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Management, Investigations, and Oversight, and
Border, Maritime and Global Counterterrorism,
Committee on Homeland Security,
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SECURE BORDER INITIATIVE

Observations on Selected Aspects of *SBI*net Program Implementation

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Highlights of [GAO-08-131T](#), a testimony before the subcommittee on Management, Investigation, and Oversight, and Border, Maritime and Global Counterterrorism, Committee on Homeland Security, House of Representatives

Why GAO Did This Study

In November 2005, the Department of Homeland Security (DHS) established the Secure Border Initiative (SBI), a multiyear, multibillion dollar program to secure U.S. borders. One element of SBI is *SBI_{net}*—the U.S. Customs and Border Protection (CBP) program responsible for developing a comprehensive border protection system through a mix of security infrastructure (e.g., fencing), and surveillance and communication technologies (e.g., radars, sensors, cameras, and satellite phones).

The House Committee on Homeland Security asked GAO to monitor DHS progress in implementing the *SBI_{net}* program. This testimony provides GAO's observations on (1) *SBI_{net}* technology implementation; (2) *SBI_{net}* infrastructure implementation; (3) the extent to which CBP has determined the impact of *SBI_{net}* technology and infrastructure on its workforce needs and operating procedures; and (4) how the CBP SBI Program Management Office (PMO) has defined its human capital goals and the progress it has made to achieve these goals. GAO's observations are based on analysis of DHS documentation, such as program schedules, contracts, status, and reports. GAO also conducted interviews with DHS officials and contractors, and visits to sites in the southwest border where *SBI_{net}* deployment is underway. GAO performed the work from April 2007 through October 2007. DHS generally agreed with GAO's findings.

To view the full product, including the scope and methodology, click on [GAO-08-131T](#). For more information, contact Richard M. Stana at (202) 512-8777 or stanar@gao.gov.

SECURE BORDER INITIATIVE

Observations on Selected Aspects of *SBI_{net}* Program Implementation

What GAO Found

DHS has made some progress to implement Project 28—the first segment of *SBI_{net}* technology across the southwest border, but it has fallen behind its planned schedule. The *SBI_{net}* contractor delivered the components (i.e., radars, sensors and cameras) to the Project 28 site in Tucson, Arizona on schedule. However, Project 28 is incomplete more than 4 months after it was to become operational—at which point Border Patrol agents were to begin using *SBI_{net}* technology to support their activities. According to DHS, the delays are primarily due to software integration problems. In September 2007, DHS officials said that the Project 28 contractor was making progress in correcting the problems, but DHS was unable to specify a date when the system would be operational. Due to the slippage in completing Project 28, DHS is revising the *SBI_{net}* implementation schedule for follow-on technology projects, but still plans to deploy technology along 387 miles of the southwest border by December 31, 2008. DHS is also taking steps to strengthen its contract management for Project 28.

SBI_{net} infrastructure deployment along the southwest border is on schedule, but meeting CBP's goal to have 370 miles of pedestrian fence and 200 miles of vehicle barriers in place by December 31, 2008, may be challenging and more costly than planned. CBP met its intermediate goal to deploy 70 miles of new fencing in fiscal year 2007 and the average cost per mile was \$2.9 million. The *SBI_{net}* PMO estimates that deployment costs for remaining fencing will be similar to those thus far. In the past, DHS has minimized infrastructure construction labor costs by using Border Patrol agents and Department of Defense military personnel. However, CBP officials report that they plan to use commercial labor for future fencing projects. The additional cost of commercial labor and potential unforeseen increases in contract costs suggest future deployment could be more costly than planned. DHS officials also reported other challenging factors they will continue to face for infrastructure deployment, including community resistance, environmental considerations, and difficulties in acquiring rights to land along the border.

The impact of *SBI_{net}* on CBP's workforce needs and operating procedures remains unclear because the *SBI_{net}* technology is not fully identified or deployed. CBP officials expect the number of Border Patrol agents required to meet mission needs to change from current projections, but until the system is fully deployed, the direction and magnitude of the change is unknown. For the Tucson sector, where Project 28 is being deployed, Border Patrol officials are developing a plan on how to integrate *SBI_{net}* into their operating procedures.

The SBI PMO tripled in size during fiscal year 2007, but fell short of its staffing goal of 270 employees. Agency officials expressed concerns that staffing shortfalls could affect the agency's capacity to provide adequate contractor oversight. In addition, the *SBI_{net}* PMO has not yet completed long-term human capital planning.

Chairman Sanchez, Mr. Souder, Chairman Carney, Mr. Rogers and Members of the Subcommittees:

I am pleased to be here today to discuss observations on selected aspects of the Secure Border Initiative's *SBI_{net}* program implementation.

