



May 2018

# HOMELAND SECURITY ACQUISITIONS

## Leveraging Programs' Results Could Further DHS's Progress to Improve Portfolio Management

# GAO Highlights

Highlights of [GAO-18-339SP](#), a report to congressional committees

## Why GAO Did This Study

Each year, the DHS invests billions of dollars in a diverse portfolio of major acquisition programs to help execute its many critical missions. DHS's acquisition activities are on GAO's High Risk List, in part, because of management and funding issues.

The Explanatory Statement accompanying the DHS Appropriations Act, 2015 included a provision for GAO to review DHS's major acquisitions. This report, GAO's fourth annual review, assesses the extent to which: (1) DHS's major acquisition programs are on track to meet their schedule and cost goals, and (2) DHS has taken actions to enhance its policies and processes to better reflect key practices for effectively managing a portfolio of investments.

GAO reviewed 28 acquisition programs, including DHS's largest programs that were in the process of obtaining new capabilities as of April 2017, and programs GAO or DHS identified as at risk of poor outcomes. GAO assessed cost and schedule progress against baselines, assessed DHS's policies and processes against GAO's key portfolio management practices, and met with relevant DHS officials.

## What GAO Recommends

GAO recommends DHS update its acquisition policy to require certification of fund memorandums when programs re-baseline as a result of a breach and assess programs' post-implementation reviews to improve performance across the acquisition portfolio. DHS concurred with GAO's recommendations.

View [GAO-18-339SP](#). For more information, contact Marie A. Mak at (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov).

May 2018

## HOMELAND SECURITY ACQUISITIONS

### Leveraging Programs' Results Could Further DHS's Progress to Improve Portfolio Management

## What GAO Found

During 2017, 10 of the Department of Homeland Security (DHS) programs GAO assessed that had approved schedule and cost goals were on track to meet those goals. GAO reviewed 28 programs in total, 4 of which were new programs that GAO did not assess because they did not establish cost and schedule goals before the end of calendar year 2017 as planned. The table shows the status of the 24 programs GAO assessed. Reasons for schedule delays or cost increases included technical challenges, changes in requirements, and external factors.

**GAO's Assessment of 24 DHS Major Acquisition Programs during 2017**

Programs on track to meet schedule and cost goals	Programs with schedule delays	Programs with cost increases	Programs with schedule delays and cost increases
10	6	2	6

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP.

Recent enhancements to DHS's acquisition management, resource allocation, and requirements policies largely reflect key portfolio management practices (see table). However, DHS is in the early stages of implementing these policies.

**GAO's Assessment of DHS Policies for Acquisition Management, Resource Allocation, and Requirements against Key Portfolio Management Practices**

Key portfolio management practice	GAO's assessment
Clearly define and empower leadership	Met
Establish standard assessment criteria and demonstrate comprehensive portfolio knowledge	Met
Prioritize investments by integrating the requirements, acquisition, and budget processes	Met
Continually make go/no-go decisions to rebalance the portfolio	Partially met

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP.

GAO identified two areas where DHS could strengthen its portfolio management policies and implementation efforts:

- DHS's policies do not reflect the key practice to reassess a program that breaches—or exceeds—its cost, schedule, or performance goals in the context of the portfolio to ensure it is still relevant or affordable. Acquisition management officials said that, in practice, they do so based on a certification of funds memorandum—a tool GAO has found to be effective for DHS leadership to assess program affordability—submitted by the component when one of its programs re-baselines in response to a breach. Documenting this practice in policy would help ensure DHS makes strategic investment decisions within its limited budget.
- DHS is not leveraging information gathered from reviews once programs complete implementation to manage its portfolio of active acquisition programs. DHS's acquisition policy requires programs to conduct post-implementation reviews after initial capabilities are deployed, which is in line with GAO's key practices. Acquisition management officials said they do not consider the results of these reviews in managing DHS's portfolio because the reviews are typically conducted after oversight for a program shifts to the components. Leveraging these results across DHS could enable DHS to address potential issues that may contribute to poor outcomes, such as schedule slips and cost growth, for other programs in its acquisition portfolio.

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**Abbreviations**

APB	acquisition program baseline
DHS	Department of Homeland Security
FYHSP	Future Years Homeland Security Program
JRC	Joint Requirements Council
LCCE	life-cycle cost estimate
O&M	operations and maintenance
PA&E	Office of Program Analysis and Evaluation
PARM	Office of Program Accountability and Risk Management

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May 17, 2018

Congressional Committees

Each year, the Department of Homeland Security (DHS) invests billions of dollars in a diverse portfolio of major acquisition programs to help execute its many critical missions. In fiscal year 2017 alone, DHS planned to spend approximately \$6.5 billion on these acquisition programs, and ultimately the department will likely invest more than \$207.2 billion in them. DHS and its underlying components are acquiring systems to help secure the border, increase marine safety, screen travelers, enhance cybersecurity, improve disaster response, and execute a wide variety of other operations. Each of DHS's major acquisition programs generally costs \$300 million or more and spans multiple years.<sup>1</sup>

To help manage these programs, DHS has established an acquisition management policy that we have found to be generally sound in that it reflects key program management practices we've identified in prior work.<sup>2</sup> However, we have found shortfalls in executing the policy and have highlighted DHS acquisition management issues in our high-risk updates since 2005.<sup>3</sup> Over the past decade, we have found that department leadership has dedicated additional resources and implemented new policies designed to improve acquisition oversight. But our work has also identified shortcomings in the department's ability to manage its portfolio of major acquisitions.<sup>4</sup> For example, in April 2017, we found that 14 of the 26 programs we reviewed deployed capabilities before meeting all key performance parameters—the requirements a system must meet to fulfill its fundamental purpose—which increases the risk that end users, such as border patrol agents or first responders in a

<sup>1</sup>DHS defines major acquisition programs as those with life-cycle cost estimates of at least \$300 million or more. In some cases, DHS may define a program with a life-cycle cost estimate less than \$300 million a major acquisition if it has significant strategic or policy implications for homeland security.

<sup>2</sup>GAO, *Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs*, [GAO-12-833](#) (Washington, D.C.: Sept. 18, 2012).

<sup>3</sup>GAO, *High-Risk Series: An Update*, [GAO-05-207](#) (Washington, D.C.: January 2005). For our most recent report, see *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, [GAO-17-317](#) (Washington, D.C.: Feb. 15, 2017).

<sup>4</sup>For examples of past GAO work, see a list of related GAO products at the end of this report.

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disaster, received technologies that might not work as intended.<sup>5</sup> We also found that DHS's acquisition management policy requires programs to establish cost, schedule, and performance baselines prior to gaining full knowledge about the program's technical requirements, which serve as the engineering basis for development. The order of these events is contrary to acquisition best practices and may lead to poor outcomes, such as schedule slips, cost increases, or inconsistent performance.

We have made many recommendations over the past decade to help address these challenges. For example, we previously recommended that DHS leadership ensure all major programs fully comply with the acquisition management policy by obtaining department-level approval for acquisition documents before the programs are allowed to proceed and specifically assess whether adequate funding is available during all program reviews.<sup>6</sup> In response, DHS has taken several steps to improve acquisition management, such as strengthening implementation of its acquisition management policy and requiring components to certify that programs are affordable before they are approved to move through the acquisition life cycle. Nonetheless, DHS has not fully addressed some of our other recommendations. For example, we previously recommended that DHS leadership prioritize major acquisition programs department-wide and ensure that the department's acquisition portfolio is consistent with DHS's anticipated resource constraints, as well as present any anticipated annual funding gaps for acquisition programs in the annual funding plan submitted to Congress.<sup>7</sup> DHS concurred with these recommendations and has taken some steps to address them, such as updating its policies and revising the format of its funding plan submission to Congress to present anticipated acquisition funding gaps.

The Explanatory Statement accompanying a bill to the DHS Appropriations Act, 2015 contained a provision for GAO to develop a plan for ongoing reviews of major DHS acquisition programs, as directed in the

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<sup>5</sup>GAO, *Homeland Security Acquisitions: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress*, [GAO-17-346SP](#) (Washington, D.C.: Apr. 6, 2017).

<sup>6</sup>[GAO-12-833](#); GAO, *Homeland Security Acquisitions: DHS Could Better Manage Its Portfolio to Address Funding Gaps and Improve Communications with Congress*, [GAO-14-332](#) (Washington, D.C.: Apr. 17, 2014).

<sup>7</sup>[GAO-12-833](#), [GAO-14-332](#).

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Senate report.<sup>8</sup> This is our fourth annual review of major DHS acquisition programs. This report addresses the extent to which (1) DHS's major acquisition programs are on track to meet their schedule and cost goals and (2) DHS has taken actions to enhance its policies and processes to better reflect key portfolio management practices.

To answer these questions, we reviewed 28 of DHS's 79 major acquisition programs. This included all 16 of DHS's Level 1 acquisition programs—those with life-cycle cost estimates (LCCE) of \$1 billion or more—that were in the process of obtaining new capabilities at the initiation of our audit. We also included 12 other major acquisition programs that we or DHS management identified were at risk of not meeting their schedules, cost estimates, or capability requirements. Eight of these 12 programs were Level 1 acquisitions that either had not yet begun obtaining capabilities or had entered the deployment phase of the acquisition life cycle, while the other four programs were Level 2 acquisitions with LCCEs between \$300 million and less than \$1 billion. Appendix I presents individual assessments of each of the 28 programs we reviewed. These assessments include key information, such as the status of programs' schedules, costs, projected funding levels, testing, and staffing. Our objective for the 2-page assessments is to provide decision makers a means to quickly gauge the programs' progress and their potential cost, schedule, performance, or funding risks.

To determine the extent to which the programs we reviewed are on track to meet their schedule and cost goals, we analyzed available acquisition documentation, such as acquisition program baselines (APB), which contain information on programs' schedules and cost estimates. Since the November 2008 update to DHS's overarching acquisition management directive, these documents have required DHS-level approval; therefore, we used November 2008 as the starting point for our analysis. We used these documents to construct a data collection instrument for each program, identifying any schedule slips and cost growth. We subsequently shared this information with each of the program offices and met with program officials to identify causes and effects associated with any schedule slips and cost growth since (1) their initial baselines and (2) January 2017—the data cut-off date of the report we issued in April

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<sup>8</sup>Explanatory Statement submitted by Mr. Rogers of Kentucky, Chairman of the House Committee on Appropriations, regarding H.R. 240, Department of Homeland Security Appropriations Act, 2015 (published in Cong. Record, Jan. 13, 2015, at p. H276).

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2017.<sup>9</sup> As of December 31, 2017—the data cut-off date of this report—24 of the 28 programs we reviewed had one or more department-approved APBs; therefore, we excluded the remaining 4 programs from our assessment of whether programs are on track to meet their schedule and cost goals. We also reviewed the Future Years Homeland Security Program (FYHSP) report to Congress for fiscal years 2018–2022—which presents 5-year funding plans for each of DHS’s major acquisition programs—to assess the affordability of DHS’s acquisition portfolio.

To determine the extent to which DHS has taken actions to enhance its policies and processes to better reflect key portfolio management practices, we compared the current policies for the department’s requirements, acquisition management, and resource allocation processes that were issued in 2016 to key portfolio management practices we established in September 2012 and identified any significant gaps.<sup>10</sup> We also reviewed documentation that resulted from these processes since January 2016 to get a sense of how the department has implemented its current policies. Lastly, we interviewed relevant headquarters officials responsible for implementing these policies and processes to obtain their perspectives on our analysis of DHS’s current policies and processes and to identify any current and planned initiatives to improve management of the department’s portfolio of major acquisition programs. Appendix III provides detailed information on our scope and methodology.

We conducted this performance audit from March 2017 to May 2018 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.

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<sup>9</sup>[GAO-17-346SP](#).

<sup>10</sup>We established GAO’s key portfolio management practices, which are listed in appendix II, in [GAO-12-833](#). The DHS policies we assessed apply to all major acquisition programs, including information technology programs. DHS has also established and implemented a separate portfolio management process specifically for information technology programs, which we have assessed through our high-risk updates. For the most recent report, see [GAO-17-317](#).

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## Background

To help manage its multi-billion dollar acquisition investments, DHS has established policies and processes for acquisition management, requirements development, test and evaluation, and resource allocation. The department uses these policies and processes to deliver systems that are intended to close critical capability gaps, helping enable DHS to execute its missions and achieve its goals.

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## Acquisition Management Policy

DHS policies and processes for managing its major acquisition programs are primarily set forth in its Acquisition Management Directive 102-01 and Acquisition Management Instruction 102-01-001. DHS issued the initial version of this directive in November 2008 in an effort to establish an acquisition management system that effectively provides required capability to operators in support of the department's missions.<sup>11</sup> DHS's Under Secretary for Management is currently designated as the department's Chief Acquisition Officer and, as such, is responsible for managing the implementation of the department's acquisition policies.

DHS's Under Secretary for Management serves as the acquisition decision authority for the department's largest acquisition programs, those with LCCEs of \$1 billion or greater. Component Acquisition Executives—the most senior acquisition management officials within each of DHS's components—may be delegated acquisition decision authority for programs with cost estimates between \$300 million and less than \$1 billion. Table 1 identifies how DHS has categorized the 28 major acquisition programs we review in this report, and table 7 in appendix III specifically identifies the programs within each level.

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<sup>11</sup>DHS has issued multiple updates to its acquisition management directive and instruction. DHS issued the current version of the directive on July 28, 2015, and the current version of the instruction on March 9, 2016. DHS also issued a separate Systems Engineering Life Cycle Guidebook (DHS Guidebook 102-01-103-01) on April 18, 2016 that outlines the technical framework underlying DHS's acquisition management system.

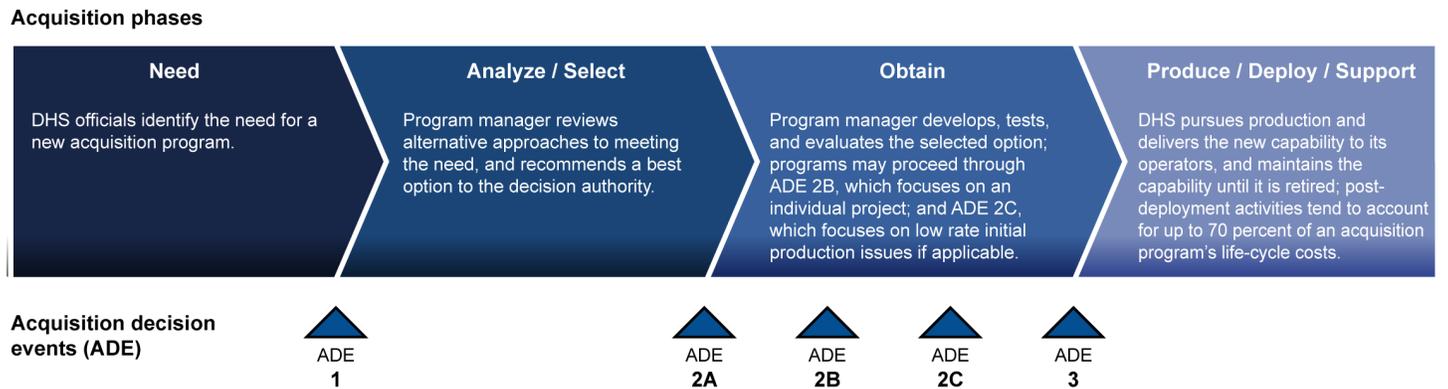
**Table 1: DHS Acquisition Levels for Major Acquisition Programs**

Level	Life-cycle cost estimates	Acquisition decision authority	Number of programs reviewed in this report
1	Greater than or equal to \$1 billion	Under Secretary for Management/Chief Acquisition Officer	24
2	\$300 million or more, but less than \$1 billion	Under Secretary for Management/Chief Acquisition Officer, or the Component Acquisition Executive	4

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

DHS acquisition management policy establishes that a major acquisition program’s decision authority shall review the program at a series of predetermined acquisition decision events to assess whether the major program is ready to proceed through the acquisition life-cycle phases. Depending on the program, these events can occur within months of each other, or be spread over several years. Figure 1 depicts the acquisition life cycle established in DHS acquisition management policy.

**Figure 1: DHS Acquisition Life Cycle for Major Acquisition Programs**



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

Note: Programs may develop capabilities through individual projects, segments, or increments, which are approved at ADE 2B. Programs without individual projects, segments, or increments may conduct a combined ADE 2A/2B since ADE 2B is the first milestone at which programs are required to submit certain acquisition documents.

An important aspect of an acquisition decision event is the decision authority’s review and approval of key acquisition documents. See table 2 for a description of the type of key acquisition documents requiring department-level approval before a program moves to the next acquisition phase.

**Table 2: Key Documents Requiring Department-level Approval**

Document	Description
Capability Development Plan	Serves as the agreement between the component head, program manager, and the acquisition decision authority on the activities, cost, and schedule for the analysis and selection of potential solutions to fill a mission need.
Acquisition Plan	Provides a top-level plan for the overall acquisition approach. Describes why the solution is in the government's best interest and why it is the most likely to succeed in delivering capabilities to operators.
Integrated Logistics Support Plan	Defines the strategy for ensuring the supportability and sustainment of a future capability. Provides critical insight into the approach, schedule, and funding requirements for integrating supportability requirements into the systems engineering process.
Life-Cycle Cost Estimate	Provides an exhaustive and structured accounting of all resources and associated cost elements required to develop, produce, deploy, and sustain a particular program.
Acquisition Program Baseline	Establishes a program's critical baseline cost, schedule, and performance parameters. Expresses the parameters in measurable, quantitative terms, which must be met in order to accomplish the program's goals.
Test and Evaluation Master Plan	Documents the overarching test and evaluation approach for the acquisition program. Describes the developmental and operational test and evaluation needed to determine a system's technical performance, operational effectiveness/suitability, and limitations.

Source: Department of Homeland Security (DHS). | GAO-18-339SP

DHS acquisition management policy establishes that the APB is the agreement between program, component, and department-level officials establishing how systems will perform, when they will be delivered, and what they will cost. Specifically, the APB establishes a program's schedule, costs, and key performance parameters. DHS defines key performance parameters as a program's most important and non-negotiable requirements that a system must meet to fulfill its fundamental purpose. For example, a key performance parameter for an aircraft may be airspeed and a key performance parameter for a surveillance system may be detection range.

The APB schedule, costs, and key performance parameters are defined in terms of an objective and minimum threshold value. According to DHS policy, if a program fails to meet any schedule, cost, or performance threshold approved in the APB, it is considered to be in breach. Programs in breach are required to notify their acquisition decision authority and develop a remediation plan that outlines a time frame for the program to return to its APB parameters, re-baseline—that is, establish new schedule, cost, or performance goals—or have a DHS-led program review that results in recommendations for a revised baseline.

In addition to the acquisition decision authority, other bodies and senior officials support DHS's acquisition management function:

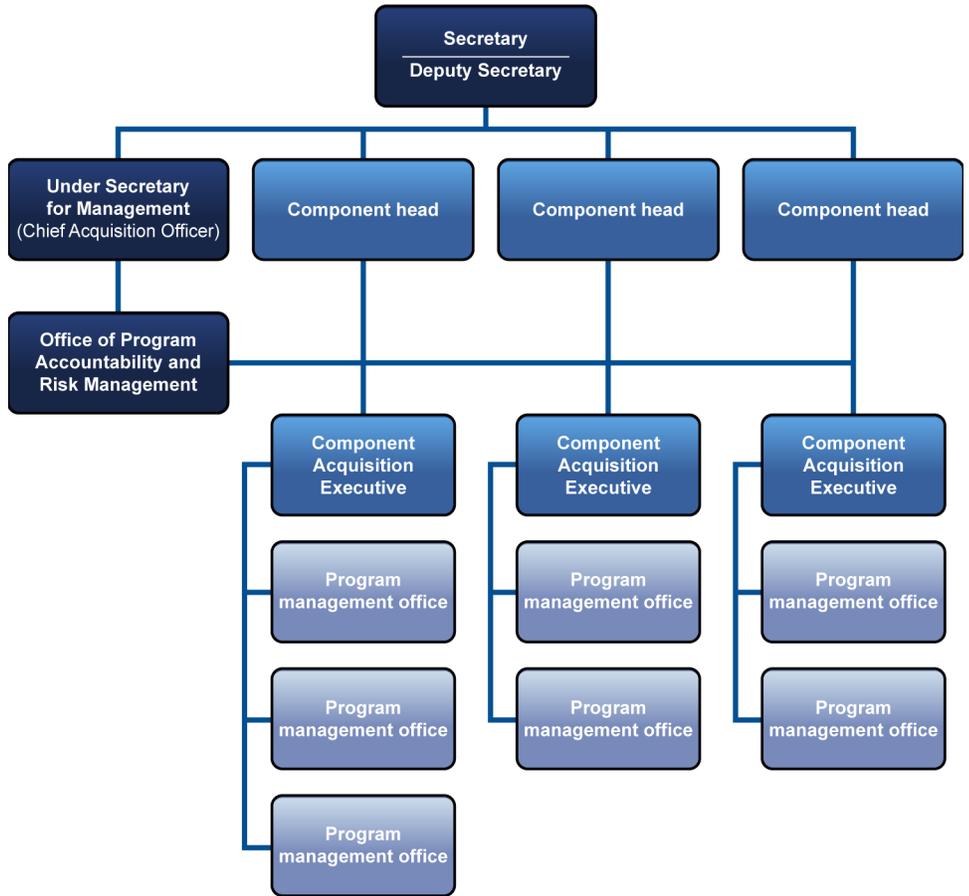
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- **The Acquisition Review Board** reviews major acquisition programs for proper management, oversight, accountability, and alignment with the department’s strategic functions at acquisition decision events and other meetings as needed. The board is chaired by the acquisition decision authority or a designee and consists of individuals who manage DHS’s mission objectives, resources, and contracts.
  - **The Office of Program Accountability and Risk Management (PARM)** is responsible for DHS’s overall acquisition governance process, supports the Acquisition Review Board, and reports directly to the Under Secretary for Management. PARM develops and updates program management policies and practices, reviews major programs, provides guidance for workforce planning activities, provides support to program managers, and collects program performance data.
  - **Components**, such as U.S. Customs and Border Protection, the Transportation Security Administration, and the U.S. Coast Guard sponsor specific acquisition programs.<sup>12</sup> The head of each component is responsible for oversight of major acquisition programs once the programs complete delivery of all planned capabilities to end users.
    - **Component Acquisition Executives** within the components are responsible for overseeing the execution of their respective portfolios.
    - **Program management offices**, also within the components, are responsible for planning and executing DHS’s individual programs. They are expected to do so within the cost, schedule, and performance parameters established in their APBs. If they cannot do so, programs are considered to be in breach and must take specific steps, as noted above.

Figure 2 depicts the relationship between acquisition managers at the department, component, and program level.

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<sup>12</sup>DHS’s components consist of operational components—those that have responsibility for directly achieving one or more of the department’s missions or activities—and support components—those that generally provide assistance or guidance to other DHS components or external organizations.

**Figure 2: DHS's Acquisition Management Structure**



- Department level
- Component level
- Program level

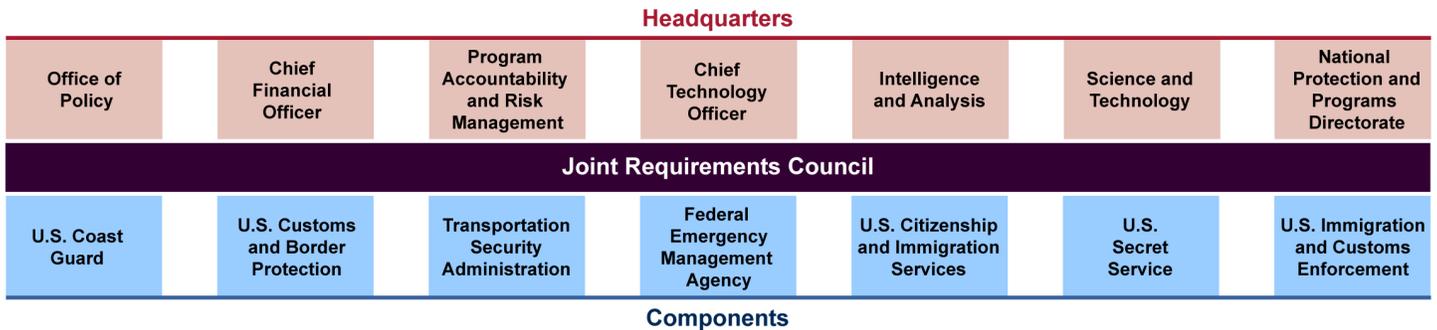
Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

## Requirements Development Process

DHS established a Joint Requirements Council (JRC) to develop and lead a component-driven joint requirements process for the department.<sup>13</sup> The JRC has issued policies outlining a process for analyzing and validating capability gaps, needs, and requirements.<sup>14</sup>

The JRC consists of a chair and 14 members who are senior executives or officers that represent key DHS headquarters offices and seven of the department's operational components. The JRC chair rotates annually among the seven operational components. JRC members represent the views of their components or office leadership, endorse and prioritize validated capability needs and operational requirements (user-defined performance parameters outlining what a system must do), and make recommendations that are supported by analytical rigor. Figure 3 depicts the current headquarters and component members of the JRC.

**Figure 3: Members of DHS's Joint Requirements Council**



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

<sup>13</sup>DHS re-established the JRC in June 2014. For more information, see GAO, *Homeland Security Acquisitions: Joint Requirements Council's Initial Approach Is Generally Sound and It Is Developing a Process to Inform Investment Priorities*, [GAO-17-171](#) (Washington, D.C.: Oct. 24, 2016).

<sup>14</sup>Department of Homeland Security, Directive 71-02, The Joint Requirements Council, February 1, 2016; Directive 107-01, Joint Requirements Integration and Management System, March 8, 2016; and Instruction Manual 107-01-001-01, DHS Manual for the Operation of the Joint Requirements Integration and Management System, April 21, 2016.

The JRC provides input to two senior-level entities:

- **The Acquisition Review Board**—as a member, the JRC chair advises the board on capability gaps, needs, and requirements at key milestones in the acquisition life cycle.
- **The Deputy’s Management Action Group**, which the Secretary established in April 2014, is a decision-making body that is chaired by the Deputy Secretary. Its membership consists of the DHS Chief of Staff, DHS Under Secretaries, senior operational component deputies and select support component deputies, and the Chief Financial Officer. The group provides recommendations to the Deputy Secretary for consideration in the annual resource allocation process that reflects DHS’s investment priorities. The group reviews JRC-validated capability needs and recommendations, provides direction and guidance to the JRC, and endorses or directs related follow-on JRC activities.

The JRC is responsible for validating proposed capability needs and requirements for all major acquisitions, as well as for programs that are joint or of interest to the Deputy’s Management Action Group, regardless of level. See table 3 for a description of the key requirements documents requiring JRC validation.

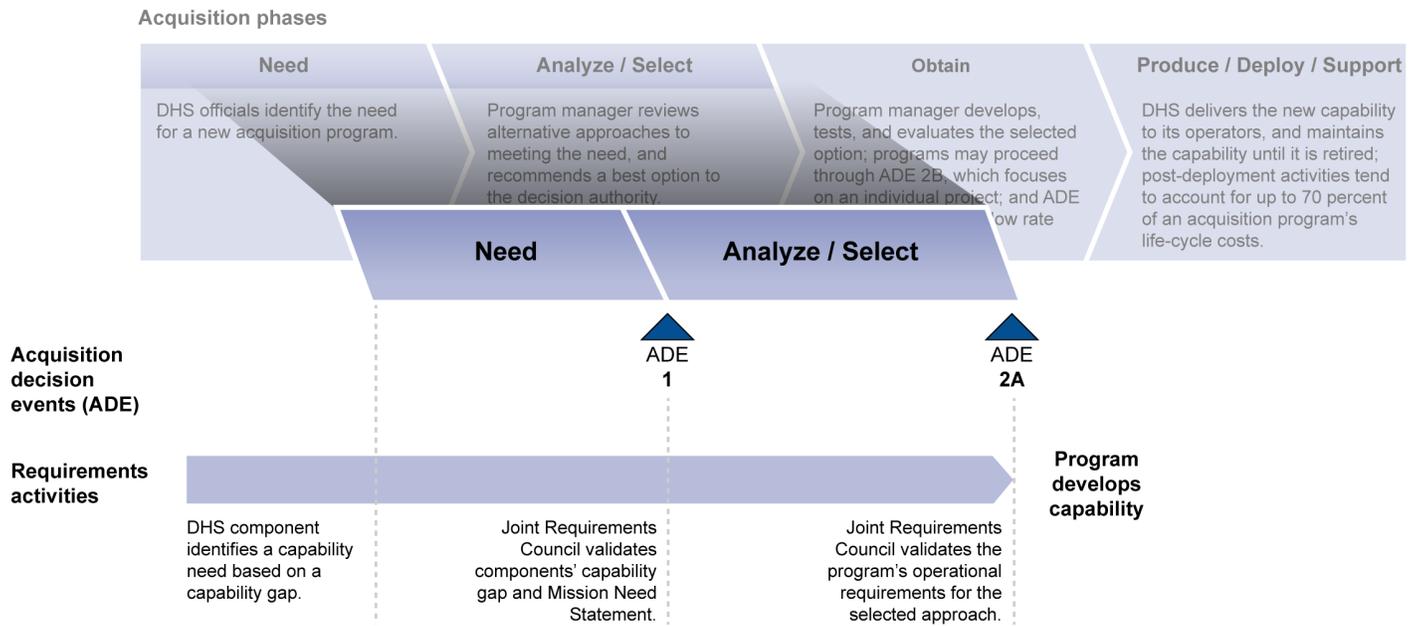
**Table 3: Key Documents Requiring Joint Requirements Council Validation**

Document	Description
Capability Analysis Report	Provides an assessment of the department’s ability to fulfill a mission, objective, or function. Identifies capability gaps, redundancies, fragmentation, and overlaps; and provides recommendations for either a materiel or non-materiel approach to mitigate those gaps or overlaps.
Mission Need Statement	Provides a high-level description of the mission need, whether from a current or impending gap. Outlines only the concept of the solution to fill the gap and does not provide information on specific types of acquisitions that could provide that capability.
Concept of Operations	Provides a description of how an asset, system, or capability will be employed and supported. Identifies the capabilities needed to perform the missions and fill the gaps expressed in the Mission Need Statement.
Operational Requirements Document	Provides a number of performance parameters that must be met by a program to provide useful capabilities to the operator by closing capability gaps identified in the Mission Need Statement.

Source: Department of Homeland Security (DHS). | GAO-18-339SP

In general, the DHS requirements development process moves from broad mission needs and capability gaps to operational requirements. See figure 4.

**Figure 4: Requirements Activities Established by DHS Policy**



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

## Test and Evaluation Policy

In May 2009, DHS established policies that describe processes for testing the capabilities delivered by the department's major acquisition programs.<sup>15</sup> The primary purpose of test and evaluation is to provide timely, accurate information to managers, decision makers, and other stakeholders to reduce programmatic, financial, schedule, and performance risks. We provide an overview of each of the 28 programs' test activities in the individual program assessments presented in appendix I.

DHS testing policy assigns specific responsibilities to particular individuals and entities throughout the department:

- **Program managers** have overall responsibility for planning and executing their programs' testing strategies, including scheduling and funding test activities and delivering systems for testing. They are also

<sup>15</sup>DHS issued a revised version of its Test and Evaluation Directive 026-06 on May 5, 2017, and a revised instruction for implementing this directive on July 5, 2017.

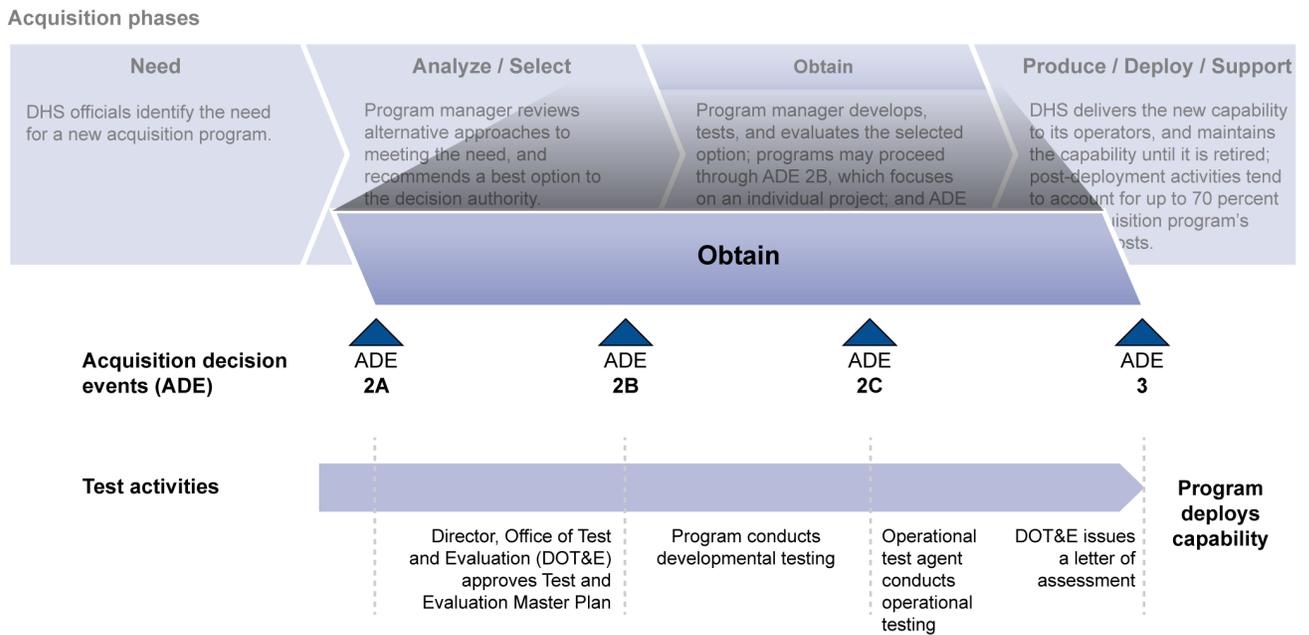
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responsible for controlling developmental testing, which is used to assist in the development and maturation of products, manufacturing, or support processes. Developmental testing includes engineering-type tests used to verify that design risks are minimized, substantiate achievement of contract technical performance, and certify readiness for operational testing.

- **Operational test agents** are responsible for planning, conducting, and reporting on operational test and evaluation, which is intended to identify whether a system can meet its key performance parameters and provide an evaluation of the operational effectiveness, suitability, and cybersecurity of a system in a realistic environment. Operational effectiveness refers to the overall ability of a system to provide a desired capability when used by representative personnel. Operational suitability refers to the degree to which a system can be placed into field use and sustained satisfactorily. The operational test agents may be organic to the component, another government agency, or a contractor, but must be independent of the developer in order to present credible, objective, and unbiased conclusions.
- **The Director, Office of Test and Evaluation** is responsible for approving major acquisition programs' operational test agent and test and evaluation master plans, among other things. A program's test and evaluation master plan must describe the developmental and operational testing needed to determine technical performance and operational effectiveness, suitability, and cybersecurity. As appropriate, the Director is also responsible for observing operational tests, reviewing operational test agents' reports, and assessing the reports. Prior to a program's acquisition decision event 3, the Director provides the program's acquisition decision authority a letter of assessment that includes an appraisal of the program's operational test, a concurrence or non-concurrence with the operational test agent's evaluation, and any further independent analysis.

As an acquisition program proceeds through its life cycle, the testing emphasis moves gradually from developmental testing to operational testing. See figure 5.

**Figure 5: Test Activities Established by DHS Policy**



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

## Resource Allocation Process

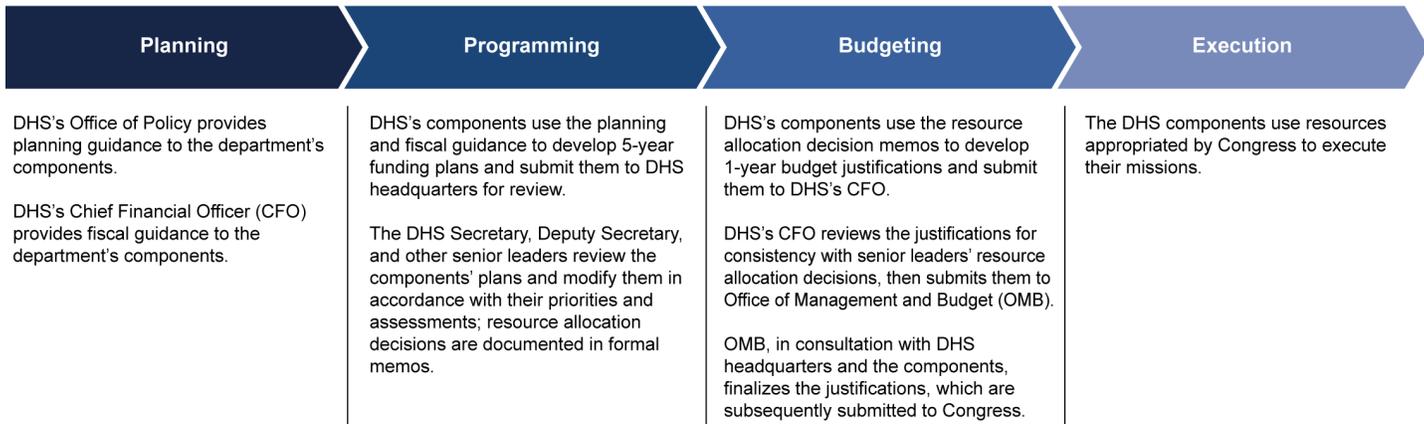
DHS has established a planning, programming, budgeting, and execution process to allocate resources to acquisition programs and other entities throughout the department.<sup>16</sup> DHS uses this process to produce the department’s annual budget request and multi-year funding plans presented in the FYHSP, a database that contains, among other things, 5-year funding plans for DHS’s major acquisition programs. According to DHS guidance, the 5-year plans should allow the department to achieve its goals more efficiently than an incremental approach based on 1-year plans. DHS guidance also states that the FYHSP articulates how the department will achieve its strategic goals within fiscal constraints.

At the outset of the annual resource allocation process, the department’s Offices of Policy and Chief Financial Officer provide planning and fiscal

<sup>16</sup>Department of Homeland Security, Directive 101-01, Planning, Programming, Budgeting, and Execution, July 14, 2016; Planning, Programming, Budgeting, and Execution Instruction 101-01-001, July 15, 2016; Planning, Programming, Budgeting, and Execution System Operating Handbook, revised July 2016.

guidance, respectively, to the department’s components. In accordance with this guidance, the components should submit 5-year funding plans to the Chief Financial Officer. These plans are subsequently reviewed by DHS’s senior leaders, including the DHS Secretary and Deputy Secretary. DHS’s senior leaders are expected to modify the plans in accordance with their priorities and assessments, and they document their decisions in formal resource allocation decision memorandums. DHS submits the revised funding plans to the Office of Management and Budget, which uses them to inform the President’s annual budget request—a document sent to Congress requesting new budget authority for federal programs, among other things. In some cases, the funding appropriated to certain accounts in a given fiscal year can be carried over to subsequent fiscal years. Figure 6 depicts DHS’s annual resource allocation process.

**Figure 6: DHS’s Annual Planning, Programming, Budgeting, and Execution Process**



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

Federal law requires DHS to submit an annual FYHSP report to Congress at or about the same time as the President’s budget request.<sup>17</sup> This report presents the 5-year funding plans in the FYHSP database at that time.

<sup>17</sup>DHS is required to include the same type of information, organizational structure, and level of detail in the FYHSP as the Department of Defense is required to include in its Future Years Defense Program. 6 U.S.C. § 454.

