GAO

BORDER SECURITY

Preliminary Observations on the Status of Key Southwest Border Technology Programs

Statement of Richard M. Stana, Director
Homeland Security and Justice Issues
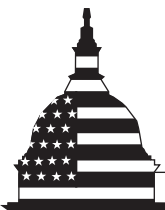
GAO

Accountability ★ Integrity ★ Reliability

GAO-11-448T

March 15, 2011

BORDER SECURITY

Preliminary Observations on the Status of Key Southwest Border Technology Programs

Why GAO Did This Study

Securing the nation's borders from illegal entry of aliens, contraband, terrorists and weapons of mass destruction, is a long-term challenge. In November 2005, the Department of Homeland Security (DHS) launched the Secure Border Initiative network (SBI*net*)—a program which was to provide the Border Patrol, within DHS's U.S. Customs and Border Protection (CBP), with the tools to detect breaches and make agent deployment decisions by installing surveillance systems along the border. Alternative (Southwest) Border Technology is DHS's new plan to deploy a mix of technology to protect the border. This testimony is based on GAO's ongoing work conducted for the House Committee on Homeland Security and provides preliminary observations on (1) the status of SBI*net* and user views on its usefulness, and (2) the Alternative (Southwest) Border Technology plan and associated costs. GAO reviewed planning, budget, and system documents, observed operations along the southwest border, and interviewed DHS officials.

What GAO Recommends

GAO is not making any new recommendations in this statement but has made prior recommendations to strengthen SBI*net*. While DHS generally agreed most information in this statement, it did not agree with GAO's observations on the AOA and the potential usefulness of ATEC's analyses. GAO continues to believe its observations are valid. DHS also provided technical comments which were incorporated, as appropriate.

View GAO-11-448T or key components. For more information, contact Richard M Stana at (202) 512-8777 or stanar@gao.gov.

What GAO Found

In January 2011, the Secretary of Homeland Security directed CBP to end the SBI*net* program as originally conceived because it did not meet cost-effectiveness and viability standards, and to instead focus on developing terrain- and population-based solutions utilizing existing, proven technology, such as camera-based surveillance systems, for each border region. According to DHS, the Secretary's decision on SBI*net* was informed by (1) an independent analysis of alternatives (AOA) to determine the program's cost-effectiveness; (2) a series of operational tests and evaluations by the U.S. Army's Test and Evaluation Command (ATEC) to determine its operational effectiveness and suitability; and (3) an operational assessment by the Border Patrol to provide user input. The Secretary also stated that while the Alternative (Southwest) Border Technology plan should include elements of the former SBI*net* program where appropriate, she did not intend for DHS to use the current contract to procure any technology systems under the new plan, but rather would solicit competitive bids. SBI*net*'s current surveillance capability continues to be used in Arizona. Specifically, there are 15 sensor towers (with cameras and radar) and 10 communication towers (which transmit the sensor signals to computer consoles for monitoring), currently deployed in the Border Patrol's Tucson Sector. In addition, on the basis of user feedback, the Border Patrol considers the current SBI*net* capability to be useful, including providing continuous surveillance in border areas where none existed before and enhancing agent safety when responding to potential threats. There are certain shortcomings including coverage gaps and radar performance limitations in adverse weather.

The Alternative (Southwest) Border Technology plan is to incorporate a mix of technology, including an Integrated Fixed Tower surveillance system similar to that used in the current SBI*net* capability, beginning with high-risk areas in Arizona. But, due to a number of reasons, the cost-effectiveness and operational effectiveness and suitability of the Integrated Fixed Tower system is not yet clear. First, the AOA cited a range of uncertainties, and it is not clear how the AOA analyses and conclusions were factored into planning and budget decisions regarding the optimal mix of technology deployments in Arizona. Second, the ATEC independent analyses were not complete at the time of the Secretary's decision, thus any results on SBI*net*'s operational effectiveness and suitability could not inform the decisions to proceed with the Integrated Fixed Tower system. The President's fiscal year 2012 budget request calls for $242 million to fund three of five future deployments of the Integrated Fixed Tower systems in Arizona, although, depending on funding, the earliest DHS expects the deployments to begin is March 2013 with completion anticipated by 2015 or later. Consistent with its intent to solicit competitive bids, CBP has initiated a new acquisition cycle, asking industry for information about the commercial availability of the Integrated Fixed Tower system. GAO will continue to assess this issue and report the final results later this year.