Securing the nation's borders from illegal entry of aliens and contraband, including terrorists and weapons of mass destruction, continues to be a major concern. Much of the United States' 6,000 miles of international borders with Canada and Mexico remains vulnerable to illegal entry. Although the Department of Homeland Security (DHS) apprehends hundreds of thousands of people entering the country illegally each year, several hundreds of thousands of individuals also enter the United States illegally and undetected. In November 2005, DHS announced the launch of the Secure Border Initiative (SBI), a multiyear, multibillion dollar program aimed at securing U.S. borders and reducing illegal immigration. Elements of SBI will be carried out by several organizations within DHS. One element of SBI is *SBI_{net}*. Under *SBI_{net}*, the U.S. Customs and Border Protection (CBP) is responsible for developing a comprehensive border protection system.

You requested that we monitor the *SBI_{net}* program and provide periodic updates on the status of the program. My testimony today is the first in a series of interim reports on *SBI_{net}* implementation and focuses on the following issues:

- *SBI_{net}*'s technology implementation;
- *SBI_{net}*'s infrastructure implementation;
- the extent to which CBP has determined the impact of *SBI_{net}* technology and infrastructure on its workforce needs and operating procedures; and
- how the CBP SBI Program Management Office (PMO)¹ has defined its human capital goals and the progress it has made to achieve these goals.

¹The *SBI_{net}* PMO is part of the CBP SBI PMO. The *SBI_{net}* PMO is responsible for overseeing all *SBI_{net}* activities; for acquisition and implementation, including establishing and meeting program goals, objectives, and schedules; for overseeing contractor performance; and for coordinating among DHS agencies.

To address these issues, we analyzed DHS documents, including program schedules and status reports, and workforce data. We interviewed DHS and CBP headquarters and field officials, including representatives of the *SBI*net PMO, Border Patrol, CBP Air and Marine, and the DHS Science and Technology Directorate. We also visited the Tucson and Yuma, Arizona Border Patrol sectors²—two sites where *SBI*net deployment was underway at the time of our review. We performed our work from April 2007 through October 2007 in accordance with generally accepted government auditing standards. (App. I provides a detailed discussion of our scope and methodology.)

We also have work underway to review other components of the *SBI*net program. Specifically, we are conducting work for the House Committee on Homeland Security to assess the development and deployment of *SBI*net's command, control, and communications systems, and surveillance and detection systems and expect to issue a report next year. In addition, we are reviewing DHS's use of performance-based services acquisition, an acquisition method structured around the results to be achieved instead of the manner by which the service should be performed. We expect to issue a report on this effort in January 2008.

Summary

DHS has made some progress to implement the first segment of *SBI*net technology, Project 28—a \$20 million project to secure 28 miles along the southwest border, but it has fallen behind its planned schedule. Boeing—the prime contractor that DHS selected to acquire, deploy, and sustain systems of new surveillance and communications technology across U.S. borders—delivered and deployed the system components (i.e., radars, sensors, computers) to the Project 28 site in the Tucson sector on schedule. However, Project 28 is incomplete more than 4 months after it was to become operational—at which point Border Patrol agents were to begin using *SBI*net technology to support their activities, and CBP was to begin its operational test and evaluation phase. According to CBP and Boeing officials, the delays are primarily attributed to software integration problems—such as long delays in radar information being displayed in command centers. In September 2007, CBP officials told us that Boeing was making progress in correcting the system integration problems, but CBP was unable to provide us with a specific date on when Boeing would

²The U.S. Border Patrol has 20 sectors responsible for detecting, interdicting, and apprehending those who attempt illegal entry or smuggle people—including terrorists or contraband, including weapons of mass destruction—across U.S. borders between official ports of entry.

complete the necessary corrections to make Project 28 operational. CBP reports that it is in the early stages of planning for additional *SBI* technology projects along the southwest border; however, Boeing's delay in completing Project 28 has led CBP to extend timelines for deploying some technology projects scheduled for calendar years 2007 and 2008. CBP reports that it has taken steps to strengthen its contract management for this project.

Deploying *SBI*'s infrastructure along the southwest border is on schedule, but meeting the *SBI* program's goal to have 370 miles of pedestrian fence and 200 miles of vehicle barriers in place by December 31, 2008, may prove challenging and more costly than planned. CBP met its intermediate goal to deploy 70 miles of new fencing in fiscal year 2007 and the average cost per mile was \$2.9 million. The *SBI* PMO estimates that deployment costs for remaining fencing will be similar to those thus far. In the past, DHS has minimized infrastructure construction labor costs by using Border Patrol agents and Department of Defense (DOD) military personnel. However, CBP officials report that they plan to use commercial labor for future fencing projects. The additional cost of commercial labor and potential unforeseen increases in contract costs suggest future deployment could be more costly than planned. Also, while deployment of tactical infrastructure is on schedule, CBP officials reported that meeting deadlines has been challenging because of factors the officials will continue to face, including conducting outreach necessary to address border-community resistance, identifying and completing steps necessary to comply with environmental regulations, and addressing difficulties in acquiring rights to border lands.

The impact of *SBI* on the Border Patrol's workforce's needs and operating procedures remains unclear because the *SBI* technology is not fully identified or deployed. CBP officials expect the number of Border Patrol agents required to meet mission needs to change from the current projections, but until the system is fully deployed, the direction and magnitude of the change is unknown. In addition, for the Tucson sector, where Project 28 is being deployed, the Border Patrol is developing a plan on how to integrate *SBI* into its operating procedures. Moreover, the delays in deploying Project 28 will require revising the *SBI*'s training curriculum, and trainers and operators will be retrained.

