United States Government Accountability Office

Report to Congressional Committees

April 2017

HOMELAND SECURITY ACQUISITIONS

Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress

Accessible Version

GAO-17-346SP

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GAO Highlights

Highlights of GAO-17-346SP, a report to congressional committees

Why GAO Did This Study

In fiscal year 2016, DHS planned to invest about $7 billion in major acquisitions. DHS's acquisition activities are on GAO's High Risk List, in part due to program management, requirements, 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 third annual review, addresses the extent to which (1) DHS's major acquisition programs are on track to meet schedule and cost goals, (2) these programs are meeting KPPs, and (3) DHS has strengthened implementation of its acquisition policy.

GAO assessed DHS's 15 largest acquisition programs that were in the process of obtaining new capabilities as of May 2016, and 11 additional programs that GAO or DHS identified were at risk of poor outcomes. For all 26 programs, GAO reviewed key documentation, assessed performance against baselines established since DHS's 2008 acquisition policy, and met with program officials. GAO also met with DHS acquisition officials and assessed DHS's policies and practices against GAO acquisition best practices and federal internal control standards.

What GAO Recommends

DHS should ensure that programs define technical requirements before setting baselines; document rationale for key acquisition decisions; and clarify when not meeting KPPs constitutes a breach. DHS concurred with GAO's recommendations.

View GAO-17-346SP. For more information, contact Michele Mackin at (202) 512-4841 or mackinm@gao.gov.

What GAO Found

For the first time since GAO began its annual assessments of the Department of Homeland Security's (DHS) major acquisitions, all 26 programs that were reviewed had a department-approved baseline. During 2016, over half of the programs reviewed (17 of the 26) were on track to meet their initial or revised schedule and cost goals. However, 7 of these 17 programs only recently established baselines, 6 of which operated for several years and deployed capabilities without approved baselines. The remaining 9 programs experienced schedule slips, including 4 that also experienced cost growth. The table shows the schedule and cost changes across all 26 programs reviewed, much of which was driven by changes in a few programs.

2016 Schedule and Cost Changes for the 26 Major DHS Acquisition Programs GAO Reviewed

Average change in schedule (in months)	Acquisition cost change (in millions of dollars)	Life-cycle cost change (in millions of dollars)
6	988.3 (1.6 percent)	1,571.5 (0.8 percent)

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP.

As of January 2017, 14 of the 26 programs deployed capabilities before meeting all key performance parameters (KPP)—the most important requirements that a system must meet. As a result, DHS may be deploying much-needed capabilities—such as border surveillance equipment and Coast Guard cutters—that do not work as intended. Programs did not meet KPPs for a variety of reasons, such as KPPs were not yet ready to be tested, systems failed to meet KPPs during testing, or KPPs were poorly defined. Contrary to acquisition best practices, DHS policy requires programs to establish schedule, cost, and performance baselines prior to gaining full knowledge about the program's technical requirements. As a result, DHS programs do not match their needs with available resources before starting product development, which increases programs' risk for cost growth, schedule slips, and inconsistent performance.

In 2016, DHS strengthened implementation of its acquisition policy by, for example, focusing on program staffing needs, requiring programs to obtain department-approval for key acquisition documents, and revising the process for when programs breach their cost goals, schedules, or KPPs. However, DHS could better document leadership's acquisition decisions to improve insight into cases that diverge from policy. For example, DHS approved six programs to proceed through the acquisition life cycle even though required documentation was not comprehensive or had not been approved, as required by DHS's policy. Senior DHS officials told GAO these decisions were also based on discussions held at the programs' formal acquisition reviews, but these considerations were not documented. Federal internal control standards require clear documentation of significant events. DHS leadership's decisions may be reasonable, but unless these decisions are documented, insight for internal and external stakeholders is limited. Furthermore, no programs reported a performance breach, even though some programs had not met KPPs. DHS's policy is not clear on how to determine whether a performance breach has occurred. As a result, DHS lacks insight into potential causes of performance issues that may contribute to poor outcomes.

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Abbreviations

ADE	Acquisition Decision Event
APB	Acquisition Program Baseline
APHA	Acquisition Program Health Assessment
ARB	Acquisition Review Board
CFO	Chief Financial Officer
CIO	Chief Information Officer
DHS	Department of Homeland Security
DOT&E	Director, Office of Test and Evaluation
FOC	full operational capability
FYHSP	Future Years Homeland Security Program
INVEST	Investment Evaluation, Submission, and Tracking
IT	information technology
JRC	Joint Requirements Council
KPP	key performance parameter
LCCE	life-cycle cost estimate
MD	Management Directive
OTA	operational test agent
O&M	operations and maintenance
PARM	Office of Program Accountability and Risk Management
PPBE	planning, programming, budgeting, and execution
TEMP	Test and Evaluation Master Plan
USM	Under Secretary for Management

Component Agencies

CBP	U.S. Customs and Border Protection
FEMA	Federal Emergency Management Agency
ICE	Immigration and Customs Enforcement
NPPD	National Protection and Programs Directorate
S&T	Science and Technology Directorate
TSA	Transportation Security Administration
USCG	U.S. Coast Guard
USCIS	U.S. Citizenship and Immigration Services

Major Acquisition Programs

ACE	Automated Commercial Environment
C4ISR	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance
CDM	Continuous Diagnostics & Mitigation
EBSP	Electronic Baggage Screening Program
FRC	Fast Response Cutter
HART	Homeland Advanced Recognition Technology
IFT	Integrated Fixed Towers
LBI	Land Border Integration

LSCMS	Logistics Supply Chain Management System
MEA	Multi-Role Enforcement Aircraft
MRS	Medium Range Surveillance Aircraft
NBAF	National Bio and Agro-Defense Facility
NCPS	National Cybersecurity Protection System
NGN-PS	Next Generation Networks Priority Services
NII	Non-Intrusive Inspection Systems Program
NSC	National Security Cutter
OPC	Offshore Patrol Cutter
PSP	Passenger Screening Program
TACCOM	Tactical Communications Modernization
TECS	(Not an acronym) Modernization
TIM	Technology Infrastructure Modernization
UH-60	Medium Lift Helicopter

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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April 6, 2017

Congressional Committees

Each year, the Department of Homeland Security (DHS) invests billions of dollars in its major acquisition programs to help execute its many critical missions. In fiscal year 2016 alone, DHS planned to spend approximately $6.9 billion on these acquisition programs, and ultimately the department will likely invest more than $210 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.[1]

To help manage these programs, DHS has established an acquisition management policy that we have reported is generally sound, in that it reflects key program management practices.[2] However, we have found shortfalls in executing the policy and have highlighted DHS acquisition management issues in our high-risk updates since 2005.[3] Over the past decade, we have reported that department leadership has dedicated additional resources to acquisition oversight and documented major acquisition decisions in a more transparent and consistent manner, but our work has also identified shortcomings in the department's ability to manage its portfolio of major acquisitions.[4] For example, in March 2016 we found that 6 of the 25 programs we reviewed lacked a department-approved Acquisition Program Baseline (APB), which establishes a

[1]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.

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

[3]GAO, *High-Risk Series: An Update*, GAO-05-207 (Washington, D.C.: January 2005); *High-Risk Series: An Update*, GAO-13-283 (Washington, D.C.: February 2013); *High-Risk Series: An Update*, GAO-15-290 (Washington, D.C.: Feb. 11, 2015); and *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, GAO-17-317 (Washington, D.C.: Feb. 15, 2017).

[4]For examples of past GAO work, see a list of related GAO products at the end of this report.

program's cost, schedule, and performance goals.[5] We also found that several of the acquisition programs faced staffing shortfalls and their requirements had changed, with many of these programs citing poorly defined requirements as a cause for changes. These challenges can contribute to poor acquisition outcomes, such as cost increases or the risk of end users—such as border patrol agents or first responders in a disaster—receiving technologies that do not work as originally intended.

We have made many recommendations over the past decade to help address these challenges. For example, we previously recommended that DHS leadership specifically assess whether adequate funding is available during all program reviews.[6] In response, DHS has taken several steps to improve acquisition management, such as dedicating additional resources to acquisition oversight 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 several of our other recommendations. For example, we previously recommended that DHS leadership ensure all major programs fully comply with acquisition policy by obtaining department-level approval for acquisition documents before the programs are allowed to proceed and present any anticipated annual funding gaps for acquisition programs in the annual funding plan submitted to Congress.[7] DHS concurred with these recommendations and has taken steps to address them.

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 Senate report.[8] This is our third 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,

[5]GAO, *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, GAO-16-338SP (Washington, D.C.: Mar. 31, 2016). DHS approved APBs for 4 of the 6 programs between late December 2015 and January 2016, but these APBs were not approved in time for us to assess them.

[6]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).

[7]GAO-14-332, GAO-12-833.

[8]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).

(2) major acquisition programs are making progress in meeting key performance parameters (KPP), and (3) DHS has taken actions to strengthen implementation of its acquisition policy and to improve major acquisition program outcomes.

We reviewed 26 of DHS's 71 major acquisition programs, including 24 that we reviewed in 2016. We reviewed all 15 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. To provide insight into some of the factors that can lead to poor acquisition outcomes, we also included 11 other major acquisition programs that we or DHS management identified were at risk of not meeting their schedules, cost estimates, or capability requirements. Six of these 11 programs were Level 1 acquisitions that had entered the deployment phase of the acquisition life cycle, while the other five programs were Level 2 acquisitions with LCCEs between $300 million and $1 billion. In total, the 26 programs we reviewed were sponsored by eight different DHS components.

For each of the 26 programs, we analyzed acquisition documentation, such as APBs, which contain information on programs' schedules, cost estimates, and KPPs—the requirements a system must meet to fulfill its fundamental purpose. 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, cost growth, and changes in KPP status. We subsequently shared this information with each of the 26 program offices and met with program officials to identify causes and effects associated with any schedule slips, cost growth, and KPP status changes since (1) their initial baselines and (2) January 2016—the data cut-off date of the report we issued last year. We also reviewed DHS's resource allocation policies and processes and key funding documents—including affordability certification memorandums and the Future Years Homeland Security Program (FYHSP) report to Congress for fiscal years 2017-2021, which presents 5-year funding plans for each of DHS's major acquisition programs—to assess the affordability of the 26 programs we reviewed.

In addition, we reviewed test reports and any letters of assessment from DHS's Director, Office of Test and Evaluation (formerly Director of Operational Test and Evaluation), which assess system performance during operational testing, to assess programs' progress in meeting

KPPs. Furthermore, we reviewed DHS's acquisition policy and guidance; acquisition decision memorandums issued in calendar year 2016; and key acquisition documentation for major acquisition programs, including APBs, breach notifications for cost, schedule, or performance that exceeded baselines, and any remediation plans. We assessed DHS's acquisition management policies and processes against the *Standards for Internal Control in the Federal Government*, as well as GAO's best practices for managing acquisition programs.[9] Lastly, we interviewed acquisition management officials from DHS headquarters to obtain their perspectives on new and ongoing oversight initiatives intended to improve the department's management of major acquisition programs.

Appendix I presents individual assessments of each of the 26 programs we reviewed. These assessments include key information such as projected funding levels, staffing profiles, and progress against schedule and cost goals. 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. Appendix II provides detailed information on our scope and methodology.

We conducted this performance audit from May 2016 to April 2017 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.

Background

To help manage its multi-billion dollar acquisition investments, DHS has established policies and processes for acquisition management, 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.

[9]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014); *Best Practices: Using a Knowledge-based Approach to Improve Weapon Acquisition*, GAO-04-386SP (Washington, D.C.: January 2004).

Acquisition Management Policy

DHS policies and processes for managing its major acquisition programs are primarily set forth in Acquisition Management Directive (MD) 102-01 and DHS Instruction Manual 102-01-001, Acquisition Management Instruction/Guidebook. 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.[10] DHS's Under Secretary for Management (USM) 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 USM serves as the 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 component agencies—may be delegated decision authority for programs with cost estimates between $300 million and less than $1 billion. Table 1 identifies how DHS has categorized the 26 major acquisition programs we review in this report, and table 7 in appendix II specifically identifies the programs within each level.

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	21
2	$300 million or more, but less than $1 billion	Under Secretary for Management/Chief Acquisition Officer, or the Component Acquisition Executive	5

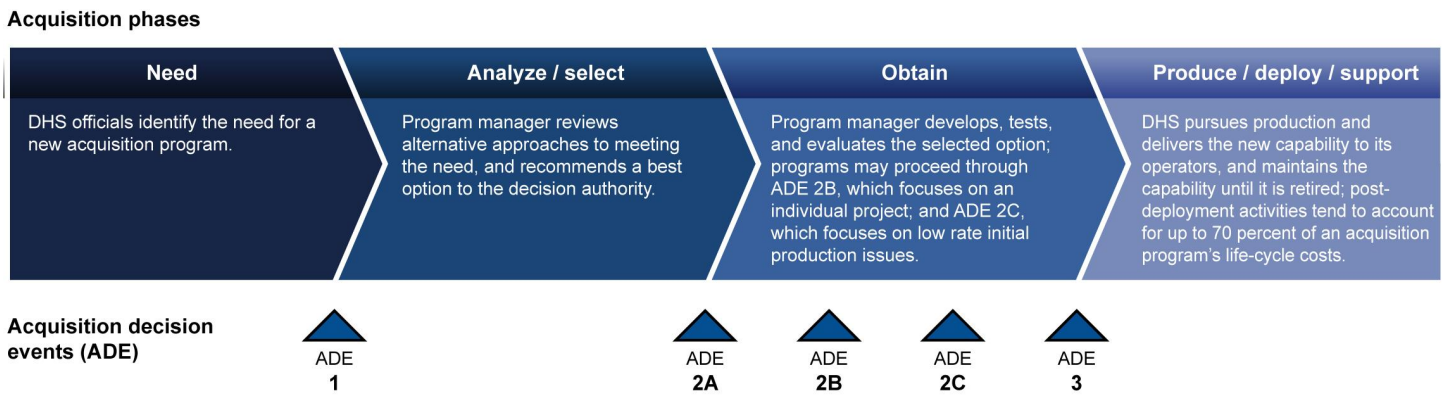
Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

DHS acquisition policy establishes that a major acquisition program's decision authority shall review the program at a series of five predetermined Acquisition Decision Events (ADE) to assess whether the major program is ready to proceed through the acquisition life-cycle

[10]DHS has issued multiple updates to MD 102-01 and the instruction. DHS issued the current version of MD 102-01 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.

phases. Depending on the program, these ADEs can occur within months of each other, or be spread over several years. Figure 1 depicts the acquisition life cycle established in DHS acquisition policy.

Figure 1: DHS Acquisition Life Cycle for Major Acquisition Programs



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

An important aspect of an ADE 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 DHS Acquisition Documents Requiring Department-level Approval

Document	Description
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.
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 work to be performed in the Analyze/Select phase.
Operational Requirements Document	Provides a number of performance parameters that must be met by a program to provide useful capability to the operator by closing the capability gaps identified in the Mission Need Statement.
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.

Document	Description
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 investment'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-17-346SP

DHS acquisition 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 KPPs. DHS defines KPPs as a program's most important and non-negotiable requirements that a system must meet to fulfill its fundamental purpose. For example, a KPP for an aircraft may be airspeed and a KPP for a surveillance system may be detection range.

The APB schedule, costs, and KPPs 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.