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Two offices within DHS's Office of the Chief Financial Officer support the annual resource allocation process:

- **The Office of Program Analysis and Evaluation (PA&E)** is responsible for establishing policies for the annual resource allocation process and overseeing the development of the FYHSP. In this role, PA&E develops the Chief Financial Officer's planning and fiscal guidance, reviews the components' 5-year funding plans, advises DHS's senior leaders on resource allocation issues, maintains the FYHSP database, and submits the annual FYHSP report to Congress.
- **The Cost Analysis Division** is responsible for reviewing, analyzing, and evaluating acquisition programs' LCCEs to ensure the cost of DHS programs are presented accurately and completely, in support of resource requests. This division also supports affordability assessments of the department's budget, in coordination with PA&E, and develops independent cost estimates for major acquisition programs upon request by DHS's Under Secretary for Management or Chief Financial Officer.

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## During 2017, 10 of the 24 Programs with Approved Schedule and Cost Goals Were on Track

Of the 24 programs we assessed with approved schedule and cost goals, 10 were on track to meet those goals during 2017. The other 14 programs were not on track because they changed or breached their schedule goals, cost goals, or both. We found that most programs updated their cost estimates in response to requirements DHS established in January 2016 that are intended to provide decision makers with more timely information. These actions are in accordance with GAO's best practice to regularly update cost estimates and we plan to use these updated estimates to measure programs' cost changes going forward.<sup>18</sup> Based on our April 2014 recommendation, DHS revised the format of its fiscal year 2018–2022 FYHSP report to Congress to include acquisition affordability tables for select major acquisition programs.<sup>19</sup> However, the report shows—and our analysis of programs' current cost estimates confirms—that some programs face acquisition funding gaps in fiscal year 2018.

We also reviewed 4 programs that were early in the acquisition process and planned to establish department-approved schedule and cost goals

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<sup>18</sup>GAO, *GAO Cost Estimating and Assessment Guide*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

<sup>19</sup>[GAO-14-332](#).

in calendar year 2017. However, these programs were delayed in getting department approval for their initial APBs for various reasons and, therefore, we excluded them from our assessment of whether programs were on track to meet their schedule and cost goals during 2017. DHS leadership subsequently approved initial APBs for 2 particularly complex and costly programs—a border wall system along the southwest U.S. border and the Coast Guard’s Heavy Polar Icebreaker—in January 2018. We plan to assess these programs in next year’s review, but provide more details on all 4 additional programs we reviewed in the individual assessments in appendix I.

Table 4 summarizes our findings and we present more detailed information after the table.

**Table 4: Major DHS Acquisition Programs’ Progress against Current Schedule and Cost Goals during 2017**

Component	Program	On track during 2017	Changes to schedule goals	Changes to cost goals	New programs GAO did not assess <sup>b</sup>
Customs and Border Protection	Automated Commercial Environment	—	X	X	—
	Biometric Entry-Exit Program	n/a	n/a	n/a	X
	Border Wall System Program	n/a	n/a	n/a	X
	Integrated Fixed Towers	—	X	—	—
	Medium Lift Helicopter (UH-60)	—	X	X	—
	Multi-role Enforcement Aircraft <sup>a</sup>	X	—	—	—
	Non-Intrusive Inspection Systems Program <sup>a</sup>	X	—	—	—
	Remote Video Surveillance System	n/a	n/a	n/a	X
	Tactical Communications Modernization	—	X	X	—
	TECS (not an acronym) Modernization	—	X	—	—
Federal Emergency Management Agency	Logistics Supply Chain Management System	—	X	—	—
Immigration and Customs Enforcement	TECS (not an acronym) Modernization	—	—	X	—
National Protection and Programs Directorate	Continuous Diagnostics and Mitigation	—	X	X	—
	Homeland Advanced Recognition Technology	—	X	—	—
	National Cybersecurity Protection System	X	—	—	—
	Next Generation Networks Priority Services	X	—	—	—

Component	Program	On track during 2017	Changes to schedule goals	Changes to cost goals	New programs GAO did not assess <sup>b</sup>
Science and Technology Directorate	National Bio and Agro-Defense Facility <sup>a</sup>	X	—	—	—
Transportation Security Administration	Electronic Baggage Screening Program	—	—	X	—
	Passenger Screening Program	—	X	X	—
	Technology Infrastructure Modernization	X	—	—	—
U.S. Coast Guard	Fast Response Cutter	X	—	—	—
	H-65 Conversion/Sustainment Program	—	X	—	—
	Heavy Polar Icebreaker	n/a	n/a	n/a	X
	Long Range Surveillance Aircraft (HC-130H/J)	X	—	—	—
	Medium Range Surveillance Aircraft (HC-144A & C-27J)	X	—	—	—
	National Security Cutter	—	X	X	—
	Offshore Patrol Cutter	X	—	—	—
U.S. Citizenship and Immigration Services	Transformation	—	X	—	—

Legend: X = yes; — = no; n/a = not applicable; shaded rows = program was in breach of its baseline goals as of December 31, 2017

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

<sup>a</sup>Program is on track against its initial cost and schedule goals (e.g. has not revised the acquisition program baseline DHS leadership initially approved after the department's acquisition management policy went into effect in November 2008).

<sup>b</sup>Not assessed because DHS leadership had not approved an acquisition program baseline establishing schedule and cost goals for these programs by December 31, 2017. DHS leadership subsequently approved initial baselines for the Border Wall System Program and Heavy Polar Icebreaker in January 2018.

## Ten Programs Were on Track during 2017

From January 2017 to January 2018, 10 of the 24 programs we assessed with department-approved APBs were on track to meet their schedule and cost goals. This is fewer than our last annual review in which we found that 17 of the 26 programs we assessed were on track during 2016.<sup>20</sup>

Three of the 10 programs on track during 2017 were on track against initial schedule and cost goals; that is, the schedule and cost estimates in the baseline DHS leadership initially approved after the department's acquisition management policy went into effect in November 2008. The

<sup>20</sup>GAO-17-346SP.

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other 7 programs had re-baselined prior to January 2017 and were on track against revised schedules and cost estimates that reflected past schedule slips, cost growth, or both.

However, some of the programs on track in 2017 identified risks that may lead to schedule slips or cost growth in the future. For example, officials from the Technology Infrastructure Modernization program told us that staffing challenges may impede their ability to execute the program in accordance with its current APB. We also identified 2 programs that are in the process of re-baselining or plan to re-baseline in the near future to account for significant program changes or to add capabilities. For example, the Next Generation Networks Priority Services program plans to update its APB to establish schedule, cost, and performance goals for the next increment, which is intended to address landline capabilities for providing government officials emergency telecommunication services.

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### Fourteen Programs Were Not on Track during 2017

During 2017, 14 of the 24 programs we assessed with department-approved APBs were not on track. Twelve of these programs had at least one major acquisition milestone that slipped, including 6 of these programs that also changed or breached their cost goals. Two additional programs changed or breached only their cost goals.

### Programs with Schedule Slips during 2017

As of January 2018, 6 of the 12 programs that experienced a schedule slip were in breach and had not yet revised their goals. Therefore, the magnitude of the schedule slips is unknown. For the remaining 6 programs, the change in schedule during 2017 ranged from a delay of 6 months to 66 months. Figure 7 identifies the programs that experienced schedule slips and the extent to which their major milestones slipped in 2017, as well as—for additional context—in prior years.



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While there are various reasons for schedule delays, the result is that end users may not get needed capabilities when they originally anticipated. Examples of the reasons why these key milestones slipped in 2017 include the following:

- **New requirements:** For example, the Passenger Screening Program re-baselined in May 2017 for the fifth time since its initial APB was approved in January 2012. This latest re-baseline was to remediate a 17-month breach caused by delays in incorporating new cybersecurity requirements in one of the program's transportation security equipment technologies, known as the Credential Authentication Technology. The program now plans to achieve full operational capability for this system by December 2023—more than 9 years later than it initially planned. In another example, the Tactical Communications Modernization program re-baselined in November 2017—4 months after the program notified DHS leadership that it would not achieve full operational capability as planned. The reason for this re-baseline was to resolve issues related to federal information security requirements. The program now plans to achieve this milestone by March 2019, which is more than a year later than its initial APB threshold.
- **Technical challenges:** For example, the Continuous Diagnostics and Mitigation program re-baselined in June 2017 to account for significant coverage gaps identified during the deployment of phase 1 sensors and to establish cost, schedule, and performance goals for phase 3 tools. The program's full operational capability date slipped almost 4 years after this milestone was redefined as the point in time at which phase 1–3 tools are available to all participating civilian agencies. Additionally, the Automated Commercial Environment program declared a schedule breach in April 2017—its second in less than a year—after encountering difficulties developing its remaining functionality. These difficulties have caused further delays to the program's final acquisition milestone decision.
- **External factors:** Officials from the Logistics Supply Chain Management System program notified DHS leadership in September 2017 that the program would not complete all required activities to achieve acquisition decision event 3 and subsequent events, including full operational capability. The primary reason for the delay was because program staff were deployed to support response and recovery efforts during the 2017 hurricane season. Additionally, the Medium Lift Helicopter program experienced delays in getting key acquisition documents approved in time to achieve its acquisition decision event 3. These delays were attributed, in part, to DHS

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leadership directing Customs and Border Protection to develop a comprehensive border plan that included the helicopter's capabilities.

We elaborate on the reasons for all 12 programs' schedule slips in the individual assessments in appendix I.

### Programs with Cost Goal Changes or Breaches during 2017

Of the 14 programs not on track during 2017, 8 revised or breached their established cost goals. Four of these 8 programs revised their cost goals when they re-baselined to address new requirements and technical challenges, among other things.

- When the Passenger Screening Program re-baselined in May 2017, the program's APB threshold for its life-cycle costs increased \$418 million (8 percent) over its previous APB. However, the revised threshold is \$1 billion below the threshold established in the program's initial APB, which was approved in January 2012. From 2012 to 2015, the program's scope was reduced in response to funding constraints. However, emerging threats drove the program to increase capability requirements, which has subsequently increased costs.
- When the Continuous Diagnostics and Mitigation program re-baselined in June 2017, the APB threshold for life-cycle costs decreased by \$15 million (1 percent). However, the program shifted some acquisition costs to operations and maintenance (O&M) to be consistent with DHS's new common appropriations structure.<sup>21</sup> This, in addition to other changes, increased the APB threshold for O&M by \$631 million (3,712 percent).
- When the National Security Cutter program re-baselined in November 2017 to account for a ninth ship—as directed by Congress—the APB cost thresholds for acquisition and O&M increased by \$453 million (8 percent) and \$123 million (1 percent), respectively.
- When the Immigration and Customs Enforcement's TECS Modernization program re-baselined in November 2017 in preparation for acquisition decision event 3, the APB cost thresholds increased overall. Specifically, the acquisition cost threshold decreased by \$14 million (6 percent) when the program included actual costs through

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<sup>21</sup>In April 2018, we found that the common appropriation structure streamlined DHS's appropriations, but obscured the reporting of O&M costs for individual programs. For more information, see GAO, *DHS Program Costs: Reporting Program-Level Operations and Support Costs to Congress Would Improve Oversight*, [GAO-18-344](#) (Washington, D.C.: Apr. 25, 2018). This report refers to O&M as operations and support, which is the title of the common appropriations structure account related to these activities.

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fiscal year 2016, among other things, and the O&M cost threshold increased by \$147 million (92 percent) when the program extended the estimate by 4 years and included support costs for an additional 11 years.

The other 4 programs breached their established cost goals during 2017.

- The Medium Lift Helicopter and Electronic Baggage Screening programs breached certain APB cost thresholds when they shifted costs between categories, such as O&M to acquisitions or vice versa, to be consistent with DHS's new common appropriations structure.
- The Tactical Communications Modernization program experienced a cost breach primarily because of increases in costs for contractor labor and support for facilities and infrastructure. The program's APB cost threshold for O&M increased by \$110 million (23 percent) when it re-baselined in November 2017.
- The Automated Commercial Environment program experienced a cost breach because it had to extend its contracts to address the development difficulties discussed above. The magnitude of the program's cost goal changes is not yet known because the program does not plan to revise its APB until August 2018.

We elaborate on the reasons for all 8 programs' cost goal changes or breaches in the individual program assessments in appendix I.

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## DHS Has Taken Steps to Enhance Cost Reporting While Some Programs Still Face Funding Gaps

In January 2016, based on several of our past recommendations, DHS required major acquisition programs to begin submitting to headquarters (1) detailed data on program affordability, such as updates to the program's LCCE and funding source information, to help inform the department's annual resource allocation process, and (2) an annual LCCE update.<sup>22</sup> These requirements are intended to provide more timely information that may improve DHS's efforts to address acquisition program affordability issues, as well as internal and external oversight of programs' progress against its cost goals. These actions are in accordance with GAO's cost estimating best practices, which state that cost estimates should be updated with actual costs so that they are

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<sup>22</sup>These requirements are only applicable to level 1 and level 2 programs that have not reached full operational capability. For our past work, see GAO, *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, [GAO-16-338SP](#) (Washington, D.C.: Mar. 31, 2016), [GAO-14-332](#), and [GAO-12-833](#).

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always relevant and current.<sup>23</sup> As a result, we have used these sources to provide the programs' current estimate in the individual assessments in appendix I, as appropriate, and plan to use these data sources to measure programs' cost changes going forward.

According to officials from the Cost Analysis Division, a program's annual LCCE update should inform the affordability submission to support the annual resource allocation process and can be completed at any point during the fiscal year leading up to this process. We examined documentation to ascertain whether the programs we reviewed complied with the two requirements. For the 24 programs we assessed with department-approved APBs, we found the following:

- All 24 programs submitted the detailed data on program affordability to headquarters by June 2017 to inform the fiscal year 2019 resource allocation cycle. Most programs' submissions accounted for changes since the program's last LCCE was approved by DHS's Chief Financial Officer, except three. For example, the Long Range Surveillance Aircraft program's submission reflected no updates from its November 2011 LCCE because the program was in the process of re-baselining to account for significant changes. The program began re-baselining nearly 3 years ago and has been delayed for various reasons, including challenges with the vendor hired to complete a revision of the program's LCCE.
- Eighteen of the 24 programs submitted annual LCCE updates. Three programs—Automated Commercial Environment, H-65, and Transformation—did not submit an annual LCCE update because they were in breach. The other 3 programs—all within the Coast Guard—did not submit an annual LCCE because, according to Coast Guard officials, they have limited internal cost estimating capability and rely on outside sources for this service, which led to delays in completing the annual LCCEs for these programs. Coast Guard officials said they are reviewing options to resolve these delays and improve the Coast Guard's cost estimating capability.

Cost Analysis Division officials anticipate the Coast Guard will increase compliance with the annual LCCE requirement in fiscal year 2018. They also plan to update the annual LCCE template to include additional information, such as comparisons of the updated estimates to the program's APB cost goals and projected funding.

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<sup>23</sup>[GAO-09-3SP](#).

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In addition, DHS revised the format of its FYHSP report to Congress, improving insight into major programs' acquisition funding, but decreasing insight into O&M funding. In April 2014, we found that DHS could better communicate its funding needs for acquisition programs to Congress and recommended that DHS enhance the content for future FYHSP reports by presenting programs' annual cost estimates and any anticipated funding gaps, among other things.<sup>24</sup> DHS concurred with the recommendation and, for the first time, included acquisition affordability tables that presented programs' annual acquisition cost estimates compared to projected acquisition funding for select major acquisition programs in its FYHSP report for fiscal years 2018–2022.

However, DHS no longer reported O&M funding for individual programs. DHS reported in the FYHSP that it focused on acquisition information because O&M funding estimates are generally stable year-to-year and components manage O&M in various ways, such as by individual program or across a portfolio of programs. By removing O&M funding information in the FYHSP for all programs, DHS presents an incomplete picture of programs' full funding needs and affordability. In April 2018, we assessed the extent to which DHS had accounted for O&M costs and funding in greater detail and recommended that DHS reverse the exclusion of O&M funding at the acquisition program level in its FYHSP report to Congress for all components.<sup>25</sup> DHS officials stated that they plan to re-introduce O&M funding for major acquisition programs in the FYHSP report for fiscal years 2019–2023 based on multiple internal discussions about the best way to present a more comprehensive view of programs' total costs and feedback from key stakeholders, such as the Office of Management and Budget.

Based on the information presented in the FYHSP report for fiscal years 2018–2022, DHS's acquisition portfolio is not affordable over the next 5 years. For example, the report contained acquisition affordability tables for 18 of the 24 programs we assessed that have approved APBs. Of these 18 programs, 9 were projected to have an acquisition affordability

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<sup>24</sup>[GAO-14-332](#).

<sup>25</sup>[GAO-18-344](#). The April 2018 report refers to O&M as operations and support, which is the title of the common appropriations structure account related to these activities.

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gap in fiscal year 2018.<sup>26</sup> However, some of these projections are outdated since the FYHSP report—which was issued in September 2017—relied on cost information as of April 2016. Therefore, we updated these tables using the programs’ current acquisition cost estimate presented in the individual assessments in appendix I.

Based on our assessment of programs’ current cost estimates, we also found that a total of 9 programs are projected to have an acquisition affordability gap in fiscal year 2018. However, 3 of these 9 programs were different programs than those identified based on the FYHSP report. Of the 9 programs we identified with a projected acquisition affordability gap in fiscal year 2018, we found the following:

- Five programs identified other funding, such as funding from previous fiscal years that remained available for obligation—known as carryover funding—which would address their projected acquisition funding gap. For example, in the FYHSP report, DHS projected allocating approximately \$16 million in funding for the Technology Infrastructure Modernization program in fiscal year 2018 to cover an estimated \$16 million in acquisition costs. However, in its November 2017 annual LCCE update, this program’s acquisition cost increased to almost \$30 million, resulting in a projected acquisition affordability gap of almost 45 percent. The program plans to realign \$57 million in O&M carryover funding to cover this and any future acquisition shortfalls.
- Four programs did not identify other funding that would address their projected acquisition funding gap, which increases the likelihood that they will cost more and take longer to deliver capabilities to end users than expected. For example, in the FYHSP report, DHS projected allocating \$109 million in funding for the Non-Intrusive Inspection Systems program in fiscal year 2018 to cover an estimated \$103 million in acquisition costs. However, in its April 2017 annual LCCE update, this program’s acquisition costs increased to nearly \$186 million, resulting in a projected acquisition affordability gap of 41 percent. The program identified only \$2.5 million in fiscal year 2017 acquisition carryover funding.

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<sup>26</sup>DHS considers a program to be fully resourced if the latest DHS-approved funding is within 5 percent of its current DHS-funded estimated costs in a given year. Additionally, DHS reported acquisition funding for the Coast Guard’s Medium Range Surveillance program in the FYHSP report, but did not present an acquisition affordability table for this program.

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Further, 5 of the 24 programs we assessed were not included in the fiscal years 2018–2022 FYHSP report because they were no longer expected to receive acquisition funding. Officials from 3 of these 5 programs projected funding gaps that could cause future program execution challenges, such as schedule slips or cost growth. For example, the National Bio and Agro-Defense Facility anticipates a projected funding shortfall of approximately \$90 million over the next 5 years, which officials said could delay a number of activities to make the facility operational. We elaborate on programs’ affordability over the next 5 years in the individual program assessments in appendix I.

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## DHS’s Policies Generally Reflect Key Portfolio Management Practices, but Opportunities Exist to Leverage Programs’ Post-Implementation Results

We assessed DHS’s policies outlining the department’s processes for acquisition management, resource allocation, and requirements and found that, when considered collectively, they generally reflect key portfolio management practices. In March 2007, we examined the practices that private sector entities use to achieve a balanced mix of new projects and found that successful commercial companies use a disciplined and integrated approach to prioritize needs and allocate resources when making investments.<sup>27</sup> This approach, known as portfolio management, requires companies to view each of their investments as contributing to a collective whole, rather than as independent and unrelated. With this perspective, companies can effectively (1) identify and prioritize opportunities, and (2) allocate available resources to support the highest priority—or most promising—opportunities. Based on this and other work, we identified four key practice areas for portfolio management in September 2012.<sup>28</sup>

We previously assessed DHS’s acquisition management and resource allocation policies against our key portfolio management practices in

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<sup>27</sup>GAO, *Best Practices: An Integrated Portfolio Management Approach to Weapon System Investments Could Improve DOD’s Acquisition Outcomes*, [GAO-07-388](#) (Washington, D.C.: Mar. 30, 2007).

<sup>28</sup>[GAO-12-833](#). See *Defense Acquisitions: Assessments of Selected Weapon Programs*, [GAO-10-388SP](#) (Washington, D.C.: Mar. 30, 2010); *Department of Homeland Security: Billions Invested in Major Programs Lack Appropriate Oversight*, [GAO-09-29](#) (Washington, D.C.: Nov. 18, 2008); [GAO-07-388](#); *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, [GAO-04-394G](#) (Washington, D.C.: March 2004); and *Executive Guide: Leading Practices in Capital Decision Making*, [GAO/AIMD-99-32](#) (Washington, D.C.: December 1998). For more information on the key portfolio management practices, see appendix II.

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September 2012 and April 2014, respectively.<sup>29</sup> We found that the policies in place at the time of our reviews did not fully reflect all of the key portfolio management practices and recommended that DHS revise its policies to do so. DHS concurred with our recommendations and subsequently took actions to mature and solidify the department's portfolio management processes and policies.

In April 2014, the Secretary of Homeland Security issued a memorandum titled *Strengthening Departmental Unity of Effort*, which aimed to strengthen DHS's structures and processes to improve departmental cohesiveness and operational effectiveness, among other things. The memorandum identified several initial focus areas intended to build organizational capacity, one of which centered on improving and integrating the department's processes for acquisition oversight, resource allocation, and joint requirements analysis. To improve these processes, the memorandum directed senior DHS leaders to update the existing acquisition management and resource allocation processes, as well as lead an expedited review to provide alternatives for developing and facilitating a component-driven joint requirements process, which ultimately led to the re-establishment of the JRC.<sup>30</sup>

In response to our recommendations and the *Unity of Effort* memorandum, DHS issued new policies outlining the acquisition management, resource allocation, and requirements processes in 2016.<sup>31</sup> We assessed these policies and found that, when considered collectively, they generally reflect the key portfolio management practices, as shown in table 5.

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<sup>29</sup>[GAO-12-833](#), [GAO-14-332](#).

<sup>30</sup>DHS initially established a JRC in 2003 to identify common requirements across DHS's components, but it was never fully implemented due to a lack of senior management officials' involvement. In November 2008, we found that the JRC played a key role in identifying several overlapping investments and recommended that DHS reinstate the JRC to review and approve acquisition requirements and assess potential duplication of efforts. See [GAO-09-29](#).

<sup>31</sup>In October 2016, we assessed the JRC's structure and management approach and found that they were generally sound. For more information, see [GAO-17-171](#).

**Table 5: Assessment of DHS’s Policies on Acquisition Management, Resource Allocation, and Requirements against GAO’s Key Portfolio Management Practices**

Key practice area	Summary of key practices	GAO assessment of DHS policies
Clearly define and empower leadership	Portfolio managers, with the support of cross-functional teams, should be empowered to make investment decisions and held accountable for outcomes.	Met
Establish standard assessment criteria and demonstrate comprehensive knowledge of the portfolio	Investments should be ranked and selected using a disciplined process to assess the cost, benefits, and risks of alternative products to ensure transparency and comparability across alternatives.	Met
Prioritize investments by integrating the requirements, acquisition, and budget processes	Organizations should use long-range planning and an integrated approach to prioritize needs and allocate resources in accordance with strategic goals, so they can avoid pursuing more products than they can afford and optimize return on investment.	Met
Continually make go/no-go decisions to rebalance the portfolio	Reviews should be scheduled (1) annually to consider proposed changes to program requirements, (2) as new opportunities are identified, (3) whenever a program breaches its established thresholds to reassess whether it remains relevant and affordable, and (4) after investment implementation is completed. Information gathered during these post-implementation reviews should be used to fine tune the investment process and the portfolio to achieve strategic outcomes.	Partially met

Source: GAO analysis of Department of Homeland Security (DHS) policies. | GAO-18-339SP

Note: Appendix II and III present a more detailed description of our key portfolio management practices and how we assessed DHS’s policies.

Because DHS’s new policies were issued in 2016, we did not specifically assess DHS’s implementation of them. However, we did review documentation resulting from the acquisition management, resource allocation, and requirements processes since January 2016 to get a sense of how the department began implementation. Examples of how DHS’s policies reflect the key portfolio management practices and their implementation status are outlined below.

- Clearly define and empower leadership:** the policies identify the roles and responsibilities for decision makers in the acquisition management, resource allocation, and requirements processes, as well as establish cross-functional teams to support those decision makers. For example, to fulfill the role of acquisition decision authority, the Under Secretary for Management is supported by the Acquisition Review Board, which consists of key DHS senior leaders responsible for managing the department’s finances, contracts, and testing, among other things.

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We reviewed the memorandums issued since January 2016 that document Acquisition Review Board decisions and found that, through this group, DHS has taken steps to manage across programs through its acquisition management process. For example, after reviewing the status of several individual Customs and Border Protection programs in 2016, the Acquisition Review Board identified the need for a comprehensive border plan that depicts the component's current land, maritime, and air domain awareness capabilities. In October 2016, the Deputy Under Secretary for Management—who was serving as acquisition decision authority at the time—directed Customs and Border Protection to develop such a plan. The plan is to consist of separate analyses for each of the three domains—starting with land—that reflect end users' capability requirements for systems, such as Integrated Fixed Towers, Multi-Role Enforcement Aircraft, and Medium Lift Helicopter, that address relevant domain threats. As of February 2018, Customs and Border Protection had not yet completed the analysis for land domain awareness capabilities.

- **Establish standard assessment criteria and demonstrate comprehensive knowledge of the portfolio:** the policies establish standard criteria for assessing major acquisition programs through the acquisition management, resource allocation, and requirements processes. For example, the updated resource allocation handbook established that PA&E conduct annual assessments of all major investments using standard criteria in five main categories—contribution to DHS's mission, program health, risk, resources, and governance—to assess the portfolio of investments and present alternatives for leadership decision.<sup>32</sup> PA&E officials told us they used these criteria when assessing components' resource allocation requests during development of the President's fiscal year 2018 budget to develop funding options for the Deputy's Management Action Group, which is responsible for making resource allocation recommendations for the Secretary's approval. PA&E presented its funding options by DHS mission, which, according to officials associated with the Deputy's Management Action Group, allowed the group to make cross-component allocation decisions that directly

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<sup>32</sup>The criteria for contribution to DHS's mission includes assessment of benefits to DHS, capability alignment to the JRC's functional portfolios, and shared services; program health includes assessment of cost, schedule, and performance; risk includes assessment in key areas, such as contracting and human capital; resources includes assessment of a program's cost estimate and affordability; and governance includes assessment of accountability and evaluation.

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aligned with the department's strategic goals. We could not verify these officials' assertions based on the documentation we were provided, but will continue to monitor PA&E's assessment of major acquisition programs against the standard criteria as the department's implementation of its resource allocation policies matures.

In addition, PARM formally established its Acquisition Program Health Assessments in October 2016 after more than a year of development and pilot efforts. These assessments are intended to monitor major acquisition programs quarterly (both on an individual program level and in aggregate) by rating programs against standard criteria in several categories—such as program management, financial management, and human capital—that DHS deemed important for successful program execution. We reviewed the quarterly reports issued from January 2016 to April 2017 and found that they primarily focused on individual programs. The portfolio-level information contained in these reports was limited to program results grouped in various categories, such as by component, by acquisition life-cycle phase, and by investment type (e.g., information technology). PARM officials said they plan to use the health assessments as a portfolio management tool in the future and are working to determine how to best to analyze and present portfolio-level data. We will continue to track PARM's implementation of the health assessment process moving forward through GAO's High Risk work to determine DHS's progress in demonstrating that major acquisition programs are on track to achieve their established goals.<sup>33</sup>

- **Prioritize investments by integrating the requirements, acquisition, and budget processes:** the policies identify areas where DHS's requirements, acquisition management, and resource allocation processes are integrated and establish processes for prioritizing investments. For example, the updated resource allocation policies require reviews of DHS's major acquisition portfolio during this annual process. When the portfolio faces a funding gap, programs are to be returned to their respective components for scope or funding adjustments, or prioritized by department leadership to identify an affordable set of programs. For the fiscal year 2018 resource allocation cycle, PA&E officials provided an example where DHS leadership directed components to identify funding from alternative sources to fund specific purposes related to DHS's mission to prevent

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<sup>33</sup>For our most recent report, see [GAO-17-317](#). The next report is expected to be issued in February 2019.

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terrorism and enhance security. However, as previously discussed, the resulting FYHSP report for fiscal years 2018–2022 showed that DHS’s portfolio of major acquisition programs is not affordable over the next 5 years.

In addition, the requirements policies established the Joint Assessment of Requirements, an annual process to prioritize emerging and existing requirements to inform the department’s resource allocation decisions. As we found in October 2016, the JRC plans to implement the Joint Assessment of Requirements through a 3-year phased approach that is expected to be fully implemented in time to inform DHS’s fiscal year 2021 budget request. In fiscal year 2016, the JRC completed the first phase, which included (1) developing initial criteria to evaluate emerging requirements, and (2) evaluating and prioritizing a sample of those requirements against the initial criteria. Based on these results, JRC officials told us in September 2017 that they are working to develop assessment metrics for the criteria as part of the next phase. We will continue to track the JRC’s progress through GAO’s High Risk work to determine DHS’s progress to effectively operate the JRC.

- **Continually make go/no go decisions to rebalance the portfolio:** the requirements policies outlining the Joint Assessment of Requirements process also reflected the key practices to conduct reviews (1) annually to make requirement scoping adjustments as priorities change and (2) when new investments are identified. However, as previously discussed, the JRC is still in the process of implementing this process.

We consider this overall key practice area to be partially met because DHS’s policies do not reflect the key practice (3) to reassess programs that breach established thresholds within the context of the portfolio to determine if the program remains relevant and affordable. PARM officials told us that—in practice—DHS reassesses programs in the context of their component’s overall acquisition portfolio based on a certification of funds memorandum submitted to DHS’s Chief Financial Officer when programs re-baseline as a result of a cost, schedule, or performance breach. The memorandum is intended to enable the Acquisition Review Board to discuss affordability by certifying a program’s funding levels and identifying trade-offs necessary to address any projected funding gaps. We previously found that the certification of funds memorandum was an effective tool

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for DHS leadership to assess program affordability.<sup>34</sup> However, DHS's acquisition management policy requires components to submit this memorandum prior to most acquisition decision events, but not when a program re-baselines as a result of a cost, schedule, or performance breach.

During our review of programs' progress against schedule and cost goals in 2017, we found one instance where a component did not follow the practice to submit this memorandum when one of its programs re-baselined as a result of a breach. Specifically, Customs and Border Protection did not submit a certification of funds memorandum when the Tactical Communications Modernization program re-baselined in November 2017 as a result of a schedule and cost breach. Nevertheless, DHS leadership approved the program's revised APB and removed it from breach status, even though DHS's Chief Financial Officer identified that the program's revised LCCE was not affordable. PARM officials stated that this instance was an oversight because, at the time, the department was still determining when certification of funds memorandums should be submitted.

According to the federal standards for internal control, documentation of internal control practices is necessary so that they can be implemented effectively.<sup>35</sup> By amending its acquisition management policy to require a certification when a program re-baselines as a result of a cost, schedule, or performance breach, DHS can ensure that leadership receives the necessary information to reassess that program's affordability in the context of a larger portfolio. PARM officials stated that, moving forward, components will be required to submit a certification of funds memorandum for each program when a new APB is submitted for DHS leadership approval.

In contrast, the acquisition management policy does reflect the key practice (4) to use information gathered from post-implementation reviews to fine tune investment processes and the portfolio to achieve strategic outcomes. For example, DHS's acquisition management policy requires programs to conduct post-implementation reviews 6 to 18 months after initial operational capability to identify and document

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<sup>34</sup>[GAO-16-338SP](#).

<sup>35</sup>GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: September 2014).

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any deployment or implementation and coordination issues, how they were resolved, and how they could be prevented in the future. These reviews are intended to help identify capability gaps that may inform future acquisitions, among other things.

However, PARM officials said that they do not consider the results of the post-implementation reviews when managing the department's current acquisition portfolio because these reviews are typically conducted after program oversight shifts from PARM to the component. While post-implementation reviews are conducted later in the acquisition life cycle, the insights they provide could be leveraged by other programs in the acquisition portfolio, not just the program under review. For example, the Integrated Fixed Towers program completed a post-implementation review in June 2016 after its initial deployment of capabilities to the Arizona border. The review found that changes in illegal traffic patterns as a result of the program's deployment may be predicted, and other technologies may be able to compensate for changes in these patterns. This information could help other programs under development plan for similar outcomes or enable DHS to change deployment plans for existing programs to address changes in threats.

PARM has an opportunity to use the results from programs' post-implementation reviews since it is responsible for overseeing the department's acquisition portfolio by monitoring each investment's cost, schedule, and performance against established baselines. Federal standards for internal control state that management should obtain data on a timely basis so that they can be used for effective monitoring and that separate evaluations may provide feedback on the effectiveness of ongoing monitoring.<sup>36</sup> By leveraging the results from post-implementation reviews in its monitoring efforts, PARM may be better able to ensure that programs in the current acquisition portfolio achieve their baselines. PARM officials stated they have generally focused on leveraging information gathered from canceled acquisition programs, such as where and why plans went wrong. However, they agreed that they could better leverage post-implementation review information gathered from programs that complete planned capability deployments.

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<sup>36</sup>[GAO-14-704G](#).

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## Conclusions

DHS's mission to safeguard the American people and homeland requires a broad portfolio of acquisitions. However, the performance of DHS's major acquisition portfolio during 2017 did not improve compared to our last review because we found that more programs will require more time and may require more money to complete than initially planned. DHS is collecting more timely cost estimate information on its acquisition programs to make more informed investment decisions. Yet DHS continues to face challenges in funding its acquisition portfolio, which highlights the need for disciplined policies that reflect best practices to ensure that the department does not pursue more programs than it can afford. DHS leadership has taken positive steps in recent years by strengthening its policies for acquisition management and resource allocation, and establishing policies related to requirements. Collectively, these policies reflect an integrated approach to managing investments. However, opportunities remain to further strengthen the acquisition management policy by documenting DHS's current practice to reassess programs that breach their established cost, schedule, or performance thresholds to ensure they are still worth pursuing within the context of the portfolio. Additionally, leveraging information learned once programs complete deployment across the acquisition portfolio could help ensure that programs stay on track against their baselines in the first place. This is particularly relevant because DHS is initiating a number of complex and costly acquisition programs, such as development of a wall system along the southwest border and the Coast Guard's Heavy Polar Icebreaker, which could benefit from this type of information.

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## Recommendations for Executive Action

We are making the following two recommendations to DHS:

- The Under Secretary for Management should update DHS's acquisition management policy to require components to submit a certification of funds memorandum when a major acquisition program re-baselines in response to a breach. (Recommendation 1)
- The Under Secretary for Management should require PARM to assess the results of major acquisition programs' post-implementation reviews and identify opportunities to improve performance across the acquisition portfolio. (Recommendation 2)

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## Agency Comments and Our Evaluation

We provided a draft of this report to DHS for review and comment. In its comments, reproduced in appendix IV, DHS concurred with both of our recommendations and identified actions it planned to take to address them. DHS also provided technical comments, which we incorporated as appropriate.

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We are sending copies of this report to the appropriate congressional committees and the Secretary of Homeland Security. In addition, the report is available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix V.



Marie A. Mak  
Director, Contracting and National Security Acquisitions

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*List of Committees*

The Honorable Ron Johnson  
Chairman  
The Honorable Claire McCaskill  
Ranking Member  
Committee on Homeland Security and Governmental Affairs  
United States Senate

The Honorable Shelley Moore Capito  
Chairman  
The Honorable Jon Tester  
Ranking Member  
Subcommittee on Homeland Security  
Committee on Appropriations  
United States Senate

The Honorable Michael McCaul  
Chairman  
The Honorable Bennie Thompson  
Ranking Member  
Committee on Homeland Security  
House of Representatives

The Honorable John Carter  
Chairman  
The Honorable Lucille Roybal-Allard  
Ranking Member  
Subcommittee on Homeland Security  
Committee on Appropriations  
House of Representatives

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# Appendix I: Program Assessments

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This appendix presents individual assessments for each of the 28 programs we reviewed. Each assessment presents information current as of January 2018. They include standard elements, such as an image, a program description, and summaries of the program's progress in meeting cost and schedule goals, performance and testing activities, and program management-related issues, such as staffing. Each assessment also includes the following figures:

- **Fiscal Years 2018–2022 Affordability.** This figure compares the funding plan presented in the Future Years Homeland Security Program report to Congress for fiscal years 2018–2022 to the program's current cost estimate. We use this funding plan because the data are approved by the Department of Homeland Security (DHS) and Office of Management and Budget, and was submitted to Congress to inform the fiscal year 2018 budget process. The figure only presents acquisition funding because DHS did not report operations and maintenance (O&M) funding for individual programs in its funding plan to Congress. In addition, the data do not account for other potential funding sources, such as carryover.
- **Acquisition Program Baseline (APB) vs. Current Estimate.** This figure compares the program's cost thresholds from the initial APB approved after DHS's acquisition management policy went into effect in November 2008 and the program's current DHS-approved APB to the program's expected costs as of January 2018. The source for the current estimate is the most recent cost data we collected (i.e., a department-approved life-cycle cost estimate, updated life-cycle cost estimates submitted during the resource allocation process to inform the fiscal year 2019 budget request, or a fiscal year 2017 annual life-cycle cost estimate update).
- **Schedule Changes.** This figure consists of two timelines that identify key milestones for the program. The first timeline is based on the initial APB DHS leadership approved after the department's current acquisition management policy went into effect. The second timeline identifies when the program expected to reach its major milestones as of January 2018 and includes milestones introduced after the program's initial APB. Dates shown are based on the program's APB threshold dates or updates provided by the program office.
- **Test Status.** This table identifies key recent and upcoming test events. It also includes DHS's Director, Office of Test and Evaluation's assessment of programs' test results, if an assessment was conducted.

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- **Staffing Profile.** This figure identifies the total number of staff a program needs (measured in full time equivalents) including how many are considered critical and how many staff the program actually has.

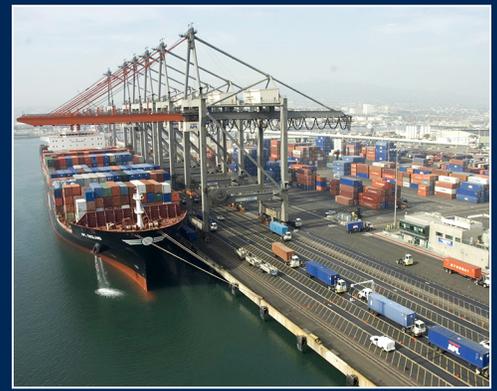
Lastly, each program assessment summarizes comments provided by the program office and identifies whether the program provided technical comments.

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# AUTOMATED COMMERCIAL ENVIRONMENT (ACE)

## CUSTOMS AND BORDER PROTECTION (CBP)

The ACE program is developing software that will electronically collect and process information submitted by the international trade community. ACE is intended to provide private and public sector stakeholders access to information, enhance the government's ability to determine whether cargo should be admitted into the United States, and increase the efficiency of operations at U.S. ports by eliminating manual and duplicative trade processes, and enabling faster decision making.



Source: Customs and Border Protection.