The *SBI* PMO tripled in size in fiscal year 2007 but fell short of its staffing goal of 270 employees. Agency officials expressed concerns that staffing shortfalls could affect the agency's capacity to provide adequate contractor oversight. In addition, the *SBI* PMO has not yet completed its long-term human capital planning.

In their oral comments on a draft of this statement, DHS generally agreed with our findings and provided clarifying information that we incorporated as appropriate.

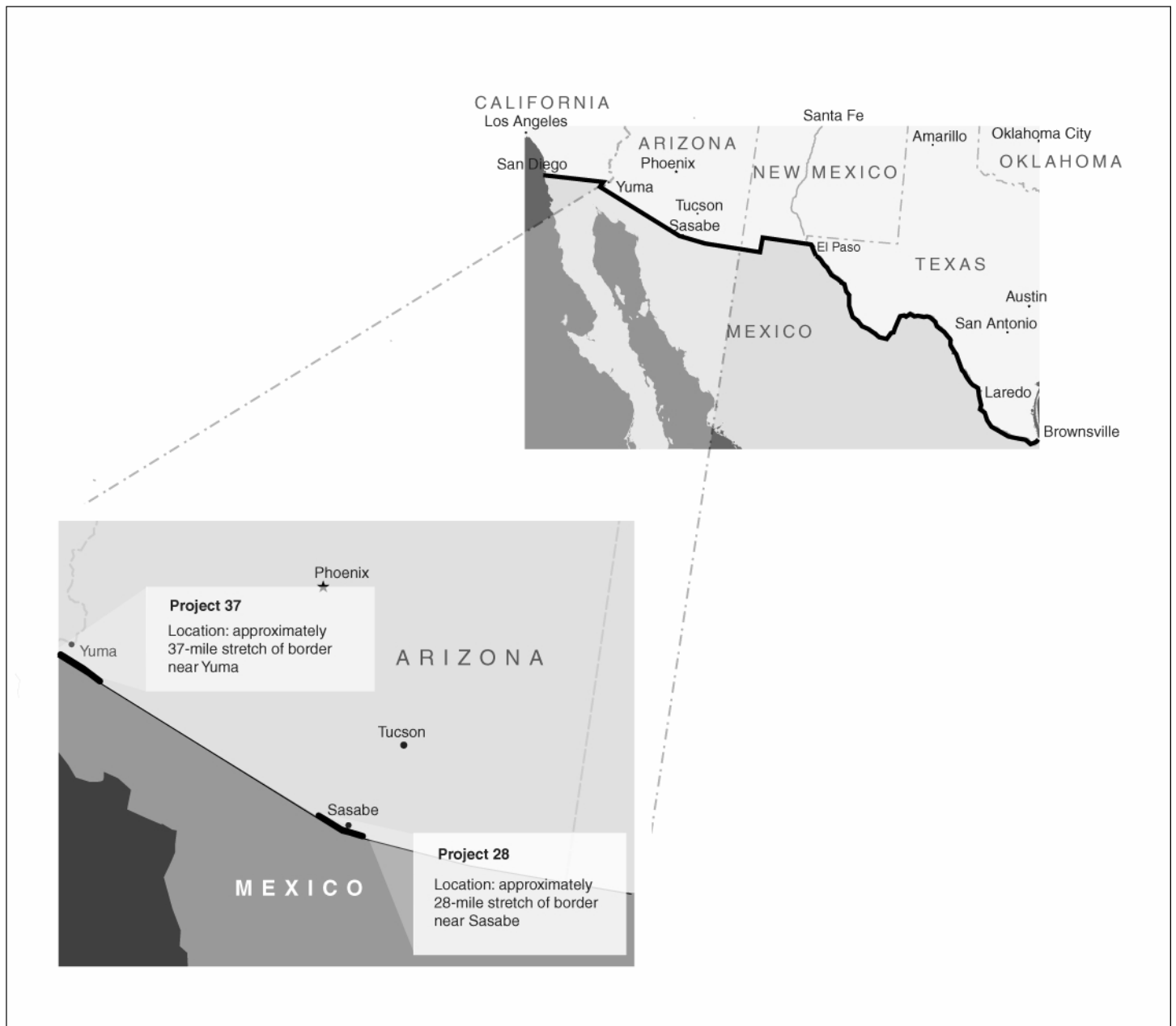
Background

The *SBI*net program is responsible for identifying and deploying an appropriate mix of technology (e.g., sensors, cameras, radars, communications systems, and mounted laptop computers for agent vehicles), tactical infrastructure (e.g., fencing, vehicle barriers, roads, rapid response capability (e.g., ability to quickly relocate operational assets and personnel) and personnel (e.g., program staff and Border Patrol agents) that will enable CBP agents and officers to gain effective control³ of U.S. borders. *SBI*net technology is also intended to include the development and deployment of a common operating picture (COP) that provides uniform data through a command center environment to Border Patrol agents in the field and all DHS agencies and to be interoperable with stakeholders external to DHS, such as local law enforcement. The initial focus of *SBI*net is on the southwest border areas between ports of entry⁴ that CBP has designated as having the highest need for enhanced border security because of serious vulnerabilities. Through *SBI*net, CBP plans to complete a minimum of 387 miles of technology deployment across the southwest border by December 31, 2008. Figure 1 shows the location of select *SBI*net projects underway on the southwest border.