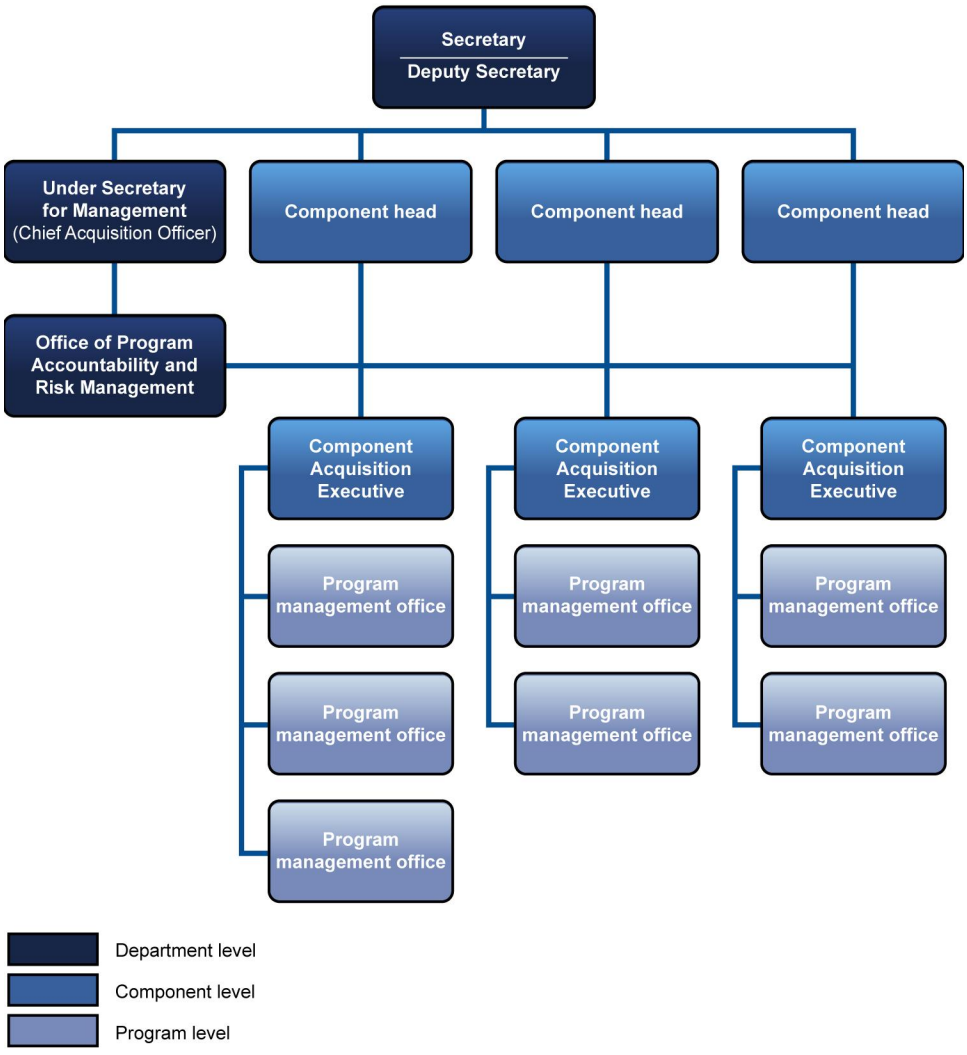
In addition to the acquisition decision authority, other bodies and senior officials support DHS's acquisition management function:

- **The Acquisition Review Board (ARB)** reviews major acquisition programs for proper management, oversight, accountability, and alignment with the department's strategic functions at ADEs and other meetings as needed. The ARB 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 ARB, and reports directly to the USM. 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.

- **Component agencies,** such as U.S. Customs and Border Protection (CBP), the Transportation Security Administration (TSA), and the U.S. Coast Guard (USCG) sponsor specific acquisition programs. The 26 programs we review in this report are sponsored by eight component agencies.
    - **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.

Figure 2: DHS's Acquisition Management Structure



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Test and Evaluation Policy

In May 2009, DHS established policies and processes for testing the capabilities delivered by the department's major acquisition programs.[11] 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 risk. We provide an overview of each of the 26 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:

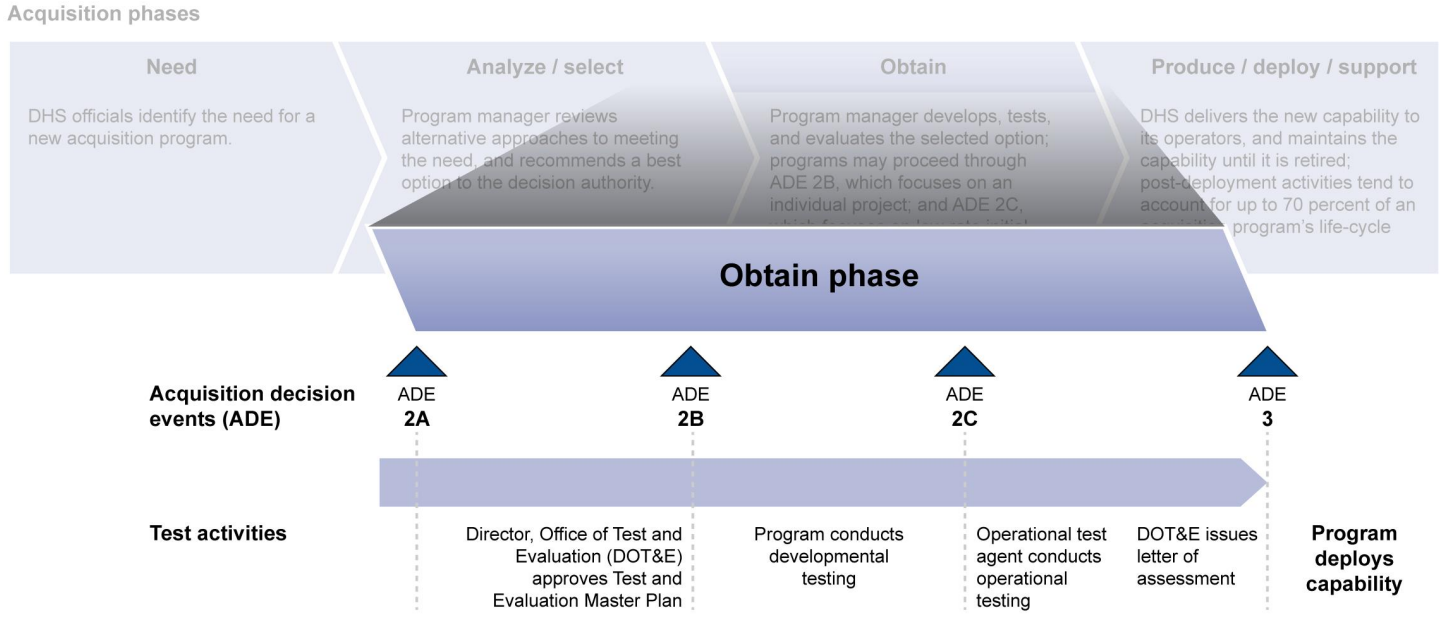
- **Program managers** have overall responsibility for planning and executing their programs' testing strategies. They are responsible for scheduling and funding test activities and delivering systems for testing. They are also responsible for controlling developmental testing. Programs use developmental testing to assist in the development and maturation of products, product elements, or 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 (OTA)** are responsible for planning, conducting, and reporting on operational testing, which is intended to identify whether a system can meet its KPPs and provide the acquisition decision authority with an evaluation of the operational effectiveness and suitability of a system in a realistic environment. Operational effectiveness refers to the overall ability of a system to provide desired capability when used by representative personnel. Operational suitability refers to the degree to which a system can be placed in field use and sustained satisfactorily. The OTAs 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. For example, the U.S. Navy Commander, Operational Test and Evaluation Force is the OTA for the USCG National Security Cutter (NSC) program.

[11]Department of Homeland Security, Directive No. 026-06, Test and Evaluation, May 22, 2009. DHS is in the process of revising this directive and an accompanying instruction (DHS Instruction 026-06-001), but the revisions had not been approved at the time our report was issued.

- **The Director, Office of Test and Evaluation (DOT&E)** is responsible for approving major acquisition programs' OTAs, operational test plans, and Test and Evaluation Master Plans (TEMP). A program's TEMP must describe the developmental and operational testing needed to determine technical performance, and operational effectiveness and suitability. As appropriate, DOT&E is also responsible for participating in operational test readiness reviews, observing operational tests, reviewing OTAs' reports, and assessing the reports. Prior to a program's ADE 3, DOT&E 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 OTA'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 3.

Figure 3: Test Activities Established by DHS Policy



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Resource Allocation Process

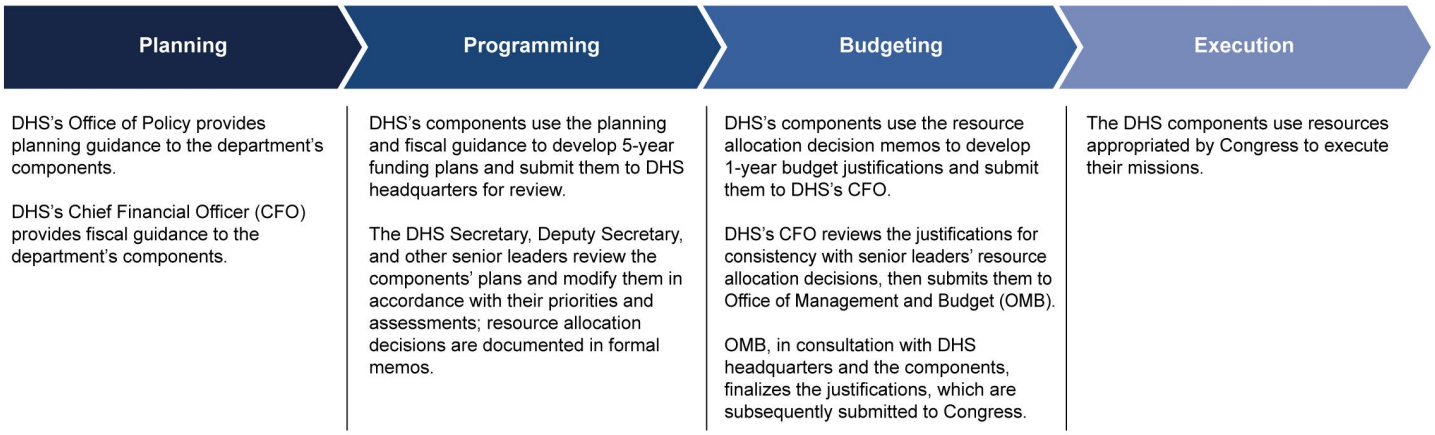
DHS has established a planning, programming, budgeting, and execution (PPBE) process to allocate resources to acquisition programs and other

entities throughout the department.[12] DHS's PPBE process produces the 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. DHS guidance states that the 5-year plans in the FYHSP 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.

According to DHS guidance, at the outset of the annual PPBE process, the department's Office of Policy and Chief Financial Officer (CFO) should provide planning and fiscal guidance, respectively, to the department's component agencies. In accordance with this guidance, the components should submit 5-year funding plans to the CFO; 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 4 depicts DHS's annual PPBE process.

[12]Department of Homeland Security, Planning, Programming, Budgeting, and Execution System Operating Handbook, Rev. July 2015.

Figure 4: DHS's Annual Planning, Programming, Budgeting, and Execution Process



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Federal law requires DHS to submit an annual FYHSP report to Congress at or about the same time as the President's budget request.[13] This report presents the 5-year funding plans in the FYHSP database at that time.

Within DHS's Office of the CFO, the Office of Program Analysis and Evaluation is responsible for establishing policies for the PPBE process and overseeing the development of the FYHSP. In this role, the Office of Program Analysis and Evaluation 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.

During 2016, More than Half of 26 Programs Were on Track to Meet Their Schedules and Cost Goals

For the first time since we began our annual assessments of DHS's major acquisition programs, all of the programs included in our review had a department-approved baseline. This allowed us to analyze schedule and cost changes across the portfolio of the 26 programs we assessed, which provides a foundation for measuring DHS's acquisition performance going

[13]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.

forward. From January 2016 to January 2017, 17 of the 26 programs we assessed were on track to meet their schedule and cost goals, including 2 that experienced either a schedule acceleration or cost decrease. However, 7 of these 17 programs established their goals for the first time since our last review and 9 others had previously revised their goals. The remaining 9 of the 26 programs experienced schedule slips, including 4 that also experienced cost growth. The change in schedule for a key program acquisition milestone in 2016 ranged from a 21-month acceleration to a 75-month delay, which resulted in an average increase of 6 months across the portfolio. Additionally, although 1 program had a drop in costs, overall the total acquisition cost across the portfolio increased by $988 million—or 1.6 percent—and the total LCCE across the portfolio increased by nearly $1.6 billion—or 0.8 percent. The overall schedule and cost changes were largely driven by increases experienced by a few programs. For example, the full operational capability (FOC) date for TSA's Technology Infrastructure Modernization (TIM) program slipped by more than 6 years when the program revised its acquisition strategy—significantly delaying the delivery of some services to end users.

Table 3 summarizes our findings and highlights those programs with schedule or cost increases. We present more detailed information after the table and in the individual assessments in appendix I.

Table 3: Major DHS Acquisition Programs' Schedule and Cost Changes During 2016

Component	Program	Schedule change (in months)	Acquisition cost change (dollars in millions)	Life-cycle cost change (dollars in millions)
Customs and Border Protection (CBP)	Automated Commercial Environment (ACE)	10	71.3	419.3
	Integrated Fixed Towers (IFT)	0	0.0	0.0
	Land Border Integration (LBI)[a]	0	0.0	0.0
	Medium Lift Helicopter (UH-60)[a]	0	0.0	0.0
	Multi-Role Enforcement Aircraft (MEA)[a]	0	0.0	0.0
	Non-Intrusive Inspection (NII) Systems Program[a]	0	-190.1	-315.0
	Tactical Communications (TACCOM) Modernization[a]	0	0.0	0.0
	TECS (not an acronym) Modernization	9	0.0	0.0
Federal Emergency Management Agency (FEMA)	Logistics Supply Chain Management System (LSCMS)[a]	0	0.0	0.0
Immigration and Customs Enforcement (ICE)	TECS (not an acronym) Modernization	3	3.8	0.5

Component	Program	Schedule change (in months)	Acquisition cost change (dollars in millions)	Life-cycle cost change (dollars in millions)
National Protection and Programs Directorate (NPPD)	Continuous Diagnostics & Mitigation (CDM)	0	0.0	0.0
	National Cybersecurity Protection System (NCPS)	9	0.0	0.0
	Homeland Advanced Recognition Technology (HART)[a]	0	0.0	0.0
	Next Generation Networks Priority Services (NGN-PS)	0	0.0	0.0
Science and Technology Directorate (S&T)	National Bio and Agro-Defense Facility (NBAF)[a]	0	0.0	0.0
Transportation Security Administration (TSA)	Electronic Baggage Screening Program (EBSP)	24	975.1	1,350.6
	Passenger Screening Program (PSP)	21	0.0	0.0
	Technology Infrastructure Modernization (TIM)	75	128.1	116.1
U.S. Coast Guard (USCG)	C4ISR[b]	-21	0.0	0.0
	Fast Response Cutter (FRC)	0	0.0	0.0
	H-65 Conversion/Sustainment Projects (H-65)	21	0.0	0.0
	Long Range Surveillance Aircraft (HC-130H/J)	0	0.0	0.0
	Medium Range Surveillance Aircraft (HC-144A & C-27J)[c]	0	0.0	0.0
	National Security Cutter (NSC)	0	0.0	0.0
	Offshore Patrol Cutter (OPC)	0	0.0	0.0
U.S. Citizenship and Immigration Services (USCIS)	Transformation	5	0.0	0.0
Total		**156**	**988.3**	**1,571.5**
Average change in schedule		**6**	**—**	**—**
Cost percentage change		**—**	**1.6**	**0.8**

Legend: — = not applicable.