KEY FINDINGS

**Program declared second cost and schedule breach in less than 1 year; re-baseline expected in August 2018.**

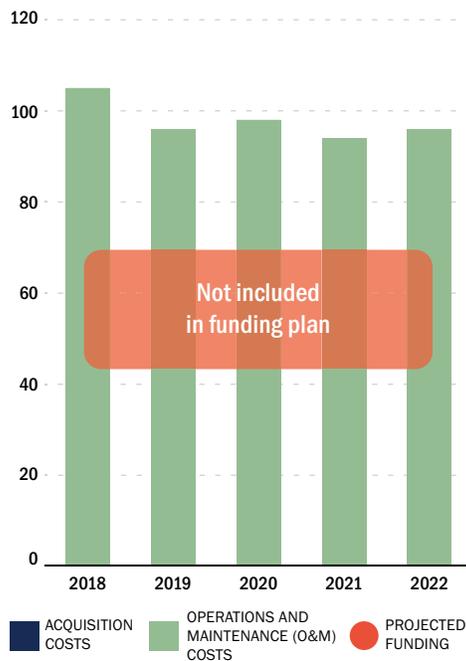
**Final deployment and operational testing of ACE functionality delayed.**

**Program plans to identify an approach to address collections functionality in March 2018.**

**We last reported on this program in March 2018 and April 2017 (GAO-18-271, GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

CBP declared a cost and schedule breach in April 2017—5 months after re-baselining the program in response to a prior breach—because of difficulties developing the collections aspect of ACE's remaining functionality, which collects and processes duties owed on imported goods. CBP reported that its officials were not versed in the complexities of collections in the legacy system and underestimated the level of effort required to integrate collections capabilities into ACE. As a result, the program delayed final deployment of ACE functionality several times and missed the deadlines for completing the remaining milestones in its current acquisition program baseline (APB), including achieving acquisition decision event (ADE) 3 and full operational capability (FOC) by the revised dates of June 2017 and September 2017, respectively. Additional coding and testing to complete ACE development also required contract extensions that exceeded the current APB cost thresholds.

The program subsequently decoupled collections from ACE's remaining functionality to permit deployment of the other post-release capabilities—such as liquidations and reconciliation—using a phased approach between September 2017 and February 2018. In November 2017, CBP officials estimated that efforts to decouple collections from post-release functionality would be an additional \$32 million in acquisition costs. CBP officials plan to cover these costs with \$18 million in fiscal year 2017 carryover funding and by reprogramming \$14 million from ACE disaster recovery funding. CBP is in the process of determining a path forward for collections, which is due to Department of Homeland Security (DHS) leadership by the end of March 2018. CBP then plans to update the program's acquisition documentation, including APB and life-cycle cost estimate, by August 2018. Until then, the time frame for completing ACE's remaining milestones and true cost of the program, including the cost to complete collections development is unknown.

### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (08/2013)	2,039	2,412	4,451
Current APB (11/2016)	2,110	2,760	4,870
Current estimate (11/2016)	2,096	2,600	4,695

The program was not included in DHS's funding plan to Congress for fiscal years 2018 to 2022 because DHS did not report operations and maintenance (O&M) funding for individual programs. CBP officials anticipate receiving approximately \$535 million in O&M funding over this 5-year period.

### SCHEDULE CHANGES

TBD = To be determined

AS OF 08/2013

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP OFFICE OF FIELD OPERATIONS

Since June 2015, the OTA has been testing ACE’s key performance parameters (KPP) in batches as capabilities are deployed because, according to CBP officials, this testing approach was more feasible than testing them all at once as initially planned. The OTA conducted a series of operational tests that were anticipated to culminate in final operational test and evaluation (OT&E) after ACE completed final deployment of all remaining functionality, but this has been delayed because of the recent breach. In January 2018, CBP officials said that they expect testing for all ACE post-release capabilities, except collections, to be complete in May 2018. The dates for final OT&E will be determined once the program has identified a path forward for collections.

In June 2017, CBP officials reported meeting three of ACE’s four KPPs, including its KPP on availability. However, DHS’s Director, Office of Test and Evaluation has not assessed these results. ACE did not meet its KPP for transmitting data to a separate tracking system because, according to CBP officials, there was confusion about which data ACE was required to send. CBP officials plan to reassess this KPP in March 2018 to determine next steps.

**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Final OT&E		PLANNING IN PROGRESS		
Collections test		PLANNING IN PROGRESS		
Entry summary post-release test		PLANNED 05/2018		
Cargo release test	11/2017		NONE	
Cargo release/manifest test	08/2016		NONE	
Export test	06/2015		NONE	

● PASS   
 ● PASS WITH LIMITATIONS   
   FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

When DHS leadership re-baselined ACE’s cost, schedule, and performance parameters in 2013, the program adopted an agile software development methodology to accelerate software creation and increase flexibility in the development process. As of October 2017, the ACE program office oversees 11 agile teams that conduct development and O&M activities. CBP officials said they extended the program’s agile development contracts in 2017 to permit further development of the collections function. In identifying a path forward for collections, CBP officials stated there are three main options:

1. leave collections in the legacy system,
2. continue to pursue development and deployment in ACE, or
3. move collections to a different program altogether.

The program previously experienced a schedule breach in June 2016 because it delayed events to address external stakeholders’ concerns about transitioning to ACE. According to CBP officials, CBP has signed a memorandum of understanding with each of the 22 partner agencies responsible for clearing or licensing cargo that provides access to ACE. As of February 2018, 21 of the partner agencies had transitioned to ACE and the program was piloting a solution for the remaining partner.

In September 2017, CBP reported that ACE continued to lack a director of testing and evaluation. CBP officials said they do not plan to fill this vacancy despite plans to conduct further testing because existing staff have successfully covered the workload and a large portion of testing has already been completed.

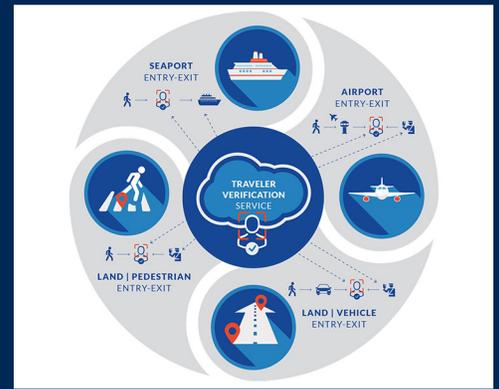
**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# BIOMETRIC ENTRY-EXIT PROGRAM

## CUSTOMS AND BORDER PROTECTION (CBP)

The Biometric Entry-Exit Program is developing capabilities to enhance traveler identification upon departure from the U.S. at air, land, and sea ports of entries by collecting biometric data, such as fingerprints and facial recognition. The program plans to match this data to biometric data obtained from travelers upon their arrival into the U.S. to identify foreign nationals that stay in the U.S. beyond their authorized periods of admission and verify the identities of travelers leaving the U.S.



Source: Customs and Border Protection.

KEY FINDINGS

Program is developing acquisition documents to prepare for its initial baseline.

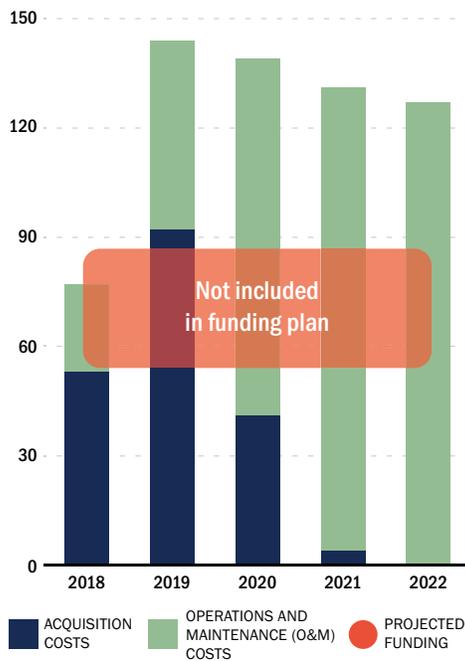
CBP completed four biometric pilot programs and selected a solution for development.

DHS has explored biometric exit capabilities since 2009, but was directed to expedite implementation in March 2017.

GAO last reported on this program in February 2017 (GAO-17-170).

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB	Not yet approved		
Current estimate (09/2017)	232	835	1,067

### COST AND SCHEDULE

In June 2017, the Department of Homeland Security's (DHS) Under Secretary for Management (USM) granted the Biometric Entry-Exit Program acquisition decision event (ADE) 1 approval after CBP completed several pilot initiatives to study the feasibility of proposed biometric exit solutions at air and land ports of entry. The USM also authorized the program to continue testing a pilot exit solution at Hartsfield-Jackson Atlanta International Airport and conduct technology demonstrations as needed, but directed the program to achieve ADE 2A prior to deploying a solution to the 20 U.S. airports with the most international flights.

CBP officials initially planned to achieve ADE 2A approval in September 2017—the point at which the program would establish cost, schedule, and performance goals in a DHS-approved acquisition program baseline (APB)—and pursue separate ADE 2B decisions to initiate development of a biometric solution for each type of port of entry, starting with air. As of December 2017, the program had yet to conduct its ADE 2A because CBP officials have had to resolve several issues identified by the Joint Requirements Council that has delayed approval of the program's operational requirements document (ORD). In January 2018, CBP officials said the program plans to conduct ADE 2A in February or March 2018 and is aiming for ADE 2B for the biometric air solution in December 2018.

In December 2015, Congress established an account to be used for the development and implementation of the biometric entry-exit system starting in 2017. Specifically, Congress provided that half the amount collected from fee increases for certain visa applications from fiscal years 2016 through 2025—up to \$1 billion—would be available to DHS until expended. In February 2017, DHS leadership approved the program to use about \$73 million of this funding in fiscal year 2017 for information technology investments and programmatic and operational support, among other things. In September 2017, DHS's Chief Financial Officer approved the program's life-cycle cost estimate (LCCE), which CBP expects to refine as the program progresses to meet the fee-funding limit. According to CBP officials, the current funding structure poses challenges because the fees will fluctuate based on immigration rates.

### SCHEDULE CHANGES

TBD = To be determined

INITIAL APB NOT YET APPROVED



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: TBD

Since 2015, CBP has conducted a series of biometric pilot programs intended to inform the acquisition of a biometric entry-exit system that included the following types of technologies:

- Facial and iris scanning technology at an outdoor land border crossing.
- Mobile fingerprint readers for flights departing the U.S.
- Two facial recognition matching technologies that compared a real-time photo of a traveler to different sources—one technology compared the photo to the traveler’s passport upon entrance to the U.S.; the other technology compared the photo to a gallery of photos based on the outbound flight manifest during an airline’s boarding process.

According to CBP officials, the facial recognition technology that matched photos during an airline’s boarding process was the most viable approach and served as the foundation for its development of the ADE 2A acquisition documents. Officials stated a similar approach may be feasible for land border crossings, but will require further planning.

In January 2018, CBP officials stated they were developing a test and evaluation master plan—which will outline the developmental and operational test approach—for the biometric exit air solution. DHS’s Director, Office of Test and Evaluation will need to review and approve this plan prior to the program’s ADE 2B.

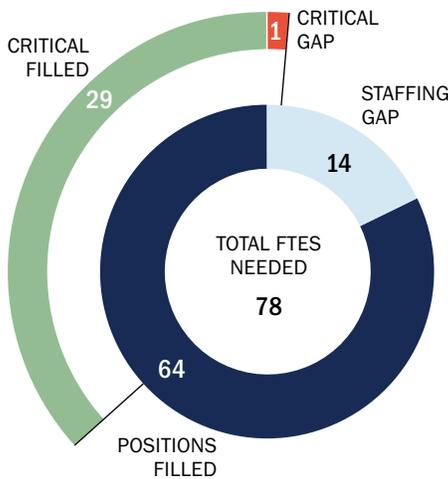
**TEST STATUS**

		DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
	DATE COMPLETED	EFFECTIVE	SUITABLE	CYBER SECURE
TEST EVENT				
TBD		PLANNING IN PROGRESS		

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

Since 1996, several federal statutes have required development of an entry and exit system for foreign nationals. DHS has been exploring biometric exit capabilities since 2009 and an Executive Order issued in March 2017 directed DHS to expedite the implementation of the biometric entry-exit system.

The Biometric Entry-Exit Program plans to develop a capability to match a traveler’s biometric data against data contained in existing DHS biometric data repositories—primarily the National Protection and Program Directorate’s IDENT system. DHS is in the process of replacing and modernizing IDENT through the Homeland Advanced Recognition Technology (HART) program because IDENT is at risk of failure. However, HART has experienced delays, which could affect the Biometric Entry-Exit Program’s development progress.

For the air biometric solution, CBP plans to pursue a public/private partnership in which airlines and airports invest in the equipment to collect biometric data. According to CBP officials, this approach could reduce program costs and improve the passenger boarding process. In August 2017, CBP officials told GAO that several airlines have expressed interest in partnering with the program, including one that expanded CBP’s pilot of facial recognition matching for outbound flights to additional gates at the Hartsfield-Jackson Atlanta International Airport.

CBP officials reported a staffing gap of 14 full time equivalent staff which the program plans to fill once partnerships with airlines are established.

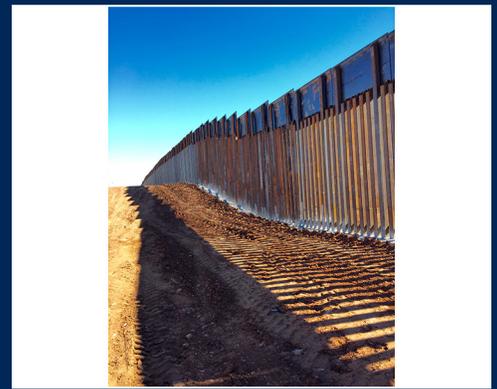
**PROGRAM OFFICE COMMENTS**

CBP officials stated that authorized funds are collected from visa fee increases that expire in fiscal year 2025. Beyond 2025, officials stated that additional funding will need to be appropriated or the fee increases extended to continue the program. They added that fee collections are currently below forecasted levels and may come under the current \$1 billion limit. CBP officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# BORDER WALL SYSTEM PROGRAM

## CUSTOMS AND BORDER PROTECTION (CBP)

The border wall system is intended to prevent the illegal entry of people, drugs, and other contraband by enhancing and adding to the 654 miles of existing barriers along the U.S. southwest border. CBP plans to create a border enforcement zone between a primary barrier—such as a fence—and a secondary barrier. To establish the enforcement zone, the wall system may also include detection technology, surveillance cameras, lighting, and roads for maintenance and patrolling.



Source: Customs and Border Protection.

KEY FINDINGS

**DHS is planning construction of barriers in two locations, but work is dependent on future appropriations.**

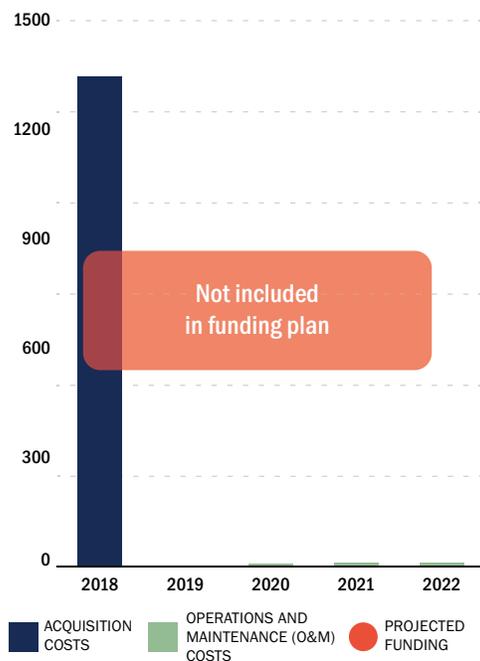
**CBP has evaluated prototypes for new barrier designs, but risks with planned detection technologies exist.**

**CBP is leveraging staff and the contracting strategy from prior border fencing programs.**

**GAO last reported on the existing Southwest border barriers in February 2017 (GAO-17-331).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In April 2017, Department of Homeland Security (DHS) leadership granted CBP permission to procure barrier prototypes to inform new design standards and approved the construction of the first segment of the wall system. CBP subsequently awarded 8 task orders with a total value of over \$3 million for the development of prototypes and selected San Diego as the first segment. CBP plans to replace an existing 14 miles of primary and secondary barriers in San Diego. DHS plans to use fiscal year 2017 funding for the replacement of the primary barrier, which it plans to rebuild to existing design standards. DHS has requested funding for replacement of the secondary barrier beginning in fiscal year 2018 that it plans to rebuild to new design standards once established. DHS leadership plans to approve acquisition documentation—including an acquisition program baseline (APB) and a life-cycle cost estimate (LCCE)—for each segment to determine affordability prior to authorizing construction. However, CBP officials said they do not plan to develop an APB for the San Diego segment because DHS already approved construction.

In January 2018, DHS leadership approved an APB establishing cost, schedule, and performance goals for a second segment in the Rio Grande Valley (RGV), which will extend an existing barrier by 60 miles. To inform leadership's decision, DHS headquarters conducted an independent cost estimate, which CBP adopted as the program's LCCE. The LCCE includes costs for both the San Diego and RGV segments. However, DHS officials stated that the amounts in the LCCE are not releasable until CBP evaluates the prototypes, determines, and designs a final solution for the San Diego secondary barrier, and updates the LCCE—which is not expected to be complete until June 2018.

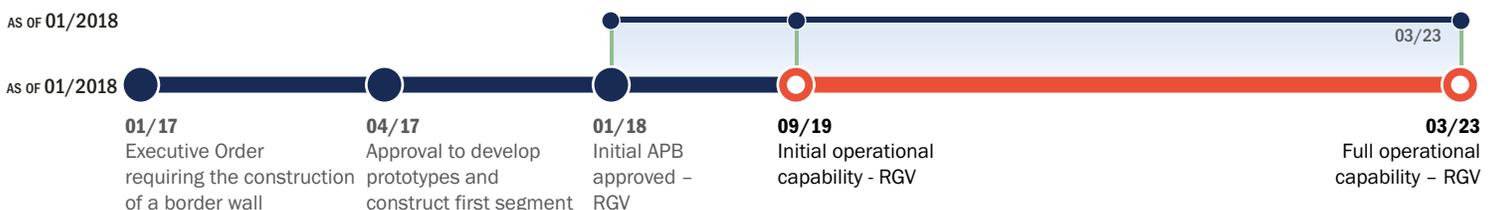
### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2018)	1,548	381	1,928
Current APB (01/2018)	1,548	381	1,928
Current estimate (10/2017)	1,346	50	1,396

The costs presented here are only for the RGV segment. CBP reported that construction of the RGV segment would be sufficiently funded if it receives \$1.3 billion of acquisition funding in fiscal year 2018. However, CBP identified a shortfall in operations and maintenance (O&M) funding from fiscal years 2019 to 2022 that it plans to cover with existing funding from the Tactical Infrastructure program, which will be responsible for maintenance of the wall system as segments are complete. If funded, the program expects to achieve full operational capability for the RGV segment in March 2023.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: CBP LAND SYSTEMS OPERATIONAL TEST AUTHORITY

In December 2017, CBP completed testing of 8 barrier prototypes—4 constructed from concrete and 4 from other materials—which are intended to help refine the requirements and identify new design standards for barriers. CBP evaluated the prototypes in five areas: breachability, scalability, constructability, design, and aesthetics. CBP officials said the prototype evaluation results are not expected until February 2018.

The program plans to demonstrate its three key performance parameters related to preventing unauthorized border crossings, resistance to thrown objects, and maintainability through a series of test events. In December 2017, DHS’s Director, Office of Test and Evaluation approved a test and evaluation master plan specific to the RGV segment, which calls for modeling and simulation during development and initial operational test and evaluation (OT&E) on portions of the barrier as they are completed.

The Science and Technology Directorate’s Office of Systems Engineering completed a technical assessment on the program in November 2017, and identified risks related to the integration and operation of enforcement zone technologies—such as cameras and sensors—which had not been clearly defined or planned for within the wall system. It made several recommendations, including that the program coordinate with an ongoing CBP study of land domain awareness capabilities, which DHS leadership directed CBP to conduct in October 2016 to inform a comprehensive border plan.

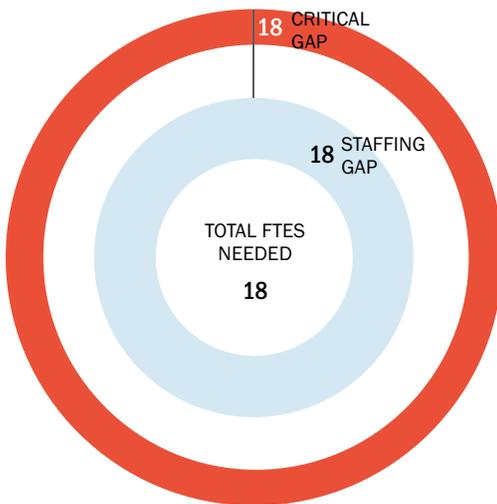
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	SECURE	CYBER
Initial OT&E - RGV levee portion		PLANNING IN PROGRESS			
Initial OT&E - RGV 2.18 miles of barrier		PLANNING IN PROGRESS			

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The Border Wall System Program was initiated in response to an Executive Order issued in January 2017 stating that the executive branch is to secure the southern border through the immediate construction of a physical wall on the southern border of the U.S. To expedite the acquisition planning process, CBP officials said they leveraged expertise from staff that worked on previous border fencing programs and were familiar with implementation challenges, such as land access. CBP intends to prioritize segments based on threat levels, land ownership, and geography, among other things. From fiscal years 2007 to 2015, CBP spent approximately \$2.3 billion to construct pedestrian and vehicle fencing along the southwest border. CBP’s Tactical Infrastructure program is responsible for sustaining this fencing and other infrastructure—such as gates, roads, and bridges—over its lifetime.

CBP plans to continue coordinating with the U.S. Army Corps of Engineers (USACE) for engineering support and for awarding and oversight of construction contracts. CBP anticipates that all contract awards issued by USACE in support of the RGV segment will be firm fixed price. If appropriations are received, the program plans to award construction contracts for the first portion of RGV in May 2018 and for the secondary barrier in San Diego in August 2018.

In February 2018, CBP officials stated that staffing the program office is a challenge because funding has not yet been received. CBP officials said that existing work for the program is being handled by current CBP staff.

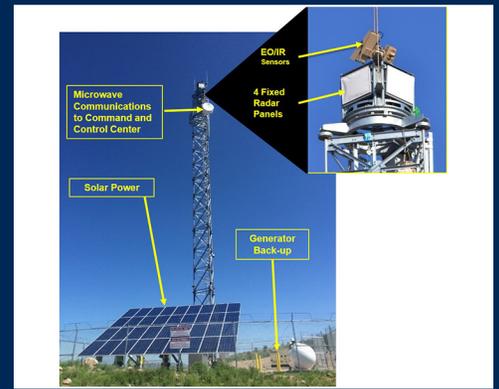
**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# INTEGRATED FIXED TOWERS (IFT)

## CUSTOMS AND BORDER PROTECTION (CBP)

The IFT program helps the Border Patrol detect, track, identify, and classify illegal entries in remote areas. IFT consists of fixed surveillance tower systems equipped with ground surveillance radar, daylight and infrared cameras, and communications systems linking the towers to command and control centers. CBP plans to deliver or upgrade approximately 53 IFT systems across six areas of responsibility (AoR) in Arizona: Nogales, Douglas, Sonoita, Ajo, Tucson, and Casa Grande.



Source: Customs and Border Protection.

KEY FINDINGS

**Program breached its schedule because funding was not received to complete deployments on time.**

**System acceptance test completed in Douglas AoR and requirements were met.**

**Program is adequately staffed, but simultaneous deployments in the future may have a negative impact.**

**GAO last reported on this program in November and April 2017 (GAO-18-119, GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (03/2012)	288	673	961
Current APB (12/2015)	341	408	749
Current estimate (06/2017)	338	394	732

### COST AND SCHEDULE

In December 2017, CBP declared a schedule breach of the IFT program's current acquisition program baseline (APB) because the program did not receive the funding needed to complete planned deployments on time to achieve its full operational capability (FOC) date of September 2020. The program's FOC date previously slipped 5 years because of delays in the initial contract award process and funding shortfalls.

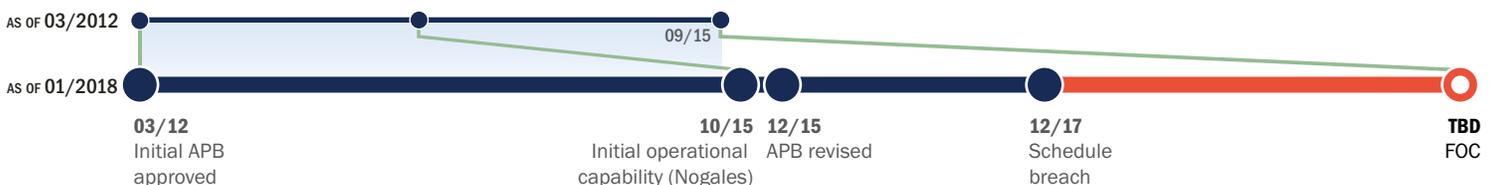
CBP completed IFT deployments to the Douglas AoR in June 2017 and anticipates completing deployments to the Sonoita AoR in December 2017, as scheduled. However, in September 2017, CBP officials stated that they requested—but did not receive—additional funding from the Department of Homeland Security (DHS) to address new IFT requirements, including camera upgrades and replacement of existing tower systems deployed under a legacy program. In January 2015, Border Patrol requested the program prioritize replacement of the legacy systems in the Tucson and Ajo AoRs because the technology was obsolete and more expensive to maintain than the IFT technology planned for deployment in other AoRs. Without additional funding, CBP officials stated that they would be unable to exercise the contract options for the remaining AoRs on time.

In June 2017, the program updated its life-cycle cost estimate (LCCE), which is slightly less than its current APB cost thresholds. This LCCE update includes estimated costs for the new requirements. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained operations and maintenance (O&M) funding for individual programs. CBP identified \$8 million in acquisition carryover funding for fiscal year 2018 and officials anticipate receiving \$126 million in O&M funding to cover \$100 million in O&M costs over the next 5 years.

The program plans to submit a revised APB to DHS leadership by June 2018. However, the FOC date may be further delayed because of land access issues. CBP officials told GAO that they have not yet reached an agreement with the Tohono O'odham Nation—a sovereign Native American Nation—to access tribal lands, which these officials said is necessary for the construction of IFTs in the Ajo and Casa Grande AoRs.

### SCHEDULE CHANGES

TBD = To be determined



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP OFFICE OF TECHNOLOGY INNOVATION AND ACQUISITION

According to CBP officials, the IFT program has met all three of its key performance parameters (KPP). These KPPs establish a minimum acceptable range for detection and identification, and the percentage of time the system must operate as intended.

In April 2017, the contractor deploying IFT technology completed system acceptance testing for the Douglas AoR. These test results showed that requirements had been met. Previously, the OTA found that IFT only met 2 of its 3 KPPs and experienced 5 operational deficiencies during a limited user test conducted in the Nogales AoR in November 2015. However, program and Border Patrol officials did not concur with several of the test results and reported deficiencies with the testing. DHS’s Director, Office of Test and Evaluation (DOT&E) did not conduct a formal assessment of the test results because full deployment of the IFT program had already been authorized. However, a DOT&E official who observed the test told GAO that he had concerns with how the test data were collected and the usefulness of test results in assessing IFT’s operational effectiveness, suitability, cybersecurity or contribution to CBP’s mission.

Border Patrol certified IFT capabilities met operational requirements in March 2016, but added conditions including that the program seek improvements to optimize video capability. In response, the program plans to install an upgraded high definition camera suite starting with the Sonoita AoR. However, the program has not received funding to complete these upgrades.

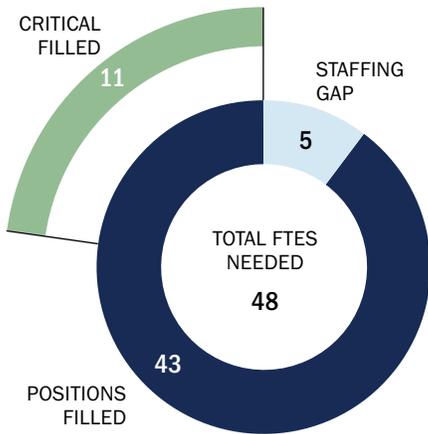
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Limited User Test	11/2015	NONE		

● PASS    
 ● PASS WITH LIMITATIONS    
   FAIL    
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

When CBP initiated the IFT program, it decided to procure a non-developmental system, and it required that prospective contractors demonstrate their systems prior to CBP awarding the contract. The program awarded the contract to EFW, Inc. in February 2014, but the award was protested. GAO sustained the protest and CBP had to reevaluate the offerors’ proposals before it again decided to award the contract to EFW, Inc. As a result, EFW, Inc. could not initiate work at the deployment sites until fiscal year 2015.

According to CBP officials, the number of IFT systems deployed to a single AoR is subject to change based on assessments by the Border Patrol. DHS leadership directed CBP to develop a comprehensive border plan in October 2016 that includes IFT capabilities and—when preparing for the last budget cycle—the program estimated costs for expansion to the southwest border beginning in fiscal year 2019.

In September 2017, CBP officials told GAO that they did not have any current staffing gaps. However, CBP officials added that if the program receives full funding and reaches an agreement with the Tohono O’odham Nation to initiate IFT deployments to the Ajo and Casa Grande AoRs, while concurrently deploying capability to the Sonoita and Tucson sectors, they will be short on government and contracted staff.

**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# MEDIUM LIFT HELICOPTER (UH-60)

## CUSTOMS AND BORDER PROTECTION (CBP)

UH-60 is a medium-lift helicopter that CBP uses for law enforcement and border security operations, air and mobility support and transport, search and rescue, and other missions. CBP's UH-60 fleet consists of 20 aircraft acquired from the U.S. Army in three different models. CBP previously acquired 4 modern UH-60M aircraft and converted 6 of its older 16 UH-60A aircraft into more capable UH-60L models. CBP is replacing the remaining 10 UH-60A with reconfigured Army HH-60L aircraft.



Source: Customs and Border Protection.

KEY FINDINGS

**Program breached its current cost and schedule goals, but has not yet submitted the required notification.**

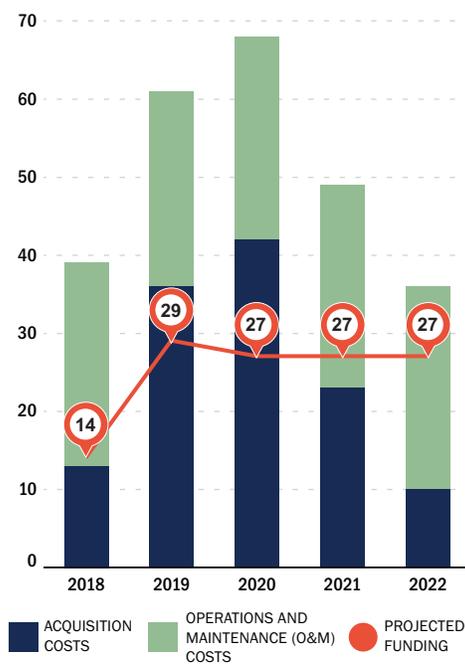
**CBP test agent and the Army completed testing of reconfigured HH-60L prototype.**

**CBP has initiated efforts to acquire additional converted HH-60L aircraft from the Army.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

The program breached the cost and schedule goals in its acquisition program baseline (APB) and, as of December 2017, CBP officials stated they were in the process of developing the breach notification required under the Department of Homeland Security's (DHS) acquisition policy.

In its annual life-cycle cost estimate (LCCE) update, the program shifted some operations and maintenance (O&M) costs to acquisitions to be consistent with DHS's new appropriation structure. For example, the program shifted costs for recurring upgrades from O&M to acquisition because these upgrades require development and production. As a result, the program's updated acquisition cost estimate exceeded the APB acquisition cost threshold, which constitutes a cost breach under DHS's acquisition policy. CBP officials stated that they did not initially declare a cost breach because the program's total LCCE was within the APB threshold.

The program also did not hold its acquisition decision event (ADE) 3 by the APB deadline of September 2017. The ADE 3 is intended to approve the transfer of CBP's remaining UH-60A aircraft for reconfigured Army HH-60L aircraft based on an evaluation of a reconfigured prototype. According to CBP officials, the program did not complete the required acquisition documentation by the ADE 3 deadline, in part, because DHS leadership directed CBP to develop a comprehensive border plan in October 2016 that includes UH-60 capabilities. It is unclear when the ADE 3 will occur because, as of December 2017, several documents were pending validation by the Joint Requirements Council.

### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2016)	306	1,130	2,034
Current APB (01/2016)	306	1,130	2,034
Current estimate (08/2017)	440	796	1,848

Note: Life-cycle cost also includes personnel costs.

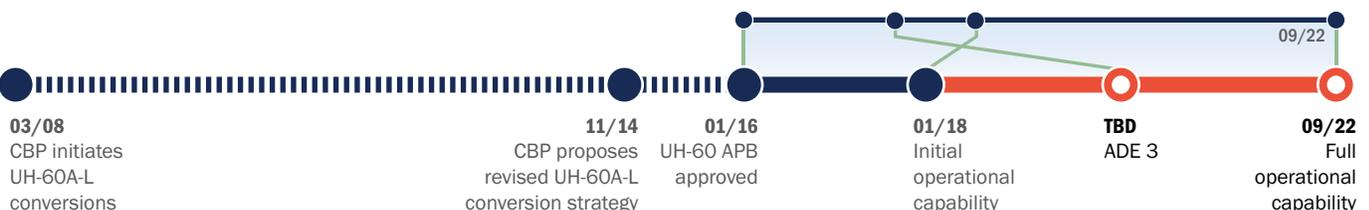
The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. In addition, CBP officials previously told GAO that UH-60 O&M is funded through a separate, central funding account for all of CBP's air and marine assets. CBP officials stated that the projected acquisition funding gap in fiscal years 2019 and 2020 is primarily for replacing obsolete parts that were previously considered O&M. According to these officials, the Army conducts an annual obsolescence study that will help CBP identify and prioritize replacements across the UH-60 fleet based on available funding levels.

### SCHEDULE CHANGES

TBD = To be determined

AS OF 01/2016

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP AIR AND MARINE TEST AND EVALUATION DIVISION

CBP determined that the converted UH-60L and UH-60M aircraft met all five of the program’s key performance parameters (KPP) through operational test and evaluation (OT&E) conducted in fiscal years 2012 and 2014. However, DHS’s Director, Office of Test and Evaluation (DOT&E) did not validate these results because UH-60 was not considered a major acquisition when the tests were conducted.

In January 2016, DHS leadership directed the program to conduct acceptance functional flight checks—which consist of component- and system-level tests—on at least one reconfigured HH-60L prototype prior to receiving approval to proceed with the remaining transfers. According to CBP officials, the program’s OTA and the Army successfully conducted the functional flight check and additional testing in October 2017. DOT&E plans to review the flight test data in support of the program’s ADE 3.

CBP does not plan to conduct formal operational test and evaluation on the reconfigured UH-60L because, according to CBP officials, the reconfigured HH-60L has minimal differences from the UH-60L aircraft previously tested. CBP officials also stated that the program has been able to leverage Army test data, which reduces the risk and testing costs associated with the program. These officials noted that CBP pilots will perform additional inspections prior to accepting the aircraft, which is now anticipated to occur in January 2018—up to 5 months earlier than the APB threshold date.

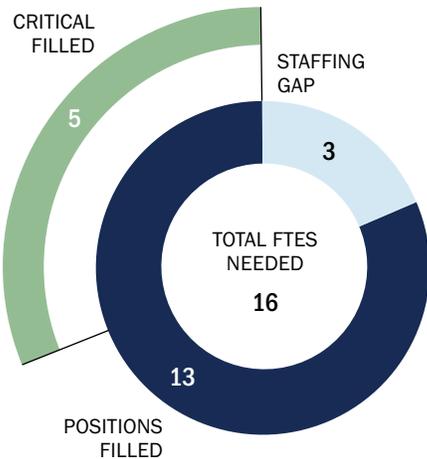
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Prototype acceptance functional flight check and additional testing	10/2017		PENDING	
UH-60M follow-on OT&E	03/2014		NONE	
UH-60L OT&E	06/2012		NONE	
UH-60M initial OT&E	11/2011		NONE	

● PASS   
 ● PASS WITH LIMITATIONS   
 ○ FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

CBP previously acquired UH-60 as a part of its Strategic Air and Marine Program (StAMP). In July 2016, DHS leadership designated UH-60 as a separate and distinct major acquisition program.

CBP initially planned to convert all 16 of its UH-60A aircraft into UH-60L models, but changed its strategy once it learned the Army planned to divest several HH-60L aircraft that could more easily be converted into UH-60L aircraft for CBP missions. CBP officials anticipated the new strategy could reduce the program’s costs by an estimated \$70 million, accelerate its schedule, and result in newer aircraft since the Army’s HH-60L airframes had fewer operating hours than CBP’s existing UH-60A aircraft. In September 2017, CBP officials told GAO they had initiated efforts to acquire additional HH-60L aircraft by conducting a study of current capability gaps and drafting a mission need statement.

As of September 2017, program officials confirmed that they maintain a consolidated program office where the same staff from StAMP continue to support all remaining acquisitions, including the UH-60. However, these officials stated that they plan to realign staff to a dedicated asset over time. Program officials also stated that the program has hired a dedicated cost estimator and would like to hire additional staff to focus on procuring spare parts and common component issues, such as radio replacements, for CBP’s air and marine assets.

**PROGRAM OFFICE COMMENTS**

CBP officials reiterated that the changes in acquisition costs were primarily a result of cost realignment and that the program’s total life-cycle cost is still within the initial APB LCCE goals. CBP officials also stated that—to supplement Army test data—the program’s OTA participated in the flight tests and will provide a formal report on the results.

# MULTI-ROLE ENFORCEMENT AIRCRAFT (MEA) CUSTOMS AND BORDER PROTECTION (CBP)

MEA are fixed-wing, multi-engine aircraft that can be configured to perform multiple missions including maritime, air, and land interdiction, as well as signals detection to support law enforcement. The current MEA configuration is equipped with marine search radar and an electro-optical/infrared sensor to support maritime and land surveillance and airborne tracking missions. MEA will replace CBP's fleet of aging C-12, PA-42, and BE-20 aircraft.



Source: Customs and Border Protection.

KEY FINDINGS

**On track for MEA 1-16; received approval for MEA 17; pursuing total of 38.**

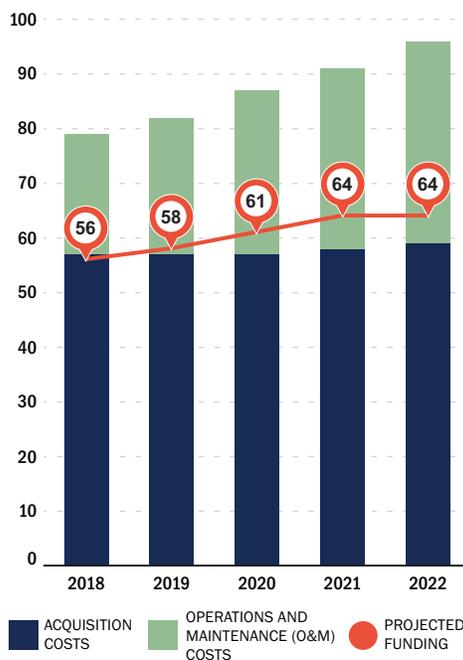
**Testing of new configuration planned for May 2018, but requirements not yet defined.**

**Began retrofitting accepted MEA with new mission system in fiscal year 2017.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

## FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



## COST AND SCHEDULE

According to CBP officials, the program is on track to meet the cost and schedule goals in its current acquisition program baseline (APB) for 16 maritime interdiction MEA and is actively pursuing additional aircraft.

In April 2016, CBP developed a report that identified capability needs in three mission areas and proposed increasing the program's total to 38 aircraft by adding 13 air and 6 land interdiction MEA, and 3 signals detection MEA. The Joint Requirements Council endorsed CBP's findings, but recommended CBP develop a number of requirements documents—including an operational requirements document—to fully validate the findings. As of September 2017, CBP officials told GAO they were in the process of updating these documents to focus on air interdiction capabilities—the next MEA configuration. These officials stated that completing these documents has been delayed, in part, because Department of Homeland Security (DHS) leadership directed CBP to develop a comprehensive border plan in October 2016 that includes MEA capabilities.

Despite not yet completing all the updated documents, DHS leadership approved CBP's request to procure MEA 17 in September 2017 after the congressional conferees agreed to an additional aircraft beyond DHS's budget request. CBP anticipates delivery of MEA 17 by September 2018, which is within the program's full operational capability (FOC) date. However, if the program receives approval to acquire additional aircraft, the FOC date will be extended.

## APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

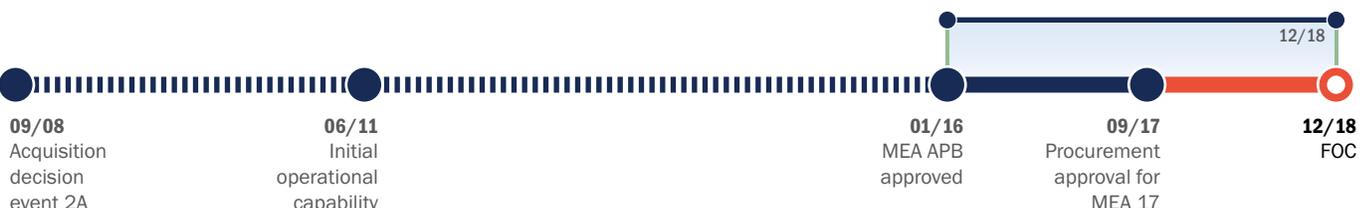
	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2016)	365	1,151	1,516
Current APB (01/2016)	365	1,151	1,516
Current estimate (09/2017)	1,102	2,378	3,480

The program completed an annual life-cycle cost estimate update, which exceeds the program's current APB cost thresholds, because it reflects costs for all 38 aircraft, among other reasons. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained operations and maintenance (O&M) funding for individual programs. In addition, CBP officials previously told GAO that MEA's O&M is funded through a separate, central funding account for all of CBP's air and marine assets. In September 2017, CBP officials said that the program was fully funded for 17 aircraft but had some affordability challenges with spare parts, which they are working with CBP and DHS headquarters to address.

## SCHEDULE CHANGES

AS OF 01/2016

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP AIR AND MARINE TEST AND EVALUATION DIVISION

The MEA program has met all five of its key performance parameters (KPP) for the maritime interdiction configuration and plans to establish additional KPPs for future MEA configurations.

CBP is replacing the mission system processor on the MEA with a system used by the U.S. Navy and U.S. Coast Guard that is intended to enhance operator interface and sensor management, as well as replace obsolete equipment. CBP’s OTA tested a prototype of the processor during an operational assessment in July 2015. The OTA found that the MEA had resolved issues found during prior testing, but also made 29 additional recommendations and findings to improve the aircraft and new mission system’s effectiveness. DHS’s Director, Office of Test and Evaluation (DOT&E) concurred with the OTA’s findings.

The program plans to begin testing MEA air interdiction capabilities in May 2018. According to CBP officials, the only difference between the maritime and air interdiction configurations is the radar software. The program initially planned to modify and test the new configuration prior to delivery, but CBP officials stated they now plan to do so after delivery to reduce risk by allowing more time for development of the air-to-air radar software. DHS’s DOT&E plans to review the test plan for the air interdiction configuration. However, completing development before finalizing KPPs for the new configuration increases the risk that the aircraft will not meet operator’s requirements.

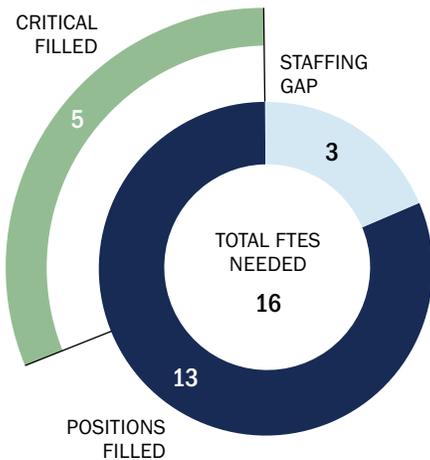
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	SECURE	CYBER
Air interdiction follow-on test and evaluation		PLANNED 05/2018			
Operational assessment and validation	07/2015	<span style="color: green;">●</span>	<span style="color: red;">●</span>	—	—
Initial operational test and evaluation	05/2013	<span style="color: red;">●</span>	—	—	—

● PASS   
 ● PASS WITH LIMITATIONS   
  FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

CBP previously acquired MEA as a part of its Strategic Air and Marine Program (StAMP). In July 2016, DHS leadership designated MEA as a separate and distinct major acquisition program.

CBP initially planned to procure 50 MEA and awarded the first production contract in September 2009. However, the aircraft did not perform well during testing. In October 2014, DHS leadership said CBP could not procure or accept transfer of additional MEA without approval. CBP procured 12 aircraft under the initial contract and—with DHS approval—CBP awarded a new indefinite delivery, indefinite quantity contract in September 2016 for 1 base year and four 1-year options to support procurement of additional aircraft. In December 2017, CBP officials said the program had received 12 aircraft and awarded contracts for 5 more. According to program officials, MEA 13-16 will be delivered with the new mission system and CBP began retrofitting previously delivered aircraft in fiscal year 2017.

As of September 2017, program officials confirmed that they maintain a consolidated program office where the same staff from StAMP continue to support all remaining acquisitions, including MEA. However, these officials stated that they plan to re-align staff to a dedicated asset over time. Program officials also stated that the program has hired a dedicated cost estimator and would like to hire additional staff to focus on procuring spare parts and common component issues, such as radio replacements, for CBP’s air and marine assets.

**PROGRAM OFFICE COMMENTS**

CBP officials stated that delays in receiving approval of the program’s requirements documents may pose a risk to exercising options for additional MEA on an existing contract, which could stop production and increase contract costs associated with procuring future aircraft. CBP officials added that air and marine requirements officers continue to produce documentation requested by the Joint Requirements Council to provide sufficient context for the mission need and border security. CBP officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# NON-INTRUSIVE INSPECTION (NII) SYSTEMS PROGRAM

## CUSTOMS AND BORDER PROTECTION (CBP)

The NII Systems Program supports CBP's interdiction of weapons of mass destruction, contraband such as narcotics, and illegal aliens being smuggled into the United States, while facilitating the flow of legitimate commerce. CBP officers use large- and small-scale NII systems at air, sea, and land ports of entry; border checkpoints; and international mail facilities to examine the contents of containers, railcars, vehicles, baggage, and mail.



Source: Customs and Border Protection.

KEY FINDINGS

**Life-cycle costs continue to decrease, but estimate is 9 years short of end date.**

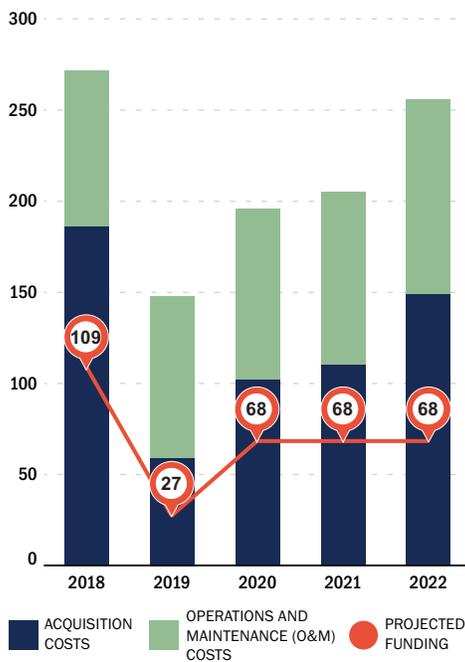
**CBP initiated efforts for future NII requirements and procurements.**

**66 percent staffing gap contributed to delays in NII deployments.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2016)	1,896	2,616	4,512
Current APB (01/2016)	1,896	2,616	4,512
Current estimate (04/2017)	1,601	2,487	4,088

### COST AND SCHEDULE

The NII Systems Program is on track to meet its approved schedule and cost goals.

The estimates in the program's annual life-cycle cost estimate (LCCE) update continued to decrease overall compared to its approved acquisition program baseline (APB) cost thresholds. Specifically, compared to the prior year's estimate, the program's acquisition costs decreased by \$96 million and operations and maintenance (O&M) costs increased by \$22 million. However, the LCCE update only estimated costs through fiscal year 2026—9 years short of the program's final year.

The LCCE primarily decreased because of a reduction of 1,977 planned additional and replacement NII systems. CBP officials said fewer large- and small-scale systems are needed because

- some systems have longer estimated lives than expected, and
- systems procured have better capability.

CBP officials do not anticipate that the reduction in quantities will have an adverse effect on operations because they stated that the new systems can provide dual purpose capabilities (i.e., one system can replace multiple separate systems).

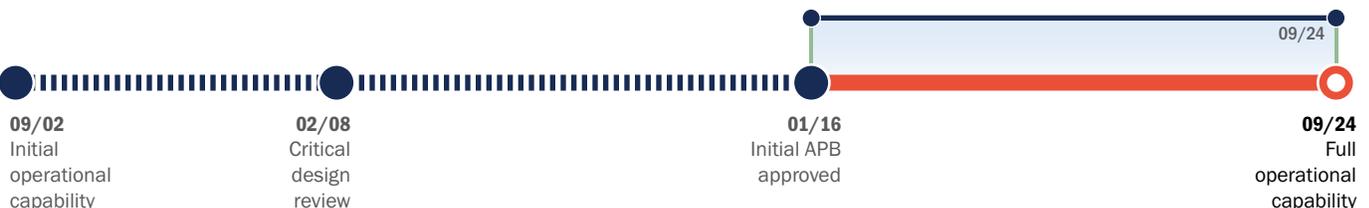
The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. CBP officials anticipate receiving approximately \$605 million of O&M funding over this 5-year period to cover about \$626 million in estimated O&M costs, which includes \$100 million to operate and maintain radiation detection equipment acquired by the Domestic Nuclear Detection Office. These officials also identified \$37 million in carryover funding to cover the remaining \$21 million of O&M estimated costs.

However, the program is projected to have a \$266 million acquisition funding gap from fiscal years 2018 to 2022. The program has a plan to address funding shortfalls but, according to CBP officials, it has not yet needed to implement the strategies in this plan because of several factors, including cost reductions achieved through combined life-cycle contracts and lower-than-expected actual technology costs in fiscal year 2016.

### SCHEDULE CHANGES

AS OF 01/2016

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: NOT APPLICABLE

According to CBP officials, the program continues to meet all 18 of its key performance parameters (KPP). However, DHS’s Director, Office of Test and Evaluation has not independently validated CBP’s assertion that it has met its KPPs.

NII systems are commercial-off-the-shelf products, and for this reason, DHS leadership decided that the NII Systems Program does not need a test and evaluation master plan. However, the program continues to test NII systems to inform future acquisitions. For example, in calendar years 2017 and 2018, CBP officials told us they plan to conduct demonstrations and testing activities on the following type of technology:

- Two NII systems—one mobile, one fixed—that are designed to examine moving vehicles for contraband.
- Mobile systems that use high dose X-ray imaging to inspect stationary cargo vehicles at ports-of-entry.
- Multi-energy portals that use different levels of X-ray imaging to inspect cargo trucks as they are driven through the inspection portals—low dose X-ray to inspect the truck cab and high dose X-ray to inspect the cargo trailer.

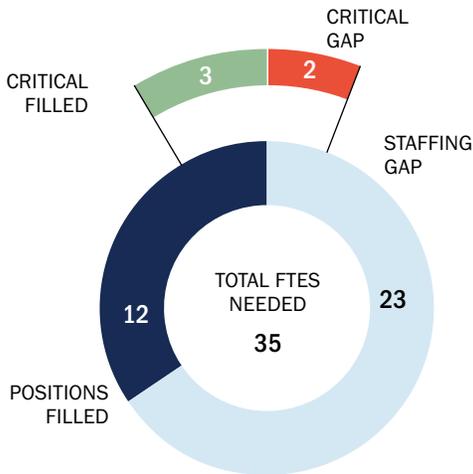
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
None		NOT APPLICABLE		

● PASS   ● PASS WITH LIMITATIONS   ● FAIL   — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

In March 2017, the Joint Requirements Council validated a capability analysis report that assessed current capability gaps in NII operations to assist with identifying potential upgrades to existing systems and developing requirements for future systems. According to program officials, CBP plans to review and update, as necessary, the mission need statement in fiscal year 2018. Additionally, program officials are preparing a consolidated acquisition plan for future procurements. These officials said CBP has not yet determined whether future procurements would be included into the current NII Systems Program of record or constitute a new acquisition program.

CBP’s ability to successfully execute the existing NII Systems Program and plan for future efforts may be at risk because of understaffing. As of January 2018, the NII Systems Program continued to face a staffing gap of approximately 66 percent, including critical vacancies such as the acquisition program manager and a logistics program manager. Officials also noted that a lack of adequate personnel to procure, test, and deploy NII systems forces the program to prioritize its acquisitions, which can result in delays of NII deployments and testing efforts. For example, one manufacturer increased its output rate of NII systems, but the program did not have the staff to accept the systems at the increased rate. Officials anticipate the program may remain understaffed until CBP completes a reorganization that started more than a year ago, in which acquisition programs are realigned from a mission-support office to their operational entity.

**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# REMOTE VIDEO SURVEILLANCE SYSTEM (RVSS)

## CUSTOMS AND BORDER PROTECTION (CBP)

The RVSS program helps the Border Patrol detect, track, identify and classify illegal entries across U.S. borders. RVSS consists of daylight and infrared video cameras mounted on fixed towers and buildings with communications systems that link to command and control centers. From 1995 to 2005, CBP deployed approximately 310 RVSS towers along the U.S. northern and southern borders, and initiated efforts to upgrade legacy RVSS towers in Arizona in 2011.



Source: Customs and Border Protection.

KEY FINDINGS

**Program elevated to a level 1 acquisition program with a life-cycle cost of nearly \$4 billion.**

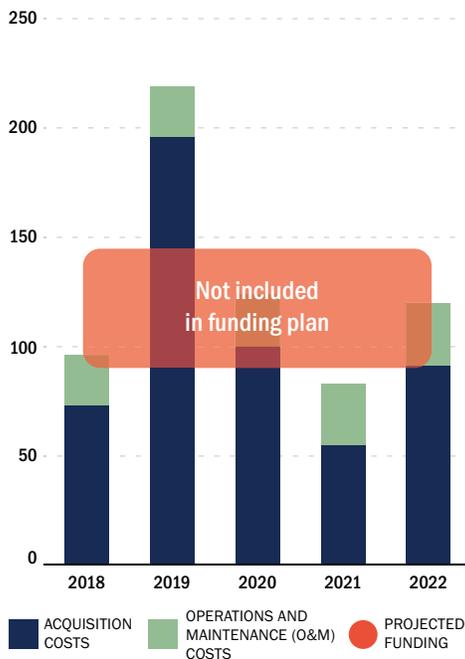
**Program does not plan to conduct additional operational testing on future deployments.**

**Once funded, program plans to award a new contract for deployments in sectors along the southwest border.**

**GAO last reported on this program in November 2017 (GAO-18-119).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB	Not yet approved		
Current estimate (09/2017)	1,470	2,500	3,970

### COST AND SCHEDULE

In April 2016, Department of Homeland Security (DHS) leadership elevated RVSS from a level 3 program—which focused on upgrading legacy RVSS in Arizona—to a level 1 program after approving CBP’s plan to expand deployments to the Rio Grande Valley (RGV) sector and adding an additional 6 sectors along the southwest border. At this time, DHS leadership approved the program to move forward with deployments to two RGV stations, which can be completed as options under the program’s existing contract. However, the program was required to re-baseline to account for its expanded scope and conduct an acquisition decision event (ADE) to obtain approval for additional deployments.

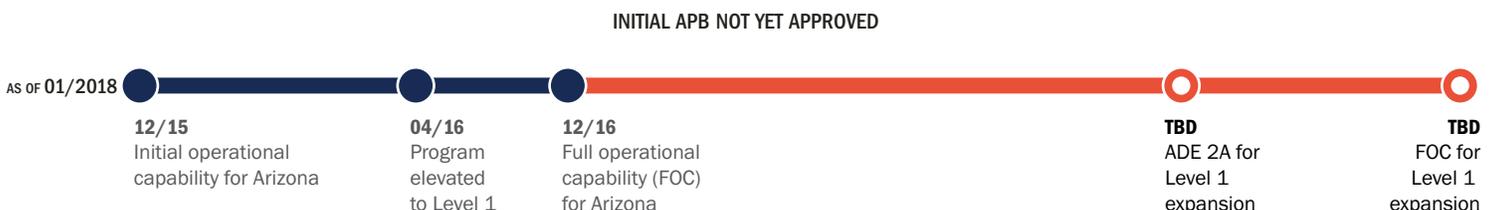
As of January 2018, the program had not yet conducted its ADE or obtained DHS approval for an acquisition program baseline (APB) that established cost, schedule, and performance goals for the expanded program. In September 2017, CBP officials told us that they had drafted the APB and other required documentation, such as a life-cycle cost estimate (LCCE), but were unsure when the ADE would occur because the program had not received funding for the additional deployments. In addition, the ADE may have been delayed because DHS leadership directed CBP to develop a comprehensive border plan in October 2016 that includes RVSS capabilities.

In September 2017, DHS leadership approved the RVSS’s revised LCCE which totaled nearly \$4 billion for all program costs from fiscal years 2011 through 2042, including expansion along the southwest border and new initiatives such as a pilot for relocatable RVSS towers. DHS conducted an independent cost estimate for the program, which DHS cost estimating officials stated was within 2 percent of the program’s LCCE.

RVSS was not included in DHS’s funding plan to Congress for fiscal years 2018 to 2022 because it had not yet been elevated to a level 1 program at the time the plan was developed. CBP officials stated that the program has received acquisition funding to cover the approved RGV deployments. However, CBP officials told GAO that the program may also assume responsibility for maintaining all legacy RVSS, but has not received adequate operations and maintenance funding to do so.

### SCHEDULE CHANGES

TBD = To be determined



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP OFFICE OF TECHNOLOGY INNOVATION AND ACQUISITION

According to CBP officials, RVSS towers deployed in Arizona met the program’s three key performance parameters (KPP), which establish a minimum acceptable range for detection and identification, and the percentage of time the system must be available to operators. CBP officials said these KPPs will apply to future RVSS deployments, but that the program does not plan to conduct additional testing unless major technology changes are required.

In August 2015, the program’s OTA conducted a limited user test on upgraded equipment deployed in Arizona and found RVSS to be operationally effective but not operationally suitable. The OTA noted several major deficiencies, including issues related to the cameras, video signals, and geographic coordinates—some of which resulted in the program failing its availability KPP. DHS’s Director, Office of Test and Evaluation did not assess the results of this test because the program was a level 3 acquisition at the time of testing. In January 2018, CBP officials told GAO that they have worked with the RVSS contractor to address a majority of the deficiencies identified during testing and continue to monitor those that remain. They also noted that the program subsequently met its availability KPP.

CBP officials said the RVSS program initiated a pilot of relocatable RVSS towers in the RGV sector. The program plans to assess the results of the pilot by March 2018.

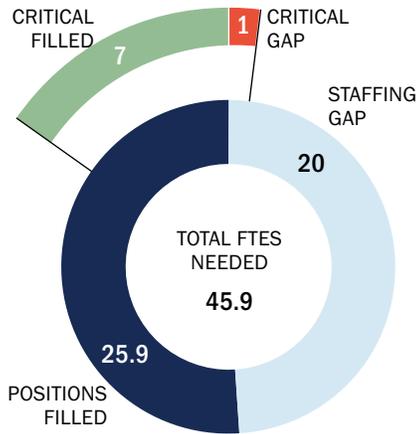
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Limited User Test	08/2015		NONE	

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

In July 2013, CBP awarded a firm fixed-price contract for a commercially available, non-developmental system. This contract covered the program’s initial scope to deploy upgraded RVSS in Arizona and two stations within the RGV sector, which can be completed as options. According to CBP officials, the program will need to award a new contract to cover expansion to the remaining six sectors along the southwest border. In September 2017, CBP officials said that the request for proposals for the new contract had been drafted but it cannot be released until the program receives funding.

CBP officials told GAO that RVSS is coordinating with CBP’s Border Wall System Program on some planned deployments within the RGV sector. For example, CBP is considering moving 2 of the planned RVSS towers to be co-located with the planned barrier, which officials stated may provide better surveillance. If the Border Wall System Program does not receive funding, CBP officials said the towers will be placed in the originally planned locations.

CBP officials stated that the RVSS program requires additional staff for contracting activities, maintenance activities for legacy RVSS, and for relocatable tower pilot deployments. To mitigate the staffing gap, CBP officials said they prioritize responsibilities of current personnel to meet program execution needs.

**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# TACTICAL COMMUNICATIONS (TACCOM) MODERNIZATION

## CUSTOMS AND BORDER PROTECTION (CBP)

The TACCOM program is intended to upgrade land mobile radio infrastructure and equipment to support approximately 95,000 users at CBP and other federal agencies. It is replacing obsolete radio systems with modern digital systems across various sectors located in 19 different service areas, linking these service areas to one another through a nationwide network, and building new communications towers to expand coverage in 5 of the 19 service areas.



Source: Customs and Border Protection.

KEY FINDINGS

**Program re-baselined in November 2017 after declaring cost and schedule breach, but faces affordability shortfalls.**

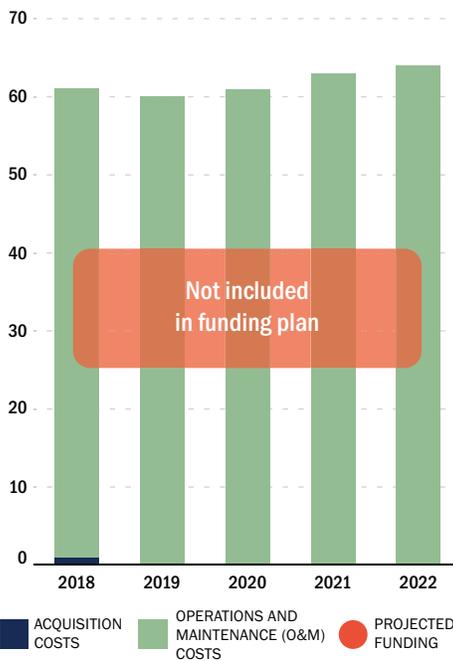
**Issues related to security requirements have delayed full operational capability by more than a year.**

**Program is being re-organized under Border Patrol, but still faces staffing challenges.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In November 2017, Department of Homeland Security (DHS) leadership re-baselined the TACCOM program, removing it from breach status after the program experienced a schedule slip and cost growth. In July 2017, CBP officials notified DHS leadership that the program would not achieve full operational capability (FOC) as planned due to issues related to federal information security requirements. The program now plans to achieve FOC by March 2019—more than a year later than its initial acquisition program baseline (APB) deadline. According to CBP officials, FOC will include planned upgrades to the San Diego system, which requires transitioning management of the legacy system from the Department of Justice to DHS. In August 2017, CBP officials stated that both agencies were reviewing an agreement with plans to complete the transition in fiscal year 2018.

CBP officials stated that the program realized it would exceed its initial APB cost thresholds as it was developing its annual life-cycle cost estimate (LCCE) update and subsequently submitted a revised LCCE for DHS leadership approval. The program's costs primarily grew because of increases in costs for contractor labor and support for facilities and infrastructure. CBP officials said the program's initial estimates were immature; however, DHS leadership approved the initial LCCE in December 2015—4 years after the program began sustaining capabilities.

DHS's Chief Financial Officer (CFO) approved the program's revised LCCE in November 2017, but noted that the program's estimate exceeded its available funding and requested that the program address the affordability gap before it was re-baselined. CBP officials said that they are conducting an affordability analysis, which they anticipate will be completed by March 2018. Nevertheless, DHS leadership approved the program's re-baseline in November 2017. CBP officials subsequently identified errors in the approved APB cost threshold tables and provided revised amounts, which are presented here.

The program was not included in DHS's funding plan to Congress for fiscal years 2018 to 2022 because DHS did not report operations and maintenance (O&M) funding for individual programs. CBP officials anticipate receiving approximately \$120 million in O&M funding over this 5-year period.

### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

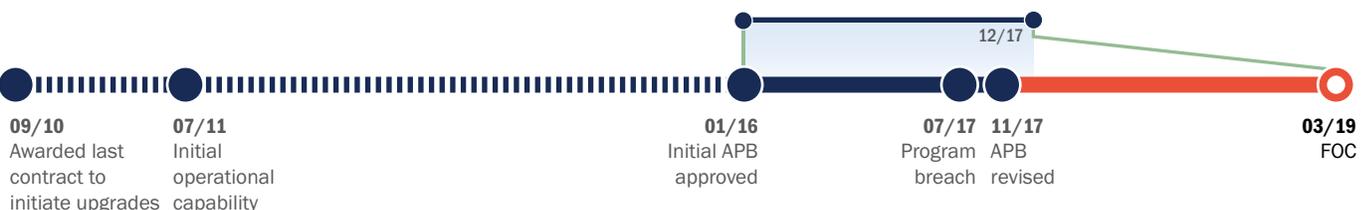
	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2016)	397	489	1,084
Current APB (11/2017)	399	599	1,233
Current estimate (11/2017)	400	539	1,145

Note: Life-cycle cost also includes personnel costs.

### SCHEDULE CHANGES

AS OF 01/2016

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP OPERATIONAL EVALUATION BRANCH

In August 2017, CBP officials told GAO that the TACCOM program continued to meet its two key performance parameters, which measure coverage area and the percentage of time the systems are available. In May 2014, the DHS Director, Office of Test and Evaluation determined that the TACCOM systems were operationally effective, but test data were insufficient to determine operational suitability. The program’s OTA subsequently found that the TACCOM systems were operationally effective and suitable based on the results of an operational assessment (OA) completed in June 2016.

In July 2017, an analysis of the program’s operations showed that the program was meeting mission needs, but technical issues and vulnerabilities could cause schedule delays. That same month, the program declared a schedule breach because of issues related to federal information security requirements. The TACCOM program first identified these issues in February 2016, but efforts to address them within the established APB schedule were unsuccessful. CBP officials said that, since the program’s inception, they have held weekly and quarterly meetings with the vendor to identify and address any issues and that they anticipate the vendor will address all remaining issues by March 2018. They added that both the vendor and CBP will conduct security scanning and acceptance testing after deployment to each sector; however, the program does not have plans for future operational testing.

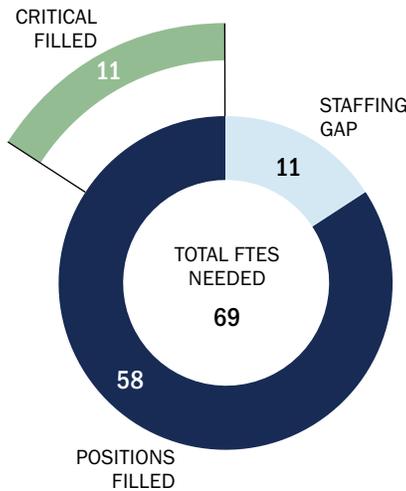
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
OA	06/2016	NONE		
Limited User Test	12/2013	●	—	—

● PASS   
 ● PASS WITH LIMITATIONS   
  FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

CBP officials told GAO that in January 2018, the program will move from a mission support office to a joint program office under Border Patrol as a part of CBP’s reorganization that started more than a year ago. The goal of this move is to make CBP land mobile radio capabilities seamless by combining the mission critical voice functions of Air and Marine Operations, the Border Patrol, and the Office of Field Operations—the TACCOM program’s primary customers—under one organizational leader, the Border Patrol Chief.

CBP officials anticipate that the current TACCOM program structure will remain in place after this move with the exception of the program’s engineers, which will move to CBP’s Office of Information and Technology but be assigned to support TACCOM full time. In August 2017, CBP officials told GAO they were in the process of hiring staff to fill the program’s vacant positions. They added that the fiscal year 2019 budget contains plans for additional infrastructure enhancements, which will require technical staff to assist in the planning and execution of these efforts and may put additional strain on the program’s limited government technical staff. They noted that the hiring and retention of qualified land mobile radio engineers and information technology technical staff is a challenge because of competition with the private sector, among other factors.

**PROGRAM OFFICE COMMENTS**

In addition to maintenance of the CBP Land Mobile Radio System that provides critical communication needs for CBP agents and officers protecting U.S. borders, CBP officials stated the TACCOM program is providing infrastructure, such as building an engineering lab to facilitate design, development, test, and evaluation activities, to support improvements in CBP’s current and future Land Mobile Radio Systems. CBP officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# TECS MODERNIZATION

## CUSTOMS AND BORDER PROTECTION (CBP)

TECS (not an acronym) is a law-enforcement information system that has been in place since the 1980s and helps CBP officials determine the admissibility of persons entering the United States at border crossings, ports of entry, and prescreening sites located abroad. CBP initiated efforts to modernize TECS to provide users with enhanced capabilities for accessing and managing data. Immigration and Customs Enforcement has a separate TECS Modernization program.



Source: Customs and Border Protection.

KEY FINDINGS

**Full operational capability delayed 9 months and current cost estimate incomplete.**

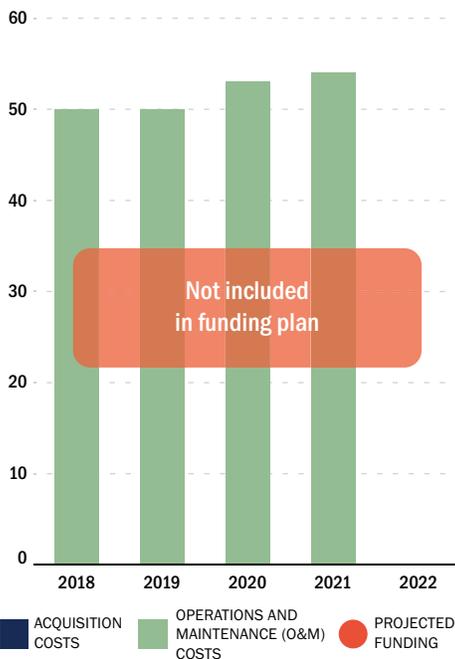
**System operationally effective and suitable, but cybersecurity testing needed.**

**CBP working to address and prevent major system outages.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (11/2010)	220	466	685
Current APB (07/2016)	235	457	693
Current estimate (07/2017)	227	438	665

### COST AND SCHEDULE

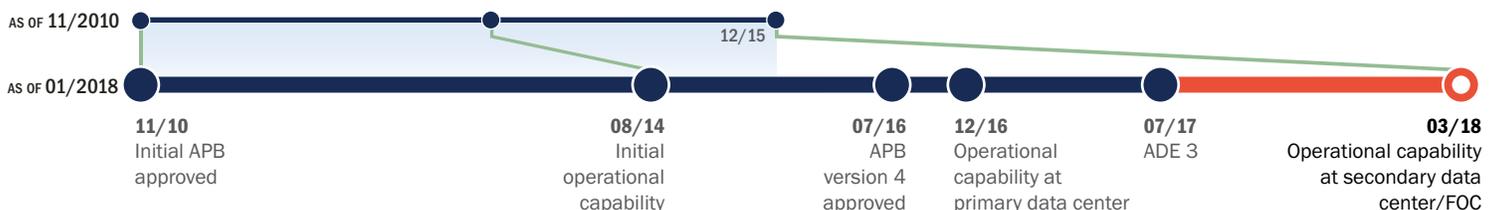
In July 2017, Department of Homeland Security (DHS) leadership granted the program acquisition decision event (ADE) 3 approval, but required CBP to conduct follow-on operational test and evaluation (OT&E) before declaring full operational capability (FOC). This is more than a 2-year delay from CBP's initial FOC date and a 9-month delay from its most recent revised FOC date. DHS approved the fourth version of the program's acquisition program baseline (APB) in July 2016. In this APB, CBP split FOC into two separate operational capability milestones at its data centers to better reflect the program's activities.

- CBP delivered operational capability at the primary data center in December 2016, which included transitioning all TECS users to the modernized system.
- CBP delivered operational capability at the secondary data center in June 2017—as scheduled—which provides redundant TECS access to minimize downtime during system maintenance or unscheduled outages. However, not all test results were available in time for the program's ADE 3 decision, which contributed to DHS leadership's decision to delay declaring FOC.

The program updated its life-cycle cost estimate (LCCE) for ADE 3, which is within its current APB cost thresholds. However, the LCCE only included costs through fiscal year 2021—7 years short of DHS's guidance that states program cost estimates should cover at least 10 years from the FOC date. Nevertheless, DHS granted the program ADE 3 approval without an understanding of the program's full life-cycle costs, as required by its acquisition policy. CBP officials plan to update the LCCE by the end of calendar year 2018 to include costs for future years and other items, such as costs associated with follow-on OT&E and moving the data centers to a cloud environment—a CBP-wide initiative.

The program was not included in DHS's funding plan to Congress for fiscal years 2018 to 2022 because DHS did not report operations and maintenance (O&M) funding for individual programs. CBP officials anticipate receiving approximately \$205 million in O&M funding over the next 4 years and have identified carryover for each year. However, CBP officials said there may be a small funding gap starting in fiscal year 2020, but they expect to achieve savings by migrating the data centers to a cloud environment.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): CBP OFFICE OF FIELD OPERATIONS

In June 2017, the OTA completed a series of operational tests that included three test events—one event each at a land border crossing, a seaport, and an airport—and a fourth test event to verify final integration of the system’s hardware at both the primary and secondary data centers.

In July 2017, DHS’s Director, Office of Test and Evaluation (DOT&E) determined that the modernized TECS system was operationally effective and operationally suitable, but that the tests were not adequate to assess operational cybersecurity. The test results validated that the program had met all eight of its key performance parameters (KPP), but the test team identified several deficiencies related to mission support and CBP users identified operational considerations for system or process improvements. DOT&E recommended that CBP conduct a threat assessment, threat-based cybersecurity operational testing, and follow-on OT&E to reassess known deficiencies and user operational considerations. In August 2017, DHS leadership directed CBP to complete these actions by the end of February 2018.

In January 2018, CBP officials stated that they continue to work with the OTA to address the deficiencies and develop a plan for follow-on OT&E. They noted that completion of this plan is dependent on the scope for cybersecurity testing and they are working with DOT&E to define the scope since the requirements have been evolving. CBP officials also stated that they monitor the program’s KPPs monthly and plan to conduct monthly tests and quarterly maintenance checks to ensure operational functionality is maintained at both data centers.

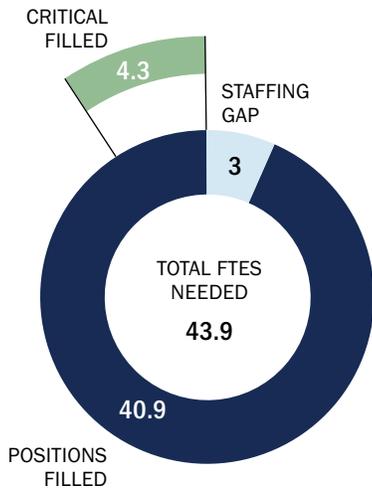
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Follow-on OT&E	PLANNED COMPLETION 02/2018			
OT&E	06/2017	●	●	—
Secondary inspection land OT&E	11/2012	●	●	—
Consolidated secondary inspection system increment 1 OT&E	07/2010	●	●	—

● PASS   ● PASS WITH LIMITATIONS   ○ FAIL   — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

Since the program has completed development, CBP is focused on ensuring that the modernized TECS system works as intended by addressing operational issues as they are identified. For example, on January 2, 2017, a primary TECS Modernization application experienced a major outage that resulted in long airport delays. In August 2017, CBP officials said they continually monitor system health through a 24/7 operations center and have established a group dedicated to addressing the issues related to the January 2, 2017, outage.

In September 2017, DHS’s Office of Inspector General (OIG) found that nearly 100 outages, periods of latency, or degraded service were reported for three TECS Modernization applications between June 2016 and March 2017. The OIG also found that CBP’s monthly reports on TECS system availability did not include periods of slowness or service interruptions that were caused by external factors. For example, the January 2, 2017, incident was identified in CBP outage reports, but was not captured in the monthly report because it was caused by a change to an external feed to the TECS system. CBP officials clarified that the monthly reports only account for interruptions that result in a full loss of operations for all TECS system users. The OIG recommended that CBP develop a plan to address factors that contributed to challenges regarding availability of primary traveler screening applications, among other things. CBP concurred with the recommendations.

On January 1, 2018, the TECS system experienced another major outage that caused long airport delays; CBP officials said this incident is under review.

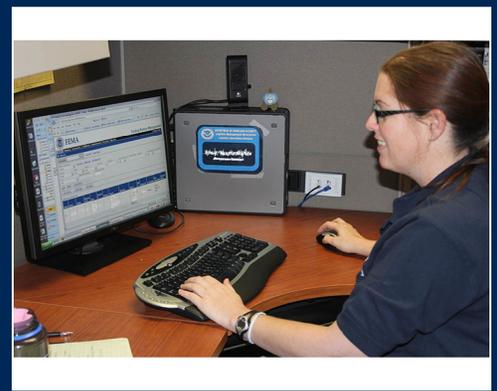
**PROGRAM OFFICE COMMENTS**

CBP officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# LOGISTICS SUPPLY CHAIN MANAGEMENT SYSTEM (LSCMS)

FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA)

LSCMS is a computer-based tracking system that FEMA officials use to track shipments during disaster-response efforts. It is largely based on commercial-off-the-shelf software. FEMA initially deployed LSCMS in 2005, and initiated efforts to enhance the system in 2009. According to FEMA officials, LSCMS can identify when a shipment leaves a warehouse and the location of a shipment after it reaches a FEMA staging area near a disaster location.



Source: Federal Emergency Management Agency.

KEY FINDINGS

**Program breached its schedule because of 2017 hurricane response efforts.**

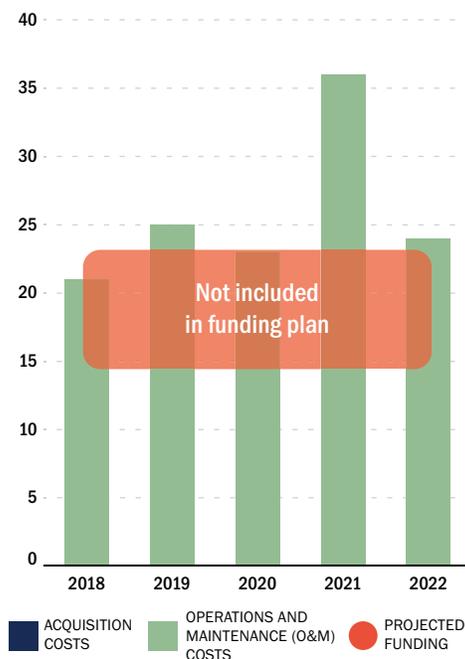
**FEMA now anticipates reaching full operational capability by June 2019, up to 6 months late.**

**Recent testing shows progress, but additional operational testing delayed to May 2018.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

## FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



## COST AND SCHEDULE

In November 2017, Department of Homeland Security (DHS) leadership approved a revised acquisition program baseline (APB) after the LSCMS program experienced a schedule breach. In September 2017, FEMA officials notified DHS leadership that it would not complete all required activities—including follow-on operational test and evaluation (OT&E)—to achieve acquisition decision event (ADE) 3 and full operational capability (FOC) by its initial APB dates of September 2018 and December 2018, respectively. According to FEMA officials, the delay was primarily caused by the need to deploy LSCMS program personnel in support of response and recovery efforts during the 2017 hurricane season. The program now plans to achieve FOC by June 2019—up to 6 months later than initially planned.

DHS leadership authorized LSCMS to resume all development and acquisition efforts in March 2016 after a nearly 2-year program pause following program management issues. In October 2017, FEMA officials told GAO that they had completed several development efforts—such as integration with DHS’s asset management system—and were in the process of adding Electronic Data Interchange (EDI) to allow LSCMS to interface with its partners’ information systems.

The program’s annual life-cycle cost estimate (LCCE) update continued to be within its APB cost thresholds. However, the program’s APB thresholds are not adjusted to account for risk, which increases the chance that the program could experience a cost breach. As of November 2017, FEMA officials did not anticipate that its schedule delays would lead to a cost breach.

## APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

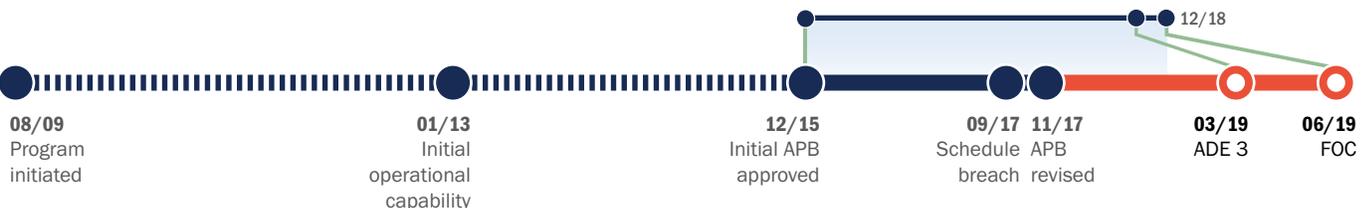
	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (12/2015)	288	526	814
Current APB (11/2017)	288	526	814
Current estimate (03/2017)	287	445	732

The program was not included in DHS’s funding plan to Congress for fiscal years 2018 to 2022 because DHS did not report operations and maintenance (O&M) funding for individual programs. FEMA officials anticipate receiving approximately \$157 million in O&M funding to cover the program’s estimated \$129 million in O&M costs over this 5-year period, which may result in a surplus of \$28 million. However, these officials noted that they will revisit the program’s LCCE

## SCHEDULE CHANGES

AS OF 12/2015

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): GARUD TECHNOLOGY SERVICES

According to FEMA officials, LSCMS previously demonstrated it could meet all seven of its key performance parameters (KPP) through either operational or developmental testing. However, DHS’s Director, Office of Test and Evaluation (DOT&E) determined in June 2014 that the prior operational test was inadequate and recommended that FEMA select a new OTA and retest LSCMS. DOT&E subsequently approved a new OTA and testing approach for the program that included plans for evaluating unresolved issues from previous testing along with new capabilities and cybersecurity.

FEMA officials reported that LSCMS successfully demonstrated two of its seven KPPs during an operational assessment (OA) conducted by its new OTA in July 2017. The OTA found that the KPP related to the system’s ability to handle a certain number of simultaneous users had not been observed during the assessment and would require a model and simulation test. The OTA extended its OA to December 2017 to collect actual operational data during the 2017 hurricane response effort. In January 2018, FEMA officials subsequently reported that LSCMS successfully demonstrated the remaining five KPPs including the ability to support at least 200 simultaneous users during performance testing.

All seven of the KPPs will be assessed as part of follow-on OT&E, which has been delayed from January 2018 as a part of the schedule breach. FEMA officials reported that they now plan to complete follow-on OT&E by May 2018, once the addition of EDI is complete.

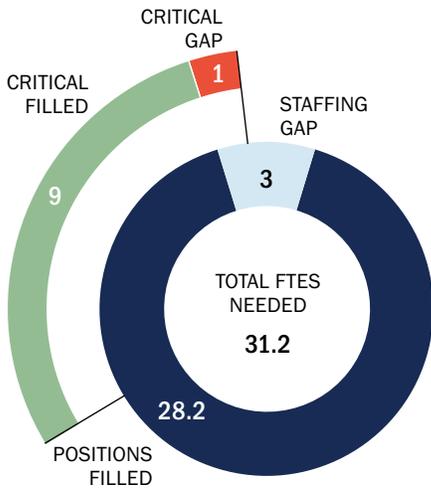
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Follow-on OT&E	PLANNED 05/2018			
OA	12/2017	NONE		
Initial OT&E	06/2014	—	—	—

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The LSCMS program previously experienced significant execution challenges because of poor governance. FEMA initially deployed the enhanced LSCMS in 2013 without DHS leadership approval, a DOT&E letter of assessment, or a DHS-approved APB documenting the program’s costs, schedule, and performance parameters, as required by DHS’s acquisition policy. DHS’s Office of Inspector General also found that neither DHS nor FEMA leadership ensured the program office identified all mission needs before selecting a solution. In response, DHS leadership paused all LSCMS development efforts in April 2014 until the program addressed these issues, among others. FEMA subsequently completed an analysis of alternatives and developed an APB based on this assessment. DHS leadership approved the APB in December 2015 and authorized FEMA to resume all LSCMS development and acquisition efforts in March 2016.

In October 2017, FEMA officials told GAO that the LSCMS program had minimal staffing shortages and was working to recruit additional staff. Officials previously attributed the program’s governance and testing challenges, in part, to staffing shortages and we previously found that it only had 7 of the 22.5 full time equivalents it needed in fiscal year 2014. Although the program has obtained more staff since then, FEMA officials noted in October 2017 that during disasters—such as 2017 hurricanes Harvey, Irma, and Maria—LSCMS program personnel are deployed to support response and recovery efforts, which leave program positions vacant for the duration of the deployment.

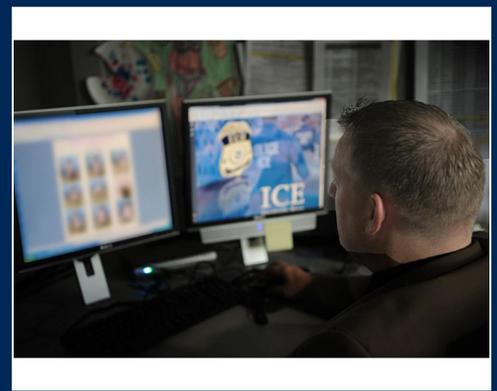
**PROGRAM OFFICE COMMENTS**

FEMA officials stated that during the response to hurricanes Harvey, Irma and Maria in 2017, LSCMS processed supply chain transactions that exceeded the total number of transactions from the preceding 12 years—which includes the response to Hurricane Katrina. They added that the program provided support for nearly 130 million meals in 2017 compared to a total of approximately 84 million from the 12 previous years. FEMA officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# TECS MODERNIZATION

## IMMIGRATION AND CUSTOMS ENFORCEMENT (ICE)

Since the 1980s, TECS (not an acronym) has provided case management, intelligence reporting, and information sharing capabilities to support ICE's mission to investigate and enforce border control, customs, and immigration laws. ICE initiated efforts to modernize TECS in 2009 to replace aging functionality and provide end users with additional functionality to meet mission needs. Customs and Border Protection (CBP) executes a separate TECS Modernization program.



Source: Immigration and Customs Enforcement.

KEY FINDINGS

**Completed final deployment ahead of schedule; costs increased to account for additional years and support.**

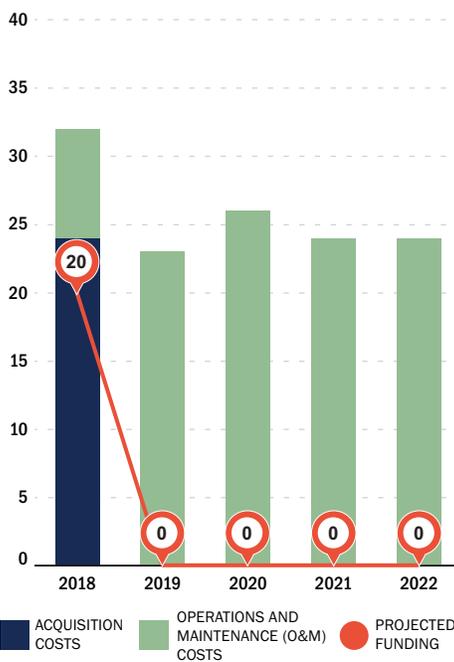
**Conducted additional testing of a revised key performance parameter and cybersecurity.**

**Program has improved integration with external systems.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (10/2011)	311	507	818
Current APB (11/2017)	225	307	532
Current estimate (11/2017)	223	275	498

### COST AND SCHEDULE

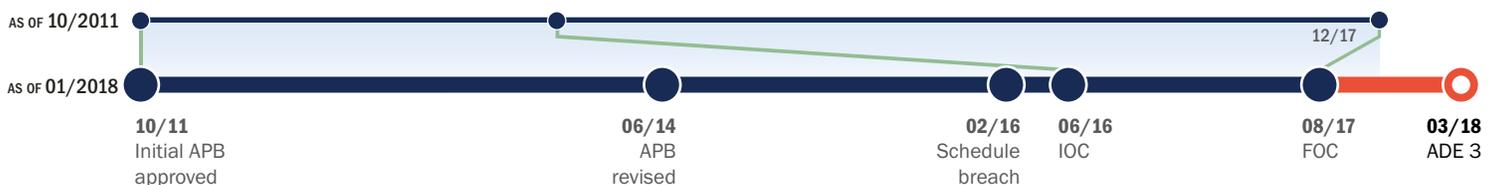
In November 2017, Department of Homeland Security (DHS) leadership approved a revised life-cycle cost estimate (LCCE) and acquisition program baseline (APB) in preparation for the program's acquisition decision event (ADE) 3 following deployment of final functionality. According to ICE officials, the program completed deployment of full operational capability (FOC) functionality in August 2017—4 months earlier than initially planned. FOC functionality included enhancements to case management capabilities, such as improved system search capabilities. The functionality was deployed in conjunction with enhancements and fixes for initial operational capability (IOC) functionality. The program achieved IOC in June 2016, which entailed delivering 80 percent of the modernized TECS functionality and successfully transitioning ICE off the legacy system.

The overall cost thresholds in the current APB increased compared to the program's prior APB from July 2016. Specifically, the acquisition cost threshold decreased by \$14 million and the operations and maintenance (O&M) cost threshold increased by \$147 million. These costs changed for various reasons, such as the following:

- The acquisition cost threshold decreased when ICE included actual costs through fiscal year 2016 and accounted for funding shortfalls. ICE officials told GAO that the program experienced a funding shortfall in fiscal year 2017 that led it to adjust spending under multiple contracts and shift some costs to fiscal year 2018.
- The O&M cost threshold increased when ICE extended the estimate from fiscal years 2024 to 2028 and continued contractor and systems engineering support for an additional 11 years.

The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. ICE officials anticipate receiving approximately \$94 million in O&M funding to cover an estimated \$105 million in O&M costs over this 5-year period. ICE officials said that they are pursuing strategies to reduce future O&M costs, such as awarding a competitive contract in March 2018 for O&M activities and any future enhancements.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): HOMELAND SECURITY INVESTIGATIONS SPECIAL AGENT

In July 2017, the program revised one of its three key performance parameters (KPP)—the KPP related to the number of concurrent users—to better reflect realistic conditions. The KPP was revised to state that the system shall have the ability to support 5,000–10,000 active users on a monthly basis, as opposed to 6,000 users concurrently. DHS’s Joint Requirements Council confirmed that the initial KPP was excessive and not testable.

The program’s OTA completed follow-on operational test and evaluation (OT&E) in September 2017, which focused on evaluating the revised KPP, FOC functionality, and deficiencies identified during the program’s initial OT&E. In March 2017, DHS’s Director, Office of Test and Evaluation (DOT&E) found that the program was operationally effective and suitable with limitations, but that the test was not adequate to evaluate operational cybersecurity. DOT&E recommended that the program conduct threat-based operational cybersecurity testing, among other things. ICE officials said that the program completed threat-based cybersecurity tests in September 2017 and had begun to address identified vulnerabilities. DOT&E anticipates assessing the results from the program’s cybersecurity testing and follow-on OT&E by mid-February to support the ADE 3 decision.

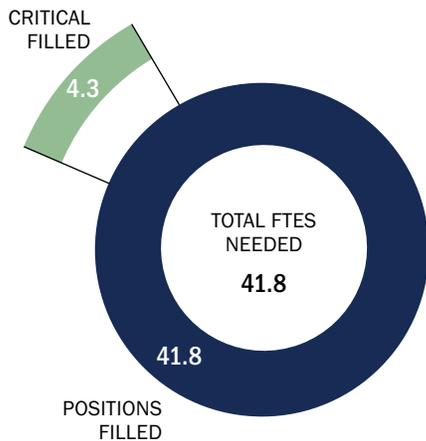
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Follow-on OT&E	09/2017	PENDING		
Initial OT&E	10/2016	●	●	—
Operational assessment	05/2016	—	—	—

● PASS    ● PASS WITH LIMITATIONS    ○ FAIL    — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

ICE officials continue to work closely with CBP to provide users access to various systems through the modernized TECS system. The program previously worked to resolve technical problems with CBP support services that emerged during final integration testing of the ICE and CBP modernized TECS systems, which contributed to a 3-month delay in achieving IOC. Users reported during initial OT&E that the modernized ICE TECS system was an improvement over the legacy system but they requested better integration with external systems, such as CBP’s Seized Assets and Case Tracking System (SEACATS), which they use to determine the disposition of seized assets for case management and reporting purposes.

According to ICE officials, CBP subsequently decided to modernize SEACATS. ICE officials stated that they have coordinated closely with CBP to integrate the two modernized systems and ensure un-interrupted access to SEACATS for TECS users. For example, ICE developed a workaround so that TECS users maintain access to the latest seizure data available from the modernized SEACATS. ICE officials added that they continue to make improvements in interfaces with other external systems as prioritized by end users.

In July 2017, ICE reported that the program was fully staffed.

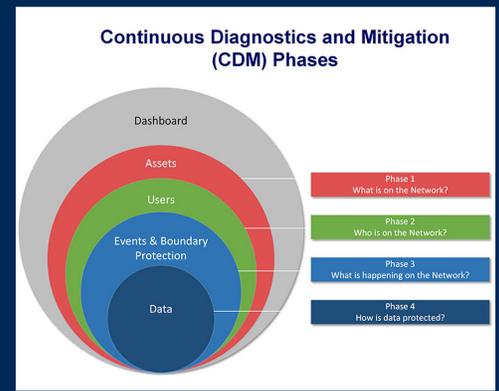
**PROGRAM OFFICE COMMENTS**

ICE officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# CONTINUOUS DIAGNOSTICS AND MITIGATION (CDM)

## NATIONAL PROTECTION AND PROGRAMS DIRECTORATE (NPPD)

The CDM program aims to strengthen the cybersecurity of the federal government's networks at more than 65 participating civilian agencies by providing tools and dashboards that continually monitor and report on network vulnerabilities. Tools are delivered in four phases: phase 1 and 2 tools report vulnerabilities in hardware and software, and user access controls, respectively; phase 3 tools will report on efforts to prevent attacks; and phase 4 tools will provide encryption to protect network data.



Source: National Protection and Programs Directorate.

KEY FINDINGS

**CDM re-baselined for the third time in August 2017 to initiate phase 3 and address phase 1 challenges.**

**Program revised its key performance parameters and test and evaluation master plan as a part of its rebaseline.**

**Program plans to change its acquisition strategy and continues to face workforce challenges.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In June 2017, Department of Homeland Security (DHS) leadership re-baselined the CDM program for the third time to approve initiating development of phase 3 and to address challenges encountered during phase 1. Specifically, contractors previously found large gaps—ranging from 19 to 384 percent—in the actual number of devices needing phase 1 tools than what was originally reported by 12 agencies.

The program's new acquisition program baseline (APB) modified the program's cost, schedule, and performance parameters. For example:

- The operations and maintenance (O&M) cost thresholds increased by \$631 million when the program shifted some potential acquisition costs to be consistent with DHS's new appropriation structure, among other things. The O&M cost thresholds previously decreased by \$1.2 billion, in part, because DHS leadership determined the program would only fund CDM tools for the first 2 years after deployment. The acquisition costs did not increase despite phase 1 challenges, in part, because coverage for the U.S. Postal Service—which had the largest gap in estimated devices—will no longer be funded by the CDM program.
- The program's full operational capability (FOC) date slipped almost 4 years after it was redefined from deployment of phase 1-3 tools at 5 agencies to the availability of these tools to all participating agencies.

However, the program's costs will increase and its FOC date may slip further once the program establishes goals for phase 4. NPPD officials said they were unable to complete planning efforts for phase 4 in time to incorporate it into the most recent APB revision and, therefore, plan to re-baseline the CDM program again in 2018.

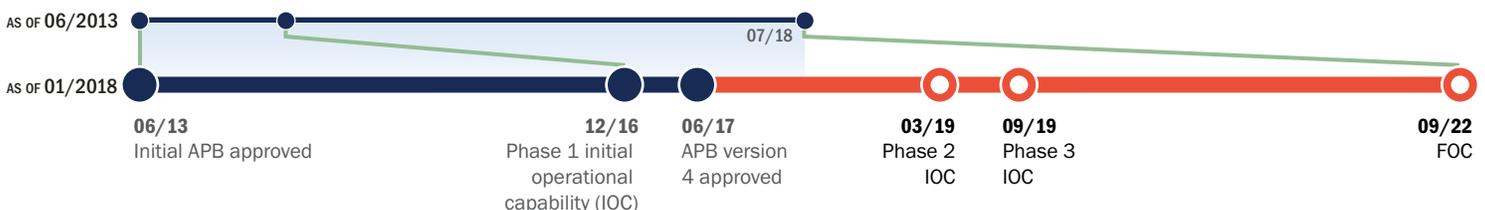
### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (06/2013)	2,076	1,173	3,249
Current APB (06/2017)	2,007	648	2,655
Current estimate (05/2017)	1,742	564	2,306

The CDM program identified a potential acquisition affordability gap in fiscal year 2018 based on its revised life-cycle cost estimate, which it addressed by adjusting the phase 3 schedule to shift some acquisition costs out to fiscal year 2020. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. However, the program anticipates receiving approximately \$281 million in O&M funding over the 5-year period.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): INSTITUTE FOR DEFENSE ANALYSES

As part of its re-baselining efforts, the CDM program updated its operational requirements document and test and evaluation master plan. At the direction of DHS leadership, the program consolidated its previous 12 key performance parameters (KPP) into 5 main KPP functions—identification, protection, detection, response, and recovery—some of which have multiple sub-measures. The revised KPPs are intended to better align with the National Institute of Standards and Technology’s Cybersecurity Framework and were developed in collaboration with key stakeholders, such as the Joint Requirements Council, DHS’s Director, Office of Test and Evaluation (DOT&E), and the program’s OTA.

The CDM program is only authorized to conduct testing on DHS networks, which means the other departments and agencies are responsible for testing the CDM tools and dashboards on their own networks. Under the program’s revised test and evaluation master plan, the OTA plans to perform operational assessments (OA) on DHS’s network to incrementally demonstrate each phase’s capabilities as they are deployed and to reduce risk prior to conducting formal program-level operational test and evaluation (OT&E). NPPD officials anticipate the first OA will be completed in calendar year 2018 and will test integration of phase 1 tools and dashboard reporting. NPPD officials previously told GAO that they had observed operational testing conducted at three other agencies and, in September 2017, said they continue to work with the program’s OTA to identify opportunities to observe testing at other agencies.

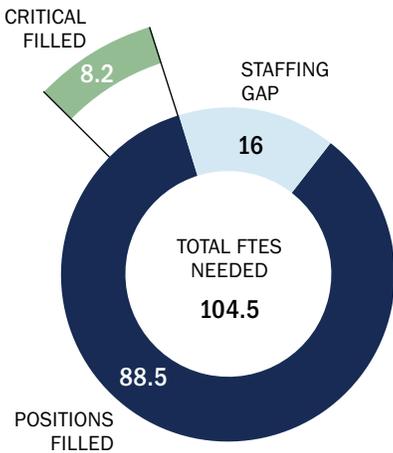
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Follow-on OT&E		PLANNED 06/2022		
Initial OT&E		PLANNED 09/2021		
OA Phase 3 and federal dashboard		PLANNED 03/2019		
OA Phase 2 and federal dashboard		PLANNED 09/2018		
OA Phase 1 and federal dashboard		PLANNED 03/2018		

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The CDM program updated its acquisition plan as a part of its re-baselining efforts, which reflects a change in strategy for procuring CDM tools and integration services for participating agencies through the General Services Administration (GSA). Previously, the CDM program issued task orders for these tools and services through blanket purchase agreements established under vendors’ GSA Federal Supply Schedule contracts. These agreements are set to expire in August 2018. Going forward, the program plans to use an existing GSA government-wide acquisition contract—known as Alliant—to obtain CDM tools and services. According to NPPD officials, the new acquisition strategy is intended to provide greater flexibility in contracting for current capabilities and to support future capabilities. It will also allow participating agencies to order additional CDM-approved products or services from GSA’s schedule for information technology equipment, software, and services; however, as of September 2017, NPPD officials stated they were in the process of determining how this process will work.

NPPD officials said that the program continues to face workforce challenges related to managing the program’s change in contracts and planning for phase 4. In February 2018, NPPD officials stated that they had on-boarded 5 staff to help address the program’s reported fiscal year 2017 gap of 16 full time equivalents. They noted that another 5 candidates were in the hiring process and that NPPD continues to work with officials from DHS’s Office of the Chief Security Officer to reduce continued challenges in onboarding new staff due to the lengthy security clearance process.

**PROGRAM OFFICE COMMENTS**

In addition to activities outlined in this assessment, NPPD officials stated that the CDM program continues to manage its budget to ensure program costs match available funding, and is leveraging the collective buying power of federal agencies and strategic sourcing to achieve government cost savings on CDM products. NPPD officials also stated that, as of December 2017, CDM has deployed agency dashboards to 23 agencies and was conducting and testing information exchanges of data between agency dashboards and the federal dashboard.

# HOMELAND ADVANCED RECOGNITION TECHNOLOGY (HART)

NATIONAL PROTECTION AND PROGRAMS DIRECTORATE (NPPD)

HART will replace and modernize the Department of Homeland Security's (DHS) legacy biometric identification system—known as IDENT—which shares information on foreign nationals with U.S. government and foreign partners to facilitate legitimate travel, trade, and immigration. NPPD plans to develop HART in four increments: increments 1 and 2 will replace and enhance IDENT functionality; increments 3 and 4 will provide additional biometric services, as well as a web portal and new tools for analysis and reporting.



Source: National Protection and Programs Directorate.

KEY FINDINGS

**Program experienced a schedule breach in June 2017 —14 months after initial baseline was established.**

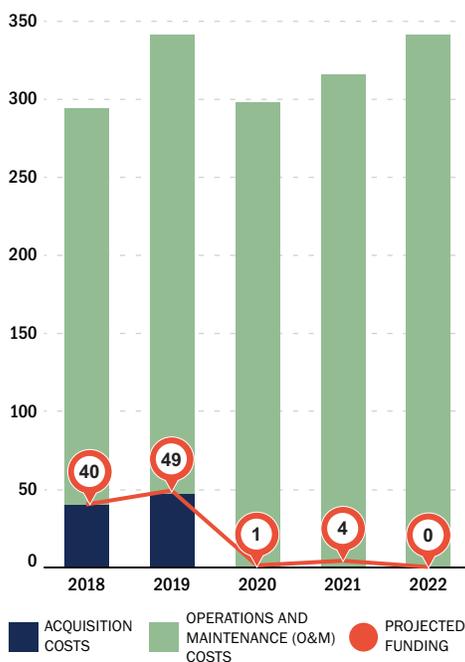
**Key performance parameters will be demonstrated as capability is developed.**

**Program has developed mitigation plans to address workforce risks.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

## FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



## APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (04/2016)	273	5,563	5,836
Current APB (04/2016)	273	5,563	5,836
Current estimate (06/2017)	227	5,149	5,376

## COST AND SCHEDULE

In June 2017, NPPD declared a schedule breach when it determined the HART program would not be able to meet its initial acquisition program baseline (APB) milestones. DHS leadership approved the program's APB in April 2016 and authorized the program to initiate development efforts for increments 1 and 2 in October 2016. NPPD officials attribute the schedule slip to multiple delays in awarding the contract for increments 1 and 2 as a result of issues with the request for proposals (RFP). The program released the RFP in February 2017 and awarded the contract in September 2017—approximately 9 months later than NPPD officials had planned. However, the program experienced additional delays after a bid protest to the contract award was filed with GAO in October 2017. GAO subsequently denied the protest and NPPD officials said the program plans to initiate work with the contractor in March 2018.

HART initially planned to achieve initial operational capability (IOC) with the deployment of increment 1 in December 2018, at which point program officials anticipated beginning to transition users from IDENT to HART. However, it is unclear when this will now occur, which is a significant challenge because IDENT is at risk of failure and may be unable to fully support requirements related to new programs—such as Customs and Border Protection's Biometric Entry-Exit. As a result, delays in HART could contribute to delays in other DHS acquisition programs.

The program updated its life-cycle cost estimate (LCCE) in June 2017 to inform the budget process. This LCCE is within its current APB cost thresholds, but does not account for the contractor's solution. The program plans to update its LCCE and other acquisition documentation, such as its APB, after initiating work with the contractor.

The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained operations and maintenance (O&M) funding for individual programs. However, the program anticipates receiving approximately \$1.3 billion in O&M funding to cover \$1.5 billion in O&M costs. NPPD officials explained that the current O&M cost estimate includes costs for maintaining IDENT. Future LCCE updates will reflect delivery of services through HART, which NPPD officials anticipate will be more cost effective.

## SCHEDULE CHANGES

TBD = To be determined



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): DEPARTMENT OF DEFENSE JOINT INTEROPERABILITY TEST COMMAND

HART plans to demonstrate its eight key performance parameters (KPP) as capabilities are developed. Increment 1 has two KPPs that establish requirements for system availability and a fingerprint biometric identification service. Increment 2 has four KPPs that establish requirements for multimodal biometric verification services and interoperability with a Department of Justice system. Increments 3 and 4 each have one KPP that establish requirements for web portal response time and reporting capabilities, respectively. However, NPPD officials stated they will revisit the KPPs for increments 3 and 4 as they define requirements for these increments.

In September 2016, DHS’s Director, Office of Test and Evaluation approved HART’s test and evaluation master plan after the program incorporated feedback from DHS’s Science and Technology Directorate (S&T) and its OTA. The program initially planned to conduct operational test and evaluation (OT&E) for increment 1 in June 2018 prior to achieving IOC, but this will likely be delayed because of HART’s schedule breach.

S&T’s Office of Systems Engineering completed a technical assessment on HART in February 2016, and concluded that the program had a moderate overall level of technical risk. In October 2016, DHS leadership directed HART to work with S&T to conduct further analysis following the program’s initial contract award for increments 1 and 2. However, these efforts have also been delayed.

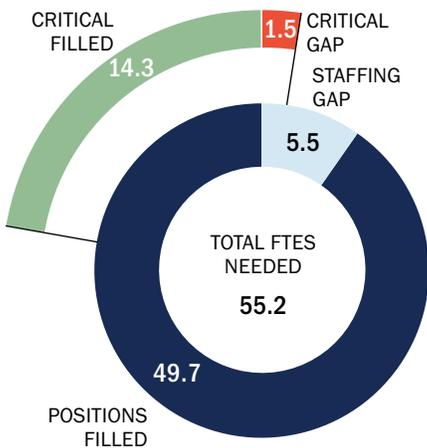
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Increment 2 OT&E		PLANNED TBD		
Increment 1 OT&E		PLANNED TBD		

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

NPPD officials told GAO they are currently planning for increments 3 and 4 and plan to refine the cost, schedule, and performance goals for these increments in its next APB. NPPD plans to pursue a separate contract for the development and delivery of increments 3 and 4. However, the program will require DHS leadership approval prior to initiating these development efforts.

In September 2017, NPPD officials told GAO they had hired two staff and planned to hire additional staff to address the program’s staffing gap of 5.5 full time equivalents. In response to DHS leadership’s direction, the program coordinated with DHS’s Chief Technology Officer to assess the skills and functions of staff necessary to execute the program and to develop the HART staffing plan. In its June 2017 staffing plan, the program identified workforce risks, including the potential for experiencing insufficient technical skillsets and inadequate resources to simultaneously execute development of HART and operate IDENT. To mitigate these risks, the program plans to develop a training plan to address the gap in skills, leverage support within the program by cross-training staff, and issue contracts for additional support as needed, among other things. However, if the program does not have adequate staff to complete these efforts, it may experience further schedule delays.

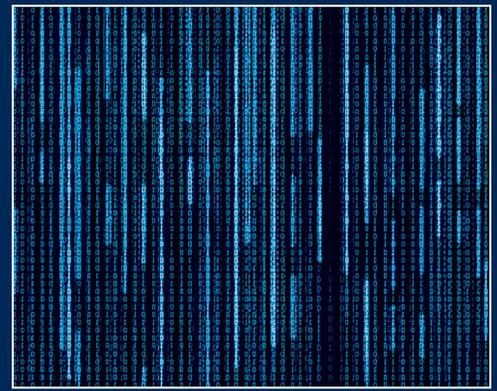
**PROGRAM OFFICE COMMENTS**

NPPD officials stated that the program’s schedule delays pose a challenge because IDENT remains at risk of failure despite incremental improvements to extend its service life and may be unable to fully support new customer requirements or requirements related to new programs. They added that the program has a risk management process, which it is using to manage a variety of identified risks—including several related to workforce. They noted that these risks have not yet materialized. NPPD officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# NATIONAL CYBERSECURITY PROTECTION SYSTEM (NCPS)

## NATIONAL PROTECTION AND PROGRAMS DIRECTORATE (NPPD)

NCPS is intended to defend the federal civilian government from cyber threats. NCPS develops and delivers capabilities through a series of “blocks.” Blocks 1.0, 2.0, and 2.1 are fully deployed and provide intrusion-detection and analytic capabilities across the government. The NCPS program is currently deploying EINSTEIN 3 Accelerated (E<sup>3</sup>A) to provide intrusion-prevention capabilities and plans to deliver block 2.2 to improve information sharing across agencies.



Source: National Cybersecurity Protection System.

KEY FINDINGS

**Program on track against cost and schedule despite testing delays.**

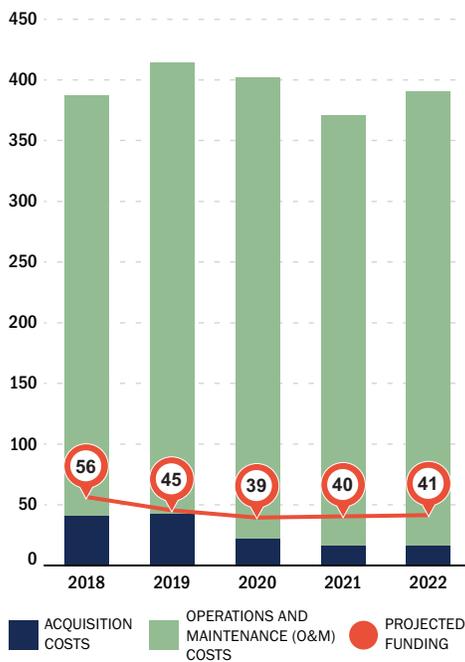
**Program completed E<sup>3</sup>A initial testing in August 2017, but cybersecurity testing delayed to 2018.**

**As of January 2018, the NCPS program has integrated E<sup>3</sup>A at 95 percent of agencies and departments.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (02/2009)	1,029	922	1,951
Current APB (09/2016)	1,278	4,414	5,692
Current estimate (06/2017)	766	3,965	4,731

### COST AND SCHEDULE

NPPD officials said the program is on track to meet the schedule and cost goals in its current acquisition program baseline (APB), which reflected changes resulting from the adoption of some of the Department of Homeland Security’s (DHS) Homeland Security Information Network (HSIN) capabilities for block 2.2 rather than developing custom solutions. However, challenges in completing test plans delayed testing:

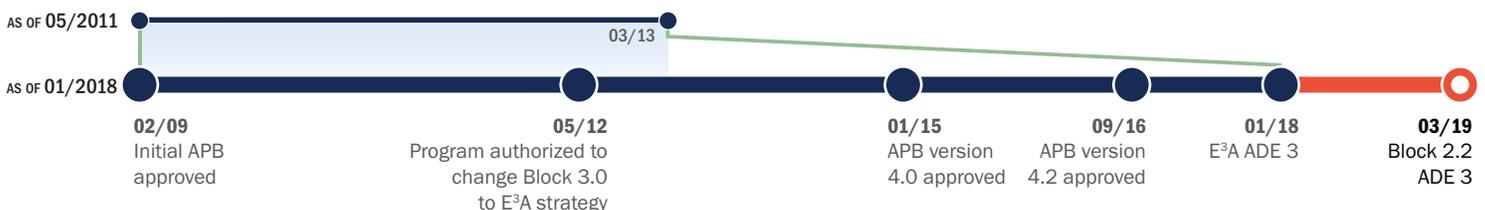
- Initial operational test and evaluation (OT&E) for E<sup>3</sup>A—intended to inform the acquisition decision event (ADE) 3 for approving E<sup>3</sup>A transition to sustainment—slipped from September 2016 to May 2017.
- The initial test event for block 2.2—intended to inform the ADE 2C for deploying additional block 2.2 capabilities—slipped from March 2017 to September 2017.

As of August 2017, NPPD officials said NCPS had adopted all planned HSIN capabilities but one because of security concerns, which HSIN is addressing by piloting a new tool.

The program updated its life-cycle cost estimate (LCCE) in June 2017 to inform the budget process, which is within its current APB cost thresholds. However, the program plans to update the LCCE again to support the E<sup>3</sup>A ADE 3 and block 2.2 ADE 2C. Both of these milestones were expected to occur in December 2017, but were scheduled for January 2018 to allow for the completion of required documentation. NPPD officials noted that the revised LCCE will include new assumptions for how acquisition and operations and maintenance (O&M) costs are estimated. The NCPS LCCE initially increased when DHS leadership re-baselined the program in January 2015 to account for block 2.2, refinements to E<sup>3</sup>A, and costs through fiscal year 2022.

The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS’s funding plan no longer contained O&M funding for individual programs. NPPD officials anticipate receiving \$1.8 billion in O&M funding over this 5-year period. The program is also projected to have an \$83 million surplus in acquisition funding over this 5-year period, which NPPD officials anticipate will be less once the LCCE revision is complete.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): INSTITUTE FOR DEFENSE ANALYSES

In January 2018, DHS’s Director, Office of Test and Evaluation (DOT&E) evaluated the E<sup>3</sup>A initial OT&E results and determined that:

- E<sup>3</sup>A met its three key performance parameters (KPP) for coverage, accuracy, and timeliness.
- E<sup>3</sup>A is operationally suitable and operationally effective with limitations primarily because it lacks the desired ability to share threat information.
- The test was not adequate to assess cybersecurity and recommended the program take actions to strengthen future testing.

NPPD officials said that a full cybersecurity assessment will not be conducted until calendar year 2018. As a result, DHS will not have a full picture of E<sup>3</sup>A performance to inform the program’s ADE 3 decision.

In October 2017, the NCPS program completed the first block 2.2 operational assessment (OA), which focused on testing delivery of an information sharing portal to inform the program’s ADE 2C. In January 2018, DOT&E determined that it was too soon to assess block 2.2 progress toward operational effectiveness, suitability, and cybersecurity. DOT&E also noted block 2.2 is at risk of not meeting user needs because the portal comprises a small portion of planned capabilities and alignment with the operational requirements is unclear. DOT&E made a number of recommendations, including repeating the OA before conducting initial OT&E.

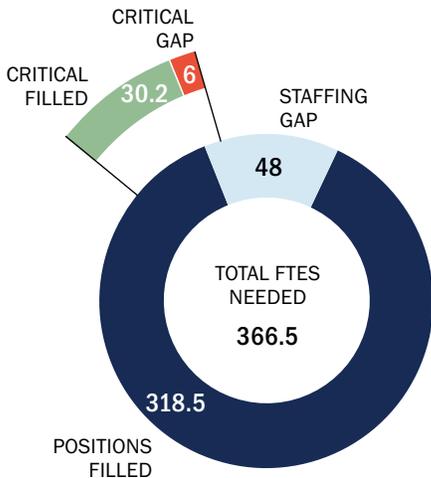
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Block 2.2 OT&E	PLANNED 12/2018			
Block 2.2 OA	10/2017	—	—	—
E <sup>3</sup> A Initial OT&E	08/2017	●	●	—
E <sup>3</sup> A OA	08/2016	—	—	—
E <sup>3</sup> A OA	03/2015	—	—	—

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

Since May 2015, NPPD officials stated that the E<sup>3</sup>A intrusion-prevention capabilities have been primarily provided through sole source contracts with internet service providers (ISP) and a contract to provide basic intrusion-prevention services. In December 2015, Congress required DHS to make available for use by federal agencies, certain capabilities, such as those provided by NCPS’s E<sup>3</sup>A, to prevent network traffic associated with certain cybersecurity risks by December 2016. By December 2016, NCPS had integrated E<sup>3</sup>A at approximately 93 percent of civilian federal agencies and departments and, in January 2018, NPPD officials said NCPS was up to 95 percent. According to NPPD officials, the program first focused on integrating E<sup>3</sup>A at the largest departments and agencies and is now focused on integrating the remaining smaller agencies. These officials previously cited legal and network challenges as barriers to integration because they must negotiate and customize E<sup>3</sup>A for individual agencies and departments, but stated that they continue to work with all agencies and departments to provide E<sup>3</sup>A services.

In January 2018, NPPD officials stated that one critical position had been filled and the other five are for contracting officers dedicated to NCPS. They added that the program is currently supported by four contracting officers matrixed from elsewhere in DHS, but this staff also supports other contracts. NPPD officials did not attribute any negative affects to workforce shortages and said they continue to work with DHS to successfully recruit and retain talented cybersecurity staff, which has been a challenge. For example, according to NPPD officials, DHS posts continuous open announcements for candidates and has initiated a cyber pay initiative, among other things, which has yielded positive results for the program.

**PROGRAM OFFICE COMMENTS**

NPPD officials stated that, since the last assessment, the NCPS program has made progress toward achieving program objectives. For example, departments and agencies have continued to onboard E<sup>3</sup>A services and approximately 95 percent of the federal civilian .gov user population is protected by at least one E<sup>3</sup>A service. NPPD officials reiterated that the NCPS program executed initial OT&E for E<sup>3</sup>A and an OA of NCPS block 2.2 information sharing capabilities in 2017. NPPD officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# NEXT GENERATION NETWORKS PRIORITY SERVICES (NGN-PS)

NATIONAL PROTECTION AND PROGRAMS DIRECTORATE (NPPD)

NGN-PS is intended to address an emerging capability gap in the government's emergency telecommunications service, which prioritizes select officials' phone calls when networks are overwhelmed. NPPD executes NGN-PS through commercial telecommunications service providers, which addresses the government's requirements as they modernize their own networks. NPPD is executing NGN-PS in two phases—(1) voice and (2) data and video.



**Government Emergency Telecommunications Service**  
Office of Emergency Communications

**John Smith**  
Department of Defense

Dial Access Number: **1-710-627-4387**

After Tone, Enter PIN: **\*\*\*\*\***

When Prompted, Dial: **Area Code + Number**

Source: Leidos.

KEY FINDINGS

**Revised life-cycle cost estimate includes costs for additional capabilities, but eliminates sustainment costs.**

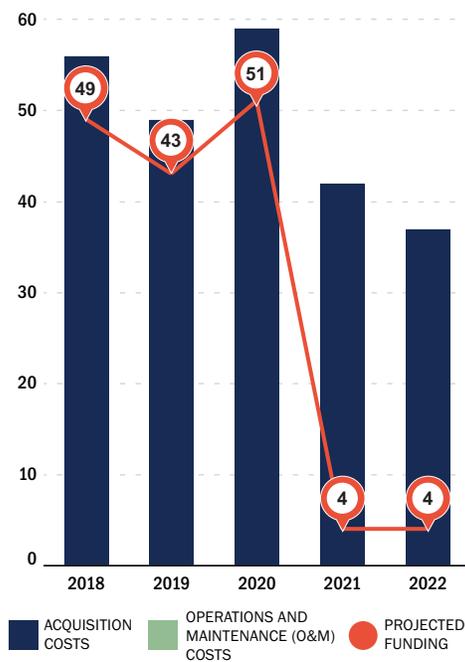
**Initial operational capability for voice phase wireless capabilities achieved in August 2017.**

**Acquisition of data and video phase capabilities to begin in September 2021.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

## FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



## COST AND SCHEDULE

In November 2017, the Department of Homeland Security's (DHS) Chief Financial Officer approved a revised life-cycle cost estimate (LCCE) for NGN-PS, which includes costs for the entire program's voice phase and eliminates operations and maintenance (O&M) costs. The program removed O&M costs because capabilities acquired through NGN-PS are transferred to and funded through NPPD's Priority Telecommunications Service (PTS) once they become operational. NGN-PS is currently focused on delivering its voice phase, which is divided into three increments:

- Increment 1 maintains current priority service on long distance calls as commercial service providers update their networks;
- Increment 2 delivers wireless capabilities; and
- Increment 3 is intended to address landline capabilities.