³DHS defines effective control of U.S. borders as the ability to consistently: (1) detect illegal entries into the United States; (2) identify and classify these entries to determine the level of threat involved; (3) respond to these entries; and (4) bring events to a satisfactory law enforcement resolution.

⁴At a port of entry location, CBP officers secure the flow of people and cargo into and out of the country, while facilitating legitimate travel and trade.

Figure 1: Select SBInet Projects Under Way on the Southwest Border



Source: GAO analysis; Map Resources (map).

In September 2006, CBP awarded a prime contract to the Boeing Company for 3 years, with three additional 1-year options. As the prime contractor, Boeing is responsible for acquiring, deploying, and sustaining selected *SBI* technology and tactical infrastructure projects. In this way, Boeing has extensive involvement in the *SBI* program requirements development, design, production, integration, testing, and maintenance and support of *SBI* projects. Moreover, Boeing is responsible for selecting and managing a team of subcontractors that provide individual components for Boeing to integrate into the *SBI* system.⁵ The *SBI* contract is largely performance-based—that is, CBP has set requirements for *SBI* and Boeing and CBP coordinate and collaborate to develop solutions to meet these requirements—and designed to maximize the use of commercial off-the-shelf technology.⁶ CBP's *SBI* PMO oversees and manages the Boeing-led *SBI* contractor team. The *SBI* PMO workforce includes a mix of government and contractor support staff. The *SBI* PMO reports to the CBP *SBI* Program Executive Director.

CBP is executing part of *SBI* activities through a series of task orders to Boeing for individual projects. As of September 30, 2007, CBP had awarded five task orders to Boeing for *SBI* projects. These include task orders for (1) Project 28, Boeing's pilot project and initial implementation of *SBI* technology to achieve control of 28 miles of the border in the Tucson sector; (2) Project 37, for construction approximately 32 miles of vehicle barriers and pedestrian fencing in the Yuma sector along the Barry M. Goldwater Range (BMGR);⁷ (3) Program Management, for engineering, facilities and infrastructure, test and evaluation, and general program management services; (4) Fence Lab, a project to evaluate the performance and cost of deploying different types of fences and vehicle barriers; and (5) a design task order for developing the plans for several technology projects to be located in the Tucson, Yuma, and El Paso sectors.

⁵Boeing employs several companies as subcontractors on the *SBI* project. These companies provide Boeing with a variety of services. For example, Boeing has used a subcontractor to install laptops into CBP vehicles, while it has used another to develop and deploy mobile sensor towers.

⁶Commercial off-the-shelf is a term for software or hardware, generally technology or computer products, that are available for sale, lease, or license to the general public.

⁷Project 37 consists of three phases, which when complete are to provide control over 37 miles of border in the Yuma sector. The first two phases focus on deployment of tactical infrastructure. The third phase will focus on technology systems.

In addition to deploying technology across the southwest border, the SBInet PMO plans to deploy 370 miles of single-layer pedestrian fencing and 200 miles of vehicle barriers by December 31, 2008. Whereas pedestrian fencing is designed to prevent people on foot from crossing the border, vehicle barriers are other physical barriers meant to stop the entry of vehicles. The SBInet PMO is utilizing the U.S. Army Corps of Engineers (USACE) to contract for fencing and supporting infrastructure (such as lights and roads), complete required environmental assessments, and acquire necessary real estate.⁸

DHS has estimated that the total cost for completing the deployment for the southwest border—the initial focus of SBInet deployment—will be \$7.6 billion from fiscal years 2007 through 2011. DHS has not yet reported the estimated life cycle cost for this program, which is the total cost to the government for a program over its full life, consisting of research and development, operations, maintenance, and disposal costs.⁹ For fiscal year 2007, Congress appropriated about \$1.2 billion for SBInet, about which 40 percent DHS had committed or obligated as of September 30, 2007. For fiscal year 2008, DHS has requested an additional \$1 billion.¹⁰

SBInet Technology Deployment Delays May Increase Schedule Risks

DHS has made some progress to implement Project 28—the first segment of technology on the southwest border, but it has fallen behind its planned schedule. Project 28 is the first opportunity for Boeing to demonstrate that its technology system can meet SBInet performance requirements in a real-life environment.¹¹ Boeing's inability thus far to resolve system integration issues has left Project 28 incomplete more than 4 months after its planned June 13 milestone to become operational—at which point, Border Patrol agents were to begin using SBInet technology to support

⁸The SBInet PMO contracted with Boeing Company to construct 32 miles of fencing in the BMGR. Deployment of this fencing has been completed, and the SBInet PMO plans to use USACE to contract for all remaining pedestrian fencing and vehicle barriers to be deployed through December 31, 2008.

