Laredo sector. CBP utilizes three types of tactical aerostats equipped with cameras for capturing full-motion video: Persistent Threat Detection System (PTDS), Persistent Ground Surveillance System (PGSS), and Rapid Aerostat Initial Deployment (RAID). Each type of tactical aerostat varies in size and altitude of operation. See figure 3 for a photograph of a RAID aerostat. CBP owns the RAID aerostats and leases PTDS and PGSS aerostats through the Department of Defense. CBP operates its tactical aerostats in accordance with FAA regulations through the issuance of a COA.¹⁸

¹⁸See 14 C.F.R. pt.101. These rules govern operation in the United States of, among other things, any balloon that is moored to the surface of the earth or an object thereon and that has a diameter of more than 6 feet or a gas capacity of more than 115 cubic feet. Id. at § 101.1(a)(1).

Figure 3: U.S. Customs and Border Protection Rapid Aerostat Initial Deployment (RAID) Aerostat



Source: GAO. | GAO-16-671T

Tactical aerostats were first deployed and evaluated by CBP in August 2012 in south Texas. CBP's Office of Technology Innovation and Acquisition manages aerostat technology and the operation of each site through contracts, while Border Patrol agents operate tactical aerostat cameras and provide security at each site. As of May 2016, Border Patrol has taken actions to track the contribution of tactical aerostats to its mission activities. Specifically, agents track and record the number of assists aerostats provide for apprehensions of individuals and seizures of contraband and narcotics.

Based on our ongoing work, we found that airspace access, weather, and real estate can impact CBP's ability to deploy and utilize tactical aerostats in south Texas.

- Airspace access: aerostat site placement is subject to FAA approval to ensure the aerostat does not converge on dedicated flight paths.
- Weather: aerostat flight is subject to weather restrictions, such as hazardous weather involving high winds or storms.

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- Real estate: aerostat sites utilized by CBP involve access to private property and land owner acceptance, and right of entry is required prior for placement. In addition, CBP must take into consideration any relevant environmental and wildlife impacts prior to deployment of a tactical aerostat, such as flood zones, endangered species, migratory animals, among others.

We plan to evaluate how these factors affect CBP's utilization of tactical aerostats as part of our ongoing work.

Chairwoman McSally, Ranking Member Vela, and members of the subcommittee, this concludes my prepared statement. I will be happy to answer any questions you may have.

GAO Contact and Staff Acknowledgments

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