United States Government Accountability Office

Report to Congressional Committees

April 2023

# DHS ANNUAL ASSESSMENT

# Major Acquisition Programs Are Generally Meeting Goals, but Cybersecurity Policy Needs Clarification

GAO-23-106701

GAO Highlights

Highlights of GAO-23-106701, a report to congressional committees

# DHS Annual Assessment

## Major Acquisition Programs Are Generally Meeting Goals, but Cybersecurity Policy Needs Clarification


Homeland Advanced Recognition Technology

Cross Border Tunnel Threat

Polar Security Cutter

Source (left to right): Office of Biometric Identity Management; U.S. Customs and Border Protection; and Halter Marine, Inc. | GAO-23-106701

### Why GAO Did This Study

To help execute its many critical missions, DHS plans to spend more than $4 billion on its portfolio of major acquisition programs—those with life-cycle costs over $300 million—in fiscal year 2023.

For some DHS major acquisition programs, COVID-19 or changes implemented to address it have affected workforce availability or led to supply chain issues. In addition, DHS's major acquisition programs increasingly rely on software and IT systems, and cyberattacks can target any IT system.

The Explanatory Statement accompanying the DHS Appropriations Act, 2015, included a provision for GAO to review DHS's major acquisitions on an ongoing basis.

This report, GAO's eighth review, assesses the extent to which selected programs are (1) meeting baseline goals, (2) mitigating COVID-19 effects on delivery of capabilities, and (3) executing cybersecurity activities.

This is a public version of a sensitive report that issued in March 2023. Information that DHS deemed sensitive has been omitted.

View GAO-23-106701. For more information, contact Marie A. Mak at (202) 512-4841 or makm@gao.gov.

### What GAO Found

The Department of Homeland Security (DHS) invests billions of dollars annually to acquire systems that help secure the border, advance marine safety, screen travelers, improve disaster response, and execute a wide variety of other operations.

Most Programs Met Established Cost and Schedule Goals in Fiscal Year 2022

As of September 2022, 18 of the 25 selected DHS acquisition programs that GAO reviewed had a department-approved acquisition program baseline—a summary of measurable estimates indicating how the system will perform, when it will be delivered, and what it will cost. Most of the other programs were not yet required by policy to have an approved program baseline.

Of these 18 programs, three started the fiscal year either behind their approved schedule or over their approved budget, putting them in breach status. However, all three completed the process needed to get back on track, including revising their baseline estimates. By the end of fiscal year 2022, those programs met their revised cost and schedule goals. Four other programs also revised or were revising their baselines in fiscal year 2022 due to changes in the projects' scope, such as a change in the quantity being acquired.

In addition, eight of the 25 DHS acquisition programs completed the operational test and evaluation phase of the acquisition process during fiscal year 2022, according to a DHS official. After completing operational test and evaluation, those programs are on track to begin production and deliver new capabilities.

Five Programs Sought COVID-19 Baseline Adjustments

COVID-19 affected some of the 25 major acquisition programs GAO reviewed in a variety of ways, including supply chain issues and inflation. As of September 2022:

- Five programs were seeking approval to adjust their schedule or cost baselines due to COVID-19 effects. These programs have requested flexibilities offered in a July 2022 DHS memorandum to address the effects of COVID-19.
- Five other programs reported COVID-19 cost or schedule effects in fiscal year 2022, but were able to manage them within their baselines.

## How GAO Did This Study

GAO assessed 25 major acquisition programs, including DHS's largest programs and those that GAO or DHS identified as at risk of poor outcomes to determine program status as of September 30, 2022. GAO assessed their progress in meeting cost, schedule and performance goals; and reviewed policy, memorandums, and information about the cost and schedule effects of COVID-19. GAO also reviewed DHS acquisition cybersecurity policy and assessed programs' cybersecurity risk management activities; and interviewed DHS officials.

## What GAO Recommends

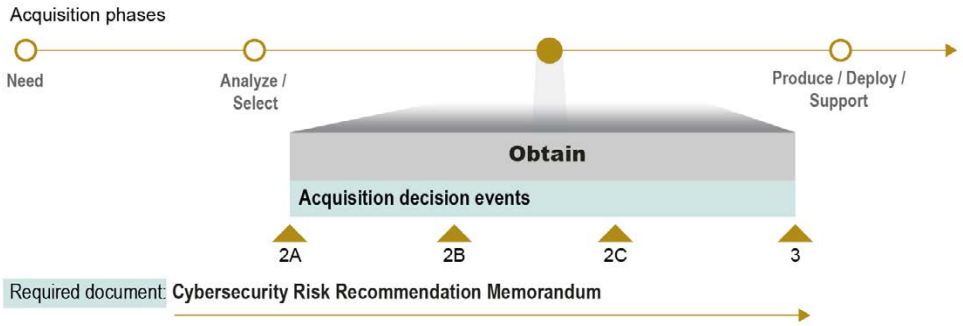
GAO is recommending that, as DHS updates its Instruction 102-01-012, it clarifies which major acquisition programs are required to have completed cybersecurity risk recommendation memorandums prior to acquisition decision events, and when exemptions apply. In the sensitive version of this report, GAO made one additional recommendation to DHS.

- The remaining 15 programs did not report schedule or cost effects related to COVID-19.

Selected Programs Have Not Prepared Cybersecurity Memorandums Ahead of Acquisition Decision Events

In addition, since the department's acquisition cybersecurity instruction was issued, none of the seven programs that had subsequent acquisition decision events completed a cybersecurity risk recommendation memorandum (CRRM). The instruction requires that major acquisition programs consider cybersecurity throughout the acquisition life cycle. Specifically, major acquisition programs are required to present a CRRM at acquisition decision events to identify the programs' cybersecurity status and their risk recommendation (high, medium, low).

**Cybersecurity Risk Recommendation Memorandum Required in the Acquisition Life Cycle**




Source: GAO analysis of Department of Homeland Security (DHS) documents. | GAO-23-106701

DHS officials told GAO that a CRRM was not applicable to them for various reasons. In one instance, a program provided documentation that this requirement was waived by DHS. The other six programs reported that other documentation was used instead, that the memorandum was not applicable to their program, or that they simply did not develop one. The instruction does not clarify when the CRRM requirement might be waived, is not applicable, or when or what other documentation may be used in its place. If DHS does not clarify when exemptions apply, programs may not prepare the memorandums when they are needed. As a result, DHS, in its oversight role, may not have information to effectively assess cybersecurity risk and ensure that risk mitigations are adequate.

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## Abbreviations

| | |
|---|---|
| ADE | acquisition decision event |
| APB | acquisition program baseline |
| CAE | component acquisition executive |
| CRRM | cybersecurity risk recommendation memorandum |
| DHS | Department of Homeland Security |
| DOT&E | Director, Office of Test and Evaluation |
| KPP | key performance parameter |

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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April 20, 2023

Congressional Committees

Each year, the Department of Homeland Security (DHS) invests billions of dollars in a diverse portfolio of major acquisition programs to help execute its many critical missions. DHS and its components are acquiring systems to help secure the border, advance maritime safety, screen travelers, enhance cybersecurity, improve disaster response, and execute a wide variety of other operations. In fiscal year 2023, DHS plans to spend over $4 billion on these acquisition programs. Over the life cycle of these programs, the department plans to invest more than $191 billion. Most of DHS's major acquisition programs have life-cycle costs of at least $300 million and take multiple years to acquire.[1]

To help manage these programs, DHS established an acquisition management policy in November 2008, and department leadership has dedicated resources and implemented additional guidance designed to improve acquisition oversight. We have found the policy to be generally sound in that it reflects key program management practices identified in our prior work. Nevertheless, we have highlighted challenges DHS has faced in implementing the policy and strengthening its acquisition management function.[2] In response to our recommendations, DHS has taken significant actions to improve its outcomes.[3]

We have also made numerous recommendations over the past decade to help address the identified challenges. DHS has made progress in responding to many of these recommendations. For example, in October

[1]DHS defines major acquisition programs as those with life-cycle cost estimates of $300 million or more. In some cases, DHS may define a program with a life-cycle cost estimate less than $300 million as a major acquisition if it has significant strategic or policy implications for homeland security, among other things.

[2]GAO, *High-Risk Series: Dedicated Leadership Needed to Address Limited Progress in Most High-Risk Areas*, GAO-21-119SP (Washington, D.C.: Mar. 2, 2021); *Homeland Security: DHS Requires More Disciplined Investment Management to Help Meet Mission Needs*, GAO-12-833 (Washington, D.C.: Sept. 18, 2012); and *High-Risk Series: An Update*, GAO-05-207 (Washington, D.C.: Jan. 1, 2005).

[3]GAO identified five outcomes for DHS in the area of acquisition management, as reported in GAO's High-Risk Series. As of September 2022, DHS has fully addressed all five of the acquisition management outcomes.

2020, we recommended that DHS should ensure the Office of Program Accountability and Risk Management and component heads implement the nomination process for Component Acquisition Executives (CAE) consistently as described in DHS guidance.[4] CAEs are senior acquisition executives below the department level, within the components. In September 2022, the office provided additional documentation of its analysis of CAE nominations, as well as designation memorandums, for components that needed CAE designations. As a result, we consider this recommendation implemented.

Additionally, in December 2019, we found that major acquisition programs' schedule goals did not trace to the integrated master schedules in accordance with DHS guidance.[5] We recommended that DHS revise the schedule development guidance. We also recommended that DHS create an oversight process to confirm that programs' schedule goals are developed and updated. This process is needed to ensure traceability between acquisition program baseline (APB) schedule goals and integrated master schedules in accordance with GAO's Schedule Assessment Guide.[6] In response to our recommendation, DHS published a revised version of its Systems Engineering Life Cycle instruction and the accompanying guidebook in February 2021 and May 2021, respectively. As of September 2021, DHS provided evidence that it had completed efforts to create an oversight process, and we consider these recommendations implemented.

DHS is still working to address other recommendations. For example, we recommended in October 2020 that DHS identify, in policy or guidance, the expertise that constitutes critical acquisition positions for effective CAE oversight. We continue to track DHS's activities to determine how the department is addressing this need.

The Explanatory Statement accompanying a bill to the Department of Homeland Security Appropriations Act, 2015 contained a provision for

[4]GAO, *Homeland Security Acquisitions: DHS Has Opportunities to Improve Its Component Acquisition Oversight*, GAO-21-77 (Washington, D.C.: Oct. 20, 2020).

[5]GAO, *Homeland Security Acquisitions: Outcomes Have Improved but Actions Needed to Enhance Oversight of Schedule Goals*, GAO-20-170SP (Washington, D.C.: Dec. 19, 2019).

[6]GAO, *Schedule Assessment Guide: Best Practices for Project Schedules*, GAO-16-89G (Washington, D.C.: Dec. 22, 2015).

GAO to conduct reviews of DHS major acquisition programs, as directed in the Senate report.[7] This is our eighth such review. This report assesses the extent to which selected DHS major acquisition programs are (1) meeting their baseline goals, (2) mitigating any COVID-19-related effects on delivery of capabilities, and (3) executing cybersecurity activities.

This is a public version of a sensitive report that we issued in March 2023. The sensitive report included additional information related to major acquisition programs' cybersecurity activities. DHS deemed some of the information related to this objective, including a related recommendation, to be sensitive, and therefore must be protected from public disclosure. Although the information provided in this report is more limited, it addresses the same objectives and uses the same methodology as the sensitive report.[8]

To conduct our assessment, we selected programs for review from DHS's 39 major acquisition programs identified in the department's January 2022 Master Acquisition Oversight List. DHS defines major acquisitions as level 1 for programs with life-cycle cost estimates of $1 billion or more, and level 2 for programs with life-cycle cost estimates from $300 million to less than $1 billion.

From the list of 39 programs, we selected 25 programs. We selected 14 of DHS's 21 level 1 acquisition programs that were in the process of obtaining new capabilities—which DHS policy defines as the obtain phase of the acquisition life cycle. We also included two level 2 acquisitions in the obtain phase. We selected nine other level 1 and level 2 major acquisition programs that we identified as at risk of not meeting their schedules, cost estimates, or capability requirements. We excluded the remaining 14 major acquisition programs for a variety of reasons, including lower risk programs already in deployment.

To determine the extent to which the 25 programs were meeting their schedule and cost goals, we analyzed key acquisition documentation, such as APBs, which contain information on programs' schedules and costs. Since the November 2008 update to DHS's overarching acquisition

[7]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, 161 Cong. Rec., H-276 (Jan. 13, 2015).

[8]GAO, *DHS Annual Assessment: Major Acquisition Programs Are Generally Meeting Goals, but Cybersecurity Policy Needs Clarification,* GAO-23-105641SU (Washington, D.C.: Mar. 16, 2023).

management directive, these documents have required DHS-level approval; therefore, consistent with our prior assessments, we used November 2008 as the starting point for our analysis. We found that six programs did not yet have department-approved APBs as of September 30, 2022, and, as a result, we excluded them from our portfolio-level analysis. Most of these programs have not yet progressed to the point in the acquisition lifecycle framework where an approved acquisition program baseline is required by policy. We also excluded the Border Wall System Program from our portfolio analysis due to the January 2021 Presidential Proclamation directing a pause in the construction of the border wall to the extent permitted by law.[9] However, we conducted individual assessments for all 25 programs, as discussed below.

To determine the programs' efforts to mitigate COVID-19-related effects on delivering capabilities, we reviewed the July 2022 DHS memorandum granting level 1 and selected level 2 programs the authority to adjust their APB cost or schedule baseline goals up to 6 months due to effects related to COVID-19, supply chain issues, or inflation. We then reviewed program information including baseline adjustment memorandums associated with programs that made use of this authority. We also interviewed officials at the 25 programs to understand any related cost and schedule effects due to COVID-19 and the steps they took to mitigate these effects.

To determine the extent to which programs are implementing cybersecurity activities, we reviewed DHS Instruction 102-01-012 *Cybersecurity through the Acquisition Lifecycle Framework* and assessed the implementation of a newly required activity. This activity was the completion of Cybersecurity Risk Recommendation Memorandums (CRRM). The CRRMs have been required for those programs that have held acquisition decision events (ADE) as applicable since DHS issued the instruction in 2020. We also interviewed program, component, and headquarters officials to discuss program implementation of acquisition cybersecurity policies.

For each of the 25 selected programs, we analyzed key acquisition documents such as acquisition plans, acquisition program baselines, and life-cycle cost estimates. We used a questionnaire to collect standardized information on cost, schedule, and performance; COVID-19 effects; and

[9]GAO, *Southwest Border: Schedule Considerations Drove Army Corps of Engineers' Approaches to Awarding Construction Contracts through 2020*, GAO-21-372 (Washington, D.C.: June 17, 2021).

cybersecurity activities. We interviewed program, component, and headquarters officials to discuss current program status as of September 2022.

Appendix I presents individual assessments of and information about each of the 25 programs we reviewed from the department's January 2022 Master Acquisition Oversight List. These assessments include key information such as the status of programs' schedules, costs, and test and evaluation. Our two-page assessments are intended to provide decision makers a means to quickly gauge the programs' progress and the extent to which they face any cost, schedule, performance, or program risks. See table 1 for the full list of programs that we reviewed.