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Note: Shaded rows identify programs that experienced schedule slips, cost growth, or both.

[a]Program is also on track against initial schedules and cost estimates.

[b]C4ISR is an acronym for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

[c]Calculations are based on the Medium Range Surveillance Aircraft's August 2016 Acquisition Program Baseline, which established initial schedule and cost goals for the restructured program.

During 2016, 17 Programs Were on Track

From January 2016 to January 2017, 17 programs were on track to meet their schedules or cost goals. Eight of the 17 programs were on track against their initial schedule and cost goals; that is, the schedules and cost estimates in the baseline DHS leadership initially approved after the department's acquisition policy went into effect in November 2008. The other 9 programs had re-baselined prior to January 2016 and were on

track against revised schedules and cost estimates that reflected past schedule slips, cost growth, or both. However, most of the programs on track in 2016 identified risks that may lead to schedule slips or cost growth in the future.

On Track against Initial Baselines

Of the 8 programs on track against the schedules and cost goals in their initial baselines, only 1 program received DHS approval of its initial baseline prior to December 2015. Six of the remaining programs had operated for several years without a DHS-approved baseline, which, in addition to decreasing oversight, also increased the risk of end users not getting required capabilities on time or at cost. For example, DHS leadership approved the initial APB for CBP's Non-Intrusive Inspection (NII) Systems Program in January 2016, which was more than 13 years after the program deployed initial capabilities to end users. This means that, even though capabilities were delivered to end users, the program had not followed the department's November 2008 acquisition policy. Since the NII Systems Program's initial APB was approved, the program's acquisition cost estimate decreased by $190 million and its LCCE decreased by $315 million. Program officials attributed these decreases to achieving a reduction in NII system purchase and maintenance costs and the replacement of some NII systems that were costly to maintain. DHS leadership also recently approved the initial APB for a newer program—the National Protection and Programs Directorate's (NPPD) Homeland Advanced Recognition Technology (HART)—in April 2016 when it entered the Obtain phase. Only 1 program—the Science and Technology Directorate's (S&T) National Bio and Agro-Defense Facility (NBAF)—that we found was on track against its initial baselines in 2015 remained on track against its initial baselines in 2016.[14]

On Track against Revised Baselines

For context, because many baselines had been approved only recently, we also assessed the extent to which programs that were on track in 2016 had previously experienced problems. We found that 9 of these programs had previously experienced schedule slips, cost growth, or both. Specifically, all 9 of these programs had milestones that slipped an average of 4.5 years, for a variety of reasons.

[14]GAO-16-338SP.

In addition, 6 of these 9 programs also experienced cost growth prior to 2016; in total, acquisition costs increased by $5 billion and LCCEs increased by nearly $17 billion. Examples of programs with no changes during 2016, but that had experienced past schedule slips and cost growth, follow.

- CBP's Integrated Fixed Towers (IFT) program's FOC date previously slipped 5 years, which officials attributed to delays in awarding contracts and to funding shortfalls.
- From September 2010 to September 2014, NPPD's Next Generation Networks Priority Services (NGN-PS) program's acquisition cost increased by $447 million and LCCE increased by $386 million when officials accounted for capabilities delivered under the voice phase's second increment. From September 2014 to August 2015, the program's acquisition costs subsequently decreased by $153 million based on a refinement of the estimate, but the LCCE increased by an additional $100 million when officials included all sustainment costs funded by a separate program—NPPD's Priority Telecommunications Services program, which assumes responsibility for sustaining NGN-PS capabilities once they become operational—at the direction of DHS headquarters.

On the other hand, 2 USCG programs—the Medium Range Surveillance (MRS) Aircraft and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)—that experienced past problems reported positive changes in 2016.

- In August 2016, DHS approved a revised APB for the MRS program that establishes initial schedule and cost goals for the restructured program. Specifically, the department paused the number of HC-144A aircraft at the 18 already procured and accounted for the transfer of 14 C-27J aircraft from the U.S. Air Force as directed by Congress in fiscal year 2014.[15] Prior to this restructuring, the MRS program's FOC date slipped from September 2020 to September 2025 when the USCG reduced the number of HC-144A aircraft it planned to procure annually in response to funding constraints. In addition, the program's LCCE increased by $16.4 billion when the USCG accounted for costs over this additional 5-year period, among other things.

[15]For more information, see GAO, *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.: Mar. 26, 2015).

- For C4ISR, USCG officials stated they now plan to complete the transition away from using contractor-owned proprietary software by the end of calendar year 2017, which is 21 months earlier than the program's revised APB. However, if completed by the new date, this transition would still occur more than 5 years later than the C4ISR program initially planned.

Risks That May Cause Schedule Slips, Cost Growth, or Both in the Future

Officials from most of the 17 programs on track in 2016 identified risks that could cause schedule slips, cost growth, or both in the future. These risks include testing issues, funding gaps, and technical challenges, among other factors. For example, NPPD's Continuous Diagnostics & Mitigation (CDM) program is in the process of re-baselining to address implementation challenges discovered in 2016, which officials anticipate will increase the program's cost and lead to potential schedule slips for future capabilities. In addition, the USCG Long Range Surveillance Aircraft is currently on track to meet schedule and cost goals, but experienced significant cost increases and schedule slips from 2009 to 2012, which USCG officials primarily attributed to the decision to procure additional HC-130J aircraft. Officials have said that the USCG would need to acquire one to two HC-130J aircraft per year in order to meet the program's FOC date of March 2027. If the remaining aircraft are not delivered at this rate, the program's schedule could slip further. USCG officials said the delivery rate is dependent on the amount of funding the program receives, as the USCG has historically received HC-130Js without including them in their budget requests.

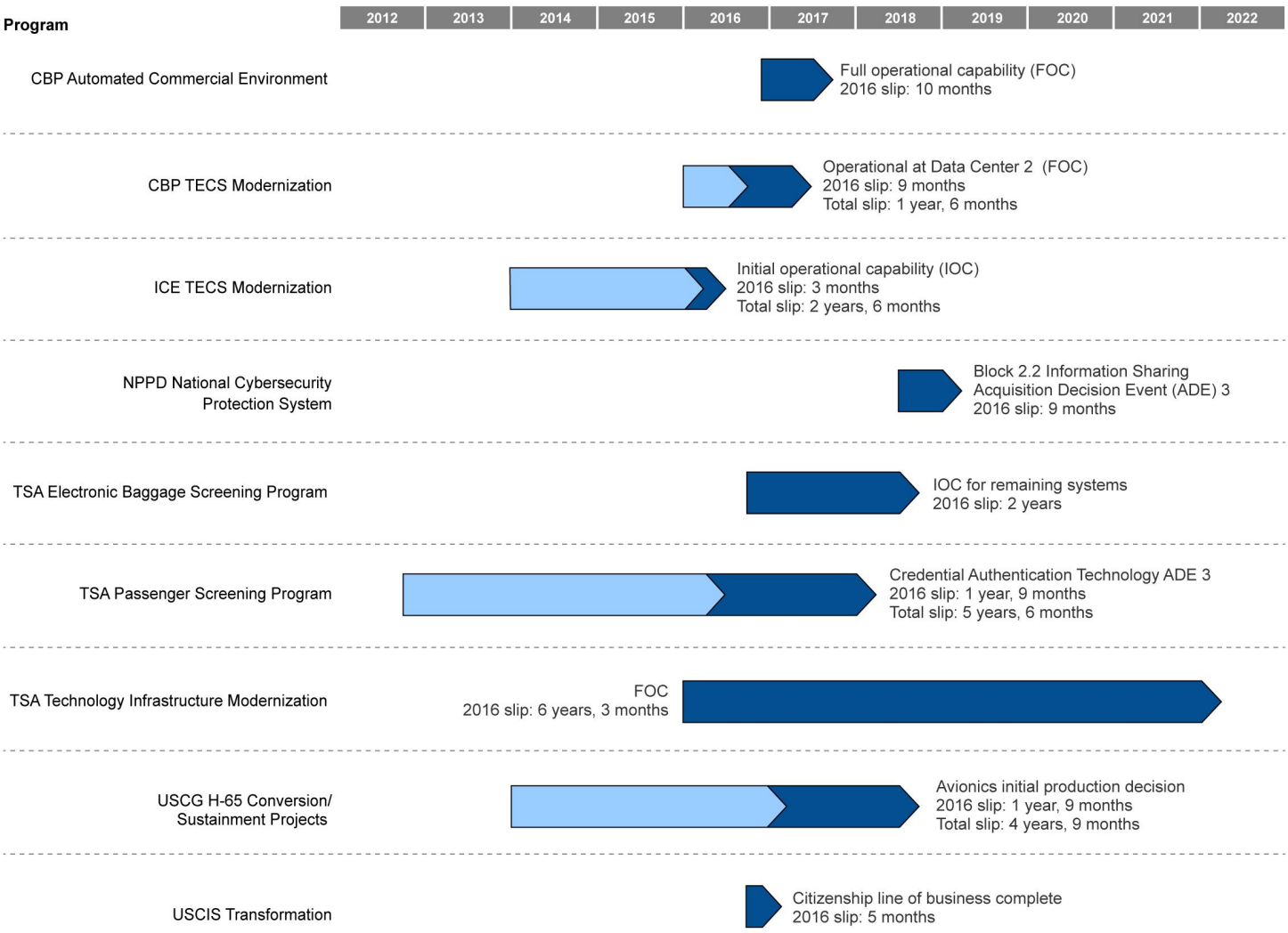
Programs Not on Track During 2016

From January 2016 to January 2017, 9 of the 26 programs we assessed experienced schedule slips, 4 of which also experienced cost growth. The extent of these changes constituted breaches of schedules, cost goals, or both, for 6 of the 9 programs. For these 9 programs, the average schedule slip of 1.6 years was largely driven by changes in TSA's TIM program. As far as cost growth, increases of $1.2 billion and $1.9 billion for acquisition and life-cycle costs, respectively, were also essentially driven by one program, TSA's Electronic Baggage Screening Program (EBSP). More details follow.

Programs with Schedule Slips during 2016

During 2016, 9 of the 26 programs in our review had at least one major acquisition milestone that slipped for various reasons. Across these programs, the average schedule slip was 1.6 years, but that average was significantly driven by a more than 6-year delay in the TSA's TIM program, which revised its acquisition strategy. Figure 5 identifies the 9 programs that experienced schedule slips and the extent to which their major milestones slipped in 2016, as well as—for additional context—in prior years. While there are various reasons for the schedule delays, the effect is that end users may not have gotten needed capabilities when they originally anticipated.

Figure 5: Major DHS Acquisition Programs' Schedule Slips during 2016



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

We identified several reasons why these key milestones slipped, including the following:

- **New strategies or requirements:** For example, TSA's TIM program re-baselined in September 2016 to reflect a new acquisition strategy that is intended to address past program execution challenges that led to the program breaching its initial APB in 2014. TIM's new strategy also includes integration with the Transportation Vetting System and support for additional programs, such as TSA's Pre-Check. Additionally, TSA's Passenger Screening Program (PSP) declared an APB schedule breach in January 2016 because of delays in incorporating new cybersecurity requirements in the Credential Authentication Technology system prior to completing operational testing.
- **Technical challenges:** For example, the USCG's H-65 conversion/sustainment program declared a schedule breach in November 2016 after experiencing significant delays in developing a portion of the avionics upgrades for the H-65, which officials primarily attributed to an underestimation of the technical effort necessary to meet requirements. As a result, the avionics initial production decision has been delayed until September 2018, nearly 5 years later than initially planned.

We elaborate on the reasons for all 9 programs' schedule slips in the individual assessments in appendix I.

Programs with Cost Growth during 2016

During 2016, 4 of the 26 programs in our review experienced growth in both their acquisition cost estimates and LCCEs. In total, acquisition cost estimates increased by a total of $1.2 billion and LCCEs increased by a total of $1.9 billion, which reflects an approximately 8 percent increase in both estimates when calculated across these 4 programs. The cost growth is almost entirely driven by increases to TSA's EBSP cost thresholds to account for risk in its new estimate that reflects anticipated funding shortfalls and planning for program succession. Table 4 identifies the 4 programs with cost growth and the extent to which their estimates increased in 2016.

Table 4: Growth in Acquisition Cost and Life-Cycle Cost Estimates (LCCE) During 2016 (in millions)

	Acquisition cost estimate				LCCE			
Program	As of January 2016	As of January 2017[a]	2016 growth[a]	2016 percent change	As of January 2016[a]	As of January 2017	2016 growth[a]	2016 percent change
CBP Automated Commercial Environment	2038.8	2,110.1	71.3	3.5	4,451.1	4,870.4	419.3	9.4

Program	Acquisition cost estimate				LCCE			
	As of January 2016	As of January 2017[a]	2016 growth[a]	2016 percent change	As of January 2016[a]	As of January 2017	2016 growth[a]	2016 percent change
ICE TECS (Not an acronym) Modernization	235.4	239.2	3.8	1.6	399.1	399.5	0.5	0.1
TSA Electronic Baggage Screening Program	12,944.9	13,920.0	975.1	7.5	17,619.4	18,970.0	1,350.6	7.7
TSA Technology Infrastructure Modernization	343.7	471.8	128.1	37.3	1,344.2	1,460.3	116.1	8.6
Total	**15,562.8**	**16,741.2**	**1,178.4**	**7.6**	**23,813.8**	**25,700.2**	**1,886.4**	**7.9**

Legend: CBP = Customs and Border Protection, ICE = Immigration and Customs Enforcement, TSA = Transportation Security Administration

Source: GAO analysis of Department of Homeland Security data. | GAO-17-346SP

[a]Total may not add due to rounding.

We identified a number of reasons why cost estimates increased in 2016, including the following:

- **Revised acquisition strategy:** For example, DHS leadership approved new APBs for TSA's EBSP and TIM programs in May 2016 and September 2016, respectively, which increased the programs' cost thresholds over their previous estimates to better account for potential programmatic risks. EBSP updated its cost estimate in July 2015 in response to funding constraints and plans for a new acquisition program to succeed EBSP in fiscal year 2028. In addition, the TIM program's cost estimates changed from its September 2015 estimate when it adopted its new acquisition strategy, as noted above. Specifically, TIM's acquisition cost estimate increased and LCCE decreased. However, the establishment of new APB cost thresholds in September 2016 that accounted for implementation risks associated with the program's new strategy resulted in an overall increase in both estimates.
- **More realistic cost estimates:** For example, officials from CBP's Automated Commercial Environment (ACE) program said the program's initial cost estimate underestimated the number and size of the required development teams and included expected savings from moving to a cloud environment. In addition, officials from the Immigration and Customs Enforcement's (ICE) TECS Modernization program attributed their program's acquisition increase to including actuals for a contract awarded in 2016.

We elaborate on the reasons for all 4 programs' cost growth in the individual assessments in appendix I.