Chairwoman Miller, Ranking Member Cuellar, and Members of the Subcommittee:

I am pleased to be here today to discuss the status of the Department of Homeland Security's (DHS) key technology programs for the southwest border. The Secure Border Initiative Network (SBInet) technology program was intended to provide the Office of Border Patrol (Border Patrol) within DHS's U.S. Customs and Border Protection (CBP) with integrated imagery and related tools and information to detect security breaches and make agent deployment decisions by placing surveillance systems along U.S. borders, beginning with the southwest border with Mexico. Since fiscal year 2006, DHS has received about $4.4 billion in appropriations for SBI, of which it has allocated about $1.5 billion for SBInet and $2.9 billion for fencing and other tactical infrastructure along the southwest border. In January 2010, DHS initiated an internal assessment of the SBInet program and, as discussed below, in January 2011 the Secretary of Homeland Security announced her decision to end the program as originally conceived because it did not meet cost-effectiveness and viability standards and proceed with a new technology program to secure the nation's land borders.

The department's new technology deployment plan is called Alternative (Southwest) Border Technology. Under this plan, DHS is to deploy a mix of technologies, including Remote Video Surveillance Systems (RVSS) [1], Mobile Surveillance Systems (MSS)[2], and hand-held equipment for use by Border Patrol agents. It also is to include a new Integrated Fixed Tower[3] system, similar to that currently being used in SBInet, which is slated for deployment along the border where the Border Patrol deems it appropriate beginning with five high-risk areas in Arizona at an estimated cost of $570 million.

---

[1]An RVSS is a remotely controlled system of daylight and infrared cameras mounted to a permanent structure. The camera images are transmitted to and monitored and recorded at a central location.

[2]An MSS consists of camera and radar systems mounted on a truck, with images being transmitted to and monitored on a computer screen in the truck's passenger compartment.

[3]An Integrated Fixed Tower "system" consists of various components and program support activities. The components include fixed towers, sensors (cameras and radar), a data communications network, facilities upgrades, information displays, and an information management system. Program support activities include those performed to design, acquire, deploy, and test the system; and manage government and contractor efforts.

The Border Patrol is the federal agency with primary responsibility for securing the border between the U.S. ports of entry.[4] CBP has divided geographic responsibility for southwest border miles among nine Border Patrol sectors. Within CBP, the Office of Technology Innovation and Acquisition (OTIA) has been responsible for overseeing the SBInet program. DHS reports that the southwest border continues to be especially vulnerable to cross-border illegal activity, including the smuggling of humans and illegal narcotics. CBP reported spending about $3 billion to support the Border Patrol's efforts on the southwest border in fiscal year 2010, and Border Patrol reported apprehending over 445,000 illegal entries and seizing over 2.4 million pounds of marijuana.

My statement today is based on preliminary observations and analyses from our ongoing work regarding these programs and activities for the House Committee on Homeland Security. We plan to issue a final report on this work later this year. As requested, my testimony will cover the following issues:

1. the status of the SBInet program and user views on the usefulness of its technology, and

2. the Alternative (Southwest) Border Technology plan and costs associated with these plans.

To conduct our work, we reviewed our prior reports on the SBInet program, analyzed documents such as system descriptions, acquisition plans and proposals, budget requests and justifications, cost-effectiveness and system-effectiveness and -suitability plans and analyses. Further, we observed various types of technology operating at command centers at the Tucson Sector and its Tucson, Ajo, and Nogales stations. Also, we interviewed relevant DHS (Border Patrol, OTIA) and prime contractor[5] officials about matters such as the decision to end the SBInet program, its implications for the future of the program, cost-effectiveness and

---

[4]A Port of Entry is an officially designated location (seaports, airports, or land border locations) where CBP officers or employees are assigned to accept entries of merchandise, clear passengers, collect duties, and enforce the various provisions of CBP and related laws.