**Table 1: DHS Major Acquisition Programs Selected For Review**

| Component | Program | Acquisition Level |
|---|---|---|
| Cybersecurity and Infrastructure Security Agency | Continuous Diagnostics and Mitigation (CDM) | 1 |
| | National Cybersecurity Protection System (NCPS) | 1 |
| | Next Generation Network Priority Services (NGN-PS) Phase 1 | 2 |
| | Next Generation Network Priority Services (NGN-PS) Phase 2 | 2 |
| DHS Management Directorate | Homeland Advanced Recognition Technology (HART) | 1 |
| Federal Emergency Management Agency | Grants Management Modernization (GMM) | 2 |
| Science and Technology Directorate | National Bio and Agro-Defense Facility (NBAF) | 1 |
| Transportation Security Administration | Checkpoint Property Screening System (CPSS) | 1 |
| | Credential Authentication Technology (CAT) | 2 |
| U.S. Coast Guard | Long Range Surveillance Aircraft (HC-130J) | 1 |
| | Medium Range Recovery Helicopter (MH-60T) | 1 |
| | Medium Range Surveillance Aircraft (HC-144A & HC-27J) | 1 |
| | Offshore Patrol Cutter (OPC) | 1 |
| | Polar Security Cutter (PSC) | 1 |
| | Waterways Commerce Cutter Program (WCC) | 1 |
| | 270' Medium Endurance Cutter Service Life Extension Program (SLEP) | 1 |
| U.S. Customs and Border Protection | Automated Commercial Environment (ACE) | 1 |
| | Biometric Entry-Exit (BE-E) | 1 |
| | Border Wall System Program (BWSP) | 1 |
| | Cross Border Tunnel Threat (CBTT) | 1 |
| | Integrated Surveillance Towers (IST) | 1 |
| | Medium Lift Helicopter (UH-60) | 1 |
| | Multi-Role Enforcement Aircraft (MEA) | 1 |

| Component | Program | Acquisition Level |
|---|---|---|
| | Non-Intrusive Inspection Integration (NII-I) | 1 |
| | Non-Intrusive Inspection Systems Program (NII) | 1 |

Legend: shaded rows = the program has not yet established an acquisition program baseline approved by DHS leadership.

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

Appendix II provides detailed information on our objectives, scope, and methodology.

We conducted this performance audit from January 2022 to March 2023 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. We subsequently worked with DHS from March 2023 to April 2023 to prepare this public version of the sensitive report for public release. This public version was also prepared in accordance with these standards.

# Background

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

## Acquisition Management Policy and Oversight

DHS's policies and processes for managing its major acquisition programs are primarily set forth in its Acquisition Management Directive 102-01 and Acquisition Management Instruction 102-01-001. DHS issued the initial version of this directive in November 2008 in an effort to establish an acquisition management system that effectively provides required capability to program operators in support of the department's missions. DHS has issued multiple updates to its acquisition management directive and instruction, in part to be responsive to our recommendations. DHS issued the current version of the directive in February 2019 and the current version of the instruction in January 2021.[10]

[10] Subsequent to our September 30, 2022 audit cutoff date, DHS updated the instruction on January 10, 2023.

The Under Secretary for Management is the acquisition decision authority for the department's largest acquisition programs—level 1 programs with life-cycle cost estimates of $1 billion or greater—as well as level 2 programs with cost estimates between $300 million and $1 billion. CAEs—typically the most senior acquisition management official within each DHS component—may be delegated acquisition decision authority for level 2 programs.

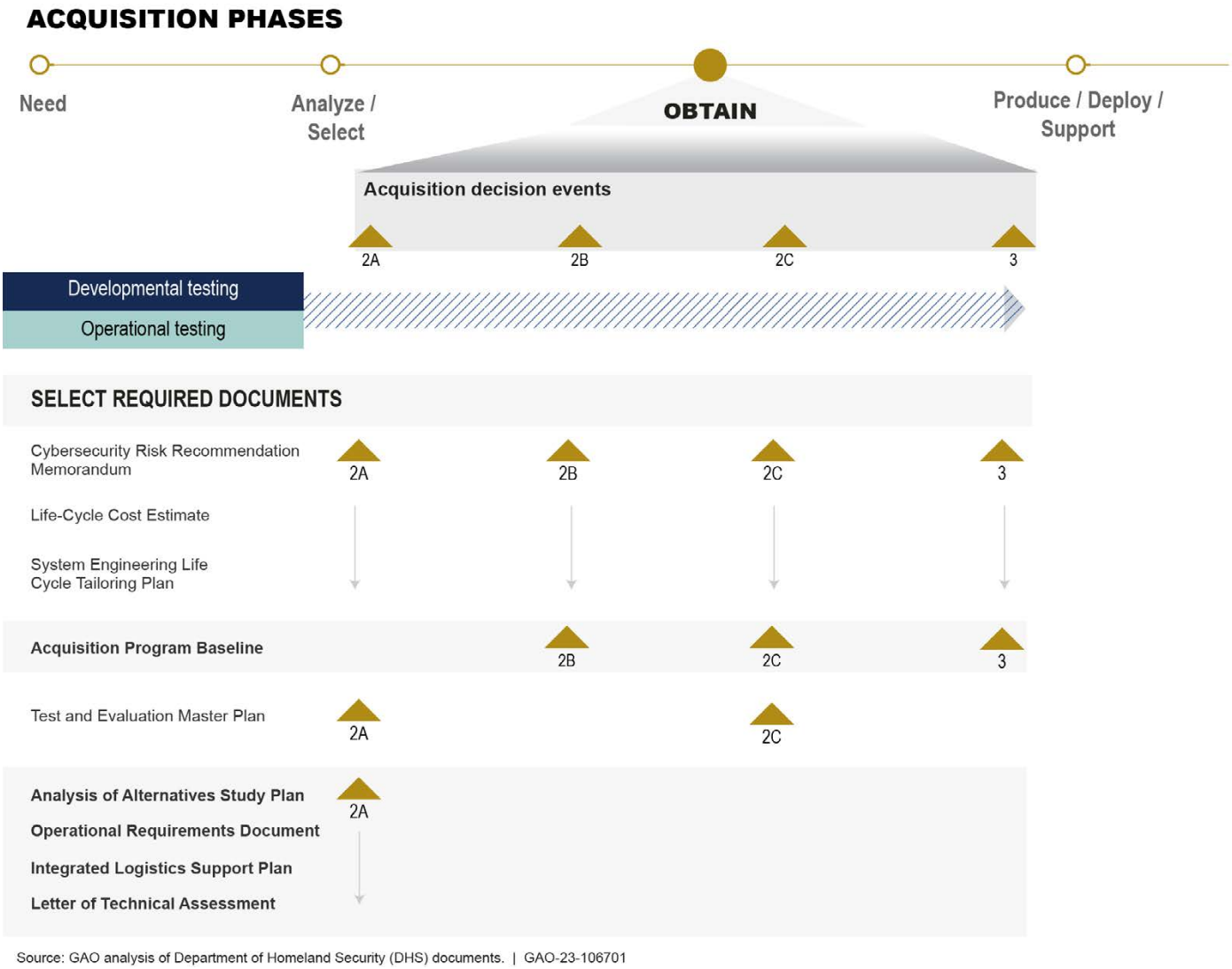
DHS acquisition management policy establishes an acquisition life-cycle framework that identifies major milestones that a program must complete.[11] It also identifies a series of ADEs where the acquisition decision authority shall review and approve key acquisition documents to assess whether the program is ready to proceed to the next phase.[12] Depending on the program, these events can occur simultaneously, within months of each other, or be spread over several years. The policy was revised in 2019 to require acquisition decision authority approval of APBs by ADE 2B. Under a prior version of the policy, acquisition decision authority approval of the APB occurred at ADE 2A.

Figure 1 reflects the current acquisition life cycle and selected documents identified in the July 2020 cybersecurity instruction and the January 2021 acquisition instruction that require department-level approval for major acquisitions of capital assets.

[11]The DHS acquisition life-cycle framework includes phases designed to identify the need for a new acquisition program; review alternative approaches to meeting the need and recommending a best option; developing, testing and evaluating the selected option; producing and delivering the capability to its operators; and maintaining the capability until it is retired.

[12]DHS acquisition decision events in the obtain phase include ADE 2A—when a program or increment enters into the obtain phase of its life cycle; ADE 2B—when a program's initial acquisition program baseline is approved; ADE 2C—when low-rate production or incremental delivery is approved; and ADE 3—when full-rate production or deployment is approved.

**Figure 1: DHS Acquisition Decision Events in the Obtain Phase for Major Acquisition Programs with Selected Required Documents**




Source: GAO analysis of Department of Homeland Security (DHS) documents. | GAO-23-106701

DHS acquisition management policy states that the APB is the agreement between the acquisition program, component, and department-level officials that establishes how systems being acquired will perform, when they will be delivered, and what they will cost. Specifically, the APB establishes a program's costs, schedule, and performance parameters. According to the Director, Office of Test and Evaluation, programs traditionally use the key performance parameters (KPP) from their

Operational Requirements Document as the APB performance parameters. DHS requirements policy describes KPPs as a program's most important and nonnegotiable requirements that a system must meet to fulfill its fundamental purpose. For example, KPPs could include airspeed for an aircraft, or the detection range for a surveillance system.

The APB establishes objective (target) and threshold (maximum acceptable for cost, latest acceptable for schedule, and minimum or maximum acceptable for performance) baselines. According to DHS policy, if a program fails to meet any cost, schedule, or performance threshold approved in the APB, it is considered to be in breach. Programs in breach status are required to notify their acquisition decision authority and develop a remediation plan that outlines a time frame for the program to either return to its APB parameters, rebaseline (i.e., establish new cost, schedule, 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:

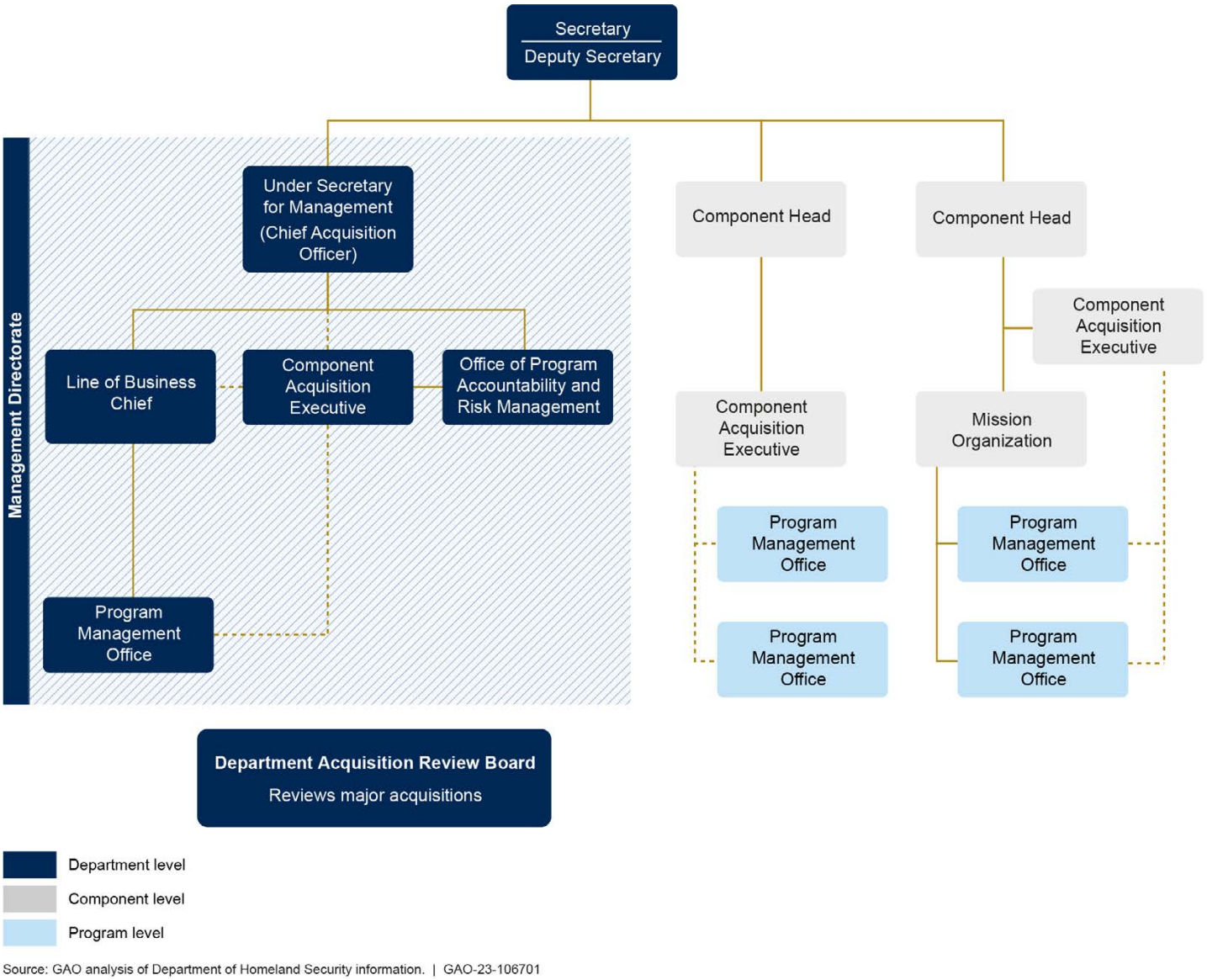
- The Acquisition Review Board reviews major acquisition programs for proper management, oversight, accountability, and alignment with the department's strategic functions at ADEs and other meetings as needed. The board is chaired by the acquisition decision authority or a designee and consists of members and representatives who manage DHS's mission objectives, resources, and contracts.
- The Line of Business Chiefs include the DHS Chief Financial Officer, the Chief Information Officer, the Chief Procurement Officer, the Chief Human Capital Officer, the Chief Security Officer, and the Chief Readiness Support Officer, among others. The Line of Business Chiefs have responsibility for executing acquisition portfolios and are responsible and accountable for adhering to the department's acquisition policies and procedures to ensure sound management, review, support, and approval. The Line of Business Chiefs are also members of the Acquisition Review Board.
- The Office of Program Accountability and Risk Management is responsible for DHS's overall acquisition governance process, supports the Acquisition Review Board, and reports directly to the Under Secretary for Management. The office develops and updates acquisition program management policies and procedures, reviews major programs, provides guidance for workforce planning activities, and provides support to program managers.

- Components, such as U.S. Customs and Border Protection, the Transportation Security Administration, and the U.S. Coast Guard, sponsor specific acquisition programs.[13] Once programs complete delivery of all planned capabilities to end users and reach full operational capability, oversight stays with the component.
    - Component Acquisition Executives are responsible for overseeing the execution of their respective portfolios. In July 2021, DHS also established a CAE position within its Management Directorate. According to officials, this position oversees acquisition programs at level 3 or below being executed within the Management Directorate Lines of Business.
    - 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.
    - Program user representatives have overall responsibility for defining capability requirements and are involved in ensuring the overall test and evaluation strategy and individual activities properly reflect those requirements and the overall operational environment, including the threat. The user representative identifies mission critical functions, contributes to the development of failure definition and scoring criteria, and coordinates for representative system operators and maintainers to support test and evaluation activities.

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

[13]DHS's components consist of operational components—those that have responsibility for directly achieving one or more of the department's missions or activities—and support components—those that generally provide assistance or guidance to other DHS components or external organizations. For example, the Management Directorate is a support component that generally provides assistance and guidance to other DHS components and external organizations and includes functions like budget, finance, information technology, facilities, human capital, and acquisitions. However, the Management Directorate also manages acquisition programs. Typically, these programs are those that involve multiple components, such as programs related to relocating the DHS headquarters and updates to financial systems for multiple components.