⁹GAO, *Missile Defense: Actions Needed to Improve Information for Supporting Key Decisions for Boost and Ascent Phase Elements*, [GAO-07-430](#) (Washington, D.C.: April 2007).

¹⁰DHS and DOD appropriations bills for fiscal year 2008 that include additional funding for border security are awaiting final action in Congress.

¹¹CBP has established performance requirements for SBInet technology. These include requirements for (1) probability of detection; (2) correctly identifying threats; (3) apprehension; (4) system availability; and (5) false alarm rate.

their activities, and CBP was to begin its operational test and evaluation phase. Boeing delivered and deployed the individual technology components of Project 28 on schedule.¹² Nevertheless, CBP and Boeing officials reported that Boeing has been unable to effectively integrate the information collected from several of the newly deployed technology components, such as sensor towers, cameras, radars, and unattended ground sensors. Among several technical problems reported were that it was taking too long for radar information to display in command centers and newly deployed radars were being activated by rain, making the system unusable. In August 2007, CBP officially notified Boeing that it would not accept Project 28 until these and other problems were corrected. In September 2007, CBP officials told us that Boeing was making progress in correcting the system integration problems; however, CBP was unable to provide us with a specific date when Boeing would complete the corrections necessary to make Project 28 operational. See figures 2 and 3 below for photographs of SBI^{net} technology along the southwest border.

Figure 2: Project 28 Mobile Sensor Tower Deployed in Tucson Sector



Source: GAO.

¹²Project 28 components include: 9 mobile radar/sensor towers; 4 underground sensors, 70 small hand-held satellite phones for agents to communicate throughout the Tucson sector; and 50 CBP agent vehicles with secure-mounted laptop computers and communications capabilities.

Figure 3: At Left, Mounted Laptop Installed in Border Patrol Vehicle; at Right, Project 28 Command and Control Center



Source: GAO.

The SBInet PMO reported that it is in the early stages of planning for additional SBInet technology projects along the southwest border; however, Boeing's delay in completing Project 28 has led the PMO to change the timeline for deploying some of these projects. In August 2007, SBInet PMO officials told us they were revising the SBInet implementation plan to delay interim project milestones for the first phase of SBInet technology projects, scheduled for calendar years 2007 and 2008.¹³ For example, SBInet PMO officials said they were delaying the start dates for two projects¹⁴ that were to be modeled on the design used for Project 28 until after Project 28 is operational and can provide lessons learned for planning and deploying additional SBInet technology along the southwest border. According to the SBInet master schedule dated May 31, 2007, these projects were to become operational in December 2007 and May 2008. Despite these delays, SBInet PMO officials said they still expected to complete all of the first phase of technology projects by the end of calendar year 2008. As of October 15, 2007, the SBInet PMO had not provided us with a revised deployment schedule for this first phase.

¹³The SBInet PMO plans to deploy SBInet projects in three phases. Phase one projects are scheduled between April 2007 and December 2008; phase two projects are scheduled between May 2008 and early 2010; and phase three projects are scheduled to begin in May 2009.

¹⁴The two projects are Project 37 BMGR phase three technology deployment, and the Texas Mobile System, technology deployment for about 70 miles of border in the El Paso sector.

CBP reports that it is taking steps to strengthen its contract management for Project 28. For example, citing numerous milestone slippages by Boeing during Project 28 implementation, in August 2007, CBP sought and reached an agreement with Boeing to give it greater influence in milestone setting and planning corrective actions on the Project 28 task order. While CBP had selected a firm-fixed-price contract to limit cost overruns on Project 28,¹⁵ CBP officials told us that the firm-fixed-price contract CBP used for Project 28 had limited the government's role in directing Boeing in its decision making process. For example, CBP and contractor officials told us they expressed concern about the timeline for completing Project 28, but CBP chose not to modify the contract because doing so would have made CBP responsible for costs beyond the \$20 million fixed-price contract.¹⁶ In mid-August 2007, CBP organized a meeting with Boeing representatives to discuss ways to improve the collaborative process, the submission of milestones, and Boeing's plan to correct Project 28 problems. Following this meeting, CBP and Boeing initiated a Change Control Board.¹⁷ In mid-September representatives from Boeing's *SBI*net team and its subcontractors continued to participate on this board and vote on key issues for solving Project 28 problems. Although CBP participates on this committee as a non-voting member, a senior *SBI*net official said the government's experience on the Change Control Board had been positive thus far. For example, the official told us that the Change Control Board had helped improve coordination and integration with Boeing and for suggesting changes to the subcontractor companies working on Project 28.

¹⁵ A firm-fixed-price contract provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract. This contract type places maximum risk upon the contractor and full responsibility for all costs and resulting profit or loss.

¹⁶ In April 2007, CBP and Boeing reached an agreement to modify the terms of the Project 28 contract, increasing it to about \$20.66 million. CBP modified the contract to add several project design requirements that the existing task order did not address.