Funding Gaps Remain a Risk for Some Programs as DHS Continues to Address Affordability Issues

Some DHS programs continue to face funding challenges, which increases the likelihood that they will cost more and take longer to deliver capabilities to end users than expected. We found that 18 of the 26 programs we assessed in this review are projected to experience life-cycle funding gaps exceeding 10 percent through fiscal year 2021.[16] While DHS has continued to take steps to improve the affordability of its major acquisition programs, this is 8 more programs than we found in our prior review. In March 2016, we found that 10 of the 25 programs had a projected 6-year funding gap.[17] Similar to last year, we compared the programs' funding plans—documented in the FYHSP report to Congress—to the programs' yearly LCCEs in order to identify any projected funding gaps for fiscal year 2016 through fiscal year 2021. We also identified the funding from previous years that programs brought into fiscal year 2016—known as carryover funding—to determine the extent to which that carryover could offset any funding gaps.

Based on this analysis, we found various reasons for programs' projected funding gaps, such as unfunded activities, new requirements, or that a sub-set of programs' annual costs were funded by organizations outside the program. In addition, the USCG's cost estimates include operations and maintenance (O&M) costs—which usually represent a majority of program costs—but their funding plans do not. We first identified this FYHSP reporting inconsistency in April 2015 and recommended that DHS account for the O&M funding the USCG plans to allocate to each of its acquisition programs in its future report.[18] DHS concurred with the recommendation, but the USCG has yet to take action. USCG officials said they cannot resolve this issue until the USCG updates its financial management system and transitions to DHS's common appropriations account structure, which they anticipate will occur in fiscal year 2020.

[16]DHS considers programs to be fully resourced if the latest DHS-approved funding is within 5 percent of their DHS-approved estimated costs in a given year. In March 2016, we identified programs with projected funding gaps exceeding 10 percent based on our assessment of funding and cost data across 6 years and continued that practice in this review to be consistent (GAO-16-338SP).

[17]GAO-16-338SP.

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

Similarly, DHS officials told us that the next FYSHP report, which will be the first to include CBP's Multi-Role Enforcement Aircraft (MEA) and Medium Lift Helicopter (UH-60) as distinct programs, will also not include funding allocated to cover these programs' O&M costs because these costs are funded through a separate, central account for all of CBP's air and marine assets. As a result of these reporting issues, any calculated projected funding gap would likely be overstated for 9 USCG and CBP programs we assessed.

Aside from these specific O&M issues, program officials identified strategies to mitigate projected funding gaps, such as the following:

- **Using alternative funding sources:** For example, TSA's TIM program anticipates receiving fees from vetting programs that will cover the program's anticipated funding shortfall;
- **Program tradeoffs:** For example, officials from three CBP programs noted that they planned to address their projected funding gaps with actions such as performing only minimum maintenance, prioritizing upgrades against operational needs, and service life extension efforts; and
- **Increased funding allocation:** For example, NPPD identified that DHS plans to program additional funding to the HART program from fiscal year 2017 through 2021.

However, officials from 7 programs said that projected funding gaps could cause future program execution challenges, such as schedule slips or cost growth. For example, officials from S&T's NBAF program said that although they were working with the component to mitigate a $38 million funding gap, affordability challenges could cause delays in the operational stand-up of the facility. We elaborate on programs' projected funding gaps in the individual program assessments in appendix I.

DHS officials recognize the need to address program affordability and, since our last review, have continued to take actions through the department's acquisition management and annual budget development processes to do so. For example, in March 2016, we found that DHS had initiated a process to assess and address affordability trade-offs based on a June 2014 requirement that components certify programs' affordability

prior to ADEs.[19] We also made several recommendations at that time to enhance DHS leadership's efforts to improve the affordability of the department's major acquisition portfolio. For example, we recommended that components ensure their affordability certifications include details such as cost estimates, funding streams, and the monetary value of proposed tradeoffs. We also recommended that DHS review the affordability of 11 programs that had not had an ADE since DHS's new funding certification requirements went into effect, and consider holding ARBs to discuss the affordability of these programs, as necessary. DHS concurred with both recommendations and now requires components to provide explicit details on affordability prior to ARBs, as necessary, as well as to submit more detailed information as a part of the annual budget process. For example, to develop the President's fiscal year 2018 budget request, DHS required major acquisition programs to submit detailed data on program affordability, such as identifying all funding sources, a comparison to the program's most recent cost estimate, and the impact of any funding gaps on program schedule, cost, or performance. As a result, officials said that they were able to address any potential funding gaps for major acquisition programs through this process and determined that no programs required an ARB specifically to discuss affordability in response to our March 2016 recommendation.

In the near term, DHS officials said that they plan to publish programs' annual acquisition cost estimates and any projected acquisition funding gap in the FYHSP report for fiscal years 2018-2022, which had not yet been submitted to Congress at the time of our review. They do not, however, plan at this point to present annual LCCE gaps as we previously recommended due to a lack of reliable information.[20] While presenting acquisition cost estimates and any projected funding gaps are important, we continue to believe that DHS should also reflect annual LCCEs and any overall funding gaps—including O&M data, not just acquisition—in its future FYHSP reports. Adding this information would provide Congress valuable insights into DHS's total funding needs and clarify the potential funding gaps for major acquisition programs. DHS officials acknowledged the importance of communicating overall program funding gaps in the FYHSP, including O&M data. They said that DHS's efforts to implement a common appropriations account structure across the department should

[19]GAO-16-338SP. In June 2014, the DHS CFO established that, prior to most ADEs, components must certify programs' funding levels and identify tradeoffs necessary to address the programs' funding gaps, if any exist.

[20]GAO-14-332.

help them present this information in the future. We continue to monitor DHS's actions to address program affordability and, at the request of Congress, have initiated a review to assess the extent to which DHS has accounted for program's O&M costs and funding.

Programs Generally Did Not Meet All KPPs before Deploying Capabilities and Late Requirements Definition May Affect Program Execution

Fourteen of the 26 programs we reviewed deployed capabilities prior to meeting all of their department-approved KPPs—the most important requirements that a system must meet to fulfill its purpose. As a result, DHS faces increased risk of fielding capabilities that do not work as intended. In some cases, it may be appropriate for programs to deploy capabilities prior to meeting their KPPs, such as systems that develop and test their capabilities incrementally. However, DHS's acquisition policy requires programs to conduct operational testing, which is intended to demonstrate program performance, prior to receiving approval to pursue full-rate production or to transition into sustainment. Program officials identified multiple reasons that KPPs have not been met, such as programs had not yet tested the KPPs or KPPs were poorly defined. We found that DHS's acquisition policy requires programs to establish an initial baseline—including defined KPPs—prior to gaining full knowledge about the program's technical requirements. This timing is counter to acquisition best practices, and may potentially cause programs to experience cost growth, schedule slips, and inconsistent performance if requirements are not firmly established at the time the baseline is set.

More than Half of 26 Programs Have Deployed Capabilities without Meeting All KPPs

Fourteen of the 26 programs we reviewed have deployed capabilities prior to meeting all of their department-approved KPPs. All but 3 of these

14 programs have conducted some type of operational testing.[21] Programs evaluate KPPs during operational testing, which is intended to help DHS determine how well a system will provide the desired capability before the system is fully deployed. DHS's acquisition policy requires programs to conduct operational testing prior to receiving ADE 3 approval—the point where programs are authorized to pursue full-rate production or to transition into sustainment—but the policy also allows programs to initiate limited deployments of capabilities to support operational testing under certain circumstances. In some cases, programs deploy and test capabilities incrementally—an approach commonly used by information technology (IT) programs. For example, NPPD's CDM program plans to provide sensors and tools for strengthening the cybersecurity of the federal government's computer networks through a series of phases, which have their own KPPs that will be deployed and tested separately. Of the 26 programs we assessed, 9 have met all of their KPPs and 3 are still relatively early in the acquisition life cycle and have not yet deployed or operationally tested any capabilities.

Table 5 identifies all 26 programs we assessed, whether they have deployed or operationally assessed or tested capabilities, and their progress in meeting department-approved KPPs as of January 2017.

Table 5: DHS Major Acquisition Programs' Progress against Key Performance Parameters (KPP) as of January 2017

Component	Program	Program deployed capabilities	Program conducted operational assessment or testing	Progress Against KPPs: Number of KPPs met	Progress Against KPPs: Total Number of KPPs
Customs and Border Protection (CBP)	Automated Commercial Environment (ACE)[a]	YES	YES	2	**4**
	Integrated FiYesed Towers (IFT)	YES	YES	2	**3**
	Land Border Integration (LBI)	YES	YES	10	**10**
	Medium Lift Helicopter (UH-60)	YES	YES	5	**5**
	Multi-Role Enforcement Aircraft (MEA)	YES	YES	5	**5**

[21]For the purposes of this review, our definition of operational testing includes operational test and evaluation, including initial and follow-on operational test and evaluation; operational assessments; and limited user tests. While operational assessments focus on developmental efforts, they are intended to assess the adequacy of requirements and the ability to support operational testing, among other things. We chose to define operational testing in this manner to develop a more comprehensive account of how DHS is testing its major acquisition programs.

Component	Program	Program deployed capabilities	Program conducted operational assessment or testing	Progress Against KPPs: Number of KPPs met	Progress Against KPPs: Total Number of KPPs
	Non-Intrusive Inspection (NII) Systems Program[a]	YES	No	18	**18**
	Tactical Communications (TACCOM) Modernization	YES	YES	2	**2**
	TECS (not an acronym) Modernization[a]	YES	YES	6	**6**
Federal Emergency Management Agency (FEMA)	Logistics Supply Chain Management System (LSCMS)	YES	YES	2	**7**
Immigration and Customs Enforcement (ICE)	TECS (not an acronym) Modernization	YES	YES	2	**3**
National Protection and Programs Directorate (NPPD)	Continuous Diagnostics & Mitigation (CDM)	YES	No	0	**12**
	National Cybersecurity Protection System (NCPS)	YES	YES	5	**12**
	Homeland Advanced Recognition Technology (HART)	No	No	n/a	**8**
	NeYest Generation Networks Priority Services (NGN-PS)[a]	YES	No	6	**6**
Science and Technology Directorate (S&T)	National Bio and Agro-Defense Facility (NBAF)	No	No	n/a	**1**
Transportation Security Administration (TSA)	Electronic Baggage Screening Program (EBSP)	YES	YES	3	**3**
	Passenger Screening Program (PSP)	YES	YES	16	**19**
	Technology Infrastructure Modernization (TIM)	YES	YES	2	**4**
U.S. Coast Guard (USCG)	C4ISR[b]	YES	No	0	**12**
	Fast Response Cutter (FRC)[a]	YES	YES	6	**6**
	H-65 Conversion/Sustainment Projects (H-65)	YES	YES	16	**18**
	Long Range Surveillance Aircraft (HC-130H/J)[a]	YES	No	11	**13**
	Medium Range Surveillance Aircraft (HC-144A & C-27J)	YES	YES	3	**14**
	National Security Cutter (NSC)	YES	YES	12	**19**
	Offshore Patrol Cutter (OPC)	No	No	n/a	**6**
U.S. Citizenship and Immigration Services (USCIS)	Transformation	YES	YES	6	**8**

Legend: X = yes, — = no

n/a = not applicable; program is still relatively early in the acquisition life cycle and have not yet deployed or operationally tested any capabilities.

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

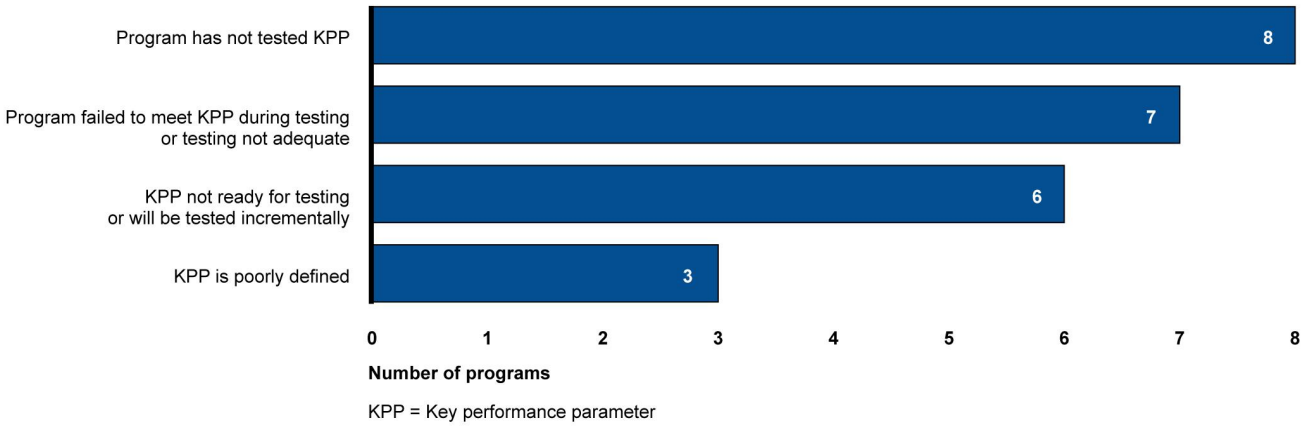
Note: Shaded rows identify programs that have deployed capabilities and not yet met all KPPs. Some programs are developing, testing, and deploying capabilities incrementally, or may have met all KPPs for certain increment(s) but not for the full system. We elaborate on the status of programs' KPPs in the individual program assessments in appendix I.

[a]Program status is based only on information provided by program officials because operational test results evaluating programs' KPPs were unavailable at the time of our review.

[b]C4ISR is an acronym for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

DHS officials identified several reasons why programs have deployed capabilities, but not met all of their department-approved KPPs. For example, programs had not yet tested the KPPs or failed to meet the KPPs when they were tested. Programs identified multiple reasons that KPPs hadn't been met, which are presented in figure 6 along with the number of programs that identified them.

Figure 6: Reasons DHS Major Acquisition Programs Have Not Met All KPPs



Source: GAO analysis of Department of Homeland Security (DHS) data and information provided by program officials. | GAO-17-346SP

Note: Some programs identified more than one reason why KPPs had not been met.

Examples for each of the categories of reasons that programs have not met KPPs are presented below:

- **The program has not yet tested the KPP**. For example, the USCG's C4ISR program no longer plans to independently conduct operational testing against its KPPs and will instead test C4ISR systems in conjunction with other USCG planes and vessels for which they are installed. However, the C4ISR system's KPPs were not specifically assessed during prior HC-144, Fast Response Cutter (FRC), and NSC tests. Future testing will focus only on the ability of the C4ISR system to meet the NSC's KPPs during the NSC's follow-on operational testing in fiscal years 2017 and 2018. This follow-on testing, however, will only test one of the C4ISR system's six KPPs.

- **The program failed to meet KPPs during testing, or testing was not adequate to determine KPP status.** For example, the U.S. Citizenship and Immigration Services' (USCIS) Transformation program conducted an operational assessment on a sub-set of deployed capabilities from March 2015 to August 2015. This assessment evaluated seven of the program's KPPs, and the program failed to meet one of them—the reliability KPP—because of the frequency of system failures. In another example, the Federal Emergency Management Agency's (FEMA) Logistics Supply Chain Management System (LSCMS) program conducted operational testing throughout calendar year 2013, but DOT&E concluded that this testing was not adequate to determine whether the program had met its KPPs. This program subsequently met two of its seven KPPs through a performance test of a software release, and plans to conduct additional operational testing in March 2018 once it completes development of additional capabilities.
- **The KPPs are not ready to be tested because the required technology or system capabilities are not yet available, or because capabilities are being deployed and tested incrementally.** For example, the USCG's MRS program cannot demonstrate the C-27J's seven KPPs until it installs an entire mission system on the aircraft. Additionally, the program will not be able to demonstrate two of these KPPs—the detection and interoperability KPPs—identified in the joint operational requirements document (joint with CBP) for the C-27J aircraft because the mission system technology needed is not yet commercially available for this aircraft. In April 2016, the USCG received approval to defer these capabilities until the technology required to meet the detection KPP becomes commercially available. DHS has also directed the program to revisit requirements and, if appropriate, to initiate updating them prior to the program's next acquisition milestone. In another example, NPPD National Cybersecurity Protection System (NCPS) officials told us that the program has not yet met the five KPPs related to its Block 2.2 capabilities because these capabilities are still early in the development phase and are not yet ready to be tested. The NCPS program has met a majority of its KPPs for capabilities that have previously been deployed and tested.
- **The KPP is poorly defined.** For example, the USCG's NSC program indicated challenges in meeting three of its KPPs related to cutter-boat deployment in rough seas because the USCG and its OTA have different interpretations of the cutter-boat requirements. In January 2016, we recommended the NSC program office clarify the KPPs for

the cutter boats, with which the USCG concurred.[22] As of January 2017, the USCG was working on a resolution.