**Figure 2: Department of Homeland Security's Acquisition Management Structure**




Source: GAO analysis of Department of Homeland Security information. | GAO-23-106701

## Test and Evaluation Policy

In October 2020, DHS issued a revision to the policy that describes processes for test and evaluation of the capabilities delivered by the department's major acquisition programs. The primary purpose of test and evaluation is to provide timely, accurate information to managers, decision makers, and other stakeholders to reduce programmatic,

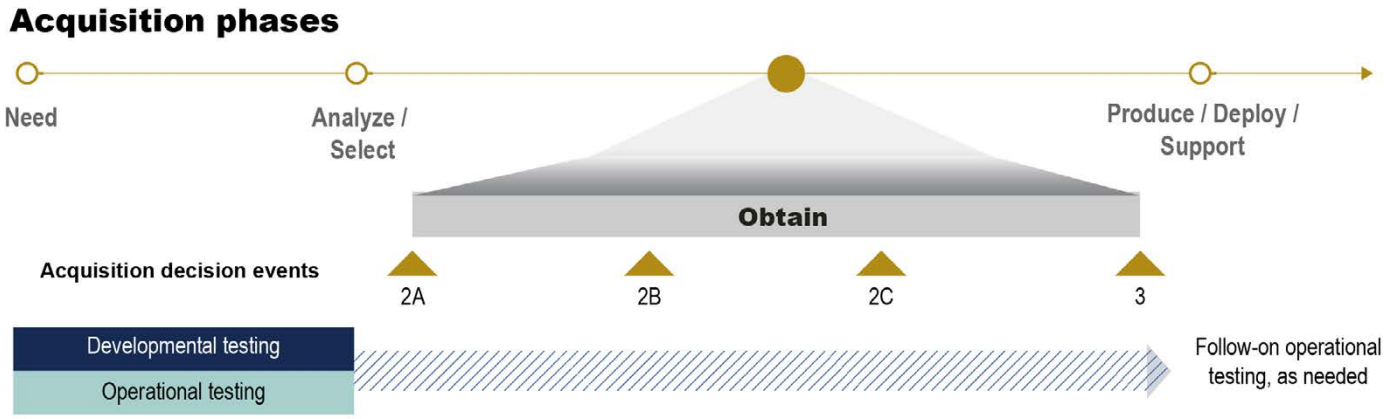
financial, schedule, and performance risks. We provide an overview of programs' test and evaluation activities in the individual program assessments presented in appendix I, as appropriate.

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

- Program managers have overall responsibility for planning and executing their programs' test and evaluation strategies, including scheduling and funding test and evaluation activities and delivering systems for testing. The program manager is also responsible for developing and documenting the program's strategy for test and evaluation in a test and evaluation master plan. A program's test and evaluation master plan must describe the developmental and operational test and evaluation needs to determine technical performance and operational effectiveness, suitability, and resilience.
- Independent test agents (formerly known as operational test agents) are responsible for planning, conducting, analyzing, assessing, and reporting on test and evaluation. Their goal is to identify whether a system can meet its KPPs and provide an evaluation of the operational effectiveness, suitability, and resilience of a system in a realistic environment. Operational effectiveness refers to the overall ability of a system to provide a desired capability when used by representative personnel. Operational suitability refers to the degree to which a system can be placed into field use and sustained satisfactorily. Operational resilience refers to the degree to which a system is able to withstand and recover from disruption, including cyber resilience. The independent test agents may be within the component, another government agency, or a contractor, but must be independent of the program manager, end user, and developer.
- The Director, Office of Test and Evaluation is responsible for approving major acquisition programs' independent test agents, operational test and evaluation plans, and test and evaluation master plans. As appropriate, the Director is also responsible for overseeing operational test and evaluation, reviewing independent test agents' reports, and assessing the reports. Prior to a program's ADE 2C, ADE 3, and other ADEs, as appropriate, the Director provides the program's acquisition decision authority with a letter of assessment. This letter includes an assessment of the adequacy of the test event; an independent evaluation of operational effectiveness, suitability, and resilience; and any further independent analysis.

As an acquisition program proceeds through its life cycle, the testing emphasis moves gradually from developmental test and evaluation to operational test and evaluation. After completing operational test and evaluation, programs are on track to begin production and deliver new capabilities. In addition to operational test and evaluation, programs must complete an assessment of cyber resilience to inform ADE 3. See figure 3.

**Figure 3: Test and Evaluation Activities Established by DHS Policy within the Obtain Phase**




Source: GAO analysis of Department of Homeland Security (DHS) documents. | GAO-23-106701

In our October 2019 report on DHS test and evaluation activities for major programs, we reported that cyberattacks have the potential to prevent systems from working when needed, which could lead to an inability for end users to complete missions.[14] We also found that program compliance with DHS's cybersecurity testing requirements had been slow, in part, because of the time needed to adequately plan and coordinate test and evaluation. DHS issued Instruction 102-01-012: *Cybersecurity through the Acquisition Lifecycle Framework* in July 2020. The instruction states that cybersecurity and cyber resilience analyses are required for level 1 and level 2 major acquisition programs throughout the acquisition life cycle.

[14]GAO, *Homeland Security Acquisitions: Opportunities Exist to Further Improve DHS's Oversight of Test and Evaluation Activities*, GAO-20-20 (Washington, D.C.: Oct. 24, 2019).

For our 2021 report on DHS major acquisition programs, officials from DHS's Test and Evaluation Division told us that they were taking steps to help ensure that programs' plans to assess cyber resilience were incorporated earlier in the acquisition life cycle. They said that doing so would allow cyber resilience test and evaluation to be completed as part of operational test and evaluation and inform ADE 3.[15] For example, the Director, Office of Test and Evaluation stated that, as programs update test and evaluation master plans, a plan to assess cyber resilience must be included in order to obtain approval.

## DHS Policy on COVID-19 Baseline Adjustments

For some DHS major acquisition programs, COVID-19 or changes implemented to address it have affected workforce availability or led to supply chain issues since the declaration of the pandemic as a national emergency in March 2020. In October 2020, DHS's Deputy Under Secretary for Management issued a memorandum that granted CAEs the ability to adjust their APB cost and schedule goals for level 1 and selected level 2 programs due to effects related to COVID-19, instead of going through a formal rebaseline. Actions to implement the memorandum's instructions were to be completed by December 31, 2020. We found previously that, per this process, components adjusted APB milestones for four programs, while 13 programs were able to address cost or schedule effects without requiring APB adjustments.[16]

Further, in July 2022, DHS issued a memorandum that allows major acquisition programs to adjust their program baselines to address the effects of COVID-19, supply chain issues, and inflation. In that memorandum, the DHS Acting Under Secretary for Management allowed level 1 and level 2 programs to adjust their APB schedule milestones, among other things. Specifically, these programs could request approval to extend their milestones by up to 6 months or more. This memorandum also allowed these programs to adjust APB costs. DHS required that any program requesting milestone adjustment include information about how the program was affected.

[15]GAO, *DHS Annual Assessment: Most Acquisition Programs Are Meeting Goals but Data Provided to Congress Lacks Context Needed For Effective Oversight*, GAO-21-175 (Washington, D.C.: Jan. 19, 2021).

[16]GAO, *DHS Annual Assessment: Most Acquisition Programs Are Meeting Goals Even with Some Management Issues and COVID-19 Delays*, GAO-22-104684 (Washington, D.C.: Mar. 8, 2022).

## Acquisition Cybersecurity Policy

DHS's major acquisitions increasingly rely on software and IT systems. Cyberattacks can target any system that depends on software, potentially causing mission failure. DHS issued an acquisition cybersecurity instruction in 2020, as indicated earlier, to provide guidance and information to ensure that cybersecurity threat analysis and associated cybersecurity risk management activities are initiated early and integrated throughout the acquisition life cycle. The instruction describes the roles and responsibilities of officials in the Joint Requirements Council, Chief Acquisition Officer, Office of Program Accountability and Risk Management, Office of the Chief Information Officer, Office of the Chief Procurement Officer, as well as component and program officials, among others, who are to participate in cybersecurity risk management and mitigation throughout the acquisition life cycle.

The instruction establishes processes and structures to assist programs in conducting risk assessment and mitigation activities in accordance with various policies, and provides a means for offering greater visibility and oversight of cybersecurity activities at the Acquisition Review Board level. The instruction on acquisition cybersecurity joins existing DHS Science and Technology guidance that established cybersecurity activities at certain points in the acquisition life cycle. DHS's cybersecurity system engineering implementation guide and cyber resilience test and evaluation guide include Systems Engineering Life-Cycle technical reviews. These reviews incorporate cybersecurity threat assessment and risk management requirements. Prior to the issuance of the 2020 instruction, coordination was expected to take place primarily between the component's Chief Information Officer, the system's Information System Security Officer, and the program's test and evaluation manager, systems engineer, and program manager.

To facilitate collaboration and coordination throughout the systems engineering and acquisition life cycle, the 2020 instruction states that the DHS Chief Information Security Officer is to use input from the DHS Information Safeguarding and Risk Management Council and component cybersecurity acquisition risk management integrated product teams to develop and sign out a Cybersecurity Risk Recommendation Memorandum (CRRM). A CRRM is to identify the cybersecurity risk recommendation (high, medium, low) and current cybersecurity status of an acquisition program.

The DHS Chief Information Security Officer Council determines if the cybersecurity risk level and identified risk mitigations are acceptable. If they are, then the acquisition program may proceed to its next acquisition

decision event. If the risk level and mitigations are not acceptable, then the acquisition program needs to make changes to its Risk Assessment Report, which provides an overview of the security of an information system, including its controls and critical elements.[17] Then, the program mitigates the risks that the DHS Chief Information Security Officer Council has identified that need additional effort.

## Selected Programs Generally Met Established Goals in Fiscal Year 2022

Of the 18 programs we assessed with department-approved APBs, all were meeting their most recent cost and schedule baseline goals as of September 2022. Four of these programs, however, rebaselined or were in the process of rebaselining due to factors outside of a cost or schedule breach. The Director, Office of Test and Evaluation, reported that eight programs that had completed Operational Test and Evaluation for performance goals had met established goals.

### All 18 Programs Met Established Cost and Schedule Goals in Fiscal Year 2022

We found that all 18 programs we assessed with department-approved APBs met their current baseline cost and schedule goals at the end of fiscal year 2022 (see table 1).[18] Three programs entered the fiscal year in breach status and subsequently revised their baselines. This is fewer than the five programs in breach status during our last review.[19] These three programs completed the breach remediation process and the new cost and schedule baselines were met by the end of fiscal year 2022. See table 2 for additional information about these three programs.

**Table 2: Selected Programs That Were in Breach of Cost or Schedule Goals in Fiscal Year 2022**

| Component | Program | Breach type | Breach declared | Breach status exited[a] | DHS reason for breach | Effect of breach |
|---|---|---|---|---|---|---|
| DHS Management Directorate | Homeland Advanced Recognition Technology | Schedule | January 2020 | May 2022 | Technical challenges and rework resulting from an overly complex, high-risk design | Initial operational capability for increment 1 delayed by nearly 4 years |
| | | Cost | May 2020 | May 2022 | Updates to the cost estimate to incorporate additional work necessary to resolve issues driving schedule breach | Initial operational capability for increment 1 delayed by nearly 4 years |

[17]A risk assessment report is based on the National Institute of Standards and Technology Special Publication 800-30, *Guide to Conducting Risk Assessments*.

[18]Programs are required to have a department-approved APB by ADE 2B. Programs without department-approved APBs were excluded from this analysis.

[19]GAO-22-104684.

| Component | Program | Breach type | Breach declared | Breach status exited[a] | DHS reason for breach | Effect of breach |
|---|---|---|---|---|---|---|
| Science and Technology Directorate | National Bio and Agro-Defense Facility | Schedule | May 2021 | November 2021 | Contract modification delay and unforeseen technical issues | Initial operational capability delayed 7 months |
| U.S. Coast Guard | Medium Range Surveillance Aircraft (HC-27J, Phase 2) | Schedule | May 2020 | June 2022 | Contracting delays associated with installing a new mission system processor, among other things | Phase 2 acquisition decision event 2C and initial operational capability milestones delayed by approximately 5 years |

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

[a]Breach exit dates are based on the date the Acquisition Decision Memorandum approving the rebaseline was signed.

## Four Programs That Met Established Cost and Schedule Goals Were Adjusting Baselines to Account for Scope Changes

Of the 18 programs that met established cost and schedule goals, one rebaselined and three were in the process of rebaselining during fiscal year 2022. All four programs were rebaselining due to scope changes, such as a change in quantity or an extended life cycle. See table 3 for additional information on these rebaselines.

**Table 3: Selected Programs That Rebaselined or Were Rebaselining in Fiscal Year 2022**

| Component | Program | Rebaseline status | Reason for rebaseline |
|---|---|---|---|
| Transportation Security Administration | Credential Authentication Technology | Approved June 2022 | Increases program scope and quantity to address increased passenger screening requirements, improve identity verification, and add self-service capabilities |
| U.S. Coast Guard | Offshore Patrol Cutter | Ongoing | Accounts for the award of the Stage 2 contract, which can provide for ships five through 15 after the program was previously split into stages |
| U.S. Customs and Border Protection | Automated Commercial Environment | Ongoing | Extends the program life cycle from 2026 to 2031 to enhance program capabilities |
| U.S. Customs and Border Protection | Medium Lift Helicopter | Ongoing | Increases the full operational capability quantity from 20 to 35 aircraft to provide needed vertical-lift capabilities |

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

## Programs That Completed Performance Testing Were Meeting Goals

All programs that completed Operational Test and Evaluation were meeting their goals during fiscal year 2022 according to the Director, Office of Test and Evaluation (DOT&E). Of the 25 programs in our scope, eight had completed Operational Test and Evaluation for at least one segment, according to DOT&E, which included assessments of the programs' KPPs. Two programs do not fall under DOT&E authority and

may assess their KPPs in another manner. The remaining 15 programs have not yet completed Operational Test and Evaluation. See table 4 for additional information on the status of testing and performance goals provided by DOT&E.

**Table 4: Status of Selected Programs' Completion of Operational Test and Evaluation and Whether Performance Goals Have Been Met**

| Component | Program | Program has completed Operational Test and Evaluation | Program is meeting key performance parameters |
|---|---|---|---|
| Cybersecurity and Infrastructure Security Agency | Continuous Diagnostics and Mitigation | ○ | — |
| | National Cybersecurity Protection System—Block 3 – E3A | ● | ✓ |
| | Next Generation Network Priority Services Phase 1—Increment 2 | ● | ✓ |
| | Next Generation Network Priority Services Phase 2 | ○ | — |
| DHS Management Directorate | Homeland Advanced Recognition Technology | ○ | — |
| Federal Emergency Management Agency | Grants Management Modernization | ○ | — |
| Science and Technology Directorate | National Bio and Agro-Defense Facility | N/A | N/A |
| Transportation Security Administration | Checkpoint Property Screening System | ● | ✓ |
| | Credential Authentication Technology | ● | ✓ |
| U.S. Coast Guard | Long Range Surveillance Aircraft | ○ | — |
| | Medium Range Surveillance Aircraft—HC-144 Phase 1 | ● | ✓ |
| | MH-60T Sustainment | ○ | — |
| | Offshore Patrol Cutter | ○ | — |
| | Polar Security Cutter | ○ | — |
| | Waterways Commerce Cutter Program | ○ | — |
| | 270' Medium Endurance Cutter Service Life Extension Program | ○ | — |
| U.S. Customs and Border Protection | Automated Commercial Environment—Core | ● | ✓ |
| | Biometric Entry-Exit—Air Exit segment | ● | ✓ |
| | Border Wall System Program | ○ | — |
| | Cross Border Tunnel Threat | ○ | — |
| | Integrated Surveillance Towers | ○ | — |
| | Medium Lift Helicopter | ○ | — |
| | Multi-Role Enforcement Aircraft—Increment 2 - AI | ● | ✓ |

| Component | Program | Program has completed Operational Test and Evaluation | Program is meeting key performance parameters |
|---|---|---|---|
| | Non-Intrusive Inspection Integration | ○ | — |
| | Non-Intrusive Inspection Systems Program | N/A | N/A |

Legend: ●=program completed testing; ○=program has not completed testing; ✓=all the key performance parameters are being met; — = program is not currently meeting its key performance parameters because testing is not complete; N/A = not applicable

Source: GAO analysis of Department of Homeland Security (DHS) Director, Office of Test and Evaluation data and interviews. | GAO-23-106701

Note: This information is according to the Director, Office of Test and Evaluation (DOT&E) and may differ from what is reported in the individual program assessments in appendix I. There are several possible reasons for this. First, some programs do not fall under DOT&E's authority, but still have key performance parameters. These include the National Bio and Agro-Defense Facility and the Non-Intrusive Inspection Systems programs. Second, there are situations where DOT&E has only tested a discrete segment of a program, but the program assessment includes all key performance parameters for a program. These include the Next Generation Network Priority Service Phase 1 program, the Medium Range Surveillance Aircraft, and the Multi-Role Enforcement Aircraft. Third, testing of performance may have occurred previously in relation to a different program or under a different acquisition level. These include the Credential Authentication Technology program, the Long Range Surveillance Aircraft, the MH-60T Sustainment program, and the Medium Lift Helicopter.