[5]On September 21, 2006, CBP awarded a prime contract to the Boeing Company for 3 years, with 3 additional 1-year options. As the prime contractor, Boeing is responsible for acquiring, deploying, and sustaining selected SBI*net* technology and tactical infrastructure projects, and for supply chain management for selected tactical infrastructure projects.

operational effectiveness and suitability analyses, and budget requests. We selected the Tucson, Ajo, and Nogales stations because they are located in high-risk areas along the Arizona border with Mexico and also because the Border Patrol has deployed various types of surveillance technology in these areas, including SBInet. We did our work for this statement from December 2010 to March 2011. We are not making any new recommendations in this statement but we have made prior recommendations to strengthen the SBInet program. While DHS generally agreed with the approach and status described in this statement, it did not agree with our observations on the AOA and the potential usefulness of ATEC's analyses to inform future technology deployment decisions. GAO continues to believe its observations are valid and will address these issues as our study proceeds. DHS also provided technical comments which were incorporated, as appropriate.

We are conducting our 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.

DHS Has Ended the SBInet Program But Not the Contract or Key Technology Capability Which Users Consider Useful

After an internal assessment initiated in January 2010, the Secretary of Homeland Security announced in January 2011 that she had directed CBP to end the SBInet program as originally conceived. According to DHS, the Secretary's decision was informed by an independent analysis of cost-effectiveness, a series of operational tests and evaluations, and Border Patrol input. The prime contractor is to continue limited performance under the SBInet contract using a 1-year option for SBInet operations and maintenance services in Arizona beginning on April 1, 2011, with a possible 6-month extension. Further, according to CBP and the contractor, following a March 2010 decision by the Secretary halting further deployment of SBInet beyond the Tucson and Ajo Border Patrol stations, no additional SBInet deployments are expected.

In addition, the Secretary's decision to end the SBInet program limited Block 1 deployments to the Tucson and Ajo stations in the Tucson Sector, but did not affect the current SBInet Block 1 capability, which was developed based on updated requirements from the Border Patrol. The Block 1 capability consists of 15 sensor towers (with day/night cameras and radar) and 10 communication towers, which transmit surveillance

signals to the Common Operating Pictures (COP) at station command centers. This capability remains deployed and operational in Arizona, as part of the Border Patrol Tucson Sector's overall technology portfolio. According to contractor and Border Patrol officials, there were several original SBInet concepts that were not included in the Block 1 capability due to early design/cost trade-offs and Border Patrol agent feedback that they did not need them to perform their mission. Also, certain elements proved technically difficult and costly to include in the Block 1 capability. For example, the concepts to integrate transmissions from RVSS and MSS units into the COP, transmitting COP images into agents' laptops in their vehicles and tracking Border Patrol agent deployments on the geographic display were not included.

OTIA and Border Patrol Consider Current SBInet Capability Useful

OTIA and Border Patrol officials told us that the SBInet program's Block 1 capability has been useful since being deployed in February 2010 at the Tucson station and August 2010 at the Ajo station. For example, a shift commander at the Tucson station described the capability as considerably better than the technology that was available at the sector prior to the SBInet deployment. Further, according to COP operators in Tucson, the current SBInet sensor package is responsive to key mission requirements by giving them the capability to achieve persistent wide-area surveillance and situational awareness.

Officials at Border Patrol headquarters stated that the Block 1 capability gave them a capability they did not have before. These officials also stated that, most importantly, the Block 1 capability helped them achieve persistent surveillance and situational awareness to enable an appropriate response to border intrusions and choose the location of interdiction, which they described as a tactical advantage. They also noted that the height of the towers allows for additional surveillance into terrain and brush thereby allowing the Border Patrol to shift personnel to gap areas where surveillance does not exist.

Other examples of system usefulness offered by Border Patrol officials included a centralized point of data integration (through the COP), increased probability of arrest upon detection (by controlling the point of interdiction by means of camera and radar), improved agent safety when responding to potential threats, verification of whether a ground-sensor indicated a threat or not, efficiency and effectiveness in directing agent responses, and a tiered deployment of technology. For example, at the Ajo Station, a Border Patrol official explained that tiered deployment included mobile technology units that are positioned at the border line, and Block 1

sensor towers that are deployed off the line where they can monitor intruders who might have eluded interdiction at the border.