Setting Baselines before Establishing Technical Solution May Contribute to Program Execution Challenges

While we have previously found that DHS's acquisition policy is sound, at a more granular level we found an area for improvement.[23] The policy requires programs to obtain department-level approval for initial APBs—including KPPs, schedules, and cost goals—at ADE 2A, that is, prior to gaining full knowledge about the program's technical requirements. This sequence is not consistent with acquisition best practices. GAO's acquisition best practices state that programs should pursue a knowledge-based acquisition approach that ensures program's needs are matched with available resources—such as technical and engineering knowledge, time, and funding—prior to starting product development.[24] While these initial APBs include KPPs that identify operational requirements defined by the user prior to ADE 2A, programs have not yet decomposed those KPPs into specific technical requirements or conducted key engineering reviews to develop critical knowledge about whether the proposed solution meets the user's needs. This happens after the baseline is approved and programs are officially initiated. Key engineering reviews that should be conducted prior to establishing program baselines include the following:

- **System definition review:** establishes a functional baseline, which identifies what the system is to perform.
- **Preliminary design review:** assesses the preliminary design of the system and determines whether the program is prepared to start detailed design and test development.

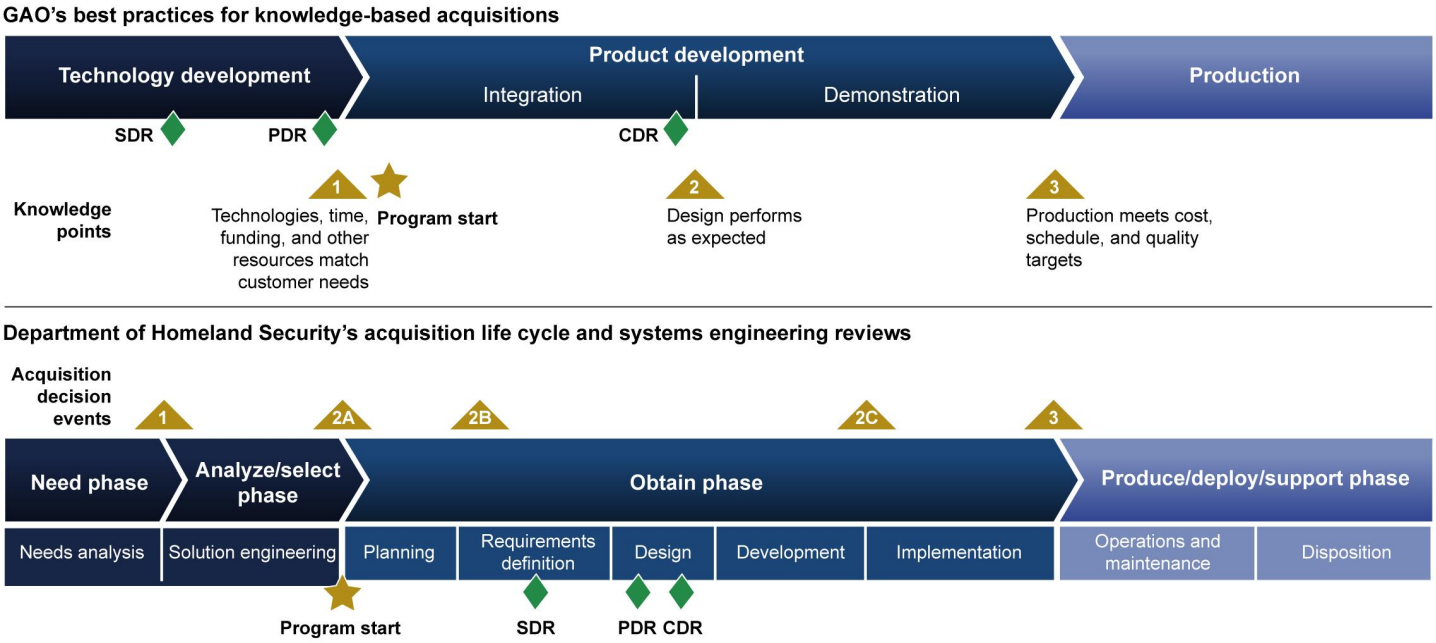
A third review, called the critical design review, is appropriately conducted after program initiation, which is consistent with acquisition best practices. This is a key engineering review that demonstrates whether the system's final design is sufficiently complete to begin production.

[22]GAO, *National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed*, GAO-16-148 (Washington, D.C.: Jan. 12, 2016).
[23]GAO-12-833.

[24]GAO, *Best Practices Using a Knowledge-Based Approach to Improve Weapon Acquisition*, GAO-04-386SP (Washington, D.C.: January 2004).

Figure 7 compares GAO's acquisition best practices to DHS's acquisition and systems engineering life-cycle phases. As shown, the system definition and preliminary design reviews are to the left of program initiation according to best practices, but are to the right of program initiation within DHS's acquisition life cycle.

Figure 7: GAO's Knowledge-Based Acquisition Life Cycle Compared to DHS's Acquisition Life Cycle



SDR = System definition review
PDR = Preliminary design review
CDR = Critical design review

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Note: Figure depicts DHS's standard systems engineering life cycle, which may be tailored depending on a program's development needs or methodology.

By initiating programs without a well-developed understanding of system needs, DHS increases the likelihood that programs will change their user-defined KPPs, costs, or schedules after establishing their baselines. Changes such as this can be viewed as a natural occurrence as requirements are better defined. For example, officials from NPPD's HART program told us that the cost and schedule goals in the program's approved APB may change once they award the initial contract and receive the contractor's technical solution for meeting the program's already-established KPPs. In addition, we found in March 2016 that several programs had changed KPPs at least once since DHS's current acquisition policy went into effect in 2008, and that KPP changes were

associated with schedule slips and cost growth.[25] We also found that 9 of the 12 programs that changed KPPs attributed those changes to poorly defined or unattainable requirements, and officials from 12 programs said that they may change KPPs in the future. Since March 2016, at least one additional program—TSA's TIM program—made changes to its KPPs and we anticipate that more programs will need to make changes to KPPs in the future to better reflect system requirements. For example, officials from ICE's TECS Modernization program said that they will not be able to demonstrate the program's concurrent user KPP because the minimum goal far exceeds the current number of system users.

DHS leadership previously acknowledged that the department has had difficulty defining KPPs, and senior DHS officials told us in December 2016 that they are continuing efforts to help programs define KPPs more effectively. However, officials also noted that there is a lack of systems engineering capability within the agency, which is an ongoing challenge. Officials further agreed there is room to refine the acquisition processes and told us that they are working with S&T to better align systems engineering efforts with the acquisition life cycle. For example, DHS officials said that they are working to adapt the acquisition processes for agile development—the department's preferred development approach for IT programs—which is currently being piloted by some DHS major acquisition programs. While DHS's efforts may allow for increased S&T involvement in the acquisition process, placement of the requirements definition and key engineering reviews earlier in the acquisition life cycle could yield better outcomes regardless of the development approach pursued by programs. Without also matching the program's technical requirements and resources at the time KPPs are defined, DHS increases the risk that programs will continue to experience execution challenges, including cost growth, schedule slips, and inconsistent performance as requirements change after programs are initiated. By accumulating more knowledge before programs establish baselines and begin development, per acquisition best practices, DHS can place major programs in a better position to succeed, which ultimately means an increased likelihood of end users obtaining the capabilities they need within expected costs and time frames.

[25]GAO-16-338SP. We found that 11 of the 12 programs with KPP changes since 2008 had experienced schedule slips, and 9 of the 11 programs had also experienced cost growth.

DHS Has Taken Steps to Strengthen Management of Its Major Acquisition Programs, but Leadership Decisions Not Always Fully Documented

In 2016, DHS made positive strides to strengthen its management of major acquisition programs. For example, DHS established new processes for assessing programs' staffing needs and monitoring major acquisition program progress. While promising, it is too soon to tell if these processes will contribute to positive outcomes because DHS is still working on how to implement them and use them to support more forward-looking planning decisions. In addition, DHS revised the instruction for implementing the department's acquisition policy to reflect changes made since the previous version was issued—some of which reflect past GAO recommendations. In addition, the new instruction includes changes to the documentation approvals needed before programs advance through the acquisition life cycle and to DHS's breach policy.

Our analysis indicates that DHS made progress in implementing these documentation requirements more consistently in 2016 than we have found in the past. For example, DHS leadership generally approved all the required key acquisition documentation prior to approving programs to proceed through the acquisition process. However, DHS leadership could better document its rationale for decisions made at ADEs to increase insight the department and external stakeholders have into acquisition management decisions. Further, we also found that no programs in our review had reported performance breaches and that DHS's policy does not clearly define at what point not meeting KPPs constitutes a performance breach. Without insight into potential performance issues identified through breaches, DHS is at risk of fielding capabilities that do not work as intended.

New DHS Processes Intended to Improve Acquisition Management

DHS has established new processes that could improve acquisition management by addressing longstanding issues related to acquisition

workforce shortfalls and program execution challenges we have identified in the past.[26] Specifically, DHS revised its process for assessing major acquisition program staffing needs and established a process to monitor major acquisition program progress across a variety of factors and categories DHS deemed were important for successful program execution. However, it is too early to tell what impact these efforts will have on program outcomes because DHS is still developing implementation plans for these new processes.

Acquisition Program Staffing Assessments

We have highlighted DHS acquisition management issues in our high-risk updates since 2005—most recently in February 2017—and identified five outcomes that could strengthen DHS's management of its acquisitions.[27] One of these outcomes is that DHS assess and address whether sufficient numbers of trained acquisition personnel are in place at the department and component levels. In addition, we previously found that staffing shortfalls can impact a program's ability to execute and may introduce risks leading to schedule slips, cost growth, or both in the future. For example, in March 2016, we found that staffing shortfalls limited NPPD NCPS's ability to perform testing, oversee contractors, and manage finances.[28] In response, DHS's PARM initiated a process for assessing the staffing needs of its major acquisition programs in fiscal year 2014 and conducted a second assessment in fiscal year 2015. PARM collected key information such as the total staffing needed—including positions identified as critical—actual staffing levels, and mitigation strategies to fill any vacancies, among other items. However, these assessments collected retrospective information on whether programs were sufficiently staffed in those fiscal years and did not collect current or future program staffing need data. In addition, some of the fiscal year 2015 staffing assessments were not approved until January 2017, limiting the usefulness of the assessments given that the data was over a year old.

[26]For example, see GAO-16-338SP, GAO-15-171SP, GAO-15-290, and GAO-12-833.
[27]GAO-17-317.

[28]GAO-16-338SP.

In June 2016, the department began tracking only critical position vacancies rather than assessing all acquisition-related positions.[29] PARM officials said they made this change to capture staffing data in a timely manner, document progress in filling key staffing gaps, and help the department mitigate remaining gaps. Consequently, some programs were assessed as being sufficiently staffed because they had few or no critical position vacancies, despite these programs identifying shortfalls in the programs' total staffing need. For example, NPPD's CDM program reported a total staffing need of 51 full-time positions, 19 of which were considered critical. NPPD also reported that CDM had only 1 vacancy out of its 19 critical positions. However, CDM officials told us they had only 31 of the 51 staff they needed in total, which represents a 39 percent shortfall overall. We present more information on programs' staffing profiles in the individual program assessments in appendix I.

After we raised questions about whether this approach would limit department insight into programs' total staffing needs in October 2016, PARM revisited its decision to track only critical position vacancies and revised its approach for future staffing assessments. In December 2016, DHS approved a new staffing instruction that will require major acquisition programs to submit and annually update staffing plans identifying total staffing needs, but also track critical position vacancies quarterly, among other things. According to PARM officials, the agency is developing guidance and templates intended to bring clarity to the new policy and limit potential inconsistencies in interpretation across the programs, such as what positions programs determine to be critical.

In addition, the new staffing instruction requires programs to develop a multi-year staffing plan that identifies future staffing needs. PARM officials told us that they plan to pilot the new staffing assessment process in 2017 and hope to complete the first assessment in time to inform the department's fiscal year 2019 budget request. If implemented as intended, the new staffing assessment process would improve PARM's insight into major acquisition program staffing needs and assist the department in developing mitigation strategies to address current staffing gaps and planning for future staffing needs.

[29]DHS considers critical acquisition program management positions to be those in which the primary duties are supervision, leadership, or oversight performed by experienced acquisition program management personnel. These positions typically include inherently government duties or functions.

Acquisition Program Health Assessment

In October 2016, DHS established the Acquisition Program Health Assessment (APHA), a process intended to monitor major acquisition programs' progress. PARM initiated efforts to develop the APHA in February 2015 after DHS's Deputy USM directed it to lead development of a holistic, objective, repeatable process for evaluating the department's major acquisition programs and reducing duplicative reports. PARM established a working group with representatives from all ARB stakeholder organizations—such as the CFO, Chief Information Officer (CIO), Chief Procurement Officer, DOT&E, and the Joint Requirements Council (JRC)—and each of DHS's operational components, which developed a weighted assessment methodology. The APHA assessment methodology consists of a number of factors within several categories, such as program management, financial management, contract management, performance, and human capital, which DHS deemed were important for successful program execution. Each factor was defined and is rated by the stakeholder with primary responsibility for that area within the department. For example, DOT&E defines and rates programs on the factor related to operational testing, whereas the CFO defines and rates programs on the factor related to LCCEs. The factor ratings are then used to develop category ratings, which in turn, feed into a program's single overall APHA score.

DHS is still working on its implementation and it will take time to determine whether it will be an effective acquisition management tool. According to PARM officials, they plan to utilize the APHA results to inform DHS leadership about major acquisition programs through monthly briefings and quarterly reports, as well as reports to external stakeholders. For example, the APHA will inform a section of the department's annual Comprehensive Acquisition Status Report to the Senate and House appropriations committees starting in fiscal year 2017 and will provide the score that the DHS CIO reports for each major acquisition program on the Office of Management and Budget's IT Dashboard.

However, senior DHS officials noted that while the department has made progress in developing APHA, they still have work to do to refine and strengthen the process, such as determining what constitutes a good APHA score and turning it into a leading indicator of program health versus a lagging indicator. DHS officials have shared information on the department's efforts to establish the APHA process with us, and we will

continue to review DHS's efforts to evolve and implement the APHA process moving forward.