According to DOT&E, of the eight programs that completed operational testing:

- Five have also tested operational cyber resilience. Three of these programs were found to be not cyber resilient; the other two have limitations or require additional testing. The programs found to be not cyber resilient are working on addressing the underlying vulnerabilities identified and will conduct follow-on testing in the future.
- Two additional programs are working toward completing operational cyber resilience testing and one program will continue program-level cybersecurity testing.

## Five of 10 Programs Managed COVID-19 Effects without Adjusting Baselines

Of the 25 selected programs we reviewed, 10 programs reported COVID-19-related cost or schedule effects in fiscal year 2022. Five of these programs indicated that they managed the effects within their baselines, while the other five programs indicated they would seek approval to adjust their schedule or cost baselines.[20] These programs have requested flexibilities offered in a July 2022 memorandum to address the effects of COVID-19, supply chain issues, and inflation on the department's major

[20]Three additional programs—FEMA Integrated Public Alert and Warning System, U.S Coast Guard National Security Cutter, and 47' Motor Lifeboat Service Life Extension Program—also requested approval to adjust their baselines due to COVID-19-related cost or schedule effects, but they are not in the scope of our review.

acquisition programs. For the five programs seeking to make adjustments to their milestones, the programs' rationales are provided in table 5.

**Table 5: Selected Programs Seeking Baseline Adjustments due to COVID-19 Effects, Fiscal Year 2022**

| Component | Program | Adjustment requested | Rationale for adjustment |
|---|---|---|---|
| Federal Emergency Management Agency | Grants Management Modernization | Schedule | The program originally planned to address COVID-19 effects from before fiscal year 2022, without affecting the original baseline. However, when officials updated the Operational Requirements Document and Test and Evaluation Strategy, they determined that the original full operational capability date was at risk if any issues arose from testing. |
| U.S. Coast Guard | Offshore Patrol Cutter | Schedule/ Cost | The program reported that it has experienced supply chain issues driven by COVID-19, as well as inspection delays because of travel restrictions. Because of the increased lead time, program officials would like to reschedule the program's initial operational test and evaluation milestone, as well as its initial operational capability date. The program also anticipates a cost adjustment. |
| U.S. Coast Guard | Polar Security Cutter | Schedule | The program requested schedule relief as a result of labor effects from worldwide COVID-19 shutdowns. Some schedule events for which these officials anticipate needing relief include critical design review, acquisition decision event (ADE) 2C, lead ship delivery, and full operational capability. |
| U.S. Coast Guard | 270' Medium Endurance Cutter Service Life Extension Program | Schedule/ Cost | The program reported it has experienced vendor-related staff resource constraints and supply chain issues resulting from COVID-19. Program officials anticipate rescheduling its initial operational test and evaluation milestone, initial operational capability, ADE 3, and full operational capability dates. They also requested a cost adjustment. |
| U.S. Coast Guard | Medium Range Surveillance Aircraft (HC-27J, Phase 2) | Cost | The program reported anticipating the need for a cost adjustment because the underlying inflationary assumptions for the program's most recent cost estimate were lower than 2022 conditions. |

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

For the five programs that requested cost and schedule flexibilities offered in the July 2022 memorandum, the most common anticipated effect was on program schedules. The Office of Program Accountability and Risk Management's official documentation of the adjustments was required by October 31, 2022, which is after our audit deadline of September 30, 2022, for new information. Because of these time frames, any reporting on DHS approval or disapproval of schedule adjustments will be covered in our future work. The July 2022 memorandum establishes that estimated cost effects from the programs will be shared with the DHS Cost Analysis Division in accordance with financial

management policy before DHS makes a decision. We were unable to determine the total of the cost adjustments requested by the three programs prior to our audit deadline.

In addition to the five programs requesting cost or schedule adjustments, five programs reported schedule or supply chain effects related to COVID-19 but were able to address them without seeking baseline adjustments. No additional programs reported cost effects. See table 6.

**Table 6: Selected Programs Reporting COVID-19 Effects That Did Not Require Baseline Adjustments in Fiscal Year 2022**

| Component | Program | Type of COVID-19 effect | Reported COVID-19 effect |
|---|---|---|---|
| Cybersecurity and Infrastructure Agency | Next Generation Network Priority Services – Phase 1 | Schedule | unknown duration |
| Science and Technology Directorate | National Bio and Agro-Defense Facility | Supply chain | unknown duration |
| Transportation Security Administration | Checkpoint Property Screening Program | Schedule | 2-week delay |
| Transportation Security Administration | Credential Authentication Technology | Schedule | 10-week delay |
| U.S. Customs and Border Protection | Non-Intrusive Inspection Systems | Schedule | unknown duration |

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

## Selected Programs Have Not Prepared Cybersecurity Risk Memorandums

The DHS cybersecurity acquisition instruction requires that major acquisition programs present a CRRM at ADEs to identify the programs' cybersecurity status and its risk recommendation (high, medium, low). However, since the instruction was issued, seven programs that have held ADEs did not complete a CRRM.

Program officials from these seven programs indicated that the CRRMs were not applicable to them for various reasons. In one instance, officials from the Transportation Security Administration's Checkpoint Property Screening System program provided documentation that this requirement was waived by DHS. The other six programs reported that other documentation was used instead, a CRRM was not required or not applicable to their program, or that they simply did not develop one. The instruction does not clarify when the CRRM requirement might be waived, is not applicable, or when other documentation may be used in its place.

Since the release of the instruction, DHS's Office of Chief Information Officer and Office of Program Accountability and Risk Management officials told us that they are not currently holding programs accountable for submitting these memorandums at ADEs. Program Accountability and

Risk Management officials explained that, in part, they do not want to delay any program's progress through the acquisition life cycle. These officials recognize that the memorandums are not being completed and said it is a priority to improve compliance in the future. Specifically, officials said they intend to educate programs and components on the purpose of the memorandums and to clarify requirements in a fiscal year 2023 update to the instruction. According to DHS officials, CRRMs are intended to serve as a mechanism to encourage collaboration in addressing cybersecurity planning and testing across the acquisition life cycle, and to document agreement between the program, component, and the department.

These memorandums would, according to Program Accountability and Risk Management officials, provide information to enhance their oversight in addressing cybersecurity risks consistently throughout the department. If DHS does not clarify when exemptions apply, programs may not prepare the risk memorandums when they are needed. As a result, DHS, in its oversight role, may not have information to effectively assess cybersecurity risk and ensure that risk mitigations are adequate.

## Conclusions

As of the end of fiscal year 2022, the DHS major acquisition programs in our review with approved baselines were meeting their cost and schedule goals, though some had rebaselined or are in the process of rebaselining these goals. Programs continue to report effects from the COVID-19 pandemic; however, many have not needed to adjust their baselines. DHS's major acquisitions increasingly rely on software and IT systems, and cyberattacks could potentially result in mission failure. Ensuring that DHS's major acquisitions are secure is critical to meeting the department's diverse missions. A key cybersecurity activity has not yet been implemented, despite DHS issuing an acquisition cybersecurity instruction over 2 years ago. Updating that instruction to clarify when this key activity must be carried out would improve program accountability, and DHS's ability to effectively assess cybersecurity risk in its major acquisitions.

## Recommendation for Executive Action

We are making the following recommendation to DHS: [21]

The Secretary of Homeland Security should ensure that, as the department updates its Instruction 102-01-012, it clarifies (1) which major

[21]In the sensitive version of this report, GAO-23-105641SU, we made one additional recommendation.

acquisition programs are required to have completed cybersecurity risk recommendation memorandums prior to acquisition decision events, and (2) when exemptions apply.

## Agency Comments

We provided a draft of the sensitive version of this report to DHS for review and comment. In its comments, reproduced in appendix III, DHS agreed with the recommendation and indicated that the department planned to implement it by March 30, 2024. 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 https://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-4841 or makm@gao.gov. 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.

Marie A. Mak
Director, Contracting and National Security Acquisitions

*List of Committees*

The Honorable Gary C. Peters
Chairman
The Honorable Rand Paul, M.D.
Ranking Member
Committee on Homeland Security and Governmental Affairs
United States Senate

The Honorable Chris Murphy
Chair
The Honorable Katie Britt
Ranking Member
Subcommittee on Homeland Security
Committee on Appropriations
United States Senate

The Honorable Mark E. Green, M.D.
Chairman
The Honorable Bennie G. Thompson
Ranking Member
Committee on Homeland Security
House of Representatives

The Honorable Dave Joyce
Chairman
The Honorable Henry Cuellar
Ranking Member
Subcommittee on Homeland Security
Committee on Appropriations
House of Representatives

# Appendix I: Program Assessments

This appendix presents individual assessments for the 25 Department of Homeland Security (DHS) major acquisition programs we reviewed. Each assessment presents information that is current as of September 30, 2022. The assessments include standard elements such as: an image, a program description, summaries of the program's progress in meeting cost and schedule goals, and key program information such as contracting approach. In addition, the assessments provide summaries of the program execution, performance and testing activities, and program management-related issues, as applicable. The information presented in these assessments was obtained from DHS documentation, answers to our questionnaire by DHS officials, and interviews with DHS and program officials, and includes our analysis of program information. Each assessment includes the following elements:

- Program description.
- Program information:
  - Component. Which of the seven components in our scope the program falls under.
  - Acquisition type. Whether a capital asset program is for an IT acquisition as defined by DHS, a non-IT acquisition, or a mixed acquisition that includes IT and non-IT.
  - Acquisition level. Whether a program is level 1 meaning it has a life-cycle cost estimate (LCCE) of $1 billion or more, or level 2 meaning its LCCE is from $300 million to less than $1 billion.
  - Key performance parameters (KPP). Provides the breakout of the program's total number of KPPs currently known, by whether or not the program reported those KPPs as met.
  - Contracting approach. Includes high-level information and summaries of the kind of contracting activities the program is conducting or planning.
  - Next major milestone. Indicates the program's next acquisition decision event (ADE) along with the estimated date, if known.
- Key Findings.
- Graphics:
  - Schedule. This figure consists of a timeline that identifies key ADEs or other significant events for the program. The timeline identifies when the program completed or is expected to reach its major milestones as of September 2022. Dates shown are based on the program's acquisition program baseline (APB) threshold

dates, a signed acquisition decision memo showing completion of an event, or updates provided by the program office. The following milestones are intended to signify:

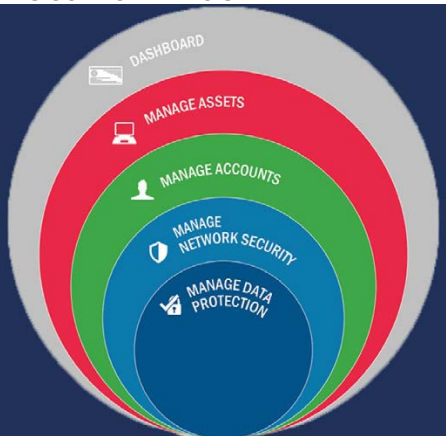
- ADE 2A: when a program, or increment, enters into the obtain phase of its life cycle
- ADE 2B: when a program's initial acquisition program baseline is approved
- ADE 2C: when low-rate production, or incremental delivery, is approved
- ADE 3: when full-rate production, or deployment, is approved
- IOC: initial operational capability
- FOC: full operational capability

- Baseline and current cost estimates. This figure shows the program's cost thresholds from the initial APB approved after DHS's acquisition management policy went into effect in November 2008, the program's current DHS-approved APB, and the program's expected costs as of September 2022. The source for the current estimate is the most recent cost data we obtained (i.e., a department-approved LCCE, updated LCCE submitted during the resource allocation process to inform the fiscal year 2023 budget request, or a fiscal year 2022 annual LCCE update). Costs shown are based on the program's APB threshold costs and are presented in then-year dollars. When costs were presented in acquisition program baselines in base-year dollars, we worked with program officials to convert those costs to then-year dollars for the purposes of our report. We did not assess their methodology. For consistency in reporting, we use the terms procurement, construction and improvements (PC&I) and operations and support (O&S) when describing costs in these assessments.
- Estimated program costs for fiscal years 2023–2027. This figure provides the program's estimated PC&I, O&S, and total estimated costs for fiscal years 2023–2027.

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

**Programs are grouped by component to provide consistency in reporting and ease of use for the reader.**

Cybersecurity and
**Infrastructure Security Agency**




# Continuous Diagnostics and Mitigation

CDM aims to strengthen the cybersecurity of civilian government networks and data by providing four capabilities to federal agencies : (1) Asset Management reports vulnerabilities in hardware and software; (2) Identity and Access Management focuses on user access controls; (3) Network Security Management will report on efforts to prevent attacks; and (4) Data Protection Management will provide encryption to protect network data. Under CDM, DHS centrally oversees the procurement of cybersecurity tools that can be deployed by participating agencies. CDM is organized into separate increments for each capability.

Source: CISA. | GAO-23-106701


## Program Information

**DHS Component:** Cybersecurity and Infrastructure Security Agency (CISA)

**Acquisition type:** IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 0 out of 16 met. KPPs have not yet been tested.

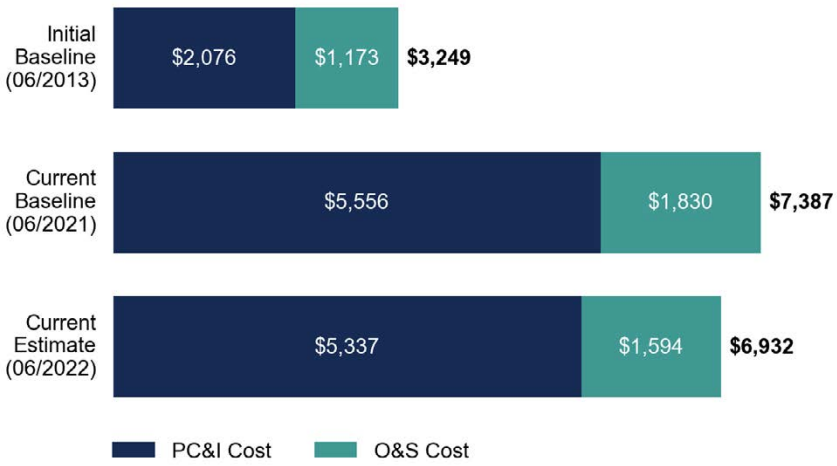
**Contracting approach:** CDM obtains services from a series of competitively awarded task orders against existing Multiple Award Schedule or government-wide acquisition contracts.

**Next major milestone:** TBD

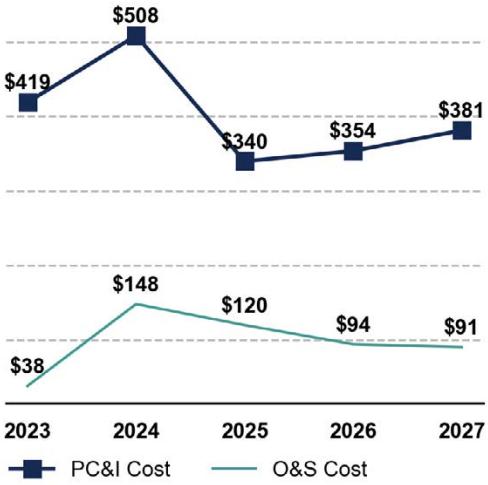
## Key Findings

- **Cost and schedule**. Work on the Data Protection Management capability, originally set to reach acquisition decision event (ADE) 2B in December 2022, has been paused through fiscal year 2023 due to changing agency priorities and lack of funding. The program is also adding $509 million in additional cost, increasing its cost estimate from $6.4 billion to $6.9 billion with the addition of a new sub-capability into the Network Security Management capability.
- **Testing**. The program has had issues demonstrating that key performance parameters are met because the CDM program cannot test its tools on other agencies' networks without agency permission.