The program's previous LCCE and current acquisition program baseline (APB) only include costs associated with increments 1 and 2. NPPD officials told GAO they plan to update the program's APB in January 2018 to include costs, schedule, and performance goals for increment 3 and expect to receive DHS leadership approval to initiate development by August 2018.

NGN-PS remains on track to meet its cost and schedule goals for the first two increments of the voice phase. The program's full operational capability (FOC) for increment 1 previously slipped from June 2017 to March 2019, which NPPD officials attributed to funding shortfalls. NGN-PS achieved initial operational capability (IOC) for increment 2 wireless capabilities in August 2017 when priority service via cellular towers was demonstrated by the program's largest service provider.

## APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2011)	244	469	713
Current APB (11/2013)	691	409	1,100
Current estimate (11/2017)	660	0	660

The program projects an acquisition affordability gap of \$92 million from fiscal years 2018 to 2022. However, DHS's current funding plan does not include funding for increment 3, which accounts for the funding shortfall in fiscal years 2021 and 2022. NPPD officials said they anticipate receiving an additional \$79 million in acquisition funding over this 2-year period, but will continue to prioritize capabilities if additional funding is not provided. These officials also said the program has achieved cost savings on increments 1 and 2 that will mitigate some of the projected shortfall in fiscal years 2018 and 2019.

## SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): JOHNS HOPKINS UNIVERSITY

According to NPPD officials, NGN-PS continues to meet its six key performance parameters (KPP) for the voice phase, but DHS’s Director, Office of Test and Evaluation has not validated the program’s performance. In April 2017, the Joint Requirements Council validated an operational requirements document, which included KPPs for phase 2 video and data capabilities; however, NPPD officials told GAO that phase 2 was still in the early planning stages.

NGN-PS capabilities are evaluated through developmental testing and operational assessments conducted by service providers on their own networks. However, NPPD officials noted that each emergency is unique and that performance can be affected by damage to telecommunications infrastructure. NPPD officials review the service providers’ test plans, oversee tests to verify testing procedures are followed, and approve test results to determine when testing is complete. The OTA does not conduct a stand-alone operational test event for NGN-PS. Instead, the OTA leverages the service providers’ test and actual operational data to assess program performance. NPPD officials also said that they continuously review actual NGN-PS performance and that all service providers undergo annual network service verification testing under the PTS program.

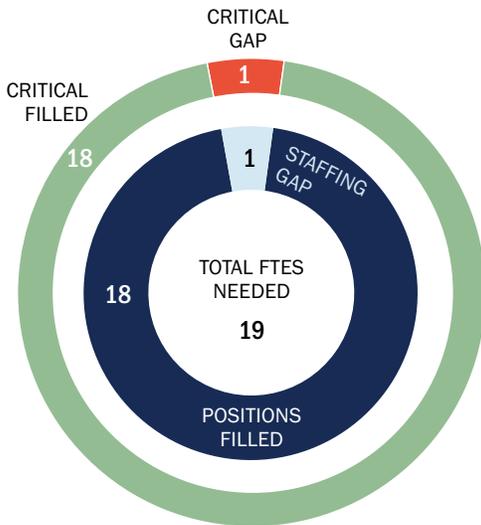
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
None		NOT APPLICABLE		

● PASS    ● PASS WITH LIMITATIONS    ○ FAIL    — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

NGN-PS was established in response to an Executive Order requiring the federal government to have the ability to communicate at all times during all circumstances to ensure national security and manage emergencies. A Presidential Policy Directive issued in July 2016 superseded previous directives requiring continuous communication services for select government officials. According to NPPD officials, the new directive validates the program’s requirements for the voice phase and was used to develop requirements for the video and data phase. The program expects to begin the acquisition of the phase 2 for video and data in September 2021.

In July 2017, NPPD reported that the program needed a systems engineer and was mitigating the vacancy with contracted support staff. The program also identified a need for an additional systems engineer and program support staff starting in fiscal year 2019 to support the start of increment 3. In August 2017, NPPD officials told GAO they continue to face challenges hiring and retaining engineers with adequate experience because of competition with the private sector. The program has historically mitigated staffing gaps by leveraging support from contracted and PTS program staff, as needed.

**PROGRAM OFFICE COMMENTS**

In addition to activities identified in this assessment, NPPD officials stated that the program has received Joint Requirements Council validation of the phase 2 concept of operations and DHS leadership approval of the phase 2 operational requirements document. As of January 2018, the updated APB was in the approval process. NPPD officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# NATIONAL BIO AND AGRO-DEFENSE FACILITY (NBAF)

## SCIENCE AND TECHNOLOGY DIRECTORATE (S&T)

The NBAF program is constructing a state-of-the-art laboratory in Manhattan, Kansas to replace the Plum Island Animal Disease Center. The facility will enable the Department of Homeland Security (DHS) and the Department of Agriculture (USDA) to conduct research, develop vaccines, and provide enhanced diagnostic capabilities to protect against foreign animal, emerging, and zoonotic diseases that threaten the nation's food supply, agricultural economy, and public health.



Source: NBAF Design Partnership.

KEY FINDINGS

**Construction on track, but projected funding gap may delay operational stand-up.**

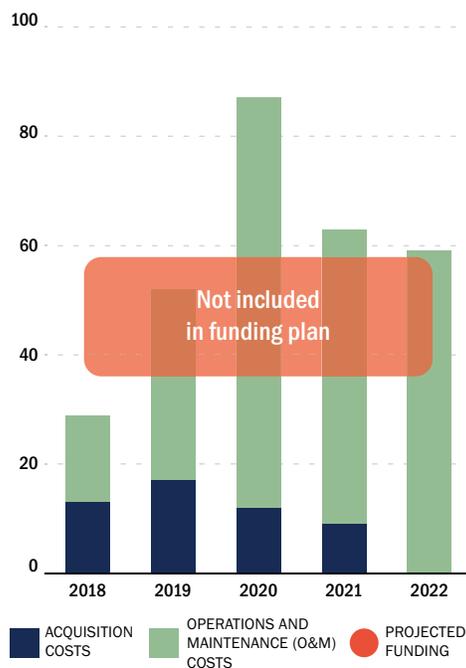
**Commissioning process underway, but performance will not be demonstrated until construction is complete.**

**NBAF adequately staffed, but staffing needs will change as operational stand-up activities begin.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (07/2014)	1,298	8,341	9,639
Current APB (07/2014)	1,298	8,341	9,639
Current estimate (03/2017)	1,251	8,250	9,501

### COST AND SCHEDULE

The program's annual life-cycle cost estimate (LCCE) update is within its current acquisition program baseline (APB) cost thresholds and, according to NBAF officials, the program remains on track to meet its schedule goals. In August 2017, NBAF officials said that construction activities thus far—such as pouring concrete for the main laboratory and steel framing—have proceeded as anticipated and will continue through December 2020. NBAF officials told GAO the program has already received full acquisition funding for facility construction efforts through federal appropriations and gift funds from the state of Kansas.

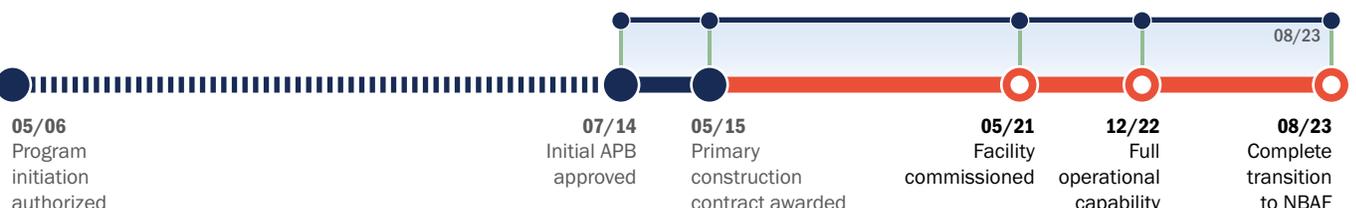
As construction continues, the program plans to begin operational stand-up activities for the facility. However, a potential affordability gap may delay the program's ability to complete these stand-up activities, which are needed to begin conducting laboratory operations. The program was not included in DHS's funding plan to Congress for fiscal years 2018 to 2022 because DHS did not report operations and maintenance (O&M) funding for individual programs. However, NBAF officials anticipate receiving only \$149 million in O&M funding to cover an estimated \$239 million in O&M costs over the next 5 years, resulting in a projected shortfall of approximately \$90 million.

NBAF officials stated the O&M funding gap could delay a number of operational stand-up activities, including plans to award a management operations and research support contract in October 2018, the purchase of laboratory and information technology equipment, and hiring of operations management staff. According to NBAF officials, if operational stand-up activities are delayed, there is a risk the facility will not be fully operational by December 2022, as is currently planned. This may delay the transition from the Plum Island Animal Disease Center, which is nearing the end of its useful life. NBAF officials reported that S&T plans to communicate the program's future funding needs to DHS leadership through the annual budget process. If the program does not receive the funding it requests, these officials stated that S&T will prioritize the operational stand-up activities that best reduce the risk of schedule delays.

### SCHEDULE CHANGES

AS OF 07/2014

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: NOT APPLICABLE

In May 2013, DHS’s Director, Office of Test and Evaluation determined he was not responsible for overseeing NBAF because it was a facility, as opposed to a system.

According to NBAF officials, the program has implemented a commissioning process for the facility to determine whether it can meet its sole key performance parameter (KPP) for laboratory spaces that meet various biosafety standards.

A third-party commissioning agent has been retained as a subcontractor to the prime construction management contractor, and NBAF officials stated that a commissioning plan has been in place since 2012. According to NBAF officials, the commissioning agent worked with the facility design and construction teams to develop the commissioning plan, and detailed procedures are in place to install and commission equipment in the facility. The commissioning agent will monitor and test the facility’s equipment and building systems while construction is ongoing to ensure they are properly installed and functioning according to appropriate biosafety specifications. The commissioning agent will report its findings directly to program officials and coordinate with other entities involved in the commissioning process, including the NBAF program office, the construction management contractor, and end users, among others. Full commissioning of the facility is scheduled to be completed by May 2021, 6 months after the completion of construction.

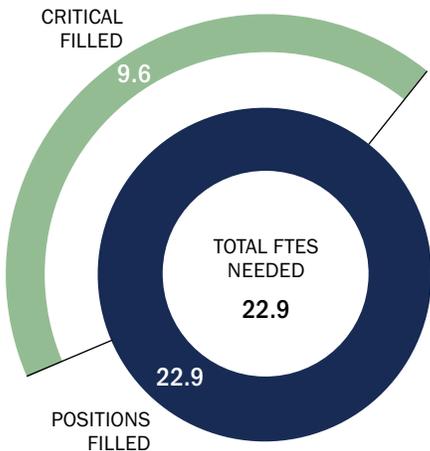
**TEST STATUS**

	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
	DATE COMPLETED	EFFECTIVE	SUITABLE	CYBER SECURE
TEST EVENT	NOT APPLICABLE			
None	NOT APPLICABLE			

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

NBAF officials reported that they coordinate regularly with key stakeholders. For example, they hold regular coordination meetings with USDA officials to discuss NBAF operations, including operational stand-up activities and future procurement. The NBAF program office has also begun outreach to the federal regulators responsible for awarding the registrations needed for NBAF to conduct laboratory operations to begin planning for this authorization process.

The NBAF program office is currently fully staffed. However, NBAF officials reported the program’s staffing needs will change in the coming years, as the program progresses through construction and begins operational stand-up of the facility. For example, over the next 5 years, the program will need to hire an operations director, bio-risk manager, chief information officer, and facility manager, among others, for NBAF operations management. However, the projected O&M funding shortfall during this same period could affect the program’s ability to hire new staff when needed and complete operational stand-up activities on time.

**PROGRAM OFFICE COMMENTS**

NBAF officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# ELECTRONIC BAGGAGE SCREENING PROGRAM (EBSP)

## TRANSPORTATION SECURITY ADMINISTRATION (TSA)

Established in response to the terrorist attacks of September 11, 2001, EBSP tests, procures, and deploys transportation security equipment, such as explosives trace detectors and explosives detection systems, across approximately 440 U.S. airports to ensure 100 percent of checked baggage is screened for explosives. EBSP is primarily focused on delivering new systems with enhanced screening capabilities and developing software upgrades for existing systems.



Source: Transportation Security Administration.

KEY FINDINGS

**Program breached its cost goals and faces funding shortfalls in fiscal year 2018.**

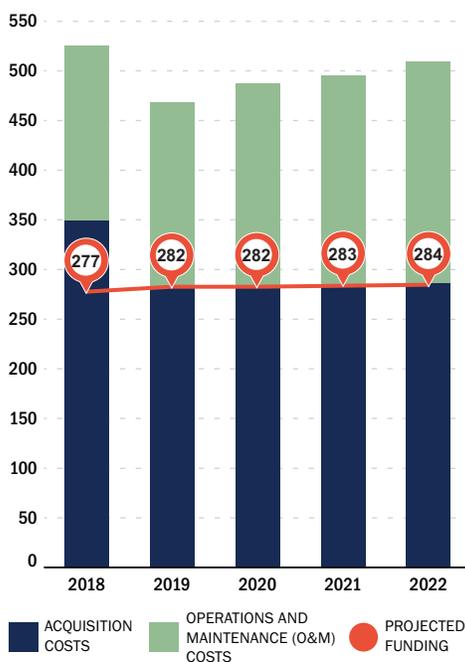
**Program is incorporating requirements to address cybersecurity risk for existing systems.**

**EBSP plans to pursue a new procurement approach in 2018, and staffing challenges exist.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In the program's annual life-cycle cost estimate update, its operations and maintenance (O&M) costs exceeded the acquisition program baseline (APB) cost threshold, which constitutes a breach under the Department of Homeland Security's (DHS) acquisition policy. The O&M costs increased when TSA accounted for updated maintenance costs and quantities, and shifted salaries from acquisition to O&M to align with DHS's new appropriation structure. TSA officials said they did not submit a breach notification because they considered the movement of salaries to be an administrative change. The program plans to update its APB in calendar year 2018 to reflect a new plan for procuring equipment under its current acquisition strategy. TSA officials said this APB will also reflect the cost changes.

In May 2016, DHS leadership approved a revised APB for EBSP, which reflects its current acquisition strategy to competitively procure systems on an ongoing basis using qualified product lists. The program's revised APB cost thresholds decreased compared to its initial APB, which TSA officials attributed to various reasons, including shortening the program's end date by 3 years and lower than anticipated actual costs, among other things.

TSA officials told GAO that one of their primary challenges is funding, and the program is projected to face a \$72 million acquisition funding shortfall in fiscal year 2018. TSA identified \$70 million in carryover funding to address this gap. To mitigate anticipated funding gaps in future years, TSA officials said they may shift projects from one fiscal year to another or cancel them altogether, which may result in the delay or elimination of screening capabilities. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. TSA anticipates receiving \$980 million in O&M funding over this 5-year period to cover \$1 billion in O&M costs.

TSA officials anticipate achieving the program's final APB milestone—initial operational capability (IOC) for systems that detect additional materials and provide an advanced threat detection algorithm—by its revised threshold date. Previously, EBSP planned to award contracts for these systems in September 2015 and September 2018, respectively.

### APB THRESHOLDS VS. CURRENT ESTIMATE

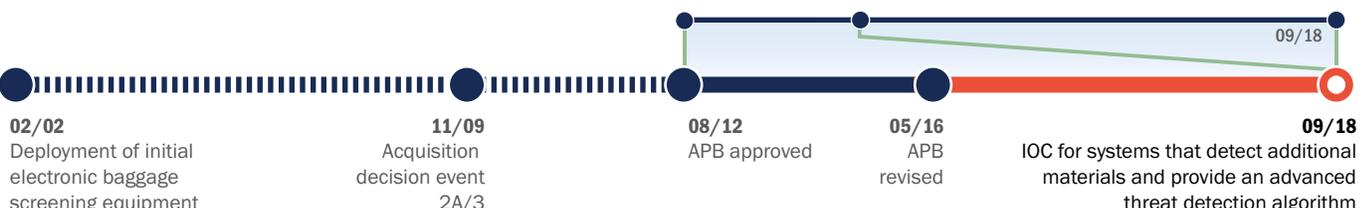
DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (08/2012)	14,465	6,733	21,198
Current APB (05/2016)	13,920	5,052	18,972
Current estimate (06/2017)	12,131	5,088	17,219

### SCHEDULE CHANGES

AS OF 08/2012

AS OF 01/2018



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: TSA OFFICE OF SECURITY CAPABILITIES' TEST AND EVALUATION BRANCH

TSA officials previously stated that EBSP has demonstrated that all deployed systems can meet the program’s key performance parameters, including automated threat detection, throughput, and operational availability. In September 2017, TSA officials said they had identified a critical need for improved cybersecurity requirements and plan to update the program’s acquisition documentation starting in 2018.

Since March 2011, DHS’s Director, Office of Test and Evaluation (DOT&E) has assessed the operational test and evaluation (OT&E) results of 11 EBSP systems from multiple vendors and determined that 6 are effective and suitable. Most recently, DOT&E found that a medium-speed explosives detection system with an advanced threat detection algorithm tested in May 2017 was effective with limitations and not suitable, primarily because of the increase in manpower needed to operate the system on a long-term, continuous basis. TSA officials do not have any plans to retest this system within the next year. DOT&E also found that a reduced-size standalone explosives detection system tested in March 2017 was suitable with limitations, but not effective because of multiple factors resulting in the inability of operators to maintain control of baggage.

**TEST STATUS**

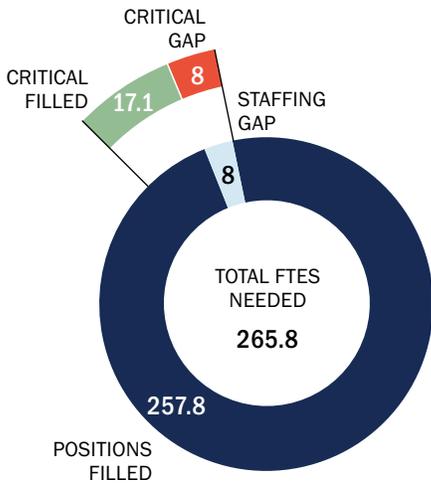
TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	SECURE	CYBER
OT&E of a medium-speed system	05/2017	●	○	—	—
OT&E of a reduced-size standalone system	03/2017	○	●	—	—
OT&E for two system variants	01/2014	●	●	—	—
OT&E of a reduced-size standalone system	02/2013	●	○	—	—

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

Note: Table above depicts results from assessments issued since August 2013. DOT&E issued seven other assessments on EBSP systems prior to this date.

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

As of December 2017, EBSP had deployed 1,664 explosives detection systems and 2,638 explosives trace detectors nationwide. In 2018, EBSP plans to pursue a new competitive procurement approach to replace and update existing systems that will include:

- New contract vehicles to better align EBSP procurement activities with the program’s strategic roadmap.
- Updates to EBSP’s vendor qualification process to allow for vendor collaboration before testing.
- Transitioning from procuring systems with different sizes and speeds to two types: (1) inline systems that integrate with a baggage handling system and are linked through a network and (2) standalone systems that may be integrated with a baggage handling system, but not linked to a network.

The program is in the process of updating its acquisition documentation to reflect this new procurement approach and TSA officials anticipate opening a qualified products list for new systems starting in June 2018.

TSA officials said that staffing remains a challenge for the program because of cuts in government and contracted mission support staff and critical vacancies, including a division director. In September 2017, TSA reported that existing personnel across the program have assumed responsibilities of these positions, but workloads are unsustainable at current staffing levels.

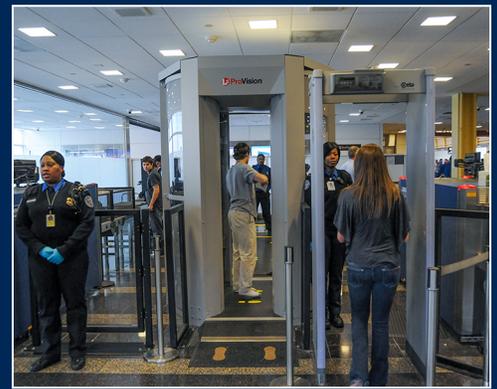
**PROGRAM OFFICE COMMENTS**

TSA officials stated that EBSP continues to procure, test, and deploy equipment and capabilities to recapitalize older equipment, improve security screening capability at airports, and enhance the detection capabilities of the fleet. They added that TSA employs extensive testing to verify the suitability and effectiveness of equipment to meet requirements. Moving forward, EBSP intends to establish IOC milestones for new technologies and capabilities, while allowing TSA the flexibility to make risk-based decisions. TSA officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# PASSENGER SCREENING PROGRAM (PSP)

## TRANSPORTATION SECURITY ADMINISTRATION (TSA)

The Department of Homeland Security (DHS) established PSP in response to the terrorist attacks of September 11, 2001. PSP identifies, tests, procures, deploys, and sustains transportation security equipment across approximately 440 U.S. airports to help TSA officers identify threats concealed on people and in their carryon items. The program aims to increase threat detection capabilities, improve the efficiency of passenger screening, and balance passenger privacy and security.



Source: Transportation Security Administration.

KEY FINDINGS

**DHS approved PSP's sixth baseline to remediate schedule breach; costs revised due to funding cuts.**

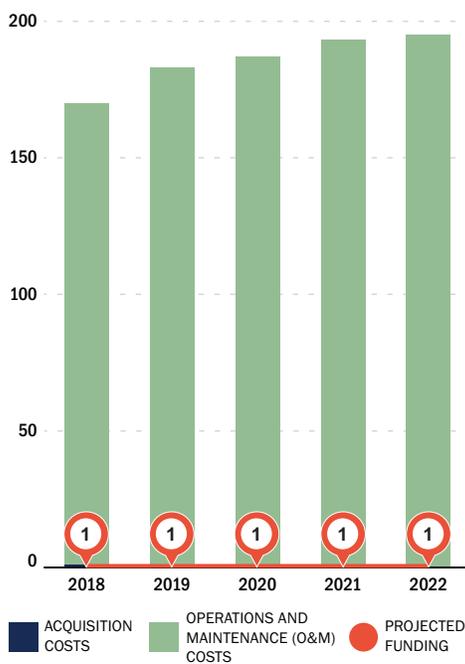
**Started testing on the Credential Authentication Technology in TSA Precheck lanes during 2017.**

**Critical staffing vacancies persist and may delay followon acquisition planning efforts.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In May 2017, the DHS Under Secretary for Management (USM) approved the sixth version of the PSP acquisition program baseline (APB) and subsequently removed the program from breach status. In January 2016, TSA declared a schedule breach of a key milestone—acquisition decision event (ADE) 3—for the Credential Authentication Technology (CAT) because of delays in incorporating new cybersecurity requirements.

Consistent with previous versions of the program's APB, the new baseline modified the program's cost, schedule, and performance parameters. For example, the program established the following:

- Separate CAT milestone dates for TSA Precheck and standard lanes. TSA officials stated there is no capability difference between screening lanes, but an initial focus on TSA Precheck lanes will assist with demonstrating CAT requirements and resolving past testing issues that contributed to an initial 4-year delay to CAT's full operational capability (FOC) date. PSP now plans to reach FOC for CAT more than 5 years later than its revised target of June 2018 and more than 9 years later than initially planned.
- New FOC dates for other technologies, which TSA officials said are expected to be more realistic about delivery dates and account for changes in some FOC quantities. For example, TSA requested and received approval in September 2017 to increase FOC quantities for second generation Advanced Technology (AT-2) Tier I systems to meet increasing passenger volume and expected airport growth.

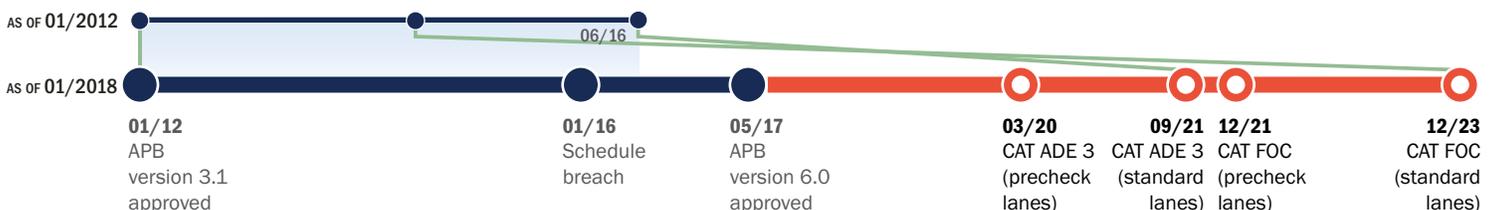
In May 2017, the USM also directed the program to revise its life-cycle cost estimate (LCCE) in response to less-than-expected funding levels. The new LCCE also shifted some acquisition costs to operations and maintenance (O&M) to be consistent with DHS's new appropriation structure. TSA officials believe the new funding profile will be sufficient to sustain legacy PSP equipment, but will significantly limit the program's ability to enhance existing equipment capabilities and support operational needs. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained O&M funding for individual programs. TSA anticipates receiving \$906 million in O&M funding over this 5-year period to cover \$923 million in O&M costs.

### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2012)	4,623	1,853	6,476
Current APB (05/2017)	3,546	1,915	5,460
Current estimate (06/2017)	2,146	2,538	4,683

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: VARIOUS

Since August 2010, DHS’s Director, Office of Test and Evaluation (DOT&E) has assessed the test results of eight PSP systems from multiple vendors and determined that three are effective and suitable. Most recently, DOT&E reviewed the results from an assessment of automated screening lanes, which TSA began pursuing in fall 2016 in response to an urgent operational need to address increasing passenger wait times. DOT&E found that automated systems showed potential to increase passenger screening rates, but noted some adverse impact on system performance and availability.

Going forward, TSA plans to conduct testing on updates made to existing PSP systems, as well as complete testing of CAT. TSA initiated CAT developmental testing in TSA Precheck lanes in late fiscal year 2017 and anticipates completing operational testing by June 2019. Testing will expand to standard screening lanes shortly thereafter and is expected to be complete by September 2020. However, in November 2017, DHS leadership approved TSA’s proposal to transfer requirements from the Security Technology Integrated Program, which provides critical data connectivity capabilities, to CAT to reduce the dependency between the programs. DHS leadership directed TSA to complete several actions to account for this change, including updating CAT’s operational requirements document and test and evaluation master plan. In January 2018, TSA officials said that they determined CAT’s current operational requirements document was still valid and anticipate updating the test and evaluation master plan by March 2018.

**TEST STATUS**

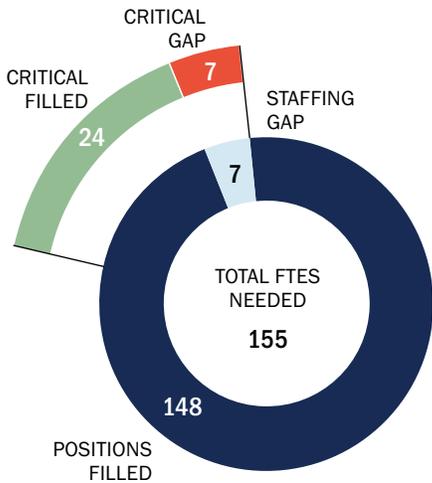
TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	CYBER SECURE	
Automated screening lanes operational utility assessment	04/2017	—	—	—	
AT-2 tier II follow-on operational test & evaluation (OT&E)	08/2016	○	●	—	
CAT phase I operational test	11/2014	○	○	—	
Advanced imaging technology-2 OT&E	11/2014	●	●	—	

● PASS ○ PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

Note: Table above depicts assessments for tests completed since November 2014. DOT&E issued eight other assessments on PSP systems prior to this date.

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

TSA employs two acquisition strategies to acquire PSP systems:

- Qualified Product List (QPL) approach—used for proven technologies when capability requirements are rigid and contractors’ systems are mature. Any contractors’ systems that demonstrate they meet the capability requirements are added to the QPL. TSA has used this approach to acquire the second generation AT-2 systems, Bottled Liquid Scanners, and Explosive Trace Detectors.
- Low Rate Initial Production (LRIP) approach—used when capability requirements are flexible and contractors’ systems are evolving. Under this approach, PSP uses a series of development contracts to enhance systems’ capabilities over time. PSP is currently using this approach to acquire CAT.

TSA planned to initiate new acquisition programs starting in fiscal year 2018 that will replace PSP, but this effort may be at risk because of understaffing. In August 2017, TSA reported that its checkpoint screening division—whose staff is concurrently responsible for PSP and its follow-on programs—continued to have staffing vacancies, including project managers, analysts, and a deputy program manager. TSA is mitigating these gaps with existing staff and, according to TSA officials, the staffing challenges may decrease because the new programs may be delayed in response to funding cuts.

**PROGRAM OFFICE COMMENTS**

TSA officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# TECHNOLOGY INFRASTRUCTURE MODERNIZATION (TIM)

## TRANSPORTATION SECURITY ADMINISTRATION (TSA)



Transportation Security Administration

The TIM program was initiated to address shortfalls in TSA's threat assessment screening and vetting functions by providing a modern and centralized end-to-end credentialing system. The TIM system will manage credential applications and the review process for millions of transportation workers and travelers across three segment populations: maritime, surface, and aviation. It will support large programs, such as TSA Precheck and the Transportation Worker Identification Credential.

Source: Transportation Security Administration.

KEY FINDINGS

**Program on track against its revised cost and schedule goals.**

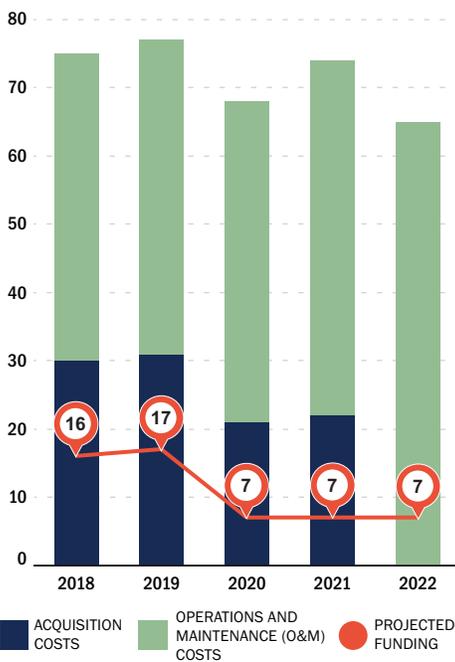
**Operational testing identified limitations with the system; cybersecurity has not been assessed.**

**Staffing gaps in key areas, such as systems engineering and testing, are a significant program risk.**

**GAO last reported on this program in October and April 2017 (GAO-18-46, GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

The TIM program is on track to meet the cost and schedule goals in its current acquisition program baseline (APB). In September 2016, the Department of Homeland Security's (DHS) Under Secretary for Management approved the TIM program's revised APB—which reflected a new technical approach to deploy capabilities using an agile development methodology—and subsequently removed the program from breach status, authorizing TSA to resume new development after a nearly 22-month pause. DHS leadership paused new development in January 2015 after the program breached its initial APB goals for various reasons, including technical challenges, insufficient contractor performance, and the addition of new requirements after DHS leadership had approved the program's initial acquisition strategy. The program now plans to achieve full operational capability (FOC) in March 2022 and its life-cycle cost estimate (LCCE) increased to account for this 6-year schedule slip and integration with the Transportation Vetting System, among other things.

Since the program's re-baseline, it has been developing and deploying capabilities in 2-month incremental agile releases, such as functionality to transition TSA Precheck program to the TIM system. The program updated its LCCE in November 2017 to inform a program review with DHS leadership, which is within its current APB cost thresholds. The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained operations and maintenance (O&M) funding for individual programs. TSA officials anticipate receiving approximately \$318 million in O&M funding over this 5-year period, which includes nearly \$118 million in fees from vetting programs. TSA officials plan to realign \$57 million to cover the projected acquisition shortfall, and said any additional surplus funding available in fiscal year 2022 would be used to implement new system requirements identified by the program's customers.

In November 2017, TSA officials identified several program and technical risks that could affect the program's cost, schedule, and performance. These risks include an increase in new requirements and increased risk of system vulnerabilities and cyberattacks if the program does not identify a provider to perform software updates on open source code. TSA officials are working to mitigate these risks.

### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (11/2011)	253	146	398
Current APB (09/2016)	472	988	1,460
Current estimate (11/2017)	349	957	1,306

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): TSA'S TEST AND EVALUATION BRANCH

In April 2017, DHS's Director, Office of Test and Evaluation (DOT&E) assessed the results of the program's November 2016 follow-on operational test and evaluation (OT&E) for the maritime segment and determined that the system:

- met two of its four key performance parameters (KPP),
- was operationally effective and suitable with limitations, and
- was not cyber-secure because threat-based cybersecurity testing was deferred to November 2018, after the program completes its migration to a new production environment.

The OTA did not evaluate the program's KPP related to enforcing system user access controls because it was new to the TIM program when testing began. In addition, the OTA cannot conduct testing on the program's remaining KPP related to information reuse until the surface and aviation segments are deployed.

In March 2017, DOT&E approved a new test and evaluation master plan for the TIM program, which calls for the OTA to conduct continuous operational testing for each 2-month agile release and document the results in a dashboard. According to TSA officials, the results of each release are provided to DOT&E, but DOT&E does not provide a formal assessment of these results. DOT&E plans to assess the results of the program's cybersecurity testing in late calendar year 2018.

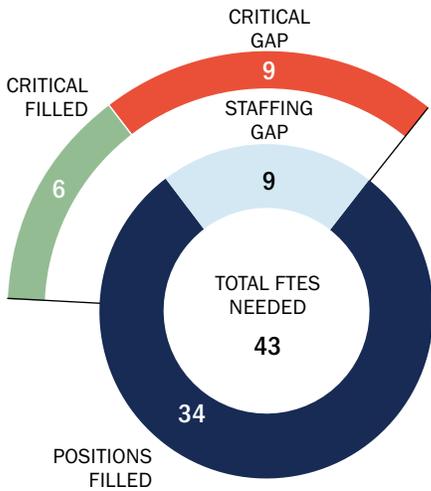
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Cybersecurity test and evaluation		PLANNED 11/2018		
Operational testing for agile release 5	09/2017		NONE	
Operational testing for agile release 4	08/2017		NONE	
Operational testing for agile release 3	06/2017		NONE	
Follow-on OT&E	11/2016	●	●	—
OT&E	06/2015	○	○	—

● PASS   
 ● PASS WITH LIMITATIONS   
 ○ FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

Under the program's new technical approach, TSA plans to replace the TIM system's existing commercial-off-the-shelf applications with open source applications—software that can be accessed, used, modified, and shared by anyone—and move to a new virtual environment. The program's new agile development methodology develops, tests, and deploys capabilities using an iterative, rather than a sequential approach. Consistent with this strategy, TSA awarded task orders in 2016 and 2017 totaling \$34.5 million to the program's existing contractor for agile design and development services, and plans to competitively award a new contract by May 2018.

In October 2017, GAO found that TSA had not fully implemented several leading practices to ensure successful agile adoption. GAO also found that TSA and DHS needed to conduct more effective oversight of the TIM program to reduce the risk of repeating past mistakes. DHS concurred with all 14 recommendations made by GAO to improve program execution and oversight, and identified actions DHS and TSA can take to address them.

TSA reported that staffing challenges are a significant risk to the program's success and identified gaps in key areas—such as systems engineering, testing, and agile development. Program officials told GAO these positions cannot be filled because of a hiring freeze within TSA, which the component has imposed to assess their current workforce and restructure, if necessary. Program officials told GAO they requested waivers from the hiring freeze and, as of January 2018, they had received approval to hire 4 additional staff.

**PROGRAM OFFICE COMMENTS**

TSA officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# FAST RESPONSE CUTTER (FRC)

## UNITED STATES COAST GUARD (USCG)

The USCG uses the FRC to conduct search and rescue, migrant and drug interdiction, and other law enforcement missions. The FRC carries one cutter boat on board and is able to conduct operations in moderate sea conditions. The FRC replaces the USCG's Island Class patrol boat and provides improved fuel capacity, surveillance, and communications interoperability with other Department of Homeland Security (DHS) and Department of Defense assets.



Source: U.S. Coast Guard.

KEY FINDINGS

**Program on track to meet cost and schedule goals; ordered 6 FRCs in June 2017.**

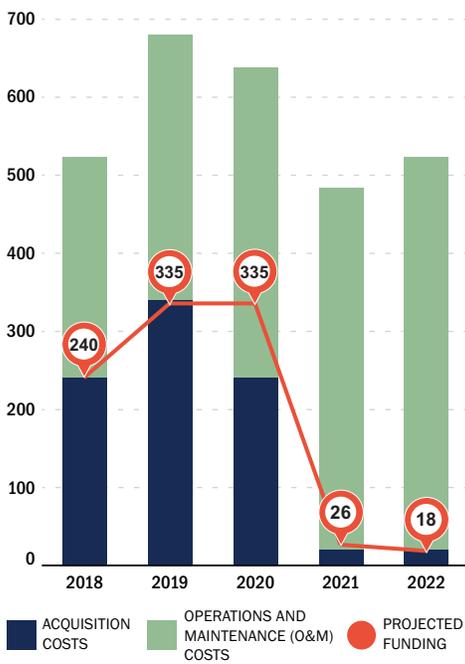
**FRC found operationally effective and suitable, and all key performance parameters validated.**

**Main diesel engine issues persist, which may require further retrofits.**

**GAO last reported on this program in March and April 2017 (GAO-17-218, GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (08/2009)	4,243	11,391	15,634
Current APB (10/2012)	4,243	11,391	15,634
Current estimate (06/2017)	3,342	10,998	14,340

### COST AND SCHEDULE

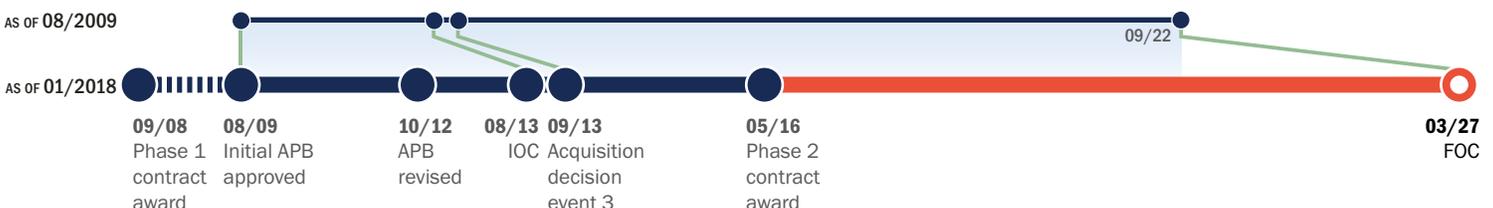
According to USCG officials, the FRC program is on track to meet its current cost and schedule goals. The USCG plans to acquire 58 FRCs and, as of September 2017, 25 had been delivered and 19 were on contract. To inform the budget process, the program updated its life-cycle cost estimate in June 2017, which is within its current acquisition program baseline (APB) cost thresholds.

Previously, the program's initial operational capability (IOC) date slipped after a bid protest related to the program's initial contract award—now known as phase 1—and the need for structural modifications. USCG officials attributed the 5-year slip in the program's full operational capability (FOC) date to a decrease in annual procurement quantities under the phase 1 contract. Specifically, in fiscal years 2010 and 2011, the quantities decreased from 6 FRCs per year to 4. In May 2014, the USCG determined that it would procure only 32 of the 58 FRCs through this contract and initiated efforts to conduct a full and open competition for the remaining 26 vessels—known as phase 2.

In May 2016, the USCG awarded the phase 2 contract for the remaining 26 FRCs, which has a potential value of \$1.42 billion. Under the phase 2 contract, the USCG can procure 4 to 6 FRCs per option period. The USCG ordered 6 FRCs at the time of the phase 2 award and, in June 2017, exercised an option for an additional 6 FRCs.