DHS Revised Its Acquisition Policy Instruction to Be More Effective, but Has Not Fully Documented Decisions

In March 2016, DHS revised the acquisition policy instruction for implementing MD-102 to provide guidance for successful program planning, management, and execution. Some of the revisions reflect changes DHS previously made in response to past GAO recommendations, and the new instruction also includes changes to the documentation that programs are required to get approved before advancing through the acquisition life cycle. The revisions also set forth the process programs must follow if they experience a breach. DHS has made progress in implementing these documentation requirements more consistently than we have found in the past, but DHS leadership could better document its rationale for key acquisition decisions to increase department and external stakeholder insight into acquisition management decisions.

DHS Better Defines Responsibilities and Strengthens Oversight of Requirements

Over the past 3 years, DHS has made changes that reflect prior GAO recommendations to clarify roles and responsibilities and provide better oversight, which are now included in its revised acquisition policy instruction. For example:

- **Clarifying roles and responsibilities.** In March 2015, we found that DHS's acquisition policy did not clearly differentiate the roles and responsibilities of DHS's PARM and the Enterprise Business Management Office in the Office of the CIO, which has the primary responsibility for ensuring IT investments align with DHS's missions and objectives.[30] We recommended that DHS clarify the roles and responsibilities of PARM and other DHS oversight organizations to improve coordination, limit overlap of responsibilities, and reduce duplicative efforts at the component level. In April 2015, DHS's Acting

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

Deputy USM issued an acquisition decision memorandum to clarify the respective acquisition responsibilities of PARM, the Office of the CIO, and other members of DHS's ARB, and in March 2016, DHS revised its policy instruction to reflect these changes.

- **Re-establishing the JRC.** In November 2008, we found that DHS had not effectively implemented or adhered to its review process for major acquisitions and recommended that DHS reinstate the JRC to review and approve acquisition requirements and assess potential duplication of effort.[31] In June 2014, the Secretary of Homeland Security directed the creation of a joint requirements process, led by a component-composed and chaired JRC, and in March 2016, DHS revised its policy instruction to reflect the addition of the JRC as an acquisition oversight body. Among other responsibilities, the JRC is to provide requirements-related advice and validate key acquisition documentation to prioritize requirements and inform DHS investment decisions, such as the joint-operational requirements document between USCG and CBP for a common aircraft mission system. In October 2016, we found that the re-establishment of the JRC after many years without such an active body is a positive demonstration of senior-level commitment to improving the DHS-wide capabilities and requirements processes and has the potential to help DHS reduce duplication and make cost-effective investments across its portfolio over time.[32] However, the JRC is still developing a process to prioritize requirements to inform budget decisions.

DHS Updates Acquisition Documentation Requirements, But Leadership Decisions Not Always Fully Documented

DHS's March 2016 revision to the acquisition policy instruction also included changes to the acquisition documentation required to inform ADEs, but DHS leadership did not always document its rationale for key acquisition decisions. In September 2012, we found that, in most instances, DHS leadership had allowed programs to proceed with acquisition activities without obtaining department-level approval of key acquisition documentation—such as APBs, LCCEs, and operational

[31]GAO, *Department of Homeland Security: Billions Invested in Major Programs Lack Appropriate Oversight*, GAO-09-29 (Washington, D.C.: Nov. 18, 2008).
[32]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).

requirements documents—as required by its acquisition policy.[33] As a result, we recommended DHS ensure all programs obtain department-level approval for key acquisition documentation before approving their movement through the acquisition life cycle to mitigate risks of execution challenges, such as cost growth and schedule slips. DHS concurred with this recommendation and we have continued to monitor the agency's progress in addressing this recommendation through our annual assessments and high-risk updates.[34] Key changes to the acquisition documentation required to inform ADEs include:

- **ADE 2A:** DHS now requires programs to obtain department-level approval for program study plans for performing analysis of alternatives and receive technical assessments conducted by S&T and the CIO at this decision point.[35]
- **ADE 2C:** DHS now requires programs to update and obtain department-level approval for several documents at ADE 2C, including, but not limited to current APBs, LCCEs, and TEMPs. The previous instruction had no formal documentation requirements for this decision point.

We reviewed acquisition decision memorandums—the department's official repository for key acquisition management decisions—issued in calendar year 2016 and identified that 14 major acquisition programs received ADE approval in 2016. Half of these programs had ADEs before DHS revised the acquisition policy instruction in March 2016, while the other half had ADEs after March 2016. We reviewed the documentation for each program compared to the requirements in place at the time of its ADE and found that DHS leadership had generally approved the required key acquisition documentation—including APBs, LCCEs, and operational requirements documents—for all 14 programs according to the requirements in place at the time. However, DHS had not approved some of the required documentation for 4 programs—CBP's Tactical

[33]GAO-12-833. We found that of the 66 DHS programs we reviewed that were required to obtain department-level approval of key documents since MD-102 went into effect in November 2008, only 4 programs obtained department-level approval for all required key acquisition documents; 30 programs received department-level approval for some of the required key acquisition documents; and 32 programs did not obtain department-level approval for any of the required key acquisition documents.

[34]For example, see GAO-17-317, GAO-16-338SP, GAO-15-290, and GAO-15-171SP.

[35]In January 2017, DHS issued a directive that S&T conduct the technical assessments for major acquisition programs. For IT programs, DHS's CIO will co-lead these assessments with S&T.

Communications (TACCOM) Modernization and UH-60, NPPD's HART, and TSA's TIM.

- CBP's TACCOM program did not have a department-approved Acquisition Plan when leadership granted it ADE 3 approval in January 2016. CBP officials told us that the Acquisition Plan did not complete the approval process prior to its ADE 3 because of conflicting guidance delivered to the program regarding the content of the plan. However, these officials stated that the program subsequently updated the Acquisition Plan and submitted it for department approval, which they expect to receive by early calendar year 2017.
- CBP's UH-60 program did not have a department-approved Integrated Logistics Support Plan, TEMP, or Systems Engineering Life Cycle Tailoring Plan when DHS leadership granted it ADE 2B approval in January 2016. DHS leadership required the program to update its Integrated Logistics Support Plan and, as of December 2016, program officials said they had submitted a draft for signature. Program officials also told us that DOT&E said that a TEMP was unnecessary because the program completed operational testing in 2012 and DHS leadership only required that the program conduct minimal flight checks on future aircraft. Program officials acknowledged they had no Systems Engineering Life Cycle Tailoring Plan for the UH-60 program, and noted that the systems engineering reviews for the reconfigured aircraft are being performed by the U.S. Army.
- NPPD's HART program received ADE 2A approval in May 2016, but did not receive DHS approval for all of the new documentation requirements under the March 2016 acquisition policy instruction revision. Specifically, the program received a technical assessment from S&T but not from DHS's CIO, as was required. Program officials noted that they were not aware of the requirement for a CIO technical assessment, but that DHS's CIO did review HART's documentation and is a part of the program's source selection evaluation team.
- TSA's TIM program received a combined ADE 2A/2B approval in October 2016, but did not receive approval for the Analysis of Alternatives Study Plan, as required. However, TIM did receive DHS approval of its new technical approach that was developed in close collaboration with DHS's CIO and subject matter experts from S&T, among other organizations, prior to its ADE approval. A senior DHS official stated that TIM's new technical approach satisfied the Analysis

of Alternatives Study Plan requirement based on the activities completed.

In all four cases, there is no acquisition decision memorandum granting these programs approval to deviate from the documentation requirements, as outlined in DHS policy.

While DHS made progress implementing its documentation requirements in 2016, DHS leadership made some decisions that were inconsistent with DHS's acquisition policy for programs that did have all the required documentation approved. For example, DHS leadership granted CBP's Land Border Integration (LBI) and NII programs ADE 3 approval while simultaneously requiring CBP to identify a final year for each program. As a result, DHS approved the programs to transition into sustainment based on approved LCCEs that did not account for each programs' full costs, which is inconsistent with both the current and past versions of DHS's acquisition policy instruction. Senior DHS officials said that they had the knowledge to support ADE 3 approval for the programs because the approved LCCEs for both LBI and NII covered at least one cycle of technology replacement past each program's FOC dates and that they had discussed plans for follow-on capabilities at each programs' ADE. Officials from both programs said they will update their programs' LCCEs in 2017 to reflect all costs through each programs' identified end year. Senior DHS officials acknowledged that the department could better document these decisions and leadership's rationale in acquisition decision memorandums.

In other cases, we found that DHS leadership took steps to ensure programs complied with its acquisition policy. For example, CBP's ACE program requested permission to waive the requirement to complete all operational testing prior to FOC, but DHS leadership denied that request. In addition, DHS leadership withheld ADE 1 approval for the USCG's Motor Lifeboat program until it received JRC validation of its mission needs documentation and submitted it to DHS for approval, as required.

Federal internal control standards state that to achieve objectives and respond to risks, agencies should clearly document and communicate significant events in a manner that allows for effective oversight and examination.[36] DHS's acquisition policy instruction indicates that acquisition decision memorandums document acquisition decisions,

[36]GAO-14-704G.

direction, guidance, and any assigned actions. However, the policy instruction does not specify that leadership's rationale for those actions be included in the memorandums. DHS leadership's decisions to approve programs to proceed through the acquisition process without meeting all acquisition policy instruction requirements may be reasonable in any given case. For example, it can take months to obtain department-level approval for key acquisition documentation, and it may take time for DHS to build the capacity to conduct the new S&T and CIO assessments and implement the policy across the department. However, unless the rationale for these decisions is documented and communicated through acquisition decision memorandums, effective oversight and insight into approval decisions for internal and external stakeholders is limited.

Updated DHS Breach Policy Not Clear on Timing for Reporting Performance Breaches

DHS's March 2016 revised acquisition policy instruction also includes changes to the department's breach policy, which applies to programs that fail to meet any cost, schedule, or performance threshold in a program's approved APB. However, the policy instruction does not specifically discuss how to determine whether a performance breach has occurred, and we found that no programs had reported a performance breach. Among other changes, DHS's revision requires programs to notify department- and component-level leadership via formal memorandum within 30 calendar days of an identified breach (cost, schedule, or performance). The revision also removed the requirement that programs submit breach remediation plans to DHS leadership within 30 days of this notification and take certain corrective actions—such as returning to its APB parameters, re-baselining, or having a DHS-led program review that results in recommendations for a revised baseline—within 90 days of the breach occurrence. Under the revised instruction, programs are now directed to work with the Component Acquisition Executive to determine an appropriate timeframe in which to complete remediation planning after submitting a breach notification, and to take corrective actions within the timeframe established by DHS as documented in an acquisition decision memorandum approving the program's remediation plan. In general, programs continue to execute planned activities while conducting breach remediation planning efforts, unless otherwise directed by DHS leadership.

In calendar year 2016, 10 major acquisition programs—including 6 that we reviewed in more depth—submitted schedule or cost breach notification memorandums to component and DHS leadership. Three of

the programs declared the breaches before DHS revised the acquisition policy instruction, while the rest declared breaches afterwards. These programs took varying lengths of time to submit remediation plans, and DHS approved the remediation plans for all programs. Table 6 depicts the status (as of February 2017) of the 10 programs that had reported a cost or schedule breach in 2016.

Table 6: Status of DHS Major Acquisition Programs that Reported Breaches during Calendar Year 2016

Program	Type of breach (Schedule or Cost)	Date breach was reported	Number of days until remediation plan submitted	DHS approved remediation plan (as of February 2017)
TSA Passenger Screening Program	Schedule	January 2016	126	Yes[b]
TSA Security Technology Integrated Program	Schedule	February 2016	96	
ICE TECS Modernization	Schedule	February 2016	0[a]	Yes
USCG Nationwide Automatic Identification System	Schedule	March 2016	0[a]	Yes
CBP TECS Modernization	Schedule	April 2016	0[a]	Yes
TSA Financial Systems Replacement Program	Cost and Schedule	April 2016	75	Yes
DNDO Financial, Acquisition and Asset Management Solution	Schedule	April 2016	54	Yes
CBP Automated Commercial Environment	Cost and Schedule	June 2016	0[a]	Yes
USCIS Transformation	Schedule	October 2016	30	Yes
USCG H-65 Conversion/Sustainment Projects	Schedule	November 2016	0[a]	Yes

Legend: TSA = Transportation Security Administration, ICE = Immigration and Customs Enforcement, USCG = U.S. Coast Guard, CBP = Customs and Border Protection, DNDO = Domestic Nuclear Detection Office, USCIS = U.S. Citizenship and Immigration Services

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

Note: Shaded rows identify programs that reported breaches under the October 2011 version of the acquisition policy instruction, which required programs to submit breach remediation plans within 30 days of notifying DHS of a breach. Under the March 2016 acquisition policy instruction revision, there is no standard timeframe in which programs must submit breach remediation plans.

[a]0 indicates a program submitted its remediation plan at the same time as its breach notification.

[b]TSA submitted a combined breach remediation plan for both the Passenger Screening Program and Security Technology Integrated Program because the cause of their breaches were interdependent.

As a part of its review process, DHS requested that at least two programs make revisions to their remediation plans before they were approved. For example, DHS issued an acquisition decision memorandum in December 2016 disapproving the USCIS Transformation program's remediation plan, and directing that USCIS stop planning and development of new capabilities and update its breach remediation plan, among other things. DHS subsequently approved a revised breach remediation plan for the Transformation program in February 2017. In addition, TSA submitted

three versions of its combined breach remediation plan for both PSP and the Security Technology Integrated Program over the span of about 5 months, before DHS leadership ultimately approved the final plan in January 2017. DHS issued an acquisition decision memorandum in July 2016 directing TSA to make significant changes to its initial breach remediation plan submitted in May 2016. PARM officials confirmed they received TSA's revised breach remediation plan for these programs in August 2016, but requested additional changes, which were reflected in a final version submitted in October 2016. According to these officials, the requested changes were made during a meeting with the program managers and not documented in an acquisition decision memorandum. They added that PARM is in communication with the component and program as they develop their remediation plans, and also updates DHS leadership on programs' breach status on a monthly basis; however, officials noted that the communication between DHS and the program is informal and not always documented through acquisition decision memorandums unless DHS leadership has significant concerns about the breach. We will continue to monitor DHS's implementation of its updated breach policy, including documentation of the department's communication with programs during their breach remediation planning efforts.

We also found that the revised acquisition policy instruction is not clear as to how programs are to determine when a performance breach has occurred. No program in our review had reported a performance breach despite 14 programs not meeting KPPs, including 3 programs that DHS had granted ADE 3 approval. Some program officials we spoke to said that they did not report a performance breach to DHS headquarters because the programs planned to meet all KPPs during future test events. Senior DHS officials told us programs typically experience a cost or schedule breach prior to a performance breach, and that they consider the performance breach policy to apply towards the end of a program's acquisition life cycle, such as after it begins operational testing. In addition, senior DHS officials said they frequently discuss program performance at ARBs and prior to granting programs ADE 3 approval. However, DHS's acquisition policy instruction revision states that the breach policy applies once a program's initial APB is approved at ADE 2A through FOC, and does not specify at what point during this timeframe programs should have met KPPs.

Moreover, while some programs may experience schedule or cost breaches earlier in the acquisition life cycle, these breaches or actions programs take to remediate these breaches may not be related to

performance issues. For example, CBP's IFT program experienced a schedule breach in November 2012 due to delays in the initial contract award process and anticipated funding shortfalls. DHS leadership removed IFT from breach status in December 2015—one month after the program's OTA conducted a limited user test on equipment deployed on the Arizona border. Based on the test data, the OTA was unable to determine if the system met its identification range KPP. The program has not declared a performance breach because the IFT program manager did not concur with several of the test results due to testing limitations. DHS granted the program ADE 3 approval in 2013 prior to this testing, which means the program has the authority to continue fielding equipment that may not work as intended.