¹⁷ The Change Control Board is a voting body that represents the interests of program and project management by ensuring that a structured process is used to consider proposed changes and incorporate them into a specified release of a product.

SBI*net* Tactical Infrastructure Deployment on Track but May Be Challenging and More Costly than Planned

Deploying SBI*net*'s tactical infrastructure along the southwest border is on schedule, but meeting the SBI*net* program's goal to have 370 miles of pedestrian fence and 200 miles of vehicle barriers in place by December 31, 2008, may be challenging and more costly than planned. CBP set an intermediate goal to deploy 70 miles of new pedestrian fencing by the close of fiscal year 2007 and, having deployed 73 miles by this date, achieved its goal. Table 1 summarizes CBP's progress and plans for tactical infrastructure deployment.

Table 1: Tactical Infrastructure Deployment Progress as of September 30, 2007

Infrastructure type	Miles in place before SBI <i>net</i>	Miles deployed through SBI <i>net</i>	Total miles in place	Target for 12/31/08	Miles remaining to meet 12/31/08 target
Pedestrian fencing	78	73	151	370	219
Vehicle barriers	57	53	110	200	90

Source: GAO analysis of CBP data.

Costs for the 73 miles of fencing constructed in fiscal year 2007 averaged \$2.9 million per mile and ranged from \$700,000 in San Luis, Arizona, to \$4.8 million per mile in Sasabe, Arizona. CBP also deployed 11 miles of vehicle barriers and, although CBP has not yet been able to provide us with the cost of these vehicle barriers, it projects that the average per mile cost for the first 75 miles of barriers it deploys will be \$1.5 million. Figure 4 presents examples of fencing deployed.

Figure 4: At Left, SBInet Fencing Being Deployed at Sasabe, Arizona; at Right, SBInet Fencing Deployed at Yuma, Arizona



Source: GAO.

CBP estimates costs for the deployment of fencing in the future will be similar to those thus far. However, according to CBP officials, costs vary due to the type of terrain, materials used, land acquisition, who performs the construction, and the need to meet an expedited schedule. Although CBP estimates that the average cost of remaining fencing will be \$2.8 million per mile, actual future costs may be higher due to factors such as the greater cost of commercial labor, higher than expected property acquisition costs, and unforeseen costs associated with working in remote areas. To minimize one of the many factors that add to cost, in the past DHS has used Border Patrol agents and DOD military personnel. However, CBP officials reported that they plan to use commercial labor for future infrastructure projects to meet their deadlines. Of the 73 miles of fencing completed to date, 31 were completed by DOD military personnel and 42 were constructed through commercial contracts. While the non-commercial projects cost an average of \$1.2 million per mile,¹⁸ the commercial projects averaged over three times more—\$4 million.¹⁹

¹⁸CBP's estimates of non-commercial fencing projects do not include labor costs associated with using government personnel.

¹⁹According to the Congressional Research Service (CRS), DHS predicts that the San Diego fence will have a total cost of \$127 million for its 14-mile length when it is completed—roughly \$9 million a mile. Construction of the first 9.5 miles of fencing cost \$31 million, or roughly \$3 million a mile, while construction of the last 4.5 miles of fencing is projected to cost \$96 million, or roughly \$21 million a mile. DHS is proposing to hire private contractors to expedite the construction of the remaining 4.5 miles of fencing; according to CRS this fact, and the complexity of the construction, may account for part of the difference in cost.

According to CBP officials, CBP plans to utilize exclusively commercial contracts to complete the remaining 219 miles of fencing. If contract costs for deployment of remaining miles are consistent with those to deploy tactical infrastructure to date and average \$4 million per mile, the total contract cost will be \$890 million, considerably more than CBP's initial estimate of \$650 million.

Although deployment of tactical infrastructure is on schedule, CBP officials reported that meeting deadlines has been challenging because factors they will continue to face include conducting outreach necessary to address border community resistance, devoting time to identify and complete steps necessary to comply with environmental regulations,²⁰ and addressing difficulties in acquiring rights to border lands. As of July 2007 CBP anticipated community resistance to deployment for 130 of its 370 miles of fencing. According to community leaders, communities resist fencing deployment for reasons including the adverse effect they anticipate it will have on cross-border commerce and community unity. In addition to consuming time, complying with environmental regulations, and acquiring rights to border land can also drive up costs. Although CBP officials state that they are proactively addressing these challenges, these factors will continue to pose a risk to meeting deployment targets.

In an effort to identify low cost and easily deployable fencing solutions, CBP funded a project called Fence Lab. CBP plans to try to contain costs by utilizing the results of Fence Lab in the future. Fence Lab tested nine fence/barrier prototypes and evaluated them based on performance criteria such as their ability to disable a vehicle traveling at 40 miles per hour (see fig. 5), allowing animals to migrate through them, and their cost-effectiveness. Based on the results from the lab, SBInet has developed three types of vehicle barriers and one pedestrian fence that meet CBP operational requirements (see fig. 6). The pedestrian fence can be installed onto two of these vehicle barriers to create a hybrid pedestrian fence and vehicle barrier. CBP plans to include these solutions in a

²⁰ Although the REAL ID Act of 2005 gives DHS the authority to waive all legal requirements necessary to ensure expeditious construction of certain specified barriers and roads along the southern border (Pub. L. No. 109-13, div. B, § 102, 119 Stat. 302, 306), DHS officials told us that they only use this authority after they have pursued alternatives.