The USCG has established that the annual procurement quantity will be dictated by funding levels, and funding shortfalls could cause further schedule delays. The affordability gap from fiscal years 2018 to 2022 may be overstated because—as we found in April 2015—DHS's funding plan to Congress does not contain operations and maintenance (O&M) funding for USCG programs. USCG officials anticipate receiving \$1.6 billion in O&M funding over this 5-year period. USCG officials stated that they expect to exercise an option for 4 FRCs in fiscal year 2018 and that the USCG plans to prioritize acquisition funding in fiscal years 2019 and 2020 to procure the final 10 hulls and complete procurement of all 58 FRCs.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

In February 2017, DHS’s Director, Office of Test and Evaluation (DOT&E) assessed the results from the program’s July 2016 follow-on operational test and evaluation (OT&E) and determined that

- the program met its six key performance parameters, and
- the FRC was operationally effective and suitable.

During follow-on OT&E, the OTA found that several deficiencies from the program’s initial OT&E had been corrected. For example, the OTA closed a severe deficiency related to the engines based on modifications to the FRC’s main diesel engines. However, five major deficiencies remain. According to USCG officials, the remaining deficiencies are related to ergonomics (e.g., improving the working environment for operators) and issues with stowage space. USCG officials stated that they plan to resolve the remaining deficiencies by fiscal year 2020.

DOT&E noted that these deficiencies do not prevent mission completion or present a danger to personnel, but recommended that they be resolved as soon as possible. USCG officials indicated that they plan to resolve the remaining deficiencies through engineering or other changes.

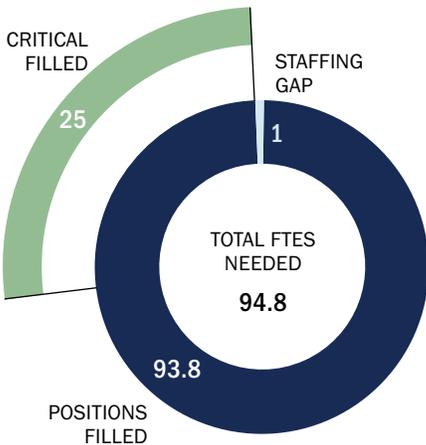
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	SECURE	CYBER
Follow-on OT&E	07/2016	●	●	—	—
Initial OT&E	01/2013	●	○	—	—

● PASS   ● PASS WITH LIMITATIONS   ○ FAIL   — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The USCG continues to work with the contractor—Bollinger Shipyards, LLC—to address issues covered by the warranty and acceptance clauses for each ship. For example, 18 engines—9 operational engines and 9 spare engines—have been replaced under the program’s warranty. According to USCG documentation, 65 percent of the current issues with the engines have been resolved through retrofits; however, additional problems with the engines have been identified since our April 2017 review. For example, issues with water pump shafts are currently being examined through a root cause analysis and will be redesigned and are scheduled to undergo retrofits starting in December 2018. We previously found that the FRC’s warranty resulted in improved cost and quality by requiring the shipbuilder to pay for the repair of defects. As of September 2017, USCG officials said the replacements and retrofits completed under the program’s warranty allowed the USCG to avoid an estimated \$104 million in potential unplanned costs—of which \$63 million is related to the engines.

The FRC program does not have any critical staffing vacancies, but the USCG identified insufficient staffing for shore-side support groups as a potential risk that could affect the asset’s operations. These groups provide maintenance to the FRCs while they are in port. In order to mitigate this staffing issue, the USCG is using commercial contracts for maintenance to supplement the capacity of the USCG’s maintenance staff.

**PROGRAM OFFICE COMMENTS**

USCG officials stated that the FRC program is fully funded, executable, and on track to reach FOC by March of 2027. They added that FRCs were recently delivered to locations in Mississippi, Alaska, and Hawaii. USCG officials stated that FRCs are integral to USCG operations, such as providing critical support during the recent hurricane season, and that the program office continues to work with the contractor and stakeholders to quickly and properly address issues with FRCs as they are identified. USCG officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# H-65 CONVERSION/SUSTAINMENT PROGRAM (H-65)

## UNITED STATES COAST GUARD (USCG)

The H-65 aircraft is a short-range helicopter that the USCG uses to fulfill its missions, including search and rescue, ports and waterways security, marine safety, and defense readiness. The H-65 acquisition program increased the fleet's size by 7 aircraft, added armament capabilities, upgraded navigation systems, and replaced each of the helicopters' engines. The program is currently focused on upgrades to radar sensors, the automatic flight control system (AFCS), and avionics.



Source: U.S. Coast Guard.

KEY FINDINGS

**Program remains in breach; new baseline expected to reflect USCG plans to extend H-65 service life.**

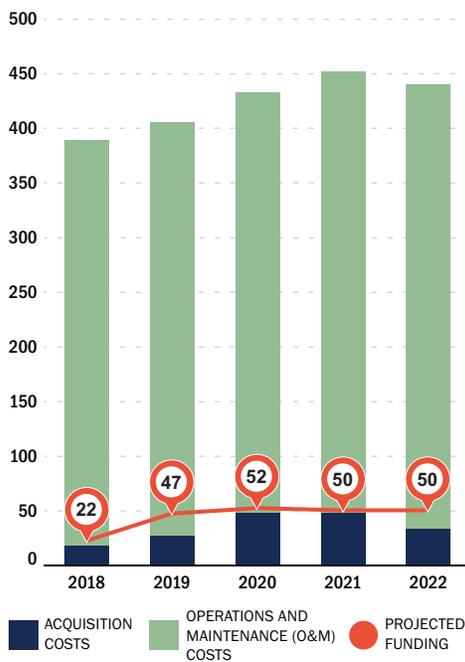
**Operational assessment of avionics upgrade planned to start in February 2018.**

**Program fully staffed, but schedule slips raise risks with future staffing requirements.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (02/2011)	1,150	7,033	8,184
Current APB (03/2014)	935	12,927	13,863
Current estimate (06/2017)	936	15,651	16,587

### COST AND SCHEDULE

As of November 2017, the program remains in breach of its current acquisition program baseline (APB). In November 2016, the USCG notified Department of Homeland Security (DHS) leadership that it would not complete all activities required—including developmental testing and an operational assessment—to achieve acquisition decision event (ADE) 2C for low-rate initial production of the avionics and AFCS upgrades by its current APB threshold date of March 2017. USCG officials primarily attributed these delays to an underestimation of the technical effort necessary to meet the requirements and have subsequently worked with the contractor to continue development of avionic upgrades.

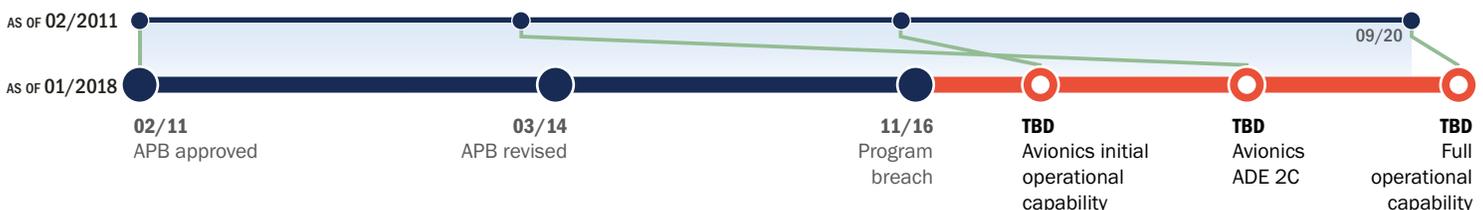
In January 2017, DHS leadership directed the program to update its APB, life-cycle cost estimate (LCCE) and test and evaluation master plan by May 2017. However, the USCG did not meet this deadline, in part, because it decided to add a service life extension program (SLEP) to the H-65 program. The SLEP is expected to extend the current 20,000 flight hour service life of each aircraft by another 10,000 flight hours by replacing obsolete aircraft components. USCG officials stated that this will allow the USCG to delay purchasing new aircraft to prioritize funding for the Offshore Patrol Cutter.

USCG officials plan to obtain approval for the SLEP when the program submits its revised APB for DHS approval, which is expected by March 2018. The program is revising its LCCE, but provided an update in June 2017 to inform the budget process. This update exceeds its current APB thresholds because it includes an initial estimate for the SLEP. The USCG estimates that the SLEP will cost \$54 million for the entire fleet. USCG officials attributed the increase in operations and maintenance (O&M) costs to the additional extension of the aircraft's operational life. The program's O&M costs previously increased due to the USCG's decision to extend the aircraft's operational life from 2030 to 2039.

The affordability gap from fiscal years 2018 to 2022 may be overstated because—as we found in April 2015—DHS's funding plan to Congress does not contain O&M funding for USCG programs. USCG officials anticipate receiving \$1.6 billion in O&M funding over this 5-year period.

### SCHEDULE CHANGES

TBD = To be determined



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

According to USCG officials, the H-65 program has demonstrated 16 of its 18 key performance parameters (KPP), but has not yet demonstrated its 2 avionics KPPs. USCG officials previously stated that the aircraft have not consistently met the 3 KPPs related to operational availability during actual operations because of difficulties maintaining aging equipment, among other things, which the avionics upgrades should address.

According to USCG officials, the program has completed several years of developmental testing on the avionics and AFCS upgrades. In July 2017, the program made minor updates to its test and evaluation master plan to account for the avionics schedule slips and SLEP addition. In September 2017, USCG officials stated that two aircraft had received the avionics upgrades and flown a combined 800 test hours. Data collected from these aircraft will be used to inform the ADE 2C. The USCG subsequently plans to modify a third aircraft with both the avionics and SLEP upgrades to validate and verify the implementation of the modifications into the fleet simultaneously.

The program’s OTA plans to conduct an operational assessment starting in February 2018 to identify areas of risk before beginning initial operational test and evaluation (OT&E) in late calendar year 2018. Initial OT&E is intended to test all of the H-65 upgrades installed throughout the life of the program to support approval for full-rate production.

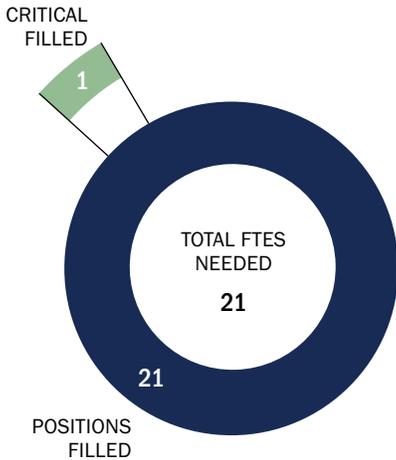
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
		EFFECTIVE	SUITABLE	SECURE	CYBER
Initial OT&E		PLANNED 11/2018			
Operational assessment		PLANNED 02/2018			

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The USCG awarded new contracts to Rockwell Collins—the original equipment manufacturer of the legacy AFCS and avionics—to address the challenges encountered with development of the new upgrades. Specifically, the program awarded new contracts to support continued development of the AFCS and avionics upgrades in July 2016 and March 2017, respectively. As of September 2017, the combined value of both contracts totaled more than \$15 million.

The USCG cancelled development of a dedicated surface search radar capability for the H-65 in 2014, but USCG officials said a commercial off-the-shelf weather radar with surface search capability will be installed as part of the avionics upgrade.

USCG officials said there is some risk involved with extending the aircrafts’ service life beyond 20,000 flight hours since it has never been done by other agencies that operate the H-65. However, USCG officials stated that the aircraft manufacturer, Airbus, assisted the USCG’s chief aeronautical engineer in identifying specific parts needing replacement and is providing support.

In July 2017, the USCG reported that the program was fully staffed, but that the schedule slips have introduced potential risks with future staffing requirements. The program is mitigating these risks by extending some military personnel and ensuring rotating personnel are replaced by new staff with the expertise needed to complete the program’s planned activities, such as testing.

**PROGRAM OFFICE COMMENTS**

USCG officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# HEAVY POLAR ICEBREAKER

## UNITED STATES COAST GUARD (USCG)

The program is intended to assist the USCG in maintaining the capability to access the Arctic and Antarctic polar regions. The USCG requires its icebreaking fleet to conduct multiple missions, including defense readiness; marine environmental protection; ports, waterway, and coastal security; and search and rescue. The USCG plans to acquire three heavy icebreakers to recapitalize the only existing operational heavy icebreaker, which is nearing the end of its service life.



Source: U.S. Coast Guard.

KEY FINDINGS

**Initial cost and schedule goals approved; program faces challenges with funding and accelerated schedule.**

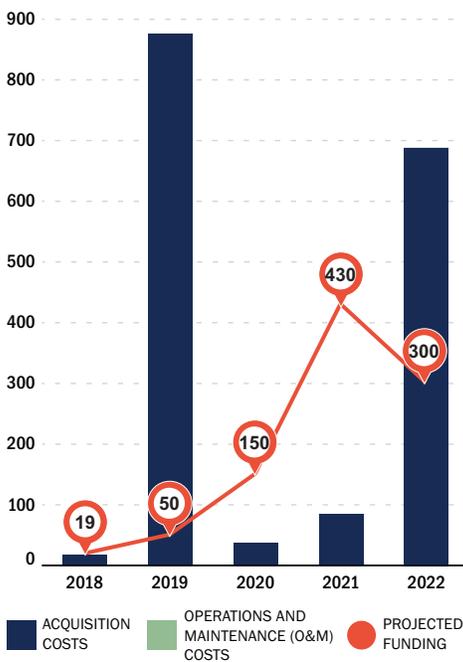
**Program initiated model testing of hull and propulsion systems, which will inform design decisions.**

**Program office integrates USCG and Navy personnel, but funding responsibilities may cause challenges.**

**GAO last reported on this program in September 2017 (GAO-17-698R).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

In June 2014, Department of Homeland Security (DHS) leadership granted the program acquisition decision event (ADE) 1 approval. The Acting Under Secretary for Management also acknowledged the USCG's need to accelerate the acquisition process to mitigate gaps in the heavy icebreaking capability because the service life of the USCG's only heavy polar icebreaker, which had already been extended, could end as early as 2020.

In January 2018, DHS leadership approved the program's initial acquisition program baseline (APB) establishing cost, schedule, and performance goals. The USCG planned to achieve a combined ADE 2A and 2B by December 2017, which would authorize the initiation of development efforts. According to DHS officials, this milestone was delayed to February 2018 to allow for the completion of required acquisition documents to inform the decision, such as the program's life-cycle cost estimate and APB.

The USCG is partnering with the Navy to leverage shipbuilding expertise and engaging early with potential shipbuilders through industry studies to mitigate some risks associated with the program's accelerated acquisition schedule. However, GAO previously found that the program faces challenges in implementing the accelerated schedule. For example, the first icebreaker—which is preliminarily estimated to cost about \$750 million to design and construct—would need to be fully funded in fiscal year 2019 at the same time the USCG is expecting to prioritize funding for the Offshore Patrol Cutter.

### APB THRESHOLDS VS. CURRENT ESTIMATE

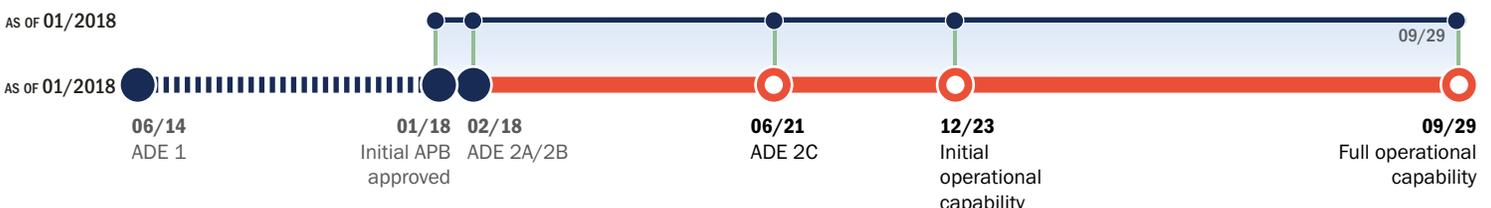
DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (01/2018)	3,207	6,594	9,827
Current APB (01/2018)	3,207	6,594	9,827
Current estimate (01/2018)	2,789	5,734	8,545

Note: Life-cycle cost also includes costs for disposal.

In fiscal year 2017, the Consolidated Appropriations Act or associated explanatory materials, reflected funding for the program, including \$150 million for advance procurement of heavy polar icebreakers and \$25 million to the USCG for programmatic costs, respectively. USCG officials stated that the Navy funding could cover most of the design costs but would not cover long lead items or construction costs for any of the ships. They further stated that uncertainties with the amount and source of future appropriations have made planning the icebreaker acquisition challenging.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

DHS leadership approved four key performance parameters (KPP) related to the ship’s ability to independently break through ice, the ship’s operating duration, and communications.

In May 2017, the USCG began model testing of potential hull designs and propulsion configurations. USCG officials explained that the hulls of icebreakers are unique from other ships because they must balance a hull design optimized for icebreaking, which are generally broad and blunt, against a hull design optimized for seakeeping, which are generally narrow and streamlined. USCG officials noted that the power demands and propulsion system for the ship are dependent on the hull design. USCG officials stated that maneuverability was identified as a challenge during model testing and explained that azimuthing propulsors—propellers that sit below the ship and can rotate 360 degrees—offered better maneuverability than traditional propulsion systems. USCG officials said these propulsors are widely used on commercial ships, but may need modification to meet the USCG’s requirements. USCG officials anticipate results from the model testing to be completed by March 2018 and plan to use these results to inform the final specifications for the ships.

In November 2017, DHS’s Director, Office of Test and Evaluation approved the program’s test and evaluation master plan, which calls for additional model testing to assess resistance, propulsion, and maneuverability.

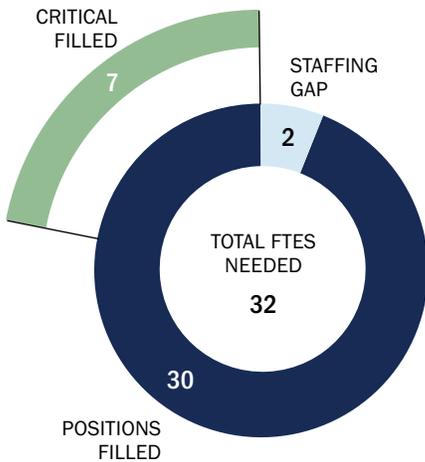
**TEST STATUS**

		DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT			
	DATE COMPLETED	EFFECTIVE	SUITABLE	SECURE	CYBER
TEST EVENT					
Initial Operational Test and Evaluation		PLANNED 03/2024			

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The USCG established an integrated heavy polar icebreaker program office with the Navy and in 2017, DHS, the USCG, and Navy entered into several agreements that outline oversight roles, among other things. For example, these agreements state that the program will follow DHS acquisition policies with DHS leadership serving as the acquisition decision authority for program milestones. However, the Navy will review and approve acquisition documents before the program seeks DHS approval. These agreements also state that the program’s contracting actions could be funded by either USCG or Navy appropriations, and the source of the appropriations will award the contract.

The program plans to competitively award a contract, which would include options for the detail design and construction for all three ships to a single shipbuilder by June 2019. Program officials stated they plan to award the contract under full and open competition to obtain competitive prices and include the construction of the three ships as options to accommodate the program’s funding uncertainties. In February 2017, the USCG awarded contracts to five shipbuilders—valued at approximately \$4 million each—for design studies which will inform program decisions. Program officials stated that under these design studies contracts, the shipbuilders developed several potential ship designs and preliminary costs, with a focus on alternative propulsion options and hull designs.

In August 2017, USCG officials told GAO that the program’s staffing gap was not negatively impacting program efforts.

**PROGRAM OFFICE COMMENTS**

USCG officials stated that the program office had completed requirements for ADE 2A and 2B, and is on track to release the request for proposals for the detail design and construction contract by March 2018. These officials added that, during 2017, the program office refined the program’s requirements, completed ice and open water model testing, and partnered with five industry teams to evaluate multiple design solutions. USCG officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# LONG RANGE SURVEILLANCE AIRCRAFT (HC-130H/J)

## UNITED STATES COAST GUARD (USCG)

The USCG uses HC-130H and HC-130J aircraft to conduct search and rescue missions, transport cargo and personnel, support law enforcement, and execute other operations. Both aircraft are quad-engine propeller-driven platforms. The HC-130J is a modernized version of the HC-130H, which has advanced engines, propellers, and equipment that provide enhanced speed, altitude, range, and surveillance capabilities.



Source: U.S. Coast Guard.

KEY FINDINGS

**Program updating baseline to reflect significant program changes.**

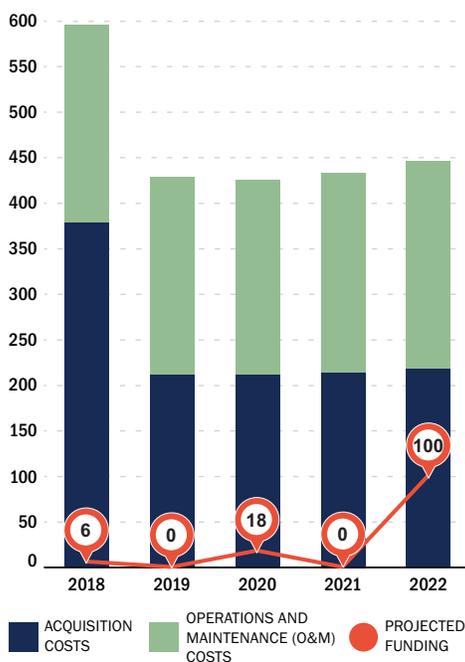
**Performance testing of new mission system processor complete.**

**Transfer of HC-130H aircraft to other agencies ongoing.**

**GAO last reported on this program in April 2017 (GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

During 2017, the USCG continued a nearly 3-year effort to re-baseline the program—which includes revisions to the program’s life-cycle cost estimate (LCCE) and acquisition program baseline (APB)—to account for significant changes. Specifically, the USCG decided to pursue an all HC-130J fleet and, in fiscal year 2014, Congress directed the transfer of 7 HC-130H aircraft to the U.S. Air Force. The USCG was in the process of upgrading these aircraft, but cancelled further HC-130H upgrades. In September 2017, Department of Homeland Security (DHS) leadership directed the USCG to submit the revised APB by January 2018.

According to USCG officials, the re-baseline has been delayed, in part, because Congress also directed the USCG to conduct a multi-phased analysis of its mission needs. In November 2016, the USCG submitted the results of its analysis for fixed-wing aircraft, which confirmed the planned total quantity of 22 HC-130J aircraft and an annual flight-hour goal of 800 hours per aircraft. USCG officials said the results of the analysis will be reflected in the program’s revised LCCE and subsequent APB, but noted that challenges with the vendor hired to complete the LCCE revision have also contributed to delays. The program submitted cost information in June 2017 to inform the budget process, but it reflected no updates from the program’s November 2011 LCCE. USCG officials previously attributed the acquisition cost growth and schedule slip from the program’s initial APB to the increase in HC-130J quantities from 6 to 22. However, when the revised LCCE is complete, estimated costs may decrease since the HC-130J aircraft are less expensive to maintain.

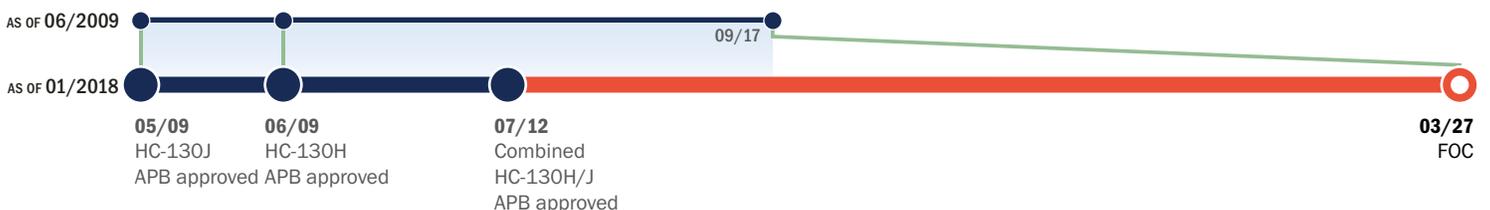
### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (06/2009)	866	16,226	17,092
Current APB (07/2012)	3,038	13,174	16,213
Current estimate (11/2011)	2,761	12,704	15,465

As of December 2017, USCG officials stated they had received 11 HC-130J aircraft and had awarded contracts for 3 more—some of which were not requested. USCG officials previously stated that the program needs to acquire 1-2 HC-130J aircraft per year to meet its full operational capability (FOC) date. However, it is unclear how the USCG will meet its FOC date because it only requested funding for 1 aircraft over the next 5 years. The affordability gap from fiscal years 2018 to 2022 may be overstated because—as we found in April 2015—DHS’s funding plan to Congress does not contain operations and maintenance (O&M) funding for USCG programs. USCG officials anticipate receiving approximately \$1.4 billion in O&M funding over this 5-year period.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: NOT APPLICABLE

The HC-130J will not be able to meet two of its seven key performance parameters (KPP) until the USCG installs a new mission system processor on the aircraft—an effort that is already underway. These two KPPs are related to the detection of targets and the aircraft’s ability to communicate with other assets. The USCG is replacing the mission system processor on its fixed-wing aircraft—including the HC-130J—with a system used by the U.S. Navy and DHS’s Customs and Border Protection. The new mission system processor is intended to enhance operator interface and sensor management, and replace obsolete equipment.

The USCG conducted developmental testing on a prototype of the HC-130J mission system processor. According to USCG officials, this testing was completed in June 2017 and successfully demonstrated the new mission system processor in a variety of operational environments. The USCG does not plan to operationally test the new processor on the HC-130J, in part, because the aircraft has already been tested. In 2009, DHS’s Director, Office of Test and Evaluation and the USCG determined the HC-130J did not need to operationally test the airframe because the U.S. Air Force conducted operational testing on the base C-130J airframe in 2005. Instead, the USCG plans to operationally test the new mission system processor in fiscal year 2021 during operational testing on the C-27J, which is new to the USCG’s fixed-wing fleet. As of November 2017, the USCG had accepted three HC-130J aircraft outfitted with the new mission system processor.

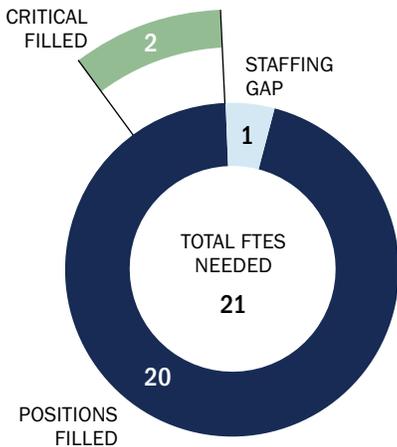
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
HC-130J mission system processor testing	06/2017	NOT APPLICABLE		

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

In December 2013, Congress directed the transfer of 7 HC-130H aircraft to the U.S. Air Force for modifications—which consists of upgrades and installing a fire retardant delivery system—and subsequent transfer to the U.S. Forest Service. This direction factored into the USCG’s decision to pursue an all HC-130J fleet. As of December 2017, the Forest Service had not yet received any modified aircraft primarily because of issues with contractors. According to USCG officials, the original contract the Air Force awarded to install the fire retardant delivery system in May 2016 was terminated 7 months later due to an unqualified vendor and a new contract has not yet been awarded. In the meantime, the Forest Service is using 2 of the 7 HC-130Hs. USCG officials said these aircraft are not modified, but outfitted with a less effective firefighting device.

As of November 2017, the USCG plans to operate 14 of its HC-130H aircraft until the end of their service lives or until they can be replaced with new HC-130J aircraft. However, as previously discussed, the USCG has not requested funding for the additional HC-130J aircraft to support this plan.

In October 2017, USCG officials reported that they were in the process of hiring staff to address the program’s staffing gap.

**PROGRAM OFFICE COMMENTS**

USCG officials provided technical comments on a draft of this assessment, which GAO incorporated, as appropriate.

# MEDIUM RANGE SURVEILLANCE AIRCRAFT (HC-144A/C-27J)

UNITED STATES COAST GUARD (USCG)

The USCG uses HC-144A and C-27J aircraft to conduct all types of missions, including search and rescue and disaster response. All 32 aircraft—18 HC-144A aircraft and 14 C-27J aircraft—are twin-engine propeller driven platforms. The interior of both aircraft are able to be re-configured to accommodate cargo, personnel or medical transports.



Source: U.S. Coast Guard.

KEY FINDINGS

**Program is on track to meet its cost and schedule goals.**

**Developmental testing of new mission system processor is ongoing.**

**Program continues to face challenges related to purchasing spare parts and accessing technical data.**

**GAO last reported on this program in April 2017 and March 2015 (GAO-17-346SP, GAO-15-325).**

## FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



## COST AND SCHEDULE

USCG officials said the program is on track to meet the cost and schedule goals in its current acquisition program baseline (APB), which Department of Homeland Security (DHS) leadership approved in August 2016 to reflect the restructuring of the HC-144A acquisition program. The USCG initially planned to procure a total of 36 HC-144A aircraft, but reduced that number to the 18 it had already procured after Congress directed the transfer of 14 C-27J aircraft from the U.S. Air Force to the USCG in fiscal year 2014.

The program's APB divides the program into two phases: phase 1 includes acceptance of the 18 HC-144A aircraft and upgrades to the aircraft's mission and flight management systems, and phase 2 includes acceptance of and modifications to the C-27J aircraft to meet the USCG's mission needs. In October 2017, USCG officials told GAO that the program had initiated phase 1 efforts to upgrade the first HC-144A aircraft. The USCG plans to complete upgrades on all HC-144As by the end of fiscal year 2021. For phase 2, the USCG has accepted all 14 C-27Js from the U.S. Air Force and plans to complete the modification of all C-27Js by March 2025 to achieve full operational capability (FOC).

To inform the budget process, the program updated its life-cycle cost estimate (LCCE) in June 2017, which is within its current APB cost thresholds. This estimate includes C-27J modification costs, such as installation of a new sensor package and new mission system processor. The program's LCCE for the 36 HC-144A aircraft previously increased to \$28.7 billion in 2012 when the USCG accounted for 5 years of additional costs, among other things. The current LCCE represents a considerable decrease, but also reflects a reduction in the number of aircraft and planned flight hours.

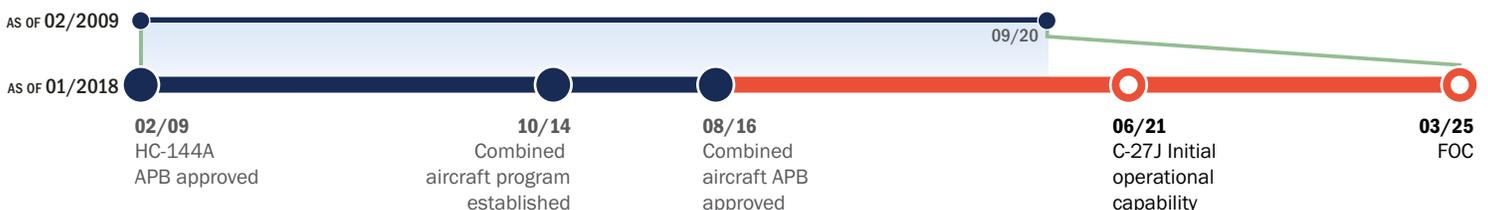
The affordability gap from fiscal years 2018 to 2022 may be overstated because—as we found in April 2015—DHS's funding plan to Congress does not contain operations and maintenance (O&M) funding for USCG programs. USCG officials anticipate receiving nearly \$1.7 billion in total funding over this 5-year period to cover nearly \$1.8 billion in total costs.

## APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (HC-144A only) (02/2009)	2,223	10,062	12,285
Current APB (08/2016)	2,507	12,680	15,187
Current estimate (06/2017)	2,219	10,185	12,404

## SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

Neither the HC-144A nor the C-27J will be able to meet two of their seven key performance parameters (KPP) until the USCG installs a new mission system processor on the aircraft—an effort that is already underway. These two KPPs are related to the detection of targets and the aircraft’s ability to communicate with other assets. The USCG is replacing the mission system processor on its fixed-wing aircraft—including the HC-144A and C-27J—with a system used by the U.S. Navy and DHS’s Customs and Border Protection. The new mission system processor is intended to enhance operator interface and sensor management, and replace obsolete equipment.

In October 2017, USCG officials said the new mission system processor was undergoing developmental testing on the HC-144A, but that the test report is not anticipated until June 2018. The USCG does not plan to operationally test the new processor on the HC-144A, in part, because the aircraft has already undergone operational testing. In August 2012, DHS’s Director, Office of Test and Evaluation assessed the initial test results for the HC-144A and determined that the aircraft was effective with limitations and suitable with limitations. USCG officials previously stated that they are addressing these limitations with upgrades to the new mission system.

The USCG plans to operationally assess the new mission system processor during operational testing of the C-27J, which is scheduled to begin in fiscal year 2021.

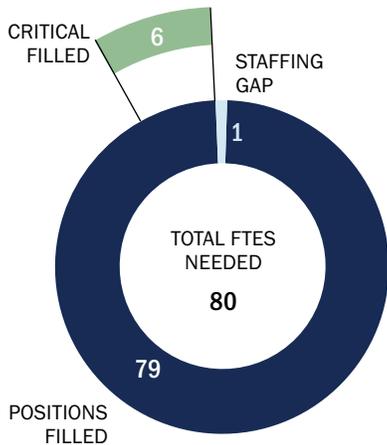
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Initial operational test and evaluation (OT&E) - HC-27J	PLANNED FISCAL YEAR 2021			
Initial OT&E - HC-144A	07/2012			—

PASS   
 PASS WITH LIMITATIONS   
 FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The USCG still faces challenges in transitioning the C-27J into the USCG fleet. In March 2015, GAO found that the successful and cost-effective fielding of the C-27J aircraft is contingent on the USCG’s ability to address risk areas including, purchasing spare parts and accessing technical data, among other issues.

According to USCG officials, the program continues to face challenges purchasing spare parts and accessing technical data. The program is reliant on the aircraft original equipment manufacturer for about 35 percent of spare C-27J parts. For other parts, USCG officials said that the USCG continues to look for ways to provide the same or similar parts for the aircraft at a faster rate and the USCG plans to award contracts to two additional manufacturers in calendar year 2018.

USCG officials stated that retrieving technical data for the C-27J aircraft remains a challenge, but the USCG is working with the Department of Defense to obtain rights to data currently owned by the original equipment manufacturer. Once the USCG receives appropriate rights to C-27J technical data, the USCG officials said they can begin modification of the aircraft. The USCG also plans to purchase the same surface search radar used on the HC-144A or the HC-130J for the C-27J, which will give the USCG some commonality in maintenance, logistics, and training for this aspect of the aircraft.

In October 2017, USCG officials told GAO that the program’s staffing is adequate and the gap has not negatively affected the program.

**PROGRAM OFFICE COMMENTS**

USCG officials stated that the program remains on track to meet the cost, schedule, and performance goals outlined in its current APB and that they monitor APB key parameters in accordance with DHS guidance. These officials added that market research continues to increase supply chain sources and to identify products for new mission systems. USCG officials also provided technical comments, which GAO incorporated as appropriate.

# NATIONAL SECURITY CUTTER (NSC)

## UNITED STATES COAST GUARD (USCG)

The USCG uses the NSC to conduct search and rescue, migrant and drug interdiction, environmental protection, and other missions. The NSC replaces and provides improved capabilities over the USCG's High Endurance Cutters. The NSC carries helicopters and cutter boats, provides an extended on-scene presence at forward deployed locations, and operates worldwide.



Source: U.S. Coast Guard.

KEY FINDINGS

**Program revised schedule and cost goals to account for a ninth NSC.**

**Follow-on operational testing began in October 2017, but cybersecurity testing delayed.**

**The USCG is conducting a study to determine root cause of propulsion system issues.**

**GAO last reported on this program in March and April 2017 (GAO-17-218, GAO-17-346SP).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS (may not add due to rounding)

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (12/2008)	4,749	19,528	24,277
Current APB (11/2017)	6,135	16,410	22,545
Current estimate (10/2017)	6,030	14,270	20,299

### COST AND SCHEDULE

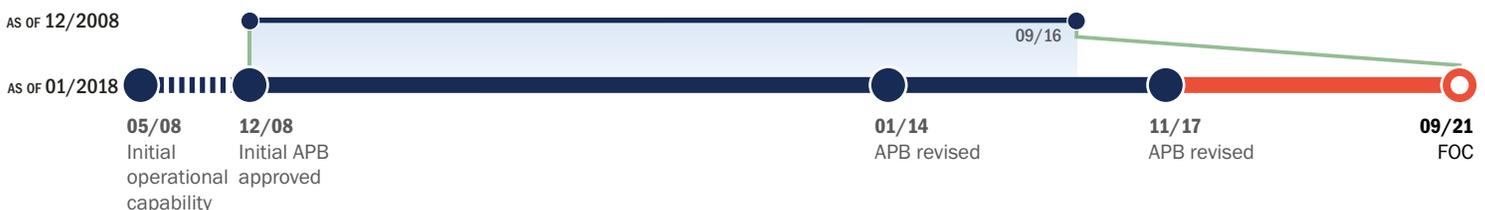
In November 2017, Department of Homeland Security (DHS) leadership approved a revised acquisition program baseline (APB), which accounted for the addition of a ninth NSC to the program of record. The USCG originally planned to acquire only eight NSCs; however, in the Consolidated Appropriations Act of 2016, Congress directed that not less than \$640 million be immediately available and allotted to contract for the production of a ninth NSC. In December 2016, the USCG awarded a contract to produce the ninth NSC and, as of November 2017, six NSCs had been delivered and three were under construction.

The USCG anticipates delivery of the ninth NSC in September 2020, which coincides with the program's prior APB threshold date for full operational capability (FOC). However, the revised APB extends this date by 1 year to account for any risks in delivering the additional ship. The program's FOC date previously slipped 4 years, which USCG officials attributed to funding shortfalls, among other things.

The ninth NSC contributed to a \$453 million and \$123 million increase in the program's APB cost thresholds for acquisition and operations and maintenance (O&M), respectively. However, the program's revised life-cycle cost estimate (LCCE) is still lower than its initial estimate for eight ships, which USCG officials attribute to more accurate estimates. The revised LCCE also included costs for several design changes the USCG has had to implement on equipment with known issues. As of September 2017, 12 equipment systems required design changes, which totaled an estimated cost of over \$260 million. This work includes structural enhancement work on the first two NSCs and the replacement of the gantry crane, which aids in the deployment of cutter boats.

The affordability gap from fiscal years 2018 to 2022 may be overstated because—as we found in April 2015—DHS's funding plan to Congress does not contain O&M funding for USCG programs. USCG officials anticipate receiving approximately \$2.1 billion in O&M funding over this 5-year period to cover the NSC's estimated \$1.8 billion in O&M costs, but stated it will refine its annual budget request based on the program's needs each year. The USCG also identified carryover funding to cover the projected acquisition funding shortfall in fiscal year 2018.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

DHS’s Under Secretary for Management (USM) directed the USCG to complete follow-on operational test and evaluation (OT&E) by March 2019. According to USCG officials, the program’s OTA began follow-on OT&E in October 2017, which will test unmet key performance parameters (KPP) and address deficiencies found during prior testing. The NSC completed initial operational testing in 2014, but did not fully demonstrate 7 of its 19 KPPs, including those related to unmanned aircraft and cutter-boat deployment in rough seas. According to USCG officials, operators have since demonstrated these KPPs during USCG operations. For example, USCG officials stated that they successfully demonstrated operations of a prototype unmanned aircraft on an NSC. However, the USCG will not evaluate the NSC’s unmanned aircraft KPP until the unmanned aircraft undergoes initial OT&E, currently planned for June 2019. In addition, the NSC will be the first USCG asset to undergo cybersecurity testing. However, this test has been delayed over a year with the final cyber test event scheduled for August 2018 because of a change in NSC operational schedules, among other things.