## BASELINE and CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# CONTINUOUS DIAGNOSTICS AND MITIGATION

## Cost and Schedule Status

CDM initially planned for the Data Protection Management (DPM) capability to reach ADE 2B in December 2022, but work has been paused through fiscal year 2023 due to funding constraints and a shift in agency priorities, according to program officials. An affordability analysis in the April 2022 life-cycle cost estimate shows an operations and sustainment cost gap of over $162 million starting in fiscal year 2023. The program is working with component and headquarters offices to address the cost gap for DPM, and program officials said that all other capabilities are still moving forward.

In April 2022, CDM updated its program life-cycle cost estimate from $6.4 billion to $6.9 billion, adding $509 million in expected costs largely driven by the incorporation of the Endpoint Detection and Response (EDR) sub-capability into the Network Security Management core capability. EDR will provide incident follow-up and analysis capabilities to help detect malicious network activity in real time and improve investigative abilities after an incident. The CDM program is currently working to update a new baseline document for fiscal year 2023, which will account for the new capabilities and the pause of the DPM capability. Officials reported that the program remains on track to achieve full operational capability (FOC) in 2026.

## Performance and Testing

In May 2021, the program increased the number of KPPs being tested from 13 to 16. These 16 KPPs cover five main areas related to cybersecurity threats—identification, protection, detection, response, and recovery—addressing things like proper information protection processes or the ability to prevent unauthorized network connections.

CDM officials said that the program cannot test its deployed tools on other agencies' networks without permission, limiting their ability to test KPPs and demonstrate that they are met. CDM officials stated that, as of September 2022, the program did not have permission from any agency to conduct operational testing. CDM officials stated that if CDM cannot gain access to agency networks for testing purposes, the agencies will assume responsibility for testing CDM tools on their own networks. As of April 2021, CISA officials reported that seven other agencies have conducted operational studies. These studies provided the program with informal observations on CDM implementation at the respective agencies. The CDM program is currently working with DHS officials to plan operational assessments of the Identity and Access Management as well as Asset Management components for late 2022, paired with a dashboard release at the same time.

## Program Management

The American Rescue Plan Act of 2021 (ARPA) provided funding for CISA for cybersecurity risk mitigation. CDM officials said CDM received funding for specific work. Following ARPA, the President issued an executive order about cybersecurity, which CISA officials said included mandated work that programs like CDM had to complete. CDM officials said they had to move staff from previously planned work to perform the new mandates laid out in the executive order, and intend to operate flexibly to adapt if any requirements are changed or mandates are added. Work on the DPM capability was paused partially as a result of these changes. The CDM program added EDR, expanded existing Privileged Access Management and Identity Lifecycle Management capabilities, as well as Cloud Security responsibilities as a result of these new mandates. In May 2022, CDM officials said that there were no current staffing risks.

GAO reported on the CDM program in August 2020 (GAO-20-598) and made six recommendations to DHS, among others. As of September 2022, two of the recommendations to DHS had not yet been implemented.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. The program office stated that the CDM program continues to drive more effective cyber risk management throughout the Federal Civilian Executive Branch. In coordination with CDM agency stakeholders, program efforts over this past year focused on operationalizing CDM investments with an emphasis on improving visibility within agency networks, deploying EDR capabilities, and guiding agencies in their use of the CDM Dashboard to respond to threats.

# National Cybersecurity Protection System

NCPS is intended to defend the systems the federal civilian government uses from cyber threats. NCPS develops and deploys capabilities through a series of blocks. Blocks 1.0, 2.0, 2.1, and EINSTEIN 3 Accelerated (E3A) are fully deployed and provide intrusion detection and analytic capabilities across the government. The NCPS program partially deployed capabilities for block 2.2 to improve information sharing across agencies. Remaining block 2.2 capabilities will be deployed under the successor program, Cyber Analytic and Data System (CADS), which will replace NCPS and inherit many NCPS assets and responsibilities.

Source: NCPS. | GAO-23-106701

- **02/09** Initial APB approved
- **02/18** E3A ADE 3 & Block 2.2 ADE 2C
- **01/20** Program breach
- **04/21** FOC & Removal from breach status
- **09/22** GAO review

## Program Information

**DHS Component:** Cybersecurity and Infrastructure Security Agency (CISA)

**Acquisition type:** IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 12 out of 12 met

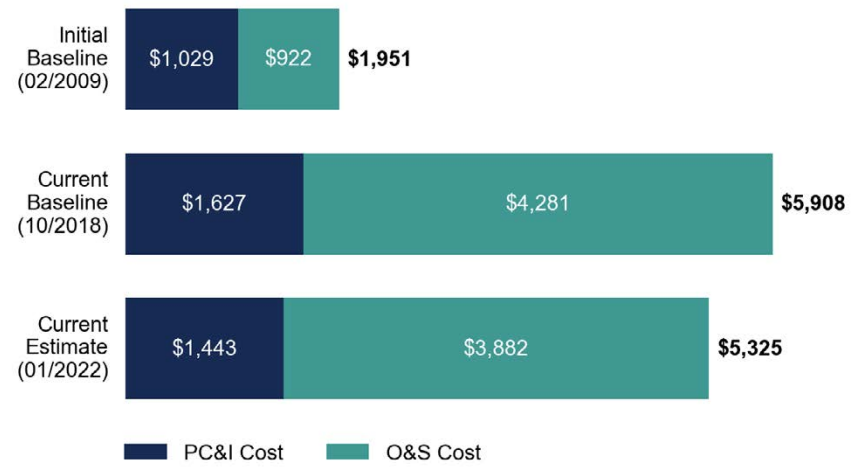
**Contracting approach:** Program officials said NCPS has used a variety of contracts to support efforts including systems engineering, design, development, operations, and maintenance. NCPS also reported contracting with Federally Funded Research and Development Centers and University Affiliated Research Centers for independent research, analysis, systems engineering, and acquisition support.

**Next major milestone:** Not applicable

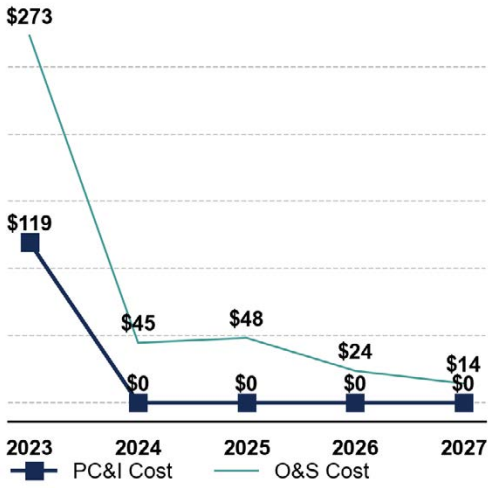
## Key Findings

- **Cost and schedule:** In July 2021, the DHS Acquisition Review Board approved work to begin on the successor program, CADS. Program costs have decreased by an estimated $1.9 billion since the program's 2021 life-cycle cost estimate, mainly as costs for continued deployment of relevant block 2.2 requirements are expected to shift to the successor program. Remaining costs are mostly for operations and maintenance of the NCPS Einstein capability.
- **Program management:** The successor program is still in development, with a new life-cycle cost estimate and schedule milestones currently being drafted. It intends to use the rapid acquisition framework to provide new flexibilities and enable it to use more commercially available off-the-shelf items. The initial acquisition decision event (ADE) for the successor program is planned for the second quarter of fiscal year 2023.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# NATIONAL CYBERSECURITY PROTECTION SYSTEM

## Cost and Schedule Status

After achieving full operational capability (FOC) in April 2021, the DHS Acquisition Review Board approved the program's request to continue deployment of the remaining and operationally relevant block 2.2 requirements under the successor program. While the successor program baseline has not yet been approved, the program's 2022 life-cycle cost estimate reflects that a transition is underway. Specifically, the 2022 life-cycle cost estimate shows a decrease of $1.9 billion since the 2021 estimate, with some program costs expected to shift to the successor program. Most of the program's remaining costs are for operation and maintenance of the Einstein capability that provides intrusion prevention and detection.

## Performance and Testing

The NCPS program has met all KPPs as of 2022. Program officials said they completed all KPPs, and parameters for the follow-on program are in development. The follow-on program will include Block 2.2 capabilities for rapid information sharing during a cyber threat or cyber incident.

E3A testing is no longer the NCPS program's responsibility. We previously reported that, in June 2021, CISA officials stated that additional follow-on testing of E3A for cyber-resiliency was paused while the program awarded a new contract for sustainment and worked through plans to restructure. In December 2022, program officials stated that the program was not conducting additional cyber resiliency testing for Intrusion Prevention capabilities. Officials said that since the award of the new Intrusion Prevention Services contract in 2021, the program has chosen not to do any additional testing. Officials said this was because the internet service provider who won the contract had already conducted vendor testing and required security testing.

## Program Management

The life-cycle cost estimate for the successor program is currently in development. Program officials estimate that the new program will include the sustainment of many legacy NCPS capabilities. The new program is expected to begin in fiscal year 2024.

The NCPS successor program milestones are not yet known. However, program officials anticipate that this program's first ADE will occur in the second quarter of fiscal year 2023.

For the successor program, program officials plan to use the rapid acquisition framework. They told us that this will enable them to streamline decision events and it requires less documentation. It will also allow them to procure more commercially available off-the-shelf items, which program officials said helps reduce cost and allows for faster fielding of new technology.

NCPS assets and staffing are currently under discussion, as NCPS capabilities are moved to other CISA programs or to the successor program. Officials said that the intent is to keep NCPS staffed at its current level.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. The program office stated that since the last assessment, the NCPS program has made progress toward building the program documentation for the replacement program, CADS. The program office says it is on track to submit the documentation to the department by the end of the second quarter of fiscal year 2023. NCPS program officials said the CADS program office continues to work closely with the Program Accountability Risk Management office and the Component Acquisition Executive to ensure that the CADS program is following department guidance for leveraging the Rapid Acquisition Lifecycle and NCPS program officials are looking forward to continued collaboration across the department.


Source: DHS. | GAO-23-106701

# Next Generation Network Priority Services Phase 1

NGN-PS aims to develop and enhance emergency telecommunications services to enable public safety personnel to communicate during emergency response and recovery operations. Phase 1 consists of three increments for priority access for: (1) internet protocol core networks; (2) wireless and secure mobile communications over internet protocol; and (3) wired capability over internet protocol.


## Program Information

**Component:** Cybersecurity And Infrastructure Security Agency (CISA)

**Acquisition type:** IT

**Acquisition level:** 2

**Key performance parameters (KPP):** 4 out of 6 KPPs met. 2 KPPs have not yet been tested.

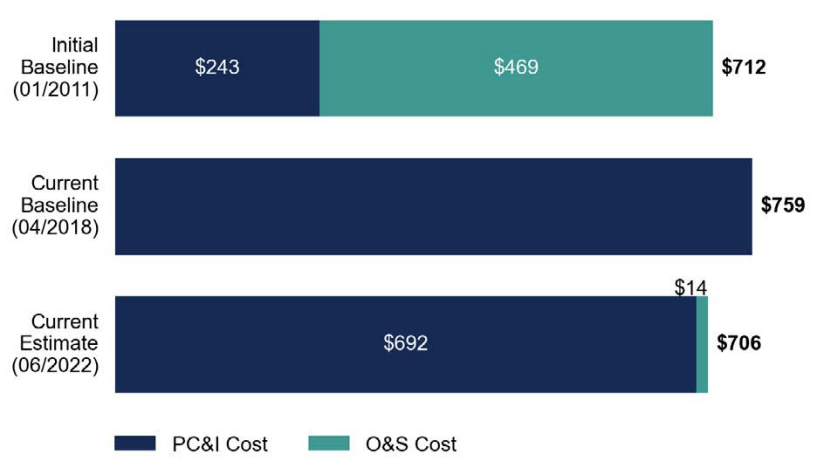
**Contracting approach:** The program reported having contracts with major telecommunications service providers to deploy priority access features in their public networks. NGN-PS leverages each service provider's deployment schedule for priority services as they are transitioning voice services from analog to digital.

**Next major milestone:** Increment 2 full operational capability (FOC) by December 2022

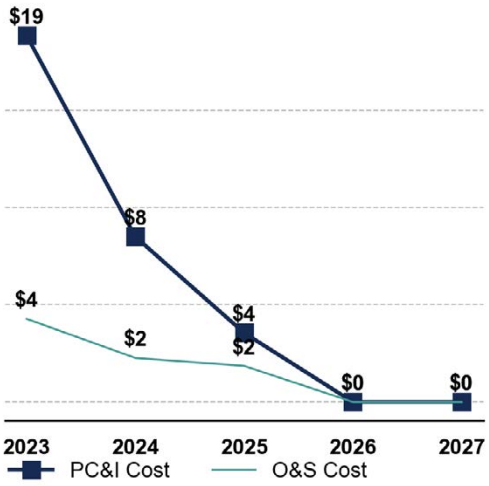
## Key Findings

- **Cost and schedule**. Phase 1 is currently on track to meet its cost and schedule goals set in 2018. In January 2022, the program updated its life-cycle cost estimate to include $6.7 million for additional Increment 3 costs.
- **Performance and testing**. The Director, Office of Test & Evaluation completed a letter of assessment for Increment 2 testing in September 2022. Increment 2 was reported to be operationally effective and suitable, and testing was inadequate to evaluate cyber resilience. These officials also stated that they are mitigating challenges to obtain cybersecurity information from service providers.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# NEXT GENERATION NETWORK PRIORITY SERVICES PHASE 1

## Cost and Schedule Status

NGN-PS Phase 1 remains within its acquisition program baseline goals and Increment 1 achieved full operational capability in October 2018. CISA officials told us that, as of September 2022, Increments 2 and 3 are expected to meet full operational capability in December 2022 and December 2025, respectively.

In January 2022, the program updated its life-cycle cost estimate to include $6.7 million in additional costs for Increment 3 development and contractor support compared to the previous estimate of $141.7 million in 2021. Increment 3 development for cable technology was refined based on affordability and discussions with service providers. The increment will now include development projects with two cable providers through the integration contractor. In addition, the cost estimate for contractor support for Increment 3 was extended from 2023 to 2025 to bolster testing and evaluation. Phase 1 includes both procurement and operation and sustainment costs until all three increments reach full operational capability. Once operational, acquired capabilities will be transferred to CISA's Priority Telecommunications Service (PTS) program—NGN-PS's predecessor—for sustainment. Both NGN-PS and PTS are intended to work together to prevent operational gaps in emergency communications.

## Performance and Testing

Four of the six KPPs—related to call completion rate, service availability, and meeting user needs—were met as of Phase 1's September 2018 letter of assessment. These KPPs are tracked through monthly performance results and continue to be consistently demonstrated. Phase 1's remaining two KPPs—focused on wireless and wired call quality—are planned to be met by December 2022 and 2025, respectively. This is part of the criteria for achieving full operational capability for increments 2 and 3.

Capabilities are evaluated through PTS's development and operational testing conducted by service providers on their own networks. The main development test and evaluation activities are government witnessed/reviewed tests to verify performance, functionality, and operational readiness. Johns Hopkins University Applied Physics Laboratory—the independent test agent—provides analysis and reporting through observations for each witnessed test event, operational assessment reports, a cybersecurity assessment, and periodic operational test strategy updates.

In September 2022, the Director, Office of Test and Evaluation, assessed Phase 1, Increment 2, and reported that it was operationally effective and suitable in a letter of assessment. According to the assessment, testing was inadequate to evaluate cyber resilience due to issues such as contractual constraints with service providers. The Director, Office of Test and Evaluation, recommended that the program office work with the independent test agent to plan to evaluate cyber resilience, among other things.

Increment 3 initial operational capability (IOC)—when wired capability for voice over internet protocol was attained for a single service provider—was achieved in March 2020. Increment 3 will achieve full operational capability when all contracted service providers deploy these capabilities over their core networks.