In June 2014, we found that the USCG's acquisition guidance did not clearly specify the conditions—particularly the timing—that would constitute a performance breach and that DHS approved two USCG programs—FRC and MRS's HC-144A—to enter full-rate production without having demonstrated all of their KPPs.[37] We recommended the USCG revise its acquisition guidance to specify when performance standards should be met and to clarify the performance data used to determine whether a performance breach has occurred. The USCG concurred with our recommendations and updated its component-level policy in May 2015 to define a performance breach occurrence, specify when performance standards should be met (such as in formal follow-on operational testing), and to outline the actions a program must take following a breach to resolve the performance shortfall. However, DHS's department-level policy does not contain similar guidance.

Until DHS clarifies its acquisition policy instruction, it may be difficult for programs to determine when, or by what measure, a breach of its KPPs has occurred and, therefore, when to notify DHS of the occurrence. By allowing programs to continue re-testing capabilities that have failed to meet KPPs without submitting performance breach notifications and remediation plans, DHS lacks insight into the root causes of system failures to address performance issues that may also impact a program's schedule and cost estimates moving forward. In addition, programs could potentially continue to field capabilities that do not fully meet KPPs or test and re-test indefinitely in an attempt to meet a KPP—scenarios in which

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

end users do not get the capabilities they need or in the timeframes that they need them.

Conclusions

Since we began reviewing DHS's portfolio of major acquisitions in 2015, the agency has strengthened its ability to track the progress of its major acquisitions. Significantly, this year, for the first time, all programs in our review had approved baselines against which DHS can measure program performance—an effort that has taken almost 8 years since DHS first established this requirement. Nevertheless, DHS continues to face challenges in managing its portfolio, and progress does not negate the fact that many programs continue to cost more, take longer than expected, or struggle to meet moving performance targets. Improving information for DHS leadership that ensures a program's needs are matched with available resources—performance and technical requirements, time, and funding—prior to approving programs to begin development could reduce the risk that programs will continue to face execution challenges, put programs in a better position to succeed, and ensure the department is making wise investment decisions with its limited resources.

DHS has made a concerted effort to refine its policies to reflect a more disciplined management approach and adhere more closely to this acquisition policy. This policy also affords acquisition decision makers a certain amount of flexibility. As DHS leadership exercises this flexibility in its oversight of acquisition programs, however, it is important that visibility is maintained into whether programs are meeting established requirements, that reasonable deviations are well documented, and that feedback directly affecting a program's ability to be successful—such as remediating a breach of its goals—is consistently communicated to programs through formal channels. Doing so will enable better management of DHS's major acquisition portfolio as a whole by retaining organizational knowledge and providing useful insight for DHS decision makers and external stakeholders. Additionally, as mature programs continue to fall short of performance goals, it is not clear at what point programs need to acknowledge to DHS that performance problems constitute a breach. As a result, DHS may be missing opportunities for oversight and correction of performance issues, and is at risk of fielding systems that may not work as intended.

Recommendations

To mitigate the risk of poor acquisition outcomes and strengthen the department's investment decisions, we recommend the Secretary of Homeland Security direct the Undersecretary for Management to take the following three actions:

Update the acquisition policy to:

- Require that major acquisition programs' technical requirements are well defined and key technical reviews are conducted prior to approving programs to initiate product development and establishing APBs, in accordance with acquisition best practices.
- Specify that acquisition decision memorandums clearly document the rationale of decisions made by DHS leadership, such as, but not limited to, the reasons for allowing programs to deviate from the requirement to obtain department approval for certain documents at ADEs and the results of considerations or trade-offs.
- Specify at what point minimum standards for KPPs should be met, and clarify the performance data that should be used to assess whether or not a performance breach has occurred.

Agency Comments and Our Evaluation

We provided a draft of this product to DHS for review and comment. In its written comments, reproduced in appendix III, DHS concurred with all three of our recommendations. In response to our first recommendation, DHS provided an estimated completion date for a study on how to better align the department's systems engineering and acquisition life cycles with GAO's acquisition best practices. In response to our other two recommendations, DHS requested that we consider them closed based on recent actions taken. Specifically, the department stated that it has begun expanding the information documented in programs' acquisition decision memorandums to include enhanced background information and plans to include the status of acquisition documentation in the future. In addition, the department has updated the handbook for PARM's component leads to include guidance on (1) including the information noted above when writing acquisition decision memorandums and (2) determining programs to be in performance breach if they have not met a KPP prior to ADE 3. While these are positive steps for addressing the

intent of our recommendations, we continue to believe that DHS should update its acquisition policy to ensure that these changes are clearly communicated and implemented consistently throughout the department. DHS also provided technical comments, which we incorporated as appropriate.

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 mackinm@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 IV.

Michele Mackin
Managing Director, Acquisition and Sourcing Management

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 Thomas R. Carper
Ranking Member
Permanent Subcommittee on Investigations
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable John Boozman
Chairman
The Honorable Jon Tester
Ranking Member
Subcommittee on Homeland Security
Committee on Appropriations
United States Senate

The Honorable Michael T. 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

Appendix I: Program Assessments

This appendix presents individual assessments for each of the 26 programs we reviewed. Each of these assessments is two pages and presents information current as of January 2017. They include several standard elements, including an image provided by the program office, a brief program description, and a summary of the program's progress in meeting its key performance parameters. Each assessment also includes the following four figures:

- **Projected Funding vs. Estimated Costs.** This figure generally compares the funding plan presented in the Future Years Homeland Security Program report to Congress for fiscal years 2017-2021 to the program's current annual total cost estimate based on its department-approved life-cycle 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 2017 budget process. As a result, the data does not account for other potential funding sources, such as carryover, cost-sharing agreements with other organizations, or fees. In addition, the program's current annual cost estimate accounts for total costs attributable to the program, regardless of funding source.
- **Program Office Staffing Profile.** This figure is generally based on the staffing assessments conducted by the Office of Program Accountability and Risk Management, which identify the number of staff a program needs (measured in full time equivalents) including how many are considered critical positions (measured in the number of people) and how many staff the program actually has. This figure and any discussion of programs' efforts to address identified staffing gaps or critical vacancies do not reflect the January 2017 presidential order to freeze the hiring of federal civilian employees.
- **Schedule Changes over Time.** This figure consists of two timelines. The first timeline is generally based on the initial Acquisition Program Baseline (APB) DHS leadership approved after the department's current acquisition policy went into effect in November 2008. Because these APBs were approved at different times, the first as-of date varies across programs. The second timeline identifies when that program expected to reach its major milestones as of January 2017. The second timeline also identifies any new major milestones that were introduced after the initial APB was approved, such as the date a new increment was scheduled to achieve initial operational capability, or the date the program was re-baselined.

- **Cost Estimate Changes over Time.** This figure generally compares the program's cost estimate in the initial APB approved after DHS's current acquisition policy went into effect to the program's expected costs as of January 2017. This figure also identifies how much funding had been appropriated to the program through fiscal year 2016 and how it compares to future funding needs.

These four figures are generally based on DHS headquarters-approved documentation and data, as identified above. However, in some cases, the figures are based on data the program office provided when it commented on a draft of the assessment if, for example, the data were more accurate or current.

Each program assessment also consists of a number of other sections depending on issues specific to each program. These sections may include: Program Governance, Acquisition Strategy, Program Execution, Test Activities, and Other Issues. Lastly, each program's assessment also presents comments provided by the program office and identifies whether the program provided technical comments, and presents GAO's response to these comments, as necessary.

Appendix II: Objectives, Scope, and Methodology

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, (2) major acquisition programs are making progress in meeting key performance parameters (KPP), and (3) DHS has taken actions to strengthen implementation of its acquisition policy and to improve major acquisition program outcomes. To answer these questions, we reviewed 26 of DHS's 71 major acquisition programs, including 24 that we reviewed in 2016.[1] 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, to provide insight into some of the factors that can lead to poor acquisition outcomes, we reviewed 10 other major acquisition programs—including 5 Level 1 programs beyond the Obtain phase and 5 Level 2 programs that have LCCEs between $300 million and $1 billion—that we or DHS leadership had identified were at risk of not meeting their cost estimates, schedules, or capability requirements.[2] We have reported on many of these programs in our past work. As part of our scoping effort, we met with representatives from DHS's Office of Program Accountability and Risk Management (PARM), DHS's main body for acquisition oversight, to determine which programs (if any) were facing difficulties in meeting their

[1]GAO, *Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure*, GAO-16-338SP (Washington, D.C.: Mar. 31, 2016). We did not assess the National Protection and Programs Directorate's Homeland Advanced Recognition Technology program in GAO-16-338SP. Additionally, we previously reviewed the Customs and Border Protection's Multi-Role Enforcement Aircraft (MEA) and Medium Lift Helicopter (UH-60) as a part of the Strategic Air and Marine Program; we reviewed the MEA and UH-60 programs in individual assessments this year because DHS designated both acquisitions as separate and distinct Level 1 programs in July 2016. We did not include DHS's Homeland Security Information Network in this review because, as we found in March 2016, this program achieved full operational capability in January 2016.

[2]During the course of our review, DHS elevated the Transportation Security Administration's Technology Infrastructure Modernization program from a Level 2 to a Level 1 acquisition.

cost estimates, schedules, or capability requirements. The 26 selected programs were sponsored by eight different components, and they are identified in table 7, along with our rationale for selecting them.

Table 7: Rationale for Selecting DHS Major Acquisition Programs for Assessment

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 (CBP)	Automated Commercial Environment (ACE)	YES	No
	Integrated FiYesed Towers (IFT)[a]	No	YES
	Land Border Integration (LBI)	No	YES
	Medium Lift Helicopter (UH-60)	YES	No
	Multi-Role Enforcement Aircraft (MEA)	YES	No
	Non-Intrusive Inspection (NII) Systems Program	No	YES
	Tactical Communications (TACCOM) Modernization	No	YES
	TECS (not an acronym) Modernization[a]	No	YES
Federal Emergency Management Agency (FEMA)	Logistics Supply Chain Management System (LSCMS)[a]	No	YES
Immigration and Customs Enforcement (ICE)	TECS (not an acronym) Modernization[a]	No	YES
National Protection and Programs Directorate (NPPD)	Continuous Diagnostics & Mitigation (CDM)	YES	No
	National Cybersecurity Protection System (NCPS)	YES	No
	Homeland Advanced Recognition Technology (HART)	YES	No
	NeYest Generation Networks Priority Services (NGN-PS)	YES	No
Science and Technology Directorate (S&T)	National Bio and Agro-Defense Facility (NBAF)	YES	No
Transportation Security Administration (TSA)	Electronic Baggage Screening Program (EBSP)	YES	No
	Passenger Screening Program (PSP)	YES	No
	Technology Infrastructure Modernization (TIM)[a, b]	No	YES
U.S. Coast Guard (USCG)	C4ISR[c]	YES	No
	Fast Response Cutter (FRC)	No	YES
	H-65 Conversion/Sustainment Projects (H-65)	YES	No
	Long Range Surveillance Aircraft (HC-130H/J)	YES	No

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
	Medium Range Surveillance Aircraft (HC-144A & C-27J)	YES	No
	National Security Cutter (NSC)		YES
	Offshore Patrol Cutter (OPC)	YES	No
U.S. Citizenship and Immigration Services (USCIS)	Transformation	YES	No

Legend: X = yes; — = no

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-17-346SP

[a]Level 2 program.

[b]During the course of our review, DHS elevated the TIM program to a Level 1 program.

[c]C4ISR is an acronym for Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance.

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 26 programs, including all Acquisition Program Baselines (APB) approved at the department level since DHS's current acquisition 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. All 26 programs had one or more department-approved APB since November 2008. We used these APBs to establish the initial and current cost and schedule goals for the 26 programs. We then developed a data collection instrument to help validate the information from the 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 2016 assessment (if applicable) to identify cost growth and schedule slips, if any, since the program's initial baseline was approved. 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. Additionally, in June 2016, we collected program schedule and cost data from DHS's Investment Evaluation, Submission, and Tracking (INVEST) System, which is the department's system for information on its major acquisition programs. We compared the information obtained through the program offices' data collection instrument responses and the INVEST system to our 2016 assessment (if applicable) or the programs' most recent department-approved APB to identify schedule and cost changes, if any, since January 2016—the data cut-off date of our 2016

assessment. We then met with program officials to identify causes and effects associated with any identified schedule slips and cost growth. Subsequently, we drafted preliminary assessments for each of the 26 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). We also met with senior acquisition oversight officials to share observations about trends and issues across the portfolio. Through this process, we determined that our data elements were sufficiently reliable for the purpose of this engagement.

In addition, we compared the cost data we collected for each of the 26 programs to DHS's funding plans to identify any projected funding gaps—a challenge that increases the likelihood that acquisition programs will not meet their schedule or cost goals. Specifically, we compared current yearly cost estimates from department-approved LCCEs, INVEST, or program office updates to the funding plan presented in the Future Years Homeland Security Program (FYHSP) report to Congress for fiscal years 2017-2021, which presents 5-year funding plans for each of DHS's major acquisition programs, to assess the extent to which a program was projected to have a funding gap from fiscal year 2016 through fiscal year 2021. These calculations also accounted for any fiscal year 2016 carryover funds, but did not include other funds that programs brought into fiscal year 2016 from sources such as re-programming, fees, and other reimbursable expenses. This analysis was consistent with the methodology we used in our 2016 annual assessment, which allowed us to make comparisons to our March 2016 findings.[3] We shared our analysis with officials from the program offices and components to confirm or correct our calculations. We subsequently identified actions DHS had taken or planned to take to address projected program funding gaps by reviewing key documentation, such as certification of acquisition funding memorandums for programs that had completed an Acquisition Decision Event (ADE) in 2016 and DHS's resource allocation policies and processes. 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

[3]GAO-16-338SP.

had taken to implement our prior recommendations on addressing program affordability issues.[4]

To determine the extent to which DHS's major acquisition programs are making progress in meeting their KPPs, we reviewed DHS's acquisition policy and guidance, as well as key acquisition documentation for all 26 programs, including APBs and operational requirements documents approved at the department level since DHS's current acquisition policy went into effect in November 2008. An operational requirements document provides a number of performance parameters, including the KPPs, which must be met by a program to close an existing capability gap and provide a useful capability to the operator. We used these documents to establish the KPPs for the 26 programs. We included these KPPs in our pre-populated data collection instrument along with the status of each programs' KPPs collected through our 2016 assessment (if applicable) to identify changes, if any, in the programs' KPPs over time. 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 also collected test reports and any letters of assessment from DHS's Director, Office of Test and Evaluation (DOT&E), which assess system performance during operational testing. Operational testing is intended to identify whether a system can meet its KPPs and provide an evaluation of the operational effective and suitability of a system in an operationally realistic environment. For the purposes of our review, we defined operational testing as initial or follow-on operational test and evaluation events, operational assessments, and limited user tests. We used the programs' APBs, data collection instruments, and other documents to identify whether the programs had deployed new capabilities to operators. We then reviewed the programs' test reports and DOT&E letters of assessment to determine what KPPs were tested and whether the system met all of the KPPs tested. We relied on information provided by the program offices, such as in the data collection instrument responses in instances where programs did not have test reports and DOT&E letters of assessment, or if these documents did not explicitly assess programs' KPPs. We considered a program's KPP met if it achieved, at a minimum, the threshold value outlined in the programs' APB or operational requirements document. We assessed DHS's acquisition policy, guidance, and practices against GAO's acquisition best

[4]For example, see GAO-16-338SP, GAO-15-171SP, GAO-14-332.

practices for managing acquisition programs.[5] We also met with officials from the program offices to identify reasons why KPPs had not yet been demonstrated, and interviewed senior officials from DHS headquarters about the program's performance breach policy and requirements definition processes.