The Secretary's January 2011 announcement also stated that the SBInet capability had generated some advances in technology that had improved Border Patrol agents' ability to detect, identify, track, deter, and respond to threats along the border. It further stated that the new border technology deployment plan would also include, where deemed appropriate by the Border Patrol, elements of the now-ended SBInet program that have proven successful.

On the basis of limited data, the operational availability of deployed SBInet components has been consistent with the relevant requirement that expects SBInet to be operationally available 85 percent of the time. According to prime contractor operations and maintenance statistics for a 1-week period in January 2011, SBInet in the Tucson and Ajo Stations was operational over 96 percent of the time. According to the contractor's logistics manager who oversees the operation and maintenance of SBInet, since the deployment is relatively recent, a full year's worth of data would be needed to make conclusive determinations about long-term operational reliability and identify areas of persistent problems. The times that SBInet was not available were due primarily to camera malfunctions and power failures.

According to Border Patrol and prime contractor officials, the SBInet Block 1 capability is receiving new features from the contractor in response to ongoing user input and feedback. These features include adding an "eye-safe" laser target illuminator (the eye-safe feature minimizes the potential for injury to a person exposed to the laser), adding a "standby" mode to the radar (wherein scanning is suspended until needed), and integrating the next-generation unattended ground sensors[6] into the COP. However, this applies only to new sensors intended for Block 1—the Border Patrol has not selected a vendor for next-generation sensors for elsewhere along the border and outside of SBInet.

The usefulness of SBInet's Block 1 capability notwithstanding, OTIA and Border Patrol officials told us that it has certain shortcomings. These shortcomings include not having the mobility to respond to shifts in risk,

---

[6]Unattended ground sensors are sensors buried in the ground and are intended to detect motion and transmit a signal to a central monitoring location.

facing terrain coverage (line-of-sight) gaps, some of which are mitigated through other technologies, and performing poorly in adverse weather. Further, according to OTIA, the SBInet capability as configured by the prime contractor is a proprietary and not an open architecture. Thus, it is unable to incorporate, for example, next-generation radar and cameras without significant integration work and cost.

In addition, the SBInet capability has been costly to deploy and maintain. Specifically, the total task-order cost for the Block 1 deployment in Arizona was about $164 million. The operations and maintenance costs for the deployment are estimated to be up to about $1.5 million per month, or about $18 million per year.

Alternative (Southwest) Border Technology Is Slated for Deployment, but Cost- and Operational Effectiveness and Suitability of the Integrated Fixed Tower System Are Not Yet Clear

DHS is implementing a new approach for acquiring and deploying border security technology called "Alternative (Southwest) Border Technology" to replace the SBInet program. As part of this approach DHS is to deploy a mix of technologies, including RVSS, MSS, and hand-held equipment for use by Border Patrol agents. It also is to include a new Integrated Fixed Tower system that is slated for deployment along the border where the Border Patrol deems it appropriate, beginning with five high-risk areas in Arizona at an estimated cost of $570 million. While other elements of the plan may be deployed sooner, the deployment schedule for the Integrated Fixed Towers envisioned by OTIA and the Border Patrol is planned to begin in 2013, depending on funding availability. This plan suggests that OTIA and the Border Patrol have determined that the Integrated Fixed Tower system is a cost-effective solution in certain locations. However, due to the questions we have about how the Analysis of Alternatives (AOA) [7] analyses and conclusions were factored into planning and budget decisions, the basis for DHS's technology deployment plan is not yet clear. Further, the results of independent analyses were not complete at the time of the Secretary's decision to end the SBInet program, thus any results on SBInet's operational effectiveness could not inform the decisions to proceed with a possibly similar Integrated Fixed Tower system.

---

[7]The AOA process is a key first step in the acquisition process intended to assess the operational effectiveness, costs and risks of alternative system solutions for addressing a validated mission need.