NGN-PS capabilities are an extension to service provider networks. These capabilities are susceptible to the threats and risks of these networks, including cybersecurity attacks. CISA officials told us that service providers have proprietary and confidential cybersecurity efforts. As a result, it is difficult for the NGN-PS program to obtain sufficient information on how these providers are implementing cybersecurity processes. To mitigate this challenge, CISA officials said they are working with service providers to plan cyber tabletop exercises. They said they plan to update the 10-year contracts to include more cybersecurity requirements for contractors.

Unforeseen events can affect government oversight of testing for NGN-PS development. During fiscal year 2022, CISA officials said that they experienced minor delays due to COVID-19 because there were fewer large events available to test congestion in the service providers' networks. NGN-PS program officials worked with service providers to conduct remote development tests and witnessing, when needed. This allowed Johns Hopkins University Applied Physics Laboratory to collect enough data to validate results with confidence, according to CISA officials.

## Program Management

In 2022, CISA officials reported that they filled two of NGN-PS's four critical staffing vacancies, which had included three electronics engineers and one IT specialist. The three engineering vacancies are mitigated with contractor support until the hiring processes are completed.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. CISA officials provided technical comments, which we incorporated where appropriate.


Source: DHS. | GAO-23-106701

# Next Generation Network Priority Services Phase 2

NGN-PS aims to develop and enhance emergency telecommunications services to enable public safety personnel to communicate during emergency response and recovery operations. Phase 2 is developing and delivering data and video priority services. The Cybersecurity and Infrastructure Security Agency (CISA) executes NGN-PS through commercial service providers to address the government's requirements as providers modernize their networks.


## Program Information

**Component:** Cybersecurity and Infrastructure Security Agency (CISA)

**Acquisition type:** IT

**Acquisition level:** 2

**Key performance parameters (KPP):** 0 out of 7 KPPs met because testing has not yet begun

**Contracting approach:** The Phase 1 program has contracts with major telecommunications service providers to deploy priority access features in their public networks. Phase 2 leverages each service provider's deployment schedule for planned priority services. Supporting contracts are planned for services including systems engineering, technical assistance, and the independent test agent.

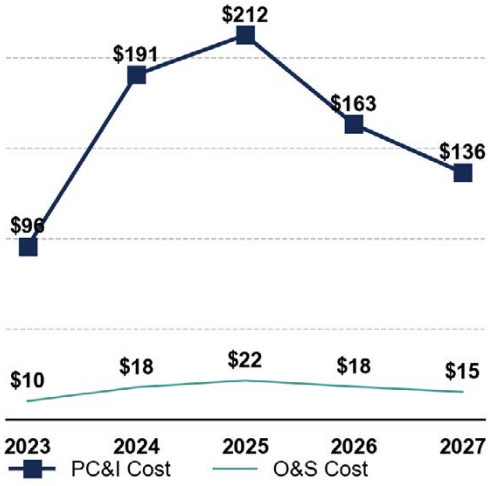
**Next major milestone:** Acquisition decision event (ADE) 2B by December 2024

## Key Findings

- **Cost and schedule.** The Joint Explanatory Statement for the Consolidated Appropriations Act, 2022, provided $47.6 million in additional funding in fiscal year 2022 to accelerate the development and deployment of Phase 2.
- **Performance.** In February 2022, Johns Hopkins University Applied Physics Laboratory, NGN-PS's independent test agent, evaluated cybersecurity and assessed threats to the fifth generation network to bolster the program's future planning efforts.
- **Management.** CISA officials reported that they filled two of NGN-PS's four critical vacancies during 2022. Contractor support is being used to fill gaps when feasible.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# NEXT GENERATION NETWORK PRIORITY SERVICES PHASE 2

## Cost and Schedule Status

In July 2021, NGN-PS Phase 2 initiated the obtain phase and completed key acquisition documents, including a preliminary acquisition program baseline and life-cycle cost estimate. As of September 2022, CISA officials still plan to achieve ADE 2B when the program's initial acquisition program baseline is approved, by December 2024.

The Joint Explanatory Statement for the Consolidated Appropriations Act, 2022, provided an additional $47.6 million in 2022 to accelerate the development and deployment of NGN-PS Phase 2 technologies and services. CISA officials said that some of the funding would be used for development activities conducted by the program's integration contractor to support Phase 2. NGN-PS Phase 2 currently anticipates funding shortfalls for fiscal year 2023 and beyond. However, the program plans to maintain affordability by making requirements adjustments, if necessary, to fit within available funding levels.

## Performance

The program has seven KPPs that focus on data communications, audio/video quality, and meeting user needs. The test and evaluation strategy for Phase 2 builds on the foundation of processes and relationships developed under NGN-PS Phase 1. Specifically, capabilities will be evaluated through development and operational testing conducted by service providers on their own networks with government oversight to verify performance, functionality, and operational readiness. Once operational, acquired capabilities are intended to be transferred to CISA's Priority Telecommunications Services program for sustainment.

NGN-PS currently has four proofs of concept to inform aspects of Phase 2 and lay the groundwork for any planned future phases. These proofs of concept ensure that NGN-PS's priorities are aligned with technological advancements. The current proofs of concept, according to CISA officials, are focused on: (1) interoperability, (2) cybersecurity, (3) alternative networks, technology, and infrastructure to route around damaged network segments, and (4) real time service monitoring.

Johns Hopkins University Applied Physics Laboratory, NGN-PS's independent test agent, will provide analysis and reporting through observations for each witnessed test event, operational assessment reports, a cybersecurity assessment, and periodic operational test strategy updates. In February 2022, Johns Hopkins University Applied Physics Laboratory completed a cybersecurity evaluation and threat assessment of the fifth generation (5G) in support of NGN-PS. The assessment is intended to inform future security work for the program as 5G evolves. According to CISA officials, Johns Hopkins University Applied Physics Laboratory completed a detailed study of 5G security tools and NGN-PS Phase 2 needs in May 2022.

NGN-PS capabilities are an extension to service provider networks, including 5G. These capabilities are susceptible to the threats and risks of these networks, including cybersecurity attacks. CISA officials told us that service providers have proprietary and confidential cybersecurity efforts. As a result, it is difficult for the NGN-PS program to obtain sufficient information on how these providers are implementing cybersecurity processes. To mitigate this challenge, CISA officials are working with service providers to plan cyber tabletop exercises and potentially create a special access program to share sensitive cybersecurity-related information. In addition, these officials said that they would include more cybersecurity requirements in 10-year contracts with service providers, which will start performance in 2024.

CISA officials told us that they have experienced challenges in determining accurate costs for NGN-PS cybersecurity efforts. For example, it is difficult to project costs for cybersecurity activities, which has direct and indirect effects on the ability to plan and execute test and evaluation.

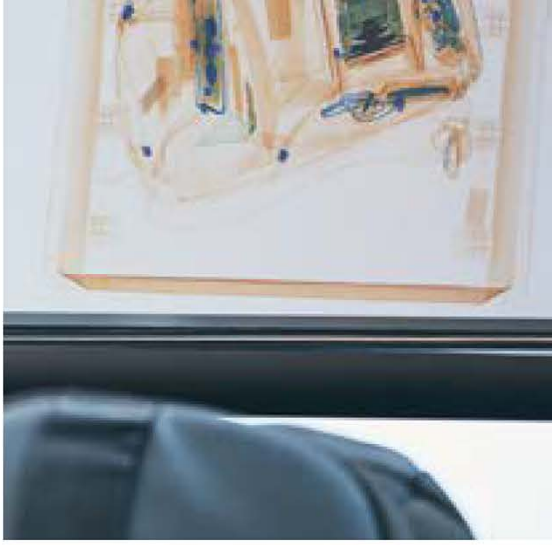
## Program Management

In 2022, CISA officials reported that they filled two of NGN-PS's four critical staffing vacancies, which had included three electronics engineers and one IT specialist. The three engineering vacancies are mitigated with contractor support until the hiring processes are completed.

CISA officials said that Phase 2 development is currently supported by existing NGN-PS contracts. In preparation for the expiration of these contracts and in anticipation of Phase 1 reaching full operational capability (FOC), NGN-PS officials are developing a contracting strategy to support future contract actions. A Phase 2 request for proposal will be published by the end of March 2023, according to CISA officials.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. CISA officials provided technical comments, which we incorporated where appropriate.

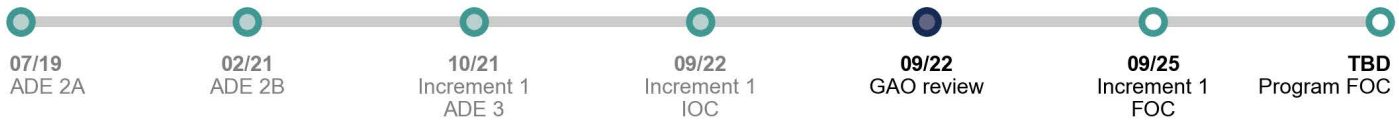


Transportation Security
**Administration**

# Checkpoint Property Screening System

CPSS is to replace aging, two-dimensional Advanced Technology (AT) x-ray machines used as the primary screening system for passenger carry-on items at airport checkpoints. CPSS officials plan to procure 2,263 systems with enhanced capabilities, including computed tomography (CT), which provides three-dimensional imaging and improved detection of explosives, weapons, and other prohibited items. CPSS officials are procuring the systems in four configurations—AT/CT, base, mid-size and full-size—to provide flexibility at airport checkpoint facilities with varying sizes and passenger volumes. The program is currently focused on Increment 1. The total number of increments is unknown.

Source: TSA. | GAO-23-106701




## Program Information

**Component:** Transportation Security Administration (TSA)

**Acquisition type:** IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 4 out of 4 KPPs met

**Contracting approach:** The program is using firm-fixed-price contracts for modified commercial solutions with vendor custom developed software.

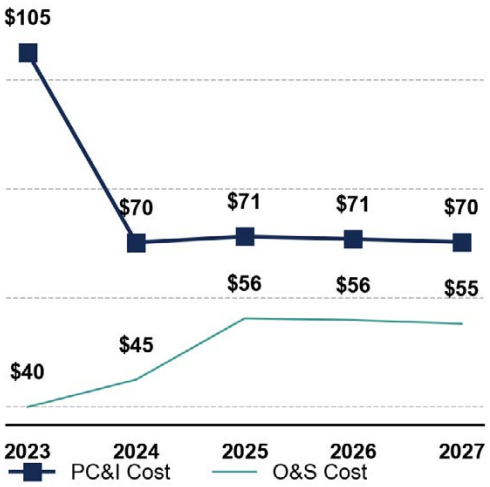
**Next major milestone:** Full operational capability for Increment 1 by September 2025

## Key Findings

- **Cost and schedule.** The program is planning to develop program schedule goals incrementally. CPSS achieved Increment 1 initial operational capability (IOC) in January 2022. As of September 2022, according to program officials, CPSS deployed 473 of 771 systems needed to reach Increment 1 full operational capability (FOC). CPSS officials are planning for Increment 2, which is expected to provide TSA network connectivity to the systems as well as other advantages.
- **Testing.** According to program officials, the program has demonstrated through testing that five systems (one base, three mid-size, and one full-size) have the capability to replace currently fielded systems. However, these configurations have limitations with reliability or throughput. In addition, more testing is needed to assess these systems' cyber resilience.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# CHECKPOINT PROPERTY SCREENING SYSTEM

## Cost and Schedule Status

The overall program schedule for deploying all 2,263 CPSS systems is not yet determined. In January 2022, CPSS achieved IOC for Increment 1, and the program plans to achieve FOC for Increment 1—deployment of 771 systems—by the end of September 2025. As of September 2022, CPSS had deployed 300 AT/CT systems and 173 of 313 mid-size systems.

CPSS officials are planning for Increment 2 system deployment. According to these officials, they are updating the Functional Requirements Document and Integrated Master Schedule, among other documents, so they can obtain feedback from industry.

These officials plan to conduct an additional acquisition decision event (ADE) 3 for each increment to update cost and schedule based on planned quantities and system configurations. The program's life-cycle cost estimate remains nearly the same as last year, at $1.67 billion.

## Performance and Testing

Since 2021, all four KPPs have been met. According to program officials, testing demonstrated that five systems (one base, three mid-size, and one full-size) have the capability to replace currently fielded systems. However, these configurations have limitations. The base configuration fails to meet the CPSS-wide throughput requirement and the full-size configuration fails to meet the required reliability. As a result, according to CPSS officials, a multidisciplinary program team is focused on examining root causes and resolving the systems' failures.

Additional operationally realistic testing is needed to fully assess the system candidates for operational cyber resilience. Based on system-focused vulnerability assessments, they are still vulnerable to insider threats. Testing to date also indicates that these systems will be vulnerable when connected to a network or another system. While Increment 1 systems are not connected to the TSA network, Increment 2 systems are expected to be network-connected and program officials plan to evaluate these systems' cybersecurity to obtain Authority to Operate. CPSS officials told us they conducted an adversarial assessment for mid-sized systems. However, officials do not yet know whether the assessment will apply more broadly to the other CPSS systems. They added that adversarial assessments are resource intensive and require a dedicated team, which presents a challenge for program officials.

## Program Management

Incremental capability enhancements are intended to be deployed throughout the life of the program and are to be driven by both TSA research and development and industry technology readiness. The CPSS program has a process in place to qualify vendors to be eligible for contract awards for systems of the four different configurations that are deemed operationally effective, suitable, and cyber resilient for each increment. Once vendors are deemed qualified, they can compete on solicitations. CPSS officials told us that, as of September 2022, five vendor systems have been qualified thus far.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate.

Source: Idemia. | GAO-23-106701

# Credential Authentication Technology

The CAT system has three functions that together authorize a passenger to enter the protected area of an airport: authenticate a passenger's identity document (ID), confirm a passenger's flight reservation, and verify a passenger's prescreened security status. The program plans to add new capabilities, through upgrade kits to deployed CAT units or new CAT-2 units. These include facial biometric verification to confirm that the presenter of the ID is the person represented by the ID, authentication of digital IDs, and a self-service capability for individuals to present their own IDs. The program is currently focused on Increment 1 of four total increments.


## Program Information

**Component:** Transportation Security Administration (TSA)

**Acquisition type:** IT

**Acquisition level:** 2

**Key performance parameters (KPP):** 0 of 4 KPPs met (KPPs yet to be tested)

**Contracting approach:** TSA expects to procure upgrade kits for deployed base CAT units using a firm-fixed-price delivery order. The program plans to award indefinite-delivery, indefinite-quantity contract(s) for the production of new CAT-2 units.