To determine the extent to which DHS has taken actions to improve major acquisition program outcomes and to strengthen implementation of its acquisition policy, we reviewed DHS's acquisition policy and guidance, including current and prior versions of the Acquisition Management Directive Instruction 102-01-001; acquisition decision memorandums issued in calendar year 2016; and key acquisition documentation for major acquisition programs, such as APBs, LCCEs, operational requirements documents, as well as breach notifications and remediation plans. We used the acquisition policy and guidance to identify changes made by DHS in 2016, such as establishing new oversight initiatives or revisions to existing policies. We then used the acquisition decision memorandums and program documentation to assess DHS's implementation of its acquisition policy in 2016. Specifically, for programs that received DHS approval for an ADE in 2016, we compared the acquisition documentation approved by DHS leadership for that event to the documentation requirements in DHS's acquisition policy. In addition, we reviewed program breach notifications, breach remediation plans, and acquisition decision memorandums for each of the programs that reported a breach in calendar year 2016 against DHS's acquisition policy. We assessed DHS's acquisition management policies, guidance, and practices against the *Standards for Internal Control in the Federal Government*.[6] Lastly, we interviewed acquisition management officials from DHS headquarters to obtain their perspectives on how new and ongoing acquisition management initiatives are intended to improve program outcomes, as well as key management decisions.

We conducted this performance audit from May 2016 through April 2017 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

[5]GAO, *Best Practices Using a Knowledge-Based Approach to Improve Weapon Acquisition*, GAO-04-386SP (Washington, D.C.: January 2004).
[6]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014).

the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix III: Comments from the Department of Homeland Security

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

March 20, 2017

Michele Mackin
Director, Acquisition and Sourcing Management
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management's Response to Draft Report GAO-17-346SP, "HOMELAND SECURITY ACQUISITIONS: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress"

Dear Ms. Mackin:

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 all 26 programs reviewed had an approved Acquisition Program Baseline (APB). We are also appreciative of GAO's recognition that DHS has strengthened the implementation of its acquisition policy by, for example, focusing on program staffing needs, requiring programs to obtain Departmental approval of key acquisition documents, and revising the process for when programs breach their cost goal schedules or Key Performance Parameters (KPP). 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 three recommendations with which the Department concurs. Attached find our detailed response to each recommendation.

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

Sincerely,

Jim H. Crumpacker, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Attachment

Attachment: DHS Management Response to Recommendations Contained in GAO-17-346SP

GAO recommended that the Secretary of Homeland Security direct the Under Secretary for Management to:

Recommendation 1: Require that major acquisition programs' technical requirements are well defined and key technical reviews are conducted prior to approving programs to initiate product development and establishing APBs, in accordance with acquisition best practices.

Response: Concur. DHS's Office of Program Accountability and Risk Management (PARM) will lead a study to assess how to better align Systems Engineering Life Cycle reviews with the Acquisition Life Cycle documentation and decision events. As a first step toward this study, PARM has initiated contact with other federal agencies to understand how they have implemented GAO's best practices in this area. Upon completion of the study, DHS will implement revisions to policy as appropriate for the Department. Estimated Completion Date (ECD): December 31, 2018.

Recommendation 2: Specify that acquisition decision memorandums are to clearly document the rationale of decision made by DHS leadership, such as, but not limited to, the reasons for allowing programs to deviate from the requirement to obtain department approval for certain documents at [Acquisition Decision Events] ADEs and the results of considerations or trade-offs.

Response: Concur. DHS agrees that it is important to clearly document the rationale for decisions made by the Chief Acquisition Officer in Acquisition Decision Memoranda (ADM), particularly if there is a deviation from policy. PARM has begun expanding the ADMs resulting from the ADEs and Program Reviews so that they include enhanced information in the background section. Also, all future ADMs resulting from ADEs will address the status of the acquisition documentation. Guidelines for writing ADMs that reflect these additional requirements were added to the most recent revision of the PARM Component Lead Handbook, signed March 13, 2017. In addition, the guidance was presented to the PARM Component Leads in a briefing on March 14, 2017.

We request that GAO consider this recommendation resolved and closed.

Recommendation 3: Specify at what point minimum standards for KPPs should be met, and clarify the performance data that should be used to assess whether or not a performance breach has occurred.

Response: Concur. DHS agrees that KPP threshold values should be met and verified no later than the Initial Operational Test and Evaluation conducted prior to Acquisition Decision Event 3 (ADE-3). Going forward, programs that have not met a KPP by ADE-3 will be required to declare a performance breach and to submit a remediation plan assessing and documenting the root cause of the breach, along with how and when the breach will be resolved prior to the ADE-3. The breach may be resolved either by revising the Operational Requirements Document (ORD), if the KPP is no longer deemed necessary, or fixing the deficiency and describing the

2

additional testing required to verify that the KPP has been met. The program will remain in breach until the ORD has been revised and approved or the KPP has been proven in testing. Guidelines for performance breaches were added to the most recent revision of the Component Lead Handbook, signed March 13, 2017; in addition, the guidance was presented to the PARM Component Leads in a briefing on March 14, 2017. The information will also be presented at the Component Acquisition Executive Staff Forum on March 21, 2017.

We request that GAO consider this recommendation resolved and closed.

Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

Michele Mackin, (202) 512-4841 or mackinm@gao.gov

Staff Acknowledgments

In addition to the contact listed above, Richard A. Cederholm (Assistant Director), Katherine Trimble (Assistant Director), Aryn Ehlow (Analyst-in-Charge), Peter Anderson, Mathew Bader, Steven Bagley, Jason Berman, Carissa Bryant, Andrew Burton, Erin Butkowski, Lisa Canini, Jenny Chow, Adam Couvillion, John Crawford, Lorraine Ettaro, Laurier R. Fish, Laura Gibbons, Betsy Gregory-Hosler, Yvette Gutierrez, Leigh Ann Haydon, Kirsten Leikem, Sarah Martin, John Mickey, Erin O'Brien, Alexis Olson, Katherine Pfeiffer, John Rastler, Sylvia Schatz, Jillian Schofield, Charlie Shivers III, Roxanna Sun, Lindsay Taylor, and Hai Tran made key contributions to this report.

Appendix V: Accessible Data

Data Tables

Data Table for

Data Table for Figure 1: DHS Acquisition Life Cycle for Major Acquisition Programs

Need	Analyze / select	Obtain	Produce / deploy / support
DHS officials identify the need for a new acquisition program Acquisition decision events (ADE).	Program manager reviews alternative approaches to meeting the need, and recommends a best option to the decision authority.	Program manager develops, tests, and evaluates the selected option; programs may proceed through ADE 2B, which focuses on an individual project; and ADE 2C, which focuses on low rate initial production issues.	DHS pursues production and delivers the new capability to its operators, and maintains the capability until it is retired; post-deployment activities tend to account for up to 70 percent of an acquisition program's life-cycle costs.

Data Table Figure 2: DHS's Acquisition Management Structure

Secretary **Deputy Secretary**			
Under Secretary for Management (Chief Acquisition Officer)	**Component head**	**Component head**	**Component head**
Office of Program Accountability and Risk Management	Component Acquisition Executive	Component Acquisition Executive	Component Acquisition Executive
	Program management office	Program management office	Program management office
	Program management office	Program management office	Program management office
	Program management office	NA	NA

Data Table Figure 3: Test Activities Established by DHS Policy -- Obtain phase

Acquisition decision events (ADE)	ADE 2A	ADE 2B	ADE 2C	ADE 3	
Test activities	Director, Office of Test and Evaluation (DOT&E) approves Test and Evaluation Master Plan	Program conducts developmental testing	Operational test agent conducts operational testing	DOT&E issues letter of assessment	Program deploys capability

Data Table Figure 4: DHS's Annual Planning, Programming, Budgeting, and Execution Process

Planning	Programming	Budgeting	Execution
DHS's Office of Policy provides planning guidance to the department's components. DHS's Chief Financial Officer (CFO) provides fiscal guidance to the department's components.	DHS's components use the planning and fiscal guidance to develop 5-year funding plans and submit them to DHS headquarters for review. The DHS Secretary, Deputy Secretary, and other senior leaders review the components' plans and modify them in accordance with their priorities and assessments; resource allocation decisions are documented in formal memos.	DHS's components use the resource allocation decision memos to develop 1-year budget justifications and submit them to DHS's CFO. DHS's CFO reviews the justifications for consistency with senior leaders' resource allocation decisions, then submits them to Office of Management and Budget (OMB). OMB, in consultation with DHS headquarters and the components, finalizes the justifications, which are subsequently submitted to Congress.	The DHS components use resources appropriated by Congress to execute their missions.

Data Table Figure 5: Major DHS Acquisition Programs' Schedule Slips during 2016

	Program name	Milestone	Initial date	As of January 2016 date	As of January 2017 date	2016 slip	Total slip
Customs and Border Protection (CBP)	Automated Commercial Environment (ACE)	Full operational capability (FOC)	N/A	11/30/16	9/30/17	10 months	N/A
	TECS Modernization	Operational at Data Center 2 (FOC)	12/31/15	9/30/16	6/30/17	9 months	1 year, 6 months
Immigration and Customs Enforcement (ICE)	TECS Modernization	Initial operational capability (IOC)	12/31/13	3/31/16	6/27/16	3 months	2 years, 6 months
National Protection and Programs Directorate (NPPD)	National Cybersecurity Protection System (NCPS)	Block 2.2 Information Sharing Acquisition Decision Event (ADE) 3	N/A	6/30/18	3/31/19	9 months	N/A
Transportation Security Administration (TSA)	Electronic Baggage Screening Program (EBSP)	IOC for remaining systems	N/A	9/30/16	9/30/18	2 years	N/A
	Passenger Screening Program (PSP)	Credential Authentication Technology ADE 3	9/30/12	6/30/16	3/31/18	1 year, 9 months	5 years 6 months
	Technology Infrastructure Modernization (TIM)	FOC	12/31/15	12/31/15	3/31/22	6 years, 3 months	6 years, 3 months
U.S. Coast Guard (USCG)	H-65 Conversion/Sustainment Projects (H-65)	Avionics initial production decision	12/31/13	12/31/16	9/30/18	1 year, 9 months	4 years, 9 months
U.S. Citizenship and Immigration Services (USCIS)	Transformation	Citizenship line of business complete	N/A	9/30/16	2/28/17	5 months	N/A

Data Table Figure 6: Reasons DHS Major Acquisition Programs Have Not Met All KPPs

	Number of Programs
Program has not tested KPP	8
Program failed to meet KPP during testing or testing not adequate	7
KPP not ready for testing or will be tested incrementally	6
KPP is poorly defined	3

KPP = Key performance parameter

Data Table Figure 7: GAO's Knowledge-Based Acquisition Life Cycle Compared to DHS's Acquisition Life Cycle

	GAO's best practices for knowledge-based acquisitions			
	Technology development	Product development		Production
		Integration	Demonstration	
Knowledge points	Technologies, time, funding, and other resources match customer needs	Program start	Design performs as expected	Production meets cost, schedule, and quality targets

Department of Homeland Security's acquisition life cycle and systems engineering reviews

Acquisition decision events	Need phase	Analyze/select phase	Obtain phase					Produce/deploy/support phase	
SDR = System definition review	Needs analysis	Solution engineering	Planning	Requirements definition	Design	Development	Implementation	Operations and maintenance	Disposition
PDR = Preliminary design review									
CDR = Critical design review									

Agency Comment Letter

Text of Appendix III: Comments from the Department of Homeland Security

Page 1

March 20, 2017

Michele Mackin

Director, Acquisition and Sourcing Management

U.S. Government Accountability Office 441 G Street, NW

Washington, DC 20548

Re: Management's Response to Draft Report GA0-17-346SP, "HOMELAND SECURITY ACQUISITIONS: Earlier Requirements Definition and Clear Documentation of Key Decisions Could Facilitate Ongoing Progress"

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Director

Jim Crumpacker, CIA, CFE

Departmental GAO-OIG Liaison Office

Attachment

Page 2

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implement revisions to policy as appropriate for the Department. Estimated Completion Date (ECD): December 31, 2018.

Recommendation 2:

Specify that acquisition decision memorandums are to clearly document the rationale of decision made by DHS leadership, such as, but not limited to, the reasons for allowing programs to deviate from the requirement to obtain department approval for certain documents at [Acquisition Decision Events] ADEs and the results of considerations or trade-offs.

Response: Concur.

DHS agrees that it is important to clearly document the rationale for decisions made by the Chief Acquisition Officer in Acquisition Decision Memoranda (ADM), particularly if there is a deviation from policy. PARM has begun expanding the ADMs resulting from the ADEs and Program Reviews so that they include enhanced information in the background section. Also, all future ADMs resulting from ADEs will address the status of the acquisition documentation. Guidelines for writing ADMs that reflect these additional requirements were added to the most recent revision of the PARM Component Lead Handbook, signed March 13, 2017. In addition, the guidance was presented to the PARM Component Leads in a briefing on March 14, 2017.

We request that GAO consider this recommendation resolved and closed.

Recommendation 3:

Specify at what point minimum standards for KPPs should be met, and clarify the performance data that should be used to assess whether or not a performance breach has occurred.

Response: Concur.

DHS agrees that KPP threshold values should be met and verified no later than the Initial Operational Test and Evaluation conducted prior to Acquisition Decision Event 3 (ADE-3). Going forward, programs that have not met a KPP by ADE-3 will be required to declare a performance breach and to submit a remediation plan assessing and documenting the root cause of the breach, along with how and when the breach will be resolved prior to the ADE-3. The breach may be resolved either by

revising the Operational Requirements Document (ORD), if the KPP is no longer deemed necessary, or fixing the deficiency and describing the

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additional testing required to verify that the KPP has been met. The program will remain in breach until the ORD has been revised and approved or the KPP has been proven in testing. Guidelines for performance breaches were added to the most recent revision of the Component Lead Handbook, signed March 13, 2017; in addition, the guidance was presented to the PARM Component Leads in a briefing on March 14, 2017. The information will also be presented at the Component Acquisition Executive Staff Forum on March 21, 2017.

We request that GAO consider this recommendation resolved and closed.

Related GAO Products

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.

Homeland Security Acquisitions: DHS Has Strengthened Management, but Execution and Affordability Concerns Endure. GAO-16-338SP. Washington, D.C.: Mar. 31, 2016.

National Security Cutter: Enhanced Oversight Needed to Ensure Problems Discovered during Testing and Operations Are Addressed. GAO-16-148. Washington, D.C.: Jan. 12, 2016.

TSA Acquisitions: Further Actions Needed to Improve Efficiency of Screening Technology Test and Evaluation. GAO-16-117. Washington, D.C.: Dec. 17, 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.: Mar. 26, 2015.

Homeland Security Acquisitions: Major Program Assessments Reveal Actions Needed to Improve Accountability. GAO-15-171SP. Washington, D.C.: Apr. 22, 2015.

Homeland Security Acquisitions: DHS Should Better Define Oversight Roles and Improve Program Reporting to Congress. GAO-15-292. *Washington, D.C.*: Mar. 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.: Apr. 17, 2014.

Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs. GAO-12-833. Washington, D.C.: Sept. 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.: Nov. 18, 2008.

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