“toolkit” of approved fences and barriers,²¹ and plans to deploy solutions from this toolkit for all remaining vehicle barriers and for 202 of 225 miles of remaining fencing. Further, CBP officials anticipate that deploying these solutions will reduce costs because cost-effectiveness was a criterion for their inclusion in the toolkit. *SBI*net officials also told us that widely deploying a select set of vehicle barriers and fences will lower costs through enabling it to make bulk purchases of construction and maintenance materials.

Figure 5: Fence Lab crash testing conducted in May 2007



Source: CBP.

²¹ As the *SBI*net PMO uses testing and evaluation to identify tactical infrastructure and technology components that effectively secure the border, the *SBI*net PMO is approving them for inclusion in a master “toolkit” of approved solutions. In addition to vehicle barriers and fences, the toolkit will include technology components such as radars and satellite phones as well as a list of approved vendors. In the future, the *SBI*net PMO plans to choose among its toolkit components to craft border security solutions.

Figure 6: Vehicle Barriers and Fencing Developed by Fence Lab That Meet Performance Requirements and Are Included in SBInet’s “Toolbox” of Approved Fences and Barriers.



Source: GAO analysis of CBP data; photos by CBP.

SBInet Impact on Border Patrol’s Workforce Needs and Operating Procedures Remains Unclear

While SBInet Program officials expect SBInet to greatly reduce the time spent by CBP enforcement personnel in performing detection activities,²² a full evaluation of SBInet’s impact on the Border Patrol’s workforce needs has not been completed. The Border Patrol currently uses a mix of resources including personnel, technology, infrastructure, and rapid response capabilities to incrementally achieve its strategic goal of establishing and maintaining operational control of the border.²³ Each year through its Operational Requirements Based Budget Program (ORBBP), the Border Patrol sectors outline the amount of resources needed to

²²SBInet PMO expects SBInet to provide the capability to predict, deter, detect, identify, classify, track, respond to, and resolve border incursion; and the operational enhancements of SBInet will provide efficiencies by reducing the time agents spend performing detection and characterization activities.

²³CBP defines operational control as the ability to detect, respond, and interdict border penetrations in areas deemed as high priority for threat potential or other national security objectives.

achieve a desired level of border control.²⁴ Border Patrol officials state this annual planning process allows the organization to measure the impact of each type of resource on the required number of Border Patrol agents. A full evaluation of *SBI*net's impact on the Border Patrol's workforce needs is not yet included in the ORBBP process; however, the Border Patrol plans to incorporate information from Project 28 a few months after it is operational.

According to agency officials, CBP is on track to meet its hiring goal of 6,000 new Border Patrol agents by December 2008, but after *SBI*net is deployed, CBP officials expect the number of Border Patrol agents required to meet mission needs to change from current projections, although the direction and magnitude of the change is unknown. In addition, in June 2007, we expressed concern that deploying these new agents to the southwest sectors coupled with the planned transfer of more experienced agents to the northern border will create a disproportionate ratio of new agents to supervisors within those sectors—jeopardizing the supervisors' availability to acclimate new agents.²⁵ Tucson Sector officials stated CBP is planning to hire from 650 to 700 supervisors next year. To accommodate the additional agents, the Border Patrol has taken initial steps to provide additional work space through constructing temporary and permanent facilities, at a projected cost of about \$550 million from fiscal year 2007 to 2011.

The *SBI*net PMO expects *SBI*net to support day-to-day border enforcement operations; however, analysis of the impact of *SBI*net technology on the Border Patrol's operational procedures cannot be completed at this time because agents have not been able to fully use the system as intended. Leveraging technology is part of the National Border Patrol Strategy which identifies the objectives, tools, and initiatives the Border Patrol uses to maintain operational control of the borders. The Tucson sector, where Project 28 is being deployed, is developing a plan on how to integrate *SBI*net into its operating procedures. Border Patrol officials stated they intend to re-evaluate this strategy, as *SBI*net technology is identified and deployed, and as control of the border is achieved.

²⁴The Border Patrol defines five levels of border security ranging from "controlled"—the highest sustainable level of control to "remote/low activity"—the lowest level of control.

²⁵GAO, *Border Patrol Costs and Challenges Related to Training New Agents*, [GAO-07-997T](#) (Washington, D.C.: June 2007).