DHS Implementing Broader Border-Security Technology Approach to Include Deploying a New Integrated Fixed Tower System

According to the Border Patrol, its operational assessment for Arizona calls for deploying Integrated Fixed Tower systems to five high-threat areas in the state, beginning with the Nogales, Douglas, and Casa Grande Stations as part of this approach. These deployments will include 52 sensor towers, which is less than the 91 sensor towers envisioned under the original SBInet deployment plan. Border Patrol officials explained that they reviewed the contractor's original analysis of where to put the towers and determined that other solutions, such as RVSSs and MSSs, were more appropriate due to terrain and other factors such as population density.

According to OTIA and Border Patrol officials, depending on the availability of funding, the deployments of the Integrated Fixed Tower system component of the Arizona technology plan are expected to begin around March 2013 and be completed by the end of 2015 (or possibly early 2016), with other sector deployments sequentially following the Arizona sector. OTIA estimates that the entire Integrated Fixed Tower system acquisition for Arizona would cost about $570 million, including funding for design and development, equipment procurement, production and deployment, systems engineering and program management, and a national operations center. In this regard, the President's fiscal year 2012 DHS budget request for BSFIT calls for $242 million to fund the first three Integrated Fixed Tower system deployments for Arizona, which include 36 sensor towers.

Border Patrol officials told us that the existing SBInet capability and the requested Integrated Fixed Tower systems are intended to form the "baseline or backbone" of its evolving technology portfolio, where appropriate in high-risk areas in Arizona, with some exceptions. For example, in the urban areas of the Douglas and Naco Stations, RVSS units would likely be considered the backbone because they are better suited for populated areas where SBInet's radar capability is not as effective. A Border Patrol official said that Integrated Fixed Tower systems could be an important technology component in additional areas along the southwest border, but that the agency had not yet made those determinations, pending the outcome of forthcoming operational assessments.

DHS Has Initiated Actions to Acquire an Integrated Fixed Tower System Capability

In one of its first actions following the Secretary of Homeland Security's announcement to end SBInet, DHS issued a Request for Information (RFI) in January 2011 to industry regarding the commercial availability of surveillance systems based on the Integrated Fixed Tower system concept, consistent with its stated intent to acquire future border technologies in its

new plan through full and open competitions. OTIA and Border Patrol officials explained that the RFI would engender competition and better options for the government, in terms of finding out about state-of-the-art industry capabilities and obtaining feedback on requirements to help refine them. However, they expect similar benefits in terms of capability, performance, and cost that such competition would yield, as compared to the SBInet Block 1 capability. For example, OTIA and Border Patrol officials acknowledged that the surveillance system sought by the RFI is essentially the same as the one deployed in Block 1 in terms of expected capability and performance in meeting operational and effectiveness requirements.

In February 2011, DHS conducted an "Industry Day" to provide potential vendors with a better understanding of Border Patrol's technology needs on the southwest border and collect information about potential capabilities. During the session, DHS provided information on potential procurements for Integrated Fixed Tower systems and a range of other surveillance technology, such as RVSS and unattended ground sensors.

Following its information-collection activities, should DHS decide to move forward with requests for proposal for various types of technology, including the Integrated Fixed Tower system, these actions should be timed in such a way as to make maximum use of the results from the cost-effectiveness analyses discussed below. While the initial deployment actions will be in Arizona, it is envisioned that the contracts could be used to deploy technology anywhere on the southwest border. However, to accomplish this, DHS will need to ensure that the requirements specified in the request for proposal are sufficient for deployment not just in Arizona but throughout the border.

Use of Cost-Effectiveness Analysis for the Integrated Fixed Tower System Raises Questions

According to OTIA and Border Patrol officials, the Secretary's decision on the future of SBInet and the Integrated Fixed Tower system was informed by an AOA that analyzed the cost-effectiveness of four options—mobile (e.g., MSS), fixed (Integrated Fixed Towers), agent (e.g., hand-held equipment), and aviation (Unmanned Aerial Vehicles). On the basis of our review of available information about the AOA to date, there are several areas that raise questions about how the AOA results were used to inform Border Patrol judgments about moving forward with technology deployments, including the Integrated Fixed Tower system. As we continue our work for the committee, we plan to examine each of the following areas in detail to obtain additional insights into DHS's decision

making regarding the cost-effectiveness of a range of border technology options. Specifically,

- It is not clear how DHS used the AOA results to determine the appropriate technology plans for Arizona. For instance, the AOA identified uncertainties in costs and effectiveness of the four technology alternatives in each of the four geographic analysis areas, meaning that there was no clear-cut cost-effective technology alternative for any of the analysis areas. Yet, the AOA observed that a fixed tower alternative may represent the most effective choice only in certain circumstances.