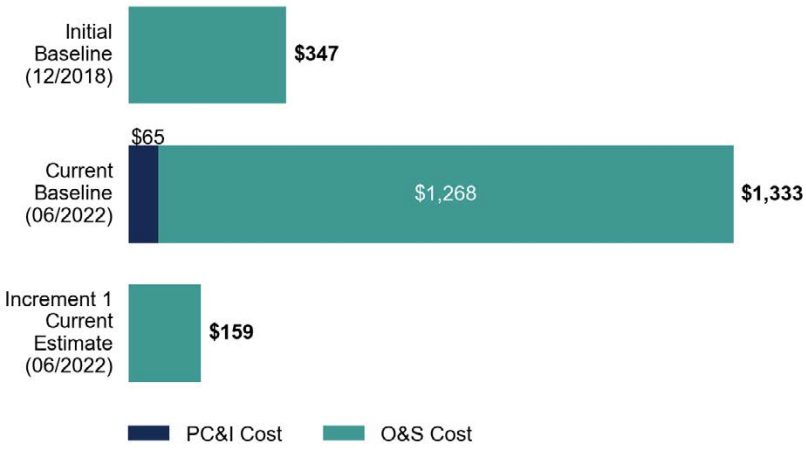
**Quantity:** 3,585 units consisting of 2,054 upgraded units and 1,531 new CAT-2 units

**Next major milestone:** ADE 3 for the CAT upgrade kits is expected to be completed by June 2023

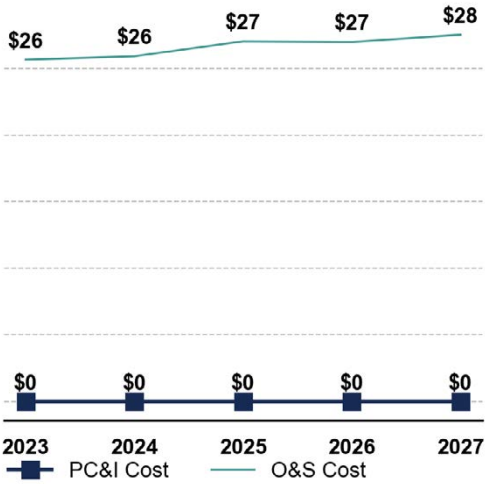
## Key Findings

- **Schedule.** The CAT program revised its baseline in June 2022, increasing the quantity of deployed systems and adding new capabilities to improve performance. Though acquisition decision event (ADE) 3 for CAT-2 upgrade kits was planned for September 2022, program officials told us it was delayed due to kit deficiencies that were revealed in operational testing. The program plans to hold separate ADE 3 events. According to program officials, ADE 3 for the CAT upgrades is planned to occur by June 2023 and for CAT-2 production by June 2024.
- **Performance and testing**. The program added two KPPs to account for the CAT-2 capabilities—(1) biometric error rate (for facial-matching for ID verification) and (2) cybersecurity. Program officials said that the original plan to test the biometric capability in April 2022 did not occur because the system wasn't meeting requirements. Program officials told us they expect the software issues to be resolved and testing to begin again by March 2023.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# CREDENTIAL AUTHENTICATION TECHNOLOGY

## Cost and Schedule

In June 2022, the CAT program rebaselined to add new capabilities, including facial-matching biometrics, to address operational gaps and improve performance. The rebaseline also increased the quantity of deployed systems from 1,520 to 3,585.

The rebaselined CAT program has two concurrent tracks: (1) upgrade the 2,054 base CAT units that are already deployed to the new configuration and (2) produce and deploy 1,531 new CAT units, referred to as CAT-2s. Increment 1 includes both upgraded base CATs and new CAT-2s for a total of 1,377 units. Program officials are prioritizing upgrades for the current CAT units instead of producing new CAT-2s. Therefore, the target in Increment 1 is for mostly upgraded CAT units (1,302) and only a relatively few (75) new production CAT-2s. In accordance with the acquisition program baseline (APB), the specific quantities of upgrade kits and CAT-2 production units are flexible in order to deliver the overall number of systems meeting CAT-2 functional requirements procured during Increment 1.

The rebaseline also included separate ADE 3 events for the base CAT upgrades and CAT-2 production. According to program officials, ADE 3 for CAT-2 upgrade kits was planned for September 2022; however, it was delayed when operational testing revealed system issues in the kits that require resolution. These officials report that ADE 3 for the upgrade kits is anticipated prior to June 2023 and ADE 3 for the CAT-2s by June 2024. Initial operational capability (IOC) for Increment 1 is planned by September 2023.

Increment 1 costs increased from $241 million to $311 million to address increased capabilities and quantities of deployed systems. The costs associated with increments 2 through 4 are expected to be provided with separate APBs.

## Performance and Testing

The CAT-2 capabilities include the addition of a camera and biometrics to capture a photo of the passenger's face and perform biometric verification with the passenger's ID photo (i.e., 1:1 biometric facial-matching) to confirm that the ID holder is the identified individual. This automates and significantly improves upon the facial-matching validation that is currently performed manually.

Transitioning to the CAT-2 capabilities led to the addition of two KPPs—(1) biometric error rate (for facial-matching for ID verification) and (2) cybersecurity. The transition also led to the deletion of the availability KPP, which is now a suitability requirement comparable to the reliability and maintainability requirements in the updated operational requirements document. The ID verification and interoperability KPPs remain and have been updated.

Program officials said that the original plan to test the biometric capability at the end of April 2022 did not occur because the system was not meeting requirements. Several software-related issues were identified that affected operations. Program officials expect the vendor to resolve the issues and the program to begin testing again between January and March 2023 as part of operational testing of the CAT upgrade kits. This testing is expected to also include another upgrade that redesigns the current system configuration to allow for a self-service capability. This capability was developed to reduce disease transmission as a result of the COVID-19 pandemic.

According to program officials, the CAT program plans to complete follow-on operational test and evaluation for REAL ID capability enhancement in fiscal year 2023. These officials told us that they plan to turn on the REAL ID verification capability when enforcement of the REAL ID Act begins.

## Program Management

In 2022, the program filled the vacant Program Manager position. The program plans to procure base unit upgrade kits using a firm-fixed-price delivery order. The program plans to award indefinite-delivery, indefinite-quantity contract(s) for the production of new CAT-2 units. According to program officials, the program plans to award the contract to procure the CAT 2 prototype and test units by March 2023.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. TSA officials commented that TSA continues to explore adding additional capabilities to the technology in future increments and expanding its uses outside of checkpoint security to the overall aviation infrastructure. TSA officials also provided technical comments on a draft of this assessment, which we incorporated where appropriate.

# U.S. **Coast Guard**

# Long Range Surveillance Aircraft (HC-130J)

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

Source: USCG. | GAO-23-106701

**07/12** C-130H/C-130J ADE 2B

**01/14** Coast Guard decision to pursue an all HC-130J fleet

**12/19** Operational testing - new mission system processor

**03/20** Updated HC-130J APB approved

**09/22** GAO review

**09/30** FOC based on accelerated delivery schedule

**09/33** FOC based on DHS approved APB

## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** 7 of 7 met

**Contracting approach:** The Coast Guard is leveraging the Air Force's fixed-price incentive (firm target) contract with Lockheed Martin to acquire HC-130J aircraft.

**Quantity**: 15 of 22 delivered with an additional four on contract.

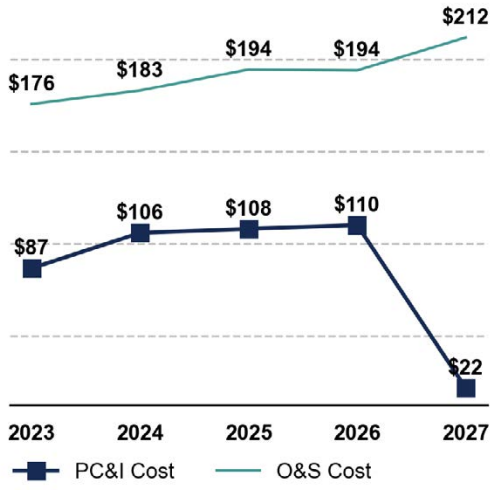
**Next major milestone:** FOC, based on DHS approved APB, planned for September 2033

## Key Findings

- **Cost and schedule.** The program is meeting or exceeding its current cost and schedule goals. Specifically, its April 2022 total life-cycle cost estimate of approximately $16 billion is below the program's threshold baseline of $18.3 billion. Additionally, program officials reported that aircraft are delivering ahead of schedule and expect to achieve full operational capability (FOC) by 2030, 3 years earlier than currently planned. To account for changes in the schedule, the program plans to update its acquisition program baseline (APB) by December 2023. As of August 2022, 15 HC-130J aircraft have been delivered and an additional four are on contract, according to the Coast Guard.
- **Testing.** Coast Guard testing on the HC-130J's new mission system processor was completed as of December 2019. Ongoing acceptance testing occurs as aircraft are delivered, but no additional testing is planned.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# LONG RANGE SURVEILLANCE AIRCRAFT (HC-130J)

## Cost and Schedule Status

The long range surveillance program is meeting or exceeding its baseline cost and schedule goals as of June 2022. The program's most recent acquisition program baseline was approved in March 2020 and reflects the Coast Guard's decision to pursue an all HC-130J fleet rather than continue to extend the service life of its HC-130H aircraft.

The baseline includes a total cost of $18.3 billion. In April 2022, the program provided an updated life-cycle cost estimate that remains under its current baseline despite an increase in the cost per aircraft. Program officials explained that from fiscal years 2018 through 2021, the average cost per fully-mission-ready HC-130J aircraft was $97 million and the average expected cost per aircraft from fiscal years 2022 to 2027 is $113 million. Program officials noted that this type of increase is common in aviation and is the result of an anticipated increase in the average cost per baseline aircraft, as well as mission-specific components for the baseline aircraft.

The program's baseline also provides a full operational capability date—when all 22 aircraft are operational and assigned to Coast Guard air stations—of September 2033, 6 years later than planned under the original baseline. However, as of June 2022, program officials estimate that the program is delivering aircraft approximately 3 years ahead of its current baseline schedule. According to these officials, receiving funding earlier than originally anticipated has allowed for the accelerated schedule. For example, the Coast Guard planned to request funding for the 18th HC-130J in 2024, but sufficient funding was received in 2021 and the Coast Guard reported contracting for the aircraft in 2021.

According to program officials, they are updating the program's acquisition program baseline to reflect these schedule changes and expect to be finished by December 2023.

## Performance and Testing

The HC-130J aircraft has met all original and revised key performance parameters. According to program officials, the aircraft was originally tested against key performance parameters included in the program's 2003 operational requirements document. Since 2003, the Coast Guard has refined these key performance parameters but has not conducted additional testing. Specifically, in March 2019, the program revised five of its seven key performance parameters to better align with existing and emerging DHS and Coast Guard missions. These include expectations for the aircraft's cargo configurations, navigation, interoperability, and detection range. According to program officials, there were no structural changes to the aircraft that would warrant additional testing and the HC-130J continues to meet both the originally tested key performance parameters and the revisions.

The Coast Guard is replacing the mission system processor on its fixed-wing aircraft—the HC-130J, HC-144, and the HC-27J—with a system used by the U.S. Navy and DHS's Customs and Border Protection. This new mission system processor is intended to enhance operator interface and sensor management and replace obsolete equipment. The Coast Guard tested the new processor in December 2019 and found that it was suitable for long range surveillance. The program previously planned to test the processor again on the HC-27J aircraft. Program officials told us they no longer intend to test again as the 2019 results were sufficient.

According to program officials, acceptance testing of each aircraft is occurring at the time of delivery. These officials said they are working to incorporate cybersecurity testing as applicable and to leverage other platforms using the same mission system processor.

## Program Management

As of August 2022, 15 HC-130Js have been delivered with an additional four in production, according to the Coast Guard. All delivered aircraft contain the updated mission system processor.

Additionally, the program is pursuing upgrades to address obsolescence issues, maintain platform commonality, and meet Federal Aviation Administration requirements. These upgrades include enhanced covert lighting and improved public address system. According to program officials, they have three ongoing strategies for completing these upgrades. First, aircraft fielded prior to 2024 plan to have the upgrades installed during normal maintenance periods. Second, aircraft fielding from 2024 through 2026 plan to have the upgrades installed at the same time as the new mission system processor before being used in operations. Third, aircraft delivered in 2027 and beyond plan to have the upgrades installed during production.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment and it provided technical comments, which we incorporated where appropriate. Additionally, the program office stated that the long range surveillance program works with the Department of Defense and the C-130J Joint Users Group to leverage existing contract vehicles, active production lines, and common configurations to deliver assets in a cost-efficient manner.

# Medium Range Recovery Helicopter Sustainment

MH-60T is a multi-mission, medium range recovery helicopter that the Coast Guard uses to fulfill its missions such as search and rescue; and ports, waterways, and drug interdiction. The service life extension program (SLEP) aims to extend the service life of the Coast Guard's MH-60T fleet through the late-2040s by replacing existing aircraft with a mix of converted, retired Navy H-60 aircraft and through procuring new hulls from Sikorsky Aircraft Corporation. According to Coast Guard officials, the MH-60T helicopters began reaching their 20,000 hour service life limit in fiscal year 2021.

Source: U.S. Coast Guard, Petty Officer 3rd Class Joshua Canup. | GAO-23-106701

| 08/20 | 09/22 | 05/23 | TBD | TBD | TBD |
|---|---|---|---|---|---|
| ADE 2A | GAO review | ADE 2B | IOC | ADE 3 | FOC |

## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** 6 out of 6 key performance parameters met

**Contracting approach:** Noncompetitive contract with Sikorsky Aircraft Corporation for new aircraft hulls. Navy hull conversion and new hull integration work will be conducted at the U.S. Coast Guard Aviation Logistics Center in Elizabeth City, NC.

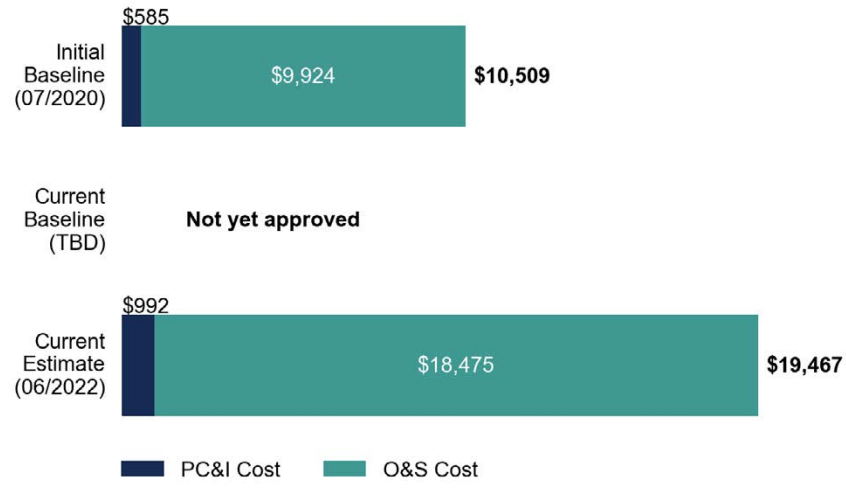
**Quantity:** The program's preliminary APB planned for 45 aircraft. As the program approaches ADE 2B, it is planning to transition to an all MH-60T fleet of at least 127 aircraft.

**Next major milestone:** Acquisition decision event 2B (initial approved APB) May 2023

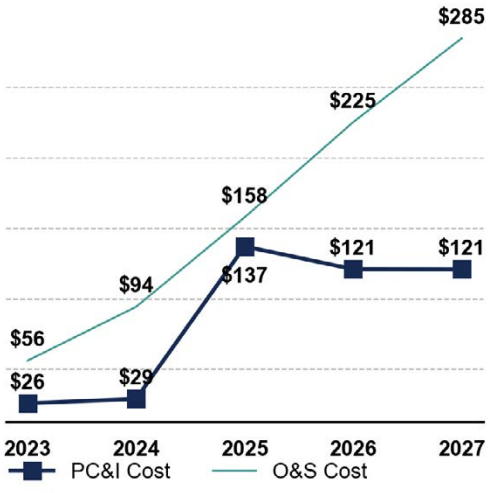
## Key Findings

- **Cost and schedule.** According to Coast Guard officials, the approval date for acquisition decision event (ADE) 2B slipped by 11 months to allow the program time to update acquisition documentation to reflect an expected increase in quantities. Officials further stated that operations and support costs increased by $1.4 billion due to the increased number of new hulls for the SLEP effort. New hulls have increased service life compared to Navy conversion hulls.
- **Testing.** Coast Guard officials reported that cyber resiliency testing is not needed for the MH-60T SLEP effort since it is not introducing new capabilities. DHS's Director of Operational Test and Evaluation has not yet determined if cyber testing is required for the transition to an all MH-60T fleet.
- **Management.** The Coast Guard is planning to expand its MH-60T fleet to a minimum of 127 aircraft to replace the existing H-65 helicopters. The size and cost of the expanded fleet will be determined when the initial acquisition program baseline (APB) is approved in May 2023.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# MEDIUM RANGE RECOVERY HELICOPTER SUSTAINMENT

## Cost and Schedule Status

In July 2020, DHS leadership approved the program's preliminary APB at ADE 2A. The preliminary APB called for replacing 45 MH-60T aircraft through a mix of either converted Navy H-60 aircraft types or new hulls from the original equipment manufacturer as the existing aircraft reach their 20,000 flight hour limit. According to program officials, the Coast Guard delayed the program's milestone for approving ADE 2B by 11 months to May 2023. This delay was to give the program additional time to update acquisition documentation to reflect a larger MH-60T fleet to replace the H-65 helicopter fleet.