According to agency officials, 22 trainers and 333 operators were trained on the current Project 28 system, but because of deployment delays and changes to the COP software, the *SBI*net training curriculum is to be revised by Boeing and the government. Training is continuing during this revision process with 24 operators being trained each week. According to CBP officials, Border Patrol agents are receiving “hands on” training during evening and weekend shifts at the COP workstations to familiarize themselves with the recent changes made to the Project 28 system. However, training is to be stopped once a stabilized version of the COP can be used and both trainers and operators are to be retrained using the revised curriculum. Costs associated with revising the training material and retraining the agents are to be covered by Boeing as part of the Project 28 task order; however, the government may incur indirect costs associated with taking agents offline for retraining.

SBI PMO Did Not Meet All of Its Staffing Goals and Has Not Yet Completed Long-Term Human Capital Planning

The SBI PMO tripled in size in fiscal year 2007 but fell short of its staffing goal of 270 employees.²⁶ As of September 30, 2007, the SBI PMO had 247 employees onboard, with 113 government employees and 134 contractor support staff. SBI PMO officials also reported that as of October 19, 2007, they had 76 additional staff awaiting background investigations. In addition, these officials said that a Human Capital Management Plan has been drafted, but as of October 22, 2007, the plan had not been approved. In February 2007, we reported that *SBI*net officials had planned to finalize a human capital strategy that was to include details on staffing and expertise needed for the program.²⁷ At that time, SBI and *SBI*net officials expressed concern about difficulties in finding an adequate number of staff with the required expertise to support planned activities about staffing that shortfalls could limit government oversight efforts. Strategic human capital planning is a key component used to define the critical skills and competencies that will be needed to achieve programmatic goals and outlines ways the organization can fill gaps in knowledge, skills, and abilities.²⁸ Until *SBI*net fully implements a comprehensive human capital

²⁶GAO, *SBI*net Expenditure Plan Needs to Better Support Oversight and Accountability, [GAO-07-309](#) (Washington, D.C.: February 2007).

²⁷[GAO-07-309](#).

²⁸See GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: December 2003) and GAO, *Framework for Accessing the Acquisition Function at Federal Agencies* [GAO-05-218G](#) (Washington, D.C.: September 2005).

strategy, it will continue to risk not having staff with the right skills and abilities to successfully execute the program.

Concluding Observations

Project 28 and other early technology and infrastructure projects are the first steps on a long journey towards *SBI_{net}* implementation that will ultimately require an investment of billions of taxpayer dollars. Some of these early projects have encountered unforeseen problems that could affect DHS's ability to meet projected completion dates, expected costs, and performance goals. These issues underscore the need for both DHS and Boeing, as the prime contractor, to continue to work cooperatively to correct the problems remaining with Project 28 and to ensure that the *SBI_{net}* PMO has adequate staff to effectively plan and oversee future projects. These issues also underscore Congress's need to stay closely attuned to DHS's progress in the *SBI_{net}* program to make sure that performance, schedule, and cost estimates are achieved and the nation's border security needs are fully addressed.

This concludes my prepared testimony. I would be happy to respond to any questions that members of the Subcommittees may have.

Contacts and Acknowledgments

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Appendix I: Scope and Methodology

To determine the progress that the Department of Homeland Security (DHS) has made in implementing the Secure Border Initiative (SBI) *SBI*net's technology deployment projects, we analyzed DHS documentation, including program schedules, project task orders, status reports, and expenditures. We also interviewed DHS and the U.S. Customs and Border Protection (CBP) headquarters and field officials, including representatives of the *SBI*net Program Management Office (PMO), Border Patrol, CBP Air and Marine, and the DHS Science and Technology Directorate, as well as *SBI*net contractors. We visited the Tucson Border Patrol sector—the site where *SBI*net technology deployment was underway at the time of our review.

To determine the progress that Department of Homeland Security (DHS) has made in infrastructure project implementation, we analyzed DHS documentation, including schedules, contracts, status reports, and expenditures. In addition, we interviewed DHS and CBP headquarters and field officials, including representatives of the *SBI*net PMO, and Border Patrol. We also interviewed officials from the U.S. Army Corps of Engineers and the Department of the Interior. We visited the Tucson and Yuma, Arizona Border Patrol sectors—two sites where tactical infrastructure projects were underway at the time of our review. We did not review the justification for infrastructure project cost estimates or independently verify the source or validity of the cost information.

To determine the extent to which CBP has determined the impact of *SBI*net technology and infrastructure on its workforce needs and operating procedures, we reviewed documentation of the agency's decision to hire an additional 6,000 agents and the progress hiring these agents. We also interviewed headquarters and field officials to track if and how CBP (1) is hiring and training its target number of personnel, (2) it is planning to train new agents on *SBI*net technology, and (3) it will incorporate the new system into its operational procedures, and any implementation challenges it reports facing in conducting this effort.

To determine how the *SBI*net PMO defined its human capital goals and progress it has made in achieving these goals, we reviewed the office's documentation on its hiring efforts related to *SBI*net, related timelines, and compared this information with agency goals. We determined that the workforce data were sufficiently reliable for purposes of this report. We also interviewed SBI and *SBI*net officials to identify challenges in meeting the goals and steps taken by the agency to address those challenges.

We performed our work from April 2007 through October 2007 in accordance with generally accepted government auditing standards.

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