- Because of the need to complete the first phase of the AOA in 6 weeks, the AOA was limited in its scope. For instance, the AOA did not consider the combination of technology approaches in the same geographic area and did not consider technology solutions, such as RVSS units. Urban areas were outside the scope of the AOA. Hence, it is unclear how DHS made decisions for proposed technology deployments in such areas. Further, the first AOA did not examine as an alternative the use of only existing Border Patrol equipment and agents without the addition of any new technology approaches. The AOA should have assessed the technology approaches based on the incremental effectiveness provided above the baseline technology assets in the geographic areas evaluated. According to study officials, the omission of a baseline alternative was corrected in the second AOA and did not change the conclusions of the first AOA.

- A more robust AOA could result in conclusions that differ not just in the Border Patrol sectors yet to be evaluated in future AOAs, but also in the Tucson and Yuma sectors considered in the first AOA. While the primary purpose of the second phase of the AOA was to expand the analysis to three additional Border Patrol sectors (San Diego, El Paso, and Rio Grande Valley), being able to conduct the analysis over several months allowed the study team more time to consider additional measures of effectiveness and technology options. DHS plans to conduct another AOA that would cover the remainder of the southwest border. According to study officials, while the potential for different results existed, the results from the second AOA did not significantly affect the findings from the first AOA.

Further, we have questions about how the AOA analyses and conclusions were factored into planning and budget decisions regarding the optimal mix of technology deployments in Arizona. Specifically, according to OTIA and Border Patrol officials, the AOA was used to develop the Arizona technology deployment plan and related procurement plans and to provide

cost data to be used for the Border Patrol's operational assessment and the fiscal year 2012 budget request for Integrated Fixed Tower systems. However, because AOA results were somewhat inconclusive, it is not yet clear to us the basis for including three of the four alternatives in the manner prescribed in the budget request (the Unmanned Aerial Vehicle alternative was not). For a program of this importance and cost, the process used to assess and select technology needs to be transparent. The uncertainties noted above raise questions about the decisions that informed the budget formulation process. We have not yet examined the Border Patrol's operational assessment to determine how the results of the AOA were considered in developing technology deployment planning in Arizona and, in turn, the fiscal year 2012 budget request.

Independent Evaluation of Test Results to Determine Operational Effectiveness and Suitability Not Yet Completed

The Army Test and Evaluation Command (ATEC) was to independently test SBInet's Block 1 capability and evaluate the results to determine its operational effectiveness and suitability (i.e., the extent to which the system fits it its operational environment and is useful to Border Patrol to meet the agency's mission). Because the Integrated Fixed Tower system could be similar to the sensor towers and COP used in SBInet Block 1, the ATEC could inform DHS's decision about moving forward with technology deployments. However, the testing and evaluation was not complete at the time DHS reached its decision regarding the future of SBInet or requested fiscal year 2012 funding to deploy the new Integrated Fixed Tower systems, as discussed earlier. An initial briefing on the emerging results from the testing was provided to DHS on March 2, 2011, with a final report due sometime in April 2011.

As our work proceeds, we will further address the questions raised about the AOA process, the test and evaluation results, and CBP's proposed new acquisition strategy. We will also continue to assess the status of the SBInet program in light of the Secretary's decision and the actions emanating from this decision.

Chairwoman Miller, Ranking Member Cuellar, and members of the Subcommittee, this completes my prepared statement. I would be happy to respond to any questions you may have.

GAO Contacts and Staff Acknowledgments

For questions about this statement, please contact Richard M. Stana at (202) 512-8777 or stanar@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals making key contributions to this statement included Seto J. Bagdoyan, Charles W. Bausell, Jr., Courtney Catanzarite, Justin Dunleavy, Christine Hanson, Michael Harmond, Richard Hung, Robert Rivas, and Ronald Salo.