The DHS USM also directed the USCG to complete a study to determine the root cause of the NSC’s propulsion system issues by December 2017; however, as of January 2018, the study was not yet complete. GAO previously reported on these issues—including high engine temperatures, cracked cylinder heads, and overheating generator bearings that were impacting missions—in January 2016.

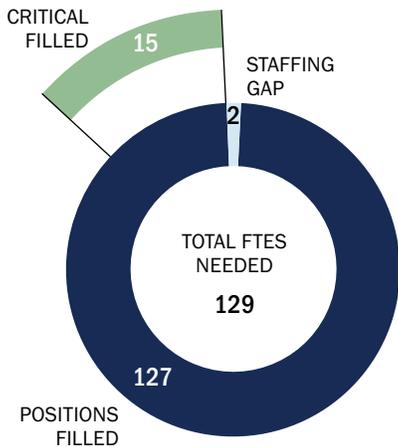
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
Follow-on OT&E	PLANNED FISCAL YEAR 2018			
Initial OT&E	04/2014	●	●	—

● PASS   
 ● PASS WITH LIMITATIONS   
  FAIL   
 — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The NSC program does not have any critical staffing vacancies. However, in July 2017, the program reported that the greatest staffing challenge is a potential extension to the program’s end date if the USCG acquires more than 9 NSCs. If this occurs, the program office must reassess future staffing requirements to ensure adequate program oversight continues until the last NSC completes post-delivery activities.

In addition, the USCG has made changes to its staffing model for operating the NSCs. The USCG initially planned to implement a crew rotational concept in which crews would rotate while NSCs were underway to achieve a goal of 230 days away from the cutter’s homeport. In February 2018, USCG officials told GAO they abandoned the crew rotational concept because the concept did not provide the USCG with the expected return on investment. Instead, USCG officials said a new plan has been implemented that does not rotate crew and is anticipated to increase the days away from home port from the current capability of 185 days to 200 days.

**PROGRAM OFFICE COMMENTS**

USCG officials stated that NSCs had a record year of narcotics seizures in 2017. In addition to the test activities identified in this assessment, USCG officials stated that the first follow-on OT&E event was completed in December 2017 and the first cybersecurity test event is scheduled for February 2018. They also noted that the shipbuilder continues to show improving cost performance and is completing construction within budget. USCG officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# OFFSHORE PATROL CUTTER (OPC)

## UNITED STATES COAST GUARD (USCG)

The USCG plans to use the OPC to conduct patrols for homeland security, law enforcement, and search and rescue operations. The OPC is being designed for long-distance transit, extended on-scene presence, and operations with deployable aircraft and small boats. It is intended to replace the USCG's aging Medium Endurance Cutters (MEC) and bridge the operational capabilities provided by the Fast Response Cutters and National Security Cutters (NSC).



Source: © 2016 Eastern Shipbuilding Group, Panama City, FL.

KEY FINDINGS

Program is on track to meet cost and schedule goals, but increased ship weight may lead to cost increases.

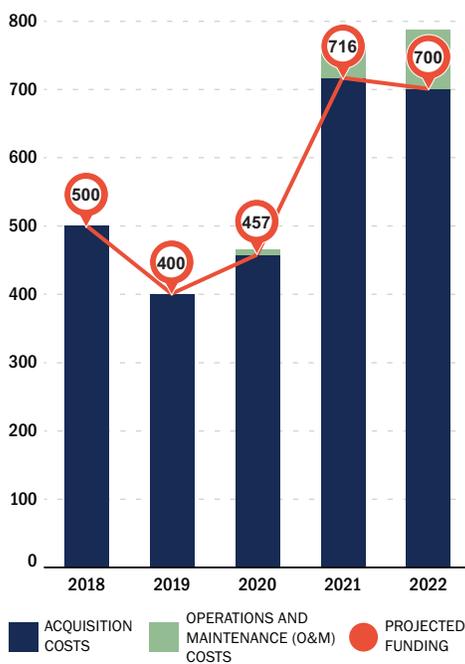
Program plans to refine the ship's design, as needed, based on early operational assessment results.

Program's acquisition strategy incorporated some best practices.

GAO last reported on this program in April and June 2017 (GAO-17-346SP, GAO-17-654T).

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### COST AND SCHEDULE

According to USCG officials, the OPC program is on track to meet its cost and schedule goals. In September 2014, Department of Homeland Security (DHS) leadership approved the program's current acquisition program baseline (APB), which accounts for schedule slips resulting from delays in awarding the program's initial contracts and a subsequent bid protest. The USCG expects to start construction of the first OPC in fiscal year 2019 and procure a total of 25 ships. The USCG plans to initially fund one OPC per year and eventually two OPCs per year until all 25 OPCs are delivered. USCG officials have stated that additional OPC delays will decrease the USCG's operational capacity because the MECs will likely require increased downtime for maintenance and other issues, reducing their availability.

In January 2016, DHS leadership directed the USCG to revise the OPC life-cycle cost estimate (LCCE) and submit it for approval within 6 months of awarding the detailed design and construction contract for the ships—which the USCG subsequently awarded in September 2016. In June 2017, the program submitted an updated LCCE to inform the budget process that—while not approved by DHS leadership—accounts for the contract award and the program's schedule slips. As of December 2017, the program's revised LCCE still had not been approved. It is unclear whether it will address other issues, such as an increase in the estimated weight of each ship. The OPC's initial LCCE was based in large part on the estimated weight of each ship. However, in November 2017, USCG officials said the ship is expected to weigh up to 35 percent more than originally estimated. Nevertheless, USCG officials expect to procure all 25 OPCs for the program's APB objective cost of \$10.5 billion because the contractor identified cost efficiencies to compensate for the increased weight.

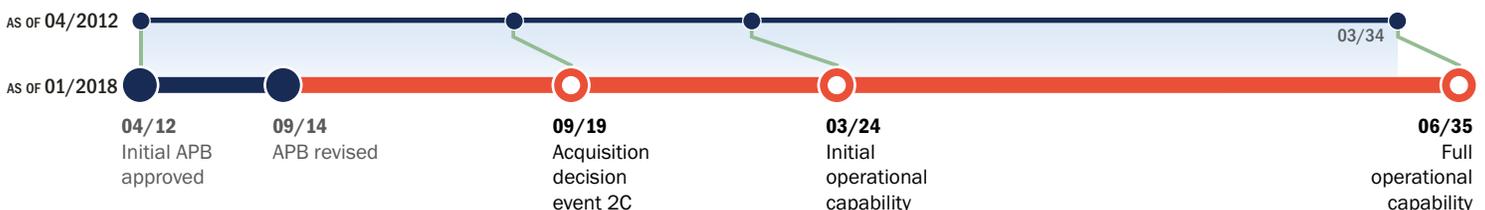
### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (04/2012)	12,101	41,895	53,996
Current APB (09/2014)	12,101	41,895	53,996
Current estimate (06/2017)	10,449	36,204	46,653

GAO previously raised questions about the OPC's affordability and its effect on other USCG acquisition programs, such as the Heavy Polar Icebreaker. Specifically, GAO noted that the OPC procurement will consume about two-thirds of the USCG's planned acquisition budget between fiscal years 2018 and 2032 based on recent funding history. The program's affordability gap from fiscal years 2020 to 2022 may be overstated because—as we found in April 2015—DHS's funding plan to Congress does not report operations and maintenance (O&M) funding for USCG programs. USCG officials anticipate receiving \$103 million in O&M funding over this 5-year period.

### SCHEDULE CHANGES



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT: U.S. NAVY OPERATIONAL TEST AND EVALUATION FORCE

DHS approved six key performance parameters (KPP) for the OPC related to the ship’s operating range and duration, crew size, interoperability and maneuverability, and ability to support operations in moderate to rough seas. The first OPC has not yet been constructed, so the USCG has not yet demonstrated whether it can meet these KPPs. The USCG plans to use engineering reviews, and developmental and operational tests throughout the acquisition to measure the OPC’s performance.

USCG officials told GAO that the program completed an early operational assessment on the basic ship design in August 2017, which entailed a review of the current design plans. The program plans to refine the ship’s design as needed based on preliminary test results. However, as of December 2017, USCG officials had not received the results of this assessment.

The USCG plans to conduct initial operational test and evaluation (OT&E) on the first OPC in fiscal year 2023. However, the test results from initial OT&E will not be available to inform key decisions. For example, the results will not be available to inform the decision to build 2 OPCs per year—which USCG officials said is scheduled to begin in fiscal year 2021. Without test results to inform these key decisions, the USCG must make substantial commitments prior to knowing how well the ship will meet its requirements.

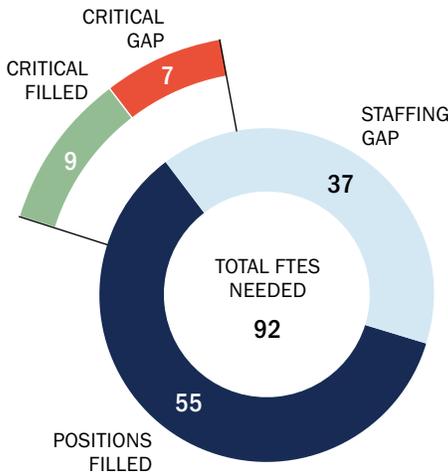
**TEST STATUS**

		DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
TEST EVENT	DATE COMPLETED	EFFECTIVE	SUITABLE	CYBER SECURE
Initial OT&E		PLANNED 12/2023		

● PASS ● PASS WITH LIMITATIONS ○ FAIL — NOT ASSESSED

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

The USCG is in the process of completing the design of the OPC before starting construction, which is in-line with GAO shipbuilding best practices. In addition, USCG officials stated that the program is using state-of-the-market technology that has been proven on other ships as opposed to state-of-the-art technology, which lowers the risk of the program.

The USCG used a two-phased down-select strategy to select a contractor to deliver the OPC. For phase 1, the USCG conducted a full and open competition and selected three contractors to perform preliminary design work. For phase 2, the USCG selected one of the phase 1 contractors—Eastern Shipbuilding—to develop a detailed design of the OPC and construct no more than the first 11 ships. The contract—worth approximately \$110 million—includes separate options for each ship. The options for ships 10 and 11 were unpriced and included in the solicitation as an incentive to convert the contract type from fixed price incentive to firm fixed price. These options will be included in a repricing proposal submitted by the contractor for ships 6-9 after delivery of the first ship. USCG officials have stated the USCG will decide whether to exercise the option for ships 10 and 11 based on the contractor’s re-pricing proposal for ships 6-9. The USCG plans to re-compete the contract for the remaining 14-16 ships.

The OPC program continued to increase its required staffing level and the USCG reported that adjustments to staffing will continue as the program matures. The program faces shortages including engineers, a logistics manager, and a technical director, but USCG officials said they are hiring staff to address these gaps.

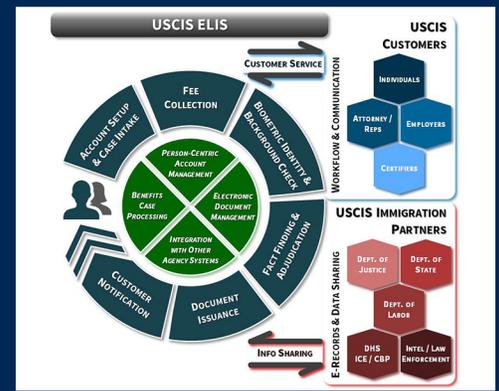
**PROGRAM OFFICE COMMENTS**

USCG officials stated that the OPC program is fully funded, executable, and on track to award construction for the first OPC in September 2018. These officials said design efforts are on track and the contractor is meeting the milestones to deliver the first OPC in 2021. USCG officials noted that they are continuing to increase staff at the contractor’s facility to prepare for the start of construction for the first OPC. USCG officials also provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

# TRANSFORMATION

## UNITED STATES CITIZENSHIP AND IMMIGRATION SERVICES (USCIS)

The Transformation program was established in 2006 to transition USCIS from a fragmented, paper-based filing environment to a consolidated, paperless environment for processing immigration and citizenship applications. The program developed a new system architecture and delivers capability through releases that correspond to new product lines within four lines of business: Citizenship, Immigrant, Non-Immigrant, and Humanitarian.



Source: U.S. Citizenship and Immigration Services.

### KEY FINDINGS

**Program remains in breach; re-baseline expected in March 2018.**

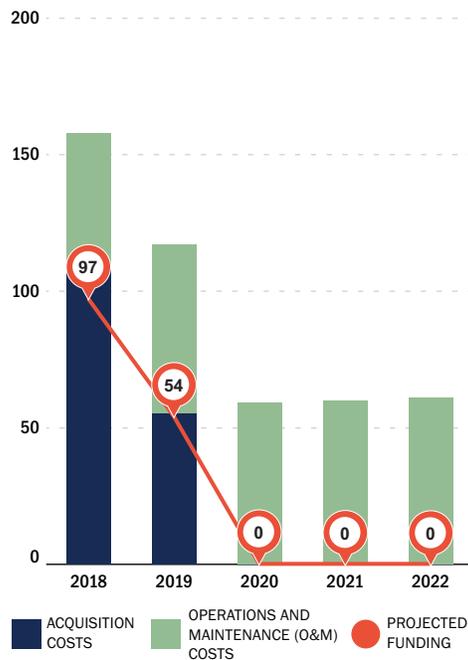
**Revision of key performance parameters and test and evaluation master plan in progress.**

**Program is reorganizing to leverage expertise within USCIS and revise its approach.**

**GAO last reported on this program in April 2017 and July 2016 (GAO-17-346SP, GAO-16-467).**

### FISCAL YEARS 2018-2022 AFFORDABILITY

DOLLARS IN MILLIONS



### APB THRESHOLDS VS. CURRENT ESTIMATE

DOLLARS IN MILLIONS

	ACQUISITION COST	O&M COST	LIFE-CYCLE COST
Initial APB (07/2011)	1,356	718	2,074
Current APB (04/2015)	1,631	1,487	3,118
Current estimate (06/2017)	N/A	N/A	2,792

### COST AND SCHEDULE

The program remains in breach of its current acquisition program baseline (APB). In September 2016, the Transformation program experienced a schedule breach when it failed to complete deployment of all the product lines associated with the Citizenship line of business. The deployment was delayed because of challenges processing new product lines on the new system architecture and other technical issues with the case management system. Prior to the breach, the program deployed six product lines, which supported approximately 24 percent of the total workload processed by USCIS in fiscal year 2016. Department of Homeland Security (DHS) leadership previously re-baselined the program in April 2015 after USCIS determined that it could not use any of the architecture delivered under its initial strategy, despite having invested more than \$475 million in its development.

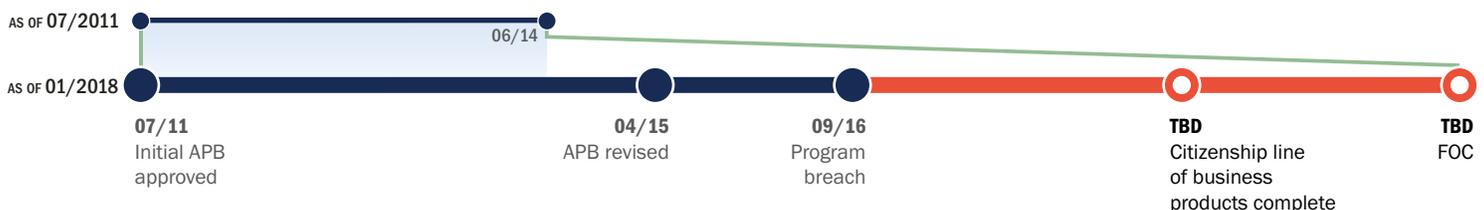
In December 2016, DHS leadership directed USCIS to stop planning and development for new product lines, develop a breach remediation plan, and update its acquisition documentation. In February 2017, DHS leadership approved the program's remediation plan and the program has since made progress in implementing this plan. However, DHS leadership elected to continue with the program's pause in new development following program reviews in March 2017, July 2017, and October 2017.

USCIS officials said they are revising the program's acquisition documents—including its APB and life-cycle cost estimate (LCCE)—and plan to re-baseline by March 2018. The program updated the total costs in its LCCE to inform the budget process, but these costs do not reflect the program's re-baselining plans. As a result, the status of the program against its cost and schedule goals is unclear. However, the program is more than 3 years past its original full operational capability (FOC) date.

The affordability gap from fiscal years 2018 to 2022 may be overstated because DHS's funding plan to Congress no longer contained operations and maintenance funding for individual programs. USCIS uses revenue from premium processing fees to fund the Transformation program and routinely collects more fees than the program's estimated costs.

### SCHEDULE CHANGES

TBD = To be determined



**PERFORMANCE AND TESTING**

OPERATIONAL TEST AGENT (OTA): PPT SOLUTIONS, INC

In September 2017, USCIS officials told GAO that the program is updating its key performance parameters (KPP) and test and evaluation master plan as part of its re-baselining efforts because the program continues to struggle to meet its requirements.

DHS leadership previously approved a revised set of eight KPPs for the program in April 2015. However, USCIS could not fully demonstrate these KPPs until it achieved FOC. In the interim, the program’s OTA conducted operational assessments (OA) of new product lines as capability was deployed. The OTA completed two OAs since the program updated its KPPs, but DHS’s Director, Office of Test and Evaluation (DOT&E) did not verify all of the results. DOT&E reviewed the results of the first OA and concluded that the system met 6 of the 7 tested KPPs, but noted that the capability assessed was a minor subset of the system’s FOC.

The OTA subsequently initiated an OA intended to inform DHS leadership’s acceptance of the Citizenship line of business. However, in December 2017, USCIS officials reported that the assessment had not yet been completed.

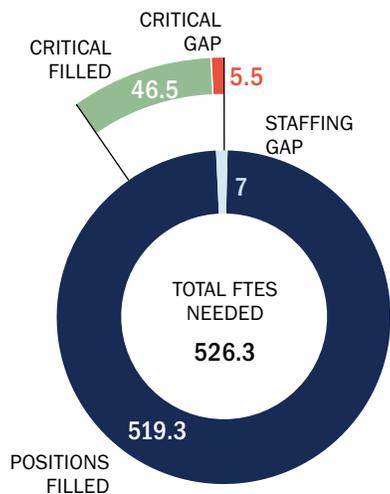
**TEST STATUS**

TEST EVENT	DATE COMPLETED	DIRECTOR, OFFICE OF TEST AND EVALUATION ASSESSMENT		
		EFFECTIVE	SUITABLE	CYBER SECURE
OA – Citizenship line of business	TBD	NONE		
OA – Immigration visa fee product line	03/2016	NONE		
OA – Automation of resident card replacement applications	08/2015	—	—	—

● PASS   
 ● PASS WITH LIMITATIONS   
 ○ FAIL   
 — NOT ASSESSED  
 TBD = To be determined

**STAFFING PROFILE**

IN FULL TIME EQUIVALENTS (FTE)



**PROGRAM MANAGEMENT**

USCIS officials told GAO that the program office underwent a reorganization in January 2017 to help address the program’s recent challenges. This effort included dismantling the program office and repositioning Transformation under the USCIS Office of Information Technology so the program could leverage expertise in areas such as engineering within USCIS. USCIS officials reported that the program no longer plans to deliver capability by product lines because this strategy focused too narrowly on the automation of forms associated with the lines of business. Going forward, USCIS officials said the program plans to develop capabilities that will address broader objectives, such as reducing the time it takes to process applications and decisions.

The program previously made significant changes after it experienced a 5-month delay with its first release, which was deployed in May 2012. DHS attributed this delay to weak contractor performance and pursuing an unnecessarily complex system, among other things. To address these issues, the Office of Management and Budget, DHS, and USCIS determined the program should implement a new acquisition strategy, which allowed for an agile software development methodology and increased competition for development work. This strategy was reflected in the program’s April 2015 re-baseline.

USCIS officials told GAO that they plan to address the Transformation program’s staffing gap now that the reorganization is complete.

**PROGRAM OFFICE COMMENTS**

USCIS officials provided technical comments on a draft of this assessment, which GAO incorporated as appropriate.

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# Appendix II: Key Portfolio Management Practices

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To help determine the extent to which the Department of Homeland Security (DHS) has taken actions to enhance its policies and processes to better reflect key portfolio management practices, we assessed the department's requirements, acquisition management, and resource allocation policies using key practices we established in September 2012.<sup>1</sup> These key practices are based on our past work, in which we examined the practices that private sector entities use to achieve a balanced mix of new projects and found that successful commercial companies use a disciplined and integrated approach to prioritize needs and allocate resources.<sup>2</sup> As a result, these organizations can avoid pursuing more projects than their resources can support and better optimize the return on their investments. This approach, known as portfolio management, requires companies to view each of their investments as contributing to a collective whole, rather than as independent and unrelated.

The following portfolio management practices—organized into four key practice areas—can improve outcomes when managing a portfolio of acquisition programs.

## 1. Clearly define and empower leadership

- Those responsible for product investment decisions and oversight should be clearly identified and held accountable for outcomes
- Portfolio managers should be empowered to make decisions about the best way to invest resources
- Portfolio managers should be supported with cross-functional teams composed of representatives from key functional areas

## 2. Establish standard assessment criteria, and demonstrate comprehensive knowledge of the portfolio

- Specific criteria should be used to ensure transparency and comparability across alternatives

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<sup>1</sup>GAO, *Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs*, [GAO-12-833](#) (Washington, D.C.: Sept. 18, 2012).

<sup>2</sup>GAO, *Best Practices: An Integrated Portfolio Management Approach to Weapon System Investments Could Improve DOD's Acquisition Outcomes*, [GAO-07-388](#) (Washington, D.C.: Mar. 30, 2007).

- Investments should be ranked and selected using a disciplined process to assess the costs, benefits, and risks of alternative products
- Knowledge should encompass the entire portfolio, including needs, gaps, and how to best meet the gaps

**3. Prioritize investments by integrating the requirements, acquisition, and budget processes**

- Requirements, acquisition, and budget processes should be connected to promote stability and accountability
- Organizations should use an integrated approach to prioritize needs and allocate resources, so they can avoid pursuing more products than they can afford, and optimize return on investment
- Resource allocation across the portfolio should align with strategic goals/objectives, and investment review policy should use long-range planning

**4. Continually make go/no-go decisions to rebalance the portfolio**

- Program requirements should be reviewed annually to make recommendations on proposed changes or options to reduce the scope
- As potential new products are identified, portfolios should be rebalanced based on those that add the most value
- If a program's estimates breach established thresholds, the program should be immediately reassessed within the context of the portfolio to determine whether that program is still relevant and affordable
- Agencies should use information gathered from post-implementation reviews of investments, as well as information learned from other organizations, to fine-tune the investment process and the portfolios to shape strategic outcomes

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# Appendix III: Objectives, Scope, and Methodology

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The objectives of this audit were designed to provide congressional committees insight into the Department of Homeland Security's (DHS) major acquisition programs. We assessed the extent to which (1) DHS's major acquisition programs are on track to meet their schedule and cost goals and (2) DHS has taken actions to enhance its policies and processes to better reflect key portfolio management practices. To answer these questions, we reviewed 28 of DHS's 79 major acquisition programs.<sup>1</sup> We reviewed all 16 of DHS's Level 1 acquisition programs—those with life-cycle cost estimates (LCCE) of \$1 billion or more—that had at least one project, increment, or segment in the Obtain phase—the stage in the acquisition life cycle when programs develop, test, and evaluate systems—at the initiation of our audit. Additionally, we reviewed 12 other major acquisition programs—including 8 Level 1 programs that either had not yet entered or were beyond the Obtain phase, and 4 Level 2 programs that have LCCEs between \$300 million and less than \$1 billion—that we identified were at risk of not meeting their cost estimates, schedules, or capability requirements based on our past work and discussions with DHS officials. Specifically, we met with representatives from DHS's Office of Program Accountability and Risk Management (PARM)—DHS's main body for acquisition oversight—as a part of our scoping effort to determine which programs (if any) were facing difficulties in meeting their cost estimates, schedules, or capability requirements. The 28 selected programs were sponsored by eight different components, and they are identified in table 7, along with our rationale for selecting them.

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<sup>1</sup>Our review included 24 of the 26 programs we reviewed in GAO, *Homeland Security Acquisitions: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress*, [GAO-17-346SP](#) (Washington, D.C.: Apr. 6, 2017). We did not include the Land Border Integration program in this review because it achieved full operational capability in September 2016. We also did not include the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance program—known as C4ISR—because, as we found in April 2017—it is focused primarily on improving the C4ISR system on the National Security Cutter and responsibility for C4ISR systems for other Coast Guard assets are being managed by the respective assets' program offices.

**Appendix III: Objectives, Scope, and Methodology**

**Table 6: Rationale for Selecting DHS Major Acquisition Programs for Review**

Component	Program	Level 1 program in the Obtain phase at the initiation of our audit	At risk of not meeting cost estimates, schedule, or capability requirements
Customs and Border Protection	Automated Commercial Environment	X	—
	Biometric Entry-Exit Program	—	X
	Border Wall System Program	—	X
	Integrated Fixed Towers <sup>a</sup>	—	X
	Medium Lift Helicopter (UH-60)	X	—
	Multi-Role Enforcement Aircraft	X	—
	Non-Intrusive Inspection Systems Program	—	X
	Remote Video Surveillance System	X	—
	Tactical Communications Modernization	—	X
	TECS (not an acronym) Modernization <sup>a</sup>	—	X
Federal Emergency Management Agency	Logistics Supply Chain Management System <sup>a</sup>	—	X
Immigration and Customs Enforcement	TECS (not an acronym) Modernization <sup>a</sup>	—	X
National Protection and Programs Directorate	Continuous Diagnostics and Mitigation	X	—
	Homeland Advanced Recognition Technology	X	—
	National Cybersecurity Protection System	X	—
	Next Generation Networks Priority Services	X	—
Science and Technology Directorate	National Bio and Agro-Defense Facility	X	—
Transportation Security Administration	Electronic Baggage Screening Program	X	—
	Passenger Screening Program	X	—
	Technology Infrastructure Modernization	X	—
U.S. Coast Guard	Fast Response Cutter	—	X
	H-65 Conversion/Sustainment Program	X	—
	Heavy Polar Icebreaker	—	X
	Long Range Surveillance Aircraft (HC-130H/J)	—	X
	Medium Range Surveillance Aircraft (HC-144A & C-27J)	X	—
	National Security Cutter	—	X
	Offshore Patrol Cutter	X	—
U.S. Citizenship and Immigration Services	Transformation	X	—

Legend: X = yes; — = no; shaded rows = new program reviewed in 2018.

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-339SP

<sup>a</sup>Level 2 program.

To determine the extent to which DHS's major acquisition programs are on track to meet their schedule and cost goals, we collected key acquisition documentation for each of the 28 programs, such as all LCCEs and acquisition program baselines (APB) approved at the department level since DHS's current acquisition management policy went into effect in November 2008. DHS policy establishes that all major acquisition programs should have a department-approved APB, which establishes a program's critical cost, schedule, and performance parameters, before they initiate efforts to obtain new capabilities. Twenty four of the 28 programs had one or more department-approved LCCEs and APBs between November 2008 and December 31, 2017.<sup>2</sup> We used these APBs to establish the initial and current cost and schedule goals for the programs. We then developed a data collection instrument to help validate the information from the APBs and collect similar information from programs without department-approved APBs. Specifically, for each program, we pre-populated a data collection instrument to the extent possible with the schedule and cost information we had collected from the APBs and our 2017 assessment (if applicable) to identify schedule and cost goal changes, if any, since (a) the program's initial baseline was approved and (b) January 2017—the data cut-off date of the report we issued in April 2017. We shared our data collection instruments with officials from the program offices to confirm or correct our initial analysis and to collect additional information to enhance the timeliness and comprehensiveness of our data sets. We then met with program officials to identify causes and effects associated with any identified schedule and cost goal changes. Subsequently, we drafted preliminary assessments for each of the 28 programs, shared them with program and component officials, and gave these officials an opportunity to submit comments to help us correct any inaccuracies, which we accounted for as appropriate (such as when new information was available).

Additionally, in July 2017, we collected copies of the detailed data on affordability that programs submitted to inform the fiscal year 2019 resource allocation process. We also collected copies of any annual LCCE updates programs submitted in fiscal year 2017. For each of the 24 programs with a department-approved APB, we compared (a) the most

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<sup>2</sup>The remaining 4 programs—Biometric Entry-Exit, Border Wall System Program, Remote Video Surveillance System, and the Heavy Polar Icebreaker—did not receive department approval of their initial APBs by December 31, 2017; therefore, we excluded them from our assessment of whether programs are on track to meet their schedule and cost goals during 2017.

recent cost data we collected (i.e., a department-approved LCCE, the detailed LCCE information submitted during the resource allocation process, a fiscal year 2017 annual LCCE update, or an update provided by the program office) to (b) DHS's funding plan presented in the Future Years Homeland Security Program (FYHSP) report to Congress for fiscal years 2018–2022, which presents 5-year funding plans for DHS's major acquisition programs, to assess the extent to which a program was projected to have an acquisition funding gap in fiscal year 2018.<sup>3</sup> These calculations also accounted for any funds that programs brought into fiscal year 2018 from sources, such as fiscal year 2017 carryover, re-programming, and fees. We shared our analysis with officials from the program offices to confirm or correct our calculations. We also identified actions DHS had taken or planned to take to address projected program funding gaps by reviewing key documentation, such as certification of funds memorandums, submitted in 2017. We also met with program officials to identify causes and effects associated with any projected funding gaps, and interviewed senior financial officials from DHS headquarters to discuss actions they had taken to implement our prior recommendations on addressing program affordability issues.<sup>4</sup> Through this process, we determined that our data elements were sufficiently reliable for the purpose of this engagement.

To determine the extent to which DHS has taken actions to enhance its policies and processes to better reflect key portfolio management practices, we compared the department's current policies for requirements, acquisition management, and resource allocation processes to key practices we established in a September 2012 report—

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<sup>3</sup>The FYHSP reports information by the department's new common appropriation structure, which created standard appropriation fund types including (1) procurement, construction, and improvements and (2) operations and support. We refer to these types of funding as (1) acquisition and (2) operations and maintenance throughout this report.

<sup>4</sup>For example, see GAO, *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, [GAO-16-338SP](#) (Washington, D.C.: Mar. 31, 2016), and *Homeland Security Acquisitions: DHS Could Better Manage Its Portfolio to Address Funding Gaps and Improve Communications with Congress*, [GAO-14-332](#) (Washington, D.C.: Apr. 17, 2014).

which are listed in appendix II—and identified any significant shortfalls.<sup>5</sup> Specifically, we assessed the joint requirements directives and instruction manual; DHS’s Acquisition Management Directive 102-01, Acquisition Management Instruction 102-01-001, and other related guidance; and DHS’s resource allocation directive, instruction, and handbook. First, we assessed each group of policies against the key practices using the following ratings:

- Met—the documents fully reflected the key practice.
- Partially met—the documents reflected some, but not all parts of the key practice.
- Not met—the documents did not reflect the key practice.

We shared our preliminary analysis for each group of policies with the DHS officials responsible for implementing them—specifically, the Joint Requirements Council (JRC), PARM, and the Office of Program Analysis and Evaluation (PA&E)—to discuss our findings, identify relevant sections of the documents we had not yet accounted for, and solicit their thoughts on those key practices that were not reflected in the policies. Second, we used the scores for each group of policies to develop a department-wide rating for each key practice. When applicable, we weighted the department-wide rating based on the intent of the key practice. For example, the department-wide rating for the key practice related to resource allocation across the portfolio was based more heavily on the rating for the resource allocation policies, rather than the ratings for the requirements or acquisition management policies. Third, we rolled-up the ratings for all the key practices in a particular area—as identified in appendix II—to establish a department-wide overall rating for each key practice area. We concluded that a key practice area was met if all ratings for the individual key practices in that area were met; partially met if the ratings for the individual key practices in that area were all partially met or

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<sup>5</sup>We established GAO’s key portfolio management practices in GAO, *Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs*, [GAO-12-833](#) (Washington, D.C.: Sept. 18, 2012). We initially included the Chief Information Officer’s policies for portfolio management of information technology programs in our assessment. We ultimately decided to exclude these policies because DHS officials told us they are in the process of revising them and DHS’s requirements, acquisition management, and resource allocation policies are applicable to information technology programs. In addition, we assess DHS’s portfolio management of information technology programs through our high-risk updates. For the most recent report, see *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, [GAO-17-317](#) (Washington, D.C.: Feb. 15, 2017).

a mix of met and not met; or not met if the ratings for the individual key practices in that area were all not met.

In addition, we reviewed documentation that resulted from DHS's requirements, acquisition management, and resource allocation processes since January 2016 to get a sense of how the department has implemented its current policies. For example, we reviewed JRC-validated requirements documents; acquisition decision memorandums; Acquisition Program Health Assessment reports; and documentation related to the development of DHS's fiscal year 2018 budget request and the fiscal year 2018–2022 FYHSP report, including resource allocation guidance, presentations to DHS leadership, and preliminary decisions. We also interviewed officials from the JRC, PARM, PA&E, and the Deputy's Management Action Group to identify any current and planned initiatives to improve management of the department's portfolio of major acquisition programs. We then compared our assessment of DHS's current policies, practices, and planned initiatives to our previous findings and the *Standards for Internal Control in the Federal Government*.<sup>6</sup>

We conducted this performance audit from March 2017 through May 2018 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.

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<sup>6</sup>GAO-12-833, GAO-14-332, and GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014).

# Appendix IV: Comments from the Department of Homeland Security



U.S. Department of Homeland Security  
Washington, DC 20528

**Homeland  
Security**

April 27, 2018

Marie A. Mak  
Director, Contracting and National Security Acquisitions  
U.S. Government Accountability Office  
441 G Street, NW  
Washington, DC 20548

Re: Management Response to Draft Report GAO-18-339SP, "HOMELAND SECURITY ACQUISITIONS: Leveraging Programs' Results Could Further Improve DHS's Progress to Improve Portfolio Management"

Dear Ms. Mak:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's acknowledgement that DHS is collecting more timely cost estimate information on its acquisition programs in order to make more informed investment decisions. DHS is also appreciative of GAO's recognition that DHS leadership has strengthened its policies for acquisition management and resource allocation, and established policies related to requirements. The Department is committed to continuing efforts to mitigate the risk of poor acquisition outcomes and strengthen DHS's investment decisions.

The draft report contained two recommendations with which the Department concurs. Attached find our detailed response to each recommendation. Technical comments were previously provided under separate cover.

Again, thank you for the opportunity to review and comment on this draft report. Please feel free to contact me if you have any questions. We look forward to working with you again in the future.

Sincerely,

A handwritten signature in cursive script that reads "Jim H. Crumpacker".

for JIM H. CRUMPACKER, CIA, CFE  
Director

Departmental GAO-OIG Liaison Office

Attachment

**Attachment: DHS Management Response to Recommendations  
Contained in GAO-18-339SP**

GAO recommended that the Under Secretary for Management:

**Recommendation 1:** Update DHS's acquisition management policy to require components to submit a certification of funds memorandum when a major acquisition program re-baselines in response to a breach.

**Response:** Concur. DHS has a demonstrated practice of reassessing programs based on a certification of funds memorandum when a program re-baselines; however, current DHS policy only required programs to submit this memorandum prior to most acquisition decision events. DHS agrees that it is important to re-validate program affordability during a re-baseline and will continue to require a certification of funds memorandum to support each Acquisition Program Baseline submitted for Chief Acquisition Officer approval. Additionally, DHS will incorporate this requirement into an update to the certification of funds policy memorandum. Estimated Completion Date (ECD): August 31, 2018.

**Recommendation 2:** Require [the DHS Office of Program Accountability and Risk Management] PARM to assess the results of major acquisition programs' post-implementation reviews and identify opportunities to improve performance across the acquisition portfolio.

**Response:** Concur. DHS agrees that it is important to use the results from programs' post implementation reviews to ensure that programs in the current acquisition portfolio achieve their baselines. PARM is reviewing the current DHS Post Implementation Review policy and will update it to include more formal reporting requirements and execution criteria. Additionally, PARM will initiate a study focused on institutionalizing lessons learned across the Components with the goal to improve performance across the acquisition portfolio. ECD: December 31, 2018.

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# Appendix V: GAO Contact and Staff Acknowledgments

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## GAO Contact

Marie A. Mak, (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov)

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## Staff Acknowledgments

In addition to the contact listed above, Rick Cederholm (Assistant Director), Aryn Ehlow (Analyst-in-Charge), Pete Anderson, Lorraine Ettaro, Helena Johnson, TyAnn Lee, Alexis Olson, Sylvia Schatz, Roxanna Sun, and Lindsay Taylor made key contributions to this report. Other contributors included Mathew Bader, Carissa Bryant, Andrew Burton, Erin Butkowski, Lisa Canini, Jenny Chow, John Crawford, Lindsey Cross, Laurier R. Fish, Betsy Gregory-Hosler, Claire Li, Sarah Martin, Marycella Mierez, Erin O'Brien, Katherine Pfeiffer, John Rastler, Ashley Rawson, Andrew Redd, Jill Schofield, Charlie Shivers III, and Jeanne Sung.

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# Related GAO Products

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*DHS Program Costs: Reporting Program-Level Operations and Support Costs to Congress Would Improve Oversight.* [GAO-18-344](#). Washington, D.C.: April 25, 2018.

*Homeland Security Acquisitions: Identifying All Non-Major Acquisitions Would Advance Ongoing Efforts to Improve Management.* [GAO-17-396](#). Washington, D.C.: April 13, 2017.

*Homeland Security Acquisitions: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress.* [GAO-17-346SP](#). Washington, D.C.: April 6, 2017.

*Coast Guard Cutters: Depot Maintenance Is Affecting Operational Availability and Cost Estimates Should Reflect Actual Expenditures.* [GAO-17-218](#). Washington, D.C.: March 2, 2017.

*Homeland Security Acquisitions: Joint Requirements Council's Initial Approach Is Generally Sound and It Is Developing a Process to Inform Investment Priorities.* [GAO-17-171](#). Washington, D.C.: October 24, 2016.

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

*National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed.* [GAO-16-148](#). Washington, D.C.: January 12, 2016.

*TSA Acquisitions: Further Actions Needed to Improve Efficiency of Screening Technology Test and Evaluation.* [GAO-16-117](#). Washington, D.C.: December 17, 2015.

*Homeland Security Acquisitions: Major Program Assessments Reveal Actions Needed to Improve Accountability.* [GAO-15-171SP](#). Washington, D.C.: April 22, 2015.

*Coast Guard Aircraft: Transfer of Fixed-Wing C-27J Aircraft Is Complex and Further Fleet Purchases Should Coincide with Study Results.* [GAO-15-325](#). Washington, D.C.: March 26, 2015.

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*Homeland Security Acquisitions: DHS Should Better Define Oversight Roles and Improve Program Reporting to Congress.* [GAO-15-292](#). Washington, D.C.: March 12, 2015.

*Coast Guard Acquisitions: Better Information on Performance and Funding Needed to Address Shortfalls.* [GAO-14-450](#). Washington, D.C.: June 5, 2014.

*Homeland Security Acquisitions: DHS Could Better Manage Its Portfolio to Address Funding Gaps and Improve Communications with Congress.* [GAO-14-332](#). Washington, D.C.: April 17, 2014.

*Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs.* [GAO-12-833](#). Washington, D.C.: September 18, 2012.

*Department of Homeland Security: Assessments of Selected Complex Acquisitions.* [GAO-10-588SP](#). Washington, D.C.: June 30, 2010.

*Department of Homeland Security: Billions Invested in Major Programs Lack Appropriate Oversight.* [GAO-09-29](#). Washington, D.C.: November 18, 2008.

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Chuck Young, Managing Director, [youngc1@gao.gov](mailto:youngc1@gao.gov), (202) 512-4800 U.S. Government Accountability Office, 441 G Street NW, Room 7149 Washington, DC 20548

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## Strategic Planning and External Liaison

James-Christian Blockwood, Managing Director, [spel@gao.gov](mailto:spel@gao.gov), (202) 512-4707 U.S. Government Accountability Office, 441 G Street NW, Room 7814, Washington, DC 20548



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