Currently, Coast Guard officials anticipate the SLEP effort to consist of 42 new hulls and three converted Navy hulls. Coast Guard officials stated that funding above the Coast Guard's requests enabled the program to purchase more new hulls than anticipated. Between fiscal years 2019 and 2021, the program received a total of $273 million to acquire new hulls. Officials said that new hulls offer greater service life than existing Navy hulls and allow the Coast Guard to operate the aircraft for an estimated 15 years longer than envisioned in the initial cost estimate. This increases the aircraft's end of service life from about fiscal year 2045 to 2059. The Coast Guard reported awarding an indefinite-delivery, indefinite-quantity contract to Sikorsky Aircraft Corporation for the purchase of up to 45 new hulls in January 2021. As of July 2022, 42 new hulls have been purchased under this contract, according to the Coast Guard. The Coast Guard reported that, as a result of the increased number of new hulls for the SLEP effort, the program's total operation and support costs increased from $17.1 billion in the June 2021 cost estimate to $18.5 billion in the June 2022 cost estimate.

## Performance and Testing

The Coast Guard reported that, based on operational data over 25 years, all six of the program's key performance parameters (KPP) are being met by the MH-60T helicopter. The six KPPs relate to endurance, radius of action, cargo capacity, communications interoperability with government and nongovernment partners, navigational accuracy, and reliability.

The Coast Guard has not planned operational testing of the Navy conversion hulls or the new hulls. According to Coast Guard officials, the ground checks and test flight procedures conducted after the sustainment efforts are completed are planned to validate component installations and satisfy all testing requirements. DHS's Director, Office of Test and Evaluation agreed with this approach and program officials stated that the need for operational testing will be reevaluated if the program's scope evolves. Further, Coast Guard officials determined that cyber resiliency testing is not needed since the sustainment efforts are not planned to provide increased capability. However, DHS's Director of Operational Test and Evaluation stated that the need for cyber resiliency testing will be determined in the future.

## Program Management

According to an April 2022 memo, the Coast Guard plans to transition to an all MH-60T helicopter fleet in the future and dispose of all 98 H-65 aircraft. The Coast Guard planned to operate both the MH-60T and H-65 aircraft until the 2030s and align its next helicopter acquisition effort with the Department of Defense's (DOD) future vertical lift acquisition plans. However, the H-65's declining availability and, according to Coast Guard officials, DOD's decision to delay its vertical lift recapitalization efforts, caused the end of service life of the H-65 fleet in 2037 to no longer align with DOD's efforts, creating a potential operational gap.

In a June 2022 memo, DHS granted the Coast Guard approval to begin making infrastructure improvements at the Aviation Logistics Center to build the expanded MH-60T fleet. According to Coast Guard officials, the size of the expanded fleet will be determined by the initial APB, expected to be approved in May 2023. But Coast Guard documentation shows that the fleet could increase to at least 127 aircraft. The Coast Guard is not sure of the mix of new hulls versus Navy hull conversions. According to the Coast Guard, an all MH-60T fleet would provide greater range and endurance and would streamline the Coast Guard's training and logistics. It expects to update the life-cycle cost estimate by March 2023 to account for the expanded MH-60T fleet that will be required to replace the H-65 helicopters. In addition, according to Coast Guard officials, the majority of the fiscal year 2022 budget request of $102.8 million is intended to be used to transition an H-65 air station to MH-60T aircraft.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. Coast Guard officials stated that the SLEP effort and transition to an all MH-60T fleet is planned to maintain the Coast Guard's vertical lift capability and preserve operational readiness until the fielding of a future vertical lift capability. Coast Guard officials also provided technical comments, which we incorporated where appropriate.

# Medium Range Surveillance Aircraft

The Coast Guard uses HC-144A and HC-27J aircraft to conduct all types of missions, including search and rescue and disaster response. The Coast Guard acquired and is upgrading 18 HC-144A and 14 HC-27J aircraft to include a new mission system processor to enhance operator interface and sensor management. All 32 aircraft are twin-engine, propeller-driven platforms with interiors that can be reconfigured to accommodate cargo, personnel, or medical transports as needed. Both aircraft provide the ability to increase time on patrol.

Source: USCG. | GAO-23-106701

- **08/16** Combined aircraft APB approved
- **07/20** Program breach
- **06/22** Program rebaseline
- **09/22** GAO review
- **06/26** HC-27J mission-specific upgrades ADE 2C
- **09/26** HC-27J mission-specific upgrades IOC
- **06/28** HC-27J mission-specific upgrades ADE 3
- **03/32** Final asset delivery/FOC

## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** 7 of 7 met for the HC-144 aircraft; formal testing for the HC-27J has not yet begun.

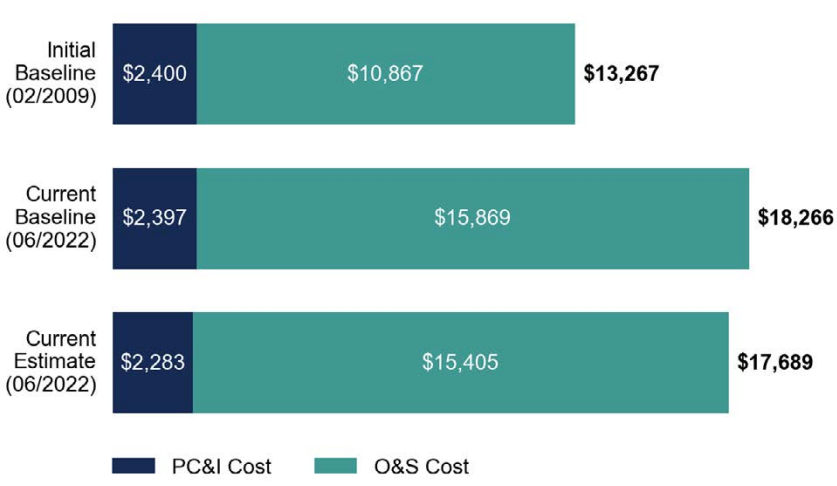
**Contracting approach:** The Coast Guard is using various contracting approaches including partnering with components of the Department of Defense to leverage existing contracts.

**Next major milestone:** Approval for low-rate initial production for the HC-27J aircraft planned by June 2026

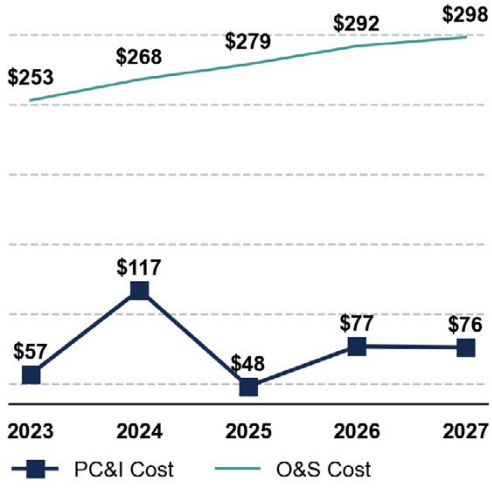
## Key Findings

- **Cost and schedule.** The MRS program exited breach status in June 2022 after declaring schedule breach—specifically related to the HC-27J. In addition, the life-cycle cost estimate for the HC-27J increased by roughly $2.3 billion. According to program officials, this cost growth is attributed to a change in the anticipated service life methodology from 25 years to 25,000 flight hours.
- **Testing.** The Coast Guard successfully completed operational testing for the upgraded HC-144 aircraft in October 2021 and initial operational testing is planned for the HC-27J aircraft in the summer of 2025. Program officials are incorporating cyber requirements for the HC-27J aircraft, but are not required to do so for the older HC-144 aircraft as it is in the deploy phase.
- **Management.** Program officials anticipate a production gap caused by developmental testing of prototype aircraft, but they have built that into the newly rebaselined schedule.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# MEDIUM RANGE SURVEILLANCE AIRCRAFT

## Cost and Schedule Status

In June 2022, the MRS program rebaselined and exited breach status. The program breached its schedule in July 2020, which officials explained was due to contracting delays associated with installing new mission systems on the HC-27J aircraft and finalizing hardware design instructions for production, among other things. As part of breach remediation, the Coast Guard updated two key acquisition documents—the life-cycle cost estimate and the test and evaluation master plan—in August 2021. Additionally, the Coast Guard updated the program's acquisition program baseline (APB) in June 2022, which completed the actions needed to exit breach status.

The revised baseline includes changes to the planned schedule and cost for the HC-27J aircraft only. Specifically, the program's schedule was revised to reach its next milestone, low-rate initial production, by June 2026. In comparison, its 2016 baseline date was December 2021 following mission-specific upgrades for the first four HC-27J aircraft. These changes are expected to shift the program's full operational capability (FOC) 7 years beyond its prior estimate. The revised schedule accounts for time to finalize HC-27J aircraft production designs, test and certify new configurations, and install mission systems.

Additionally, the life-cycle cost estimate for the HC-27J increased by roughly $2.3 billion. According to program officials, this cost growth is attributed to a change in the anticipated service life methodology. The June 2022 baseline changed the HC-27J aircraft's useful life from 25 years to 25,000 flight hours per aircraft. The program reduced the annual flight hours per aircraft to 750 from 1,000 hours, which is intended to allow the aircraft to operate longer. No changes to the HC-144 aircraft's cost or schedule were made in the revised baseline.

## Performance and Testing

As of March 2022, the upgraded HC-144A aircraft—known as HC-144B—has met all key performance parameters. This includes the two key performance parameters related to the detection of targets, and the aircraft's ability to communicate with other assets that were previously unmet. Initial operational testing on the aircraft was conducted in July 2012, with all identified deficiencies resolved in testing that was conducted in October 2021. Additionally, the Coast Guard is replacing the mission system on the HC-144s. The program plans to conduct an operational assessment on an upgraded HC-144B in fall 2022.

Testing for the HC-27J aircraft has not yet begun, according to program officials, since the program is still finalizing the prototype aircraft. Part of this work involves installing a new mission system. The program originally planned to finish installation and inspections of the first HC-27J with mission-specific upgrades in June 2022, but officials told us this slipped to November 2022. Then, the program plans to conduct ground testing on its first flight by June 2023. According to the Director, Office of Test and Evaluation, the program intends to conduct formal initial operational test and evaluation for the HC-27J fleet in the summer of 2025.

According to program officials, since the HC-27J is still in the obtain phase of the acquisition process, they were able to include cybersecurity testing into the 2021 testing and evaluation master plan. This plan includes tabletop cyber exercises, cooperative vulnerability and penetration assessments, and an adversarial assessment scheduled through September 2024.

Unlike the HC-27J, program officials told us that they were not required to incorporate cybersecurity into the HC-144 program as it is in the deploy phase of the acquisition process. That said, program officials noted, they have included cybersecurity requirements for the new mission system. Program officials said that they have not experienced challenges with cybersecurity testing.

## Program Management

As of August 2022, 13 of 18 HC-144A aircraft have been upgraded. According to program officials, each HC-144A conversion takes an average of 303 days to complete and the program employs a dual production line to stay on schedule. As of June 2022, program officials said that the program is scheduled to complete all HC-144A conversions by September 2024.

Additionally, mission-specific upgrades for the first HC-27J are nearing completion. Program officials said they are still in the process of determining how long mission-specific upgrades will take for each aircraft—with their best estimate being 10 to 12 months per aircraft. Program officials anticipate having all HC-27J aircraft mission-specific updgrades completed by fiscal year 2029.

As the first four mission-specific upgraded HC-27J aircraft were approved as the prototypes, program officials said, they will have to finish developmental testing on these aircraft before awarding a contract for the remaining aircraft. Program officials anticipate this will create a production gap, but noted that the schedule included in the June 2022 revised baseline accounts for this delay.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. Coast Guard officials provided technical comments, which we incorporated where appropriate.


# Offshore Patrol Cutter

The Coast Guard plans to acquire 25 OPCs to conduct multi-mission operations including homeland security, law enforcement, and search and rescue operations. The OPC is designed for long-distance transit, extended on-scene presence, and operations with deployable aircraft and small boats. It is intended to replace the Coast Guard's aging Medium Endurance Cutters and complement the operational capabilities provided by the Fast Response Cutters and National Security Cutters. After a 2018 hurricane devastated the shipbuilder's facilities, the Coast Guard split the program into two stages, with stage 1 covering OPCs 1-4 and stage 2 covering OPCs 5-15. The Coast Guard plans to acquire OPCs 16-25 under a separate stage.

Source: ©2016 Eastern Shipbuilding Group, Panama City, FL. | GAO-23-106701


## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** 0 of 6 met

**Contracting approach:** The program awarded the first stage to a shipbuilder in 2016 and included fixed-price incentive (firm-target) line items for the design and construction work. The program awarded the second stage to a different shipbuilder in 2022 after a full and open competition. The stage 1 shipyard filed a bid protest and subsequently withdrew it.

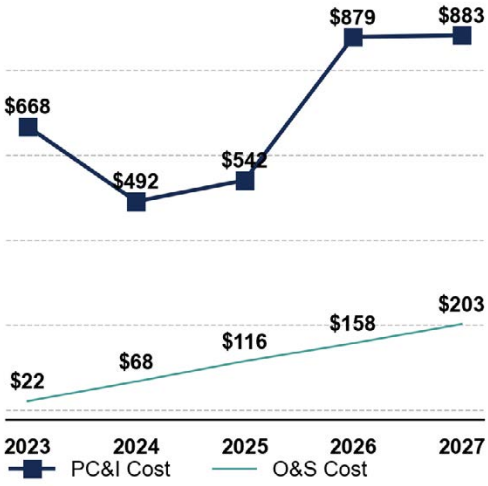
**Next major milestone:** Delivery of the lead ship by June 2023

## Key Findings

- **Schedule.** The program delayed the shipbuilder's delivery of the lead ship to summer 2023 to add scope, shifting some work from post- to pre-delivery. However, according to the Coast Guard, continued challenges with the stage 1 shipbuilder and its subcontractors, including manufacturing errors and testing delays, jeopardize the program's ability to meet the new delivery date.
- **Cost.** Since the award of the stage 1 contract in 2016, the estimated price of the contract increased by 55 percent. The program deemed the specifics on prices as sensitive, so they are not included here. However, about $415 million of the price increase is funded by extraordinary contractual relief granted by DHS as a result of the 2018 hurricane's impacts on the shipbuilder.
- **Management.** The program established cost and schedule goals for the first stage in 2020. According to Coast Guard officials, they began the process for establishing goals for the entire program in 2022. The program has yet to include delivery dates in its baseline schedule goals, as GAO recommended in 2020.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# OFFSHORE PATROL CUTTER

## Cost and Schedule Status

Despite a program restructure and other efforts, OPC still faces significant cost and schedule challenges, including risks of not meeting its new lead ship delivery date of June 2023. In 2018, Hurricane Michael caused extensive damage to the facilities of the program's shipbuilder, Eastern Shipbuilding Group, Inc. (ESG). After determining that it could no longer meet contract terms, ESG requested schedule and cost relief in 2019 for OPCs 1 through 9. In 2019, DHS granted extraordinary contractual relief, authorizing up to $659 million in cost relief to ESG for the first four OPCs (stage 1) pursuant to Public Law 85-804 and directing the program to recompete the requirement for OPCs 5 through 25 (stage 2 and subsequent stages). The Coast Guard also delayed delivery of the first four OPCs in response to ESG's request for schedule relief. In June 2022, the Coast Guard competitively awarded a stage 2 contract for up to 11 OPCs to Austal USA, LLC. Subsequently, ESG filed a bid protest at GAO. In October 2022, the protest at GAO was withdrawn, and ESG has filed a protest at the United States Court of Federal Claims.

Since post-hurricane schedule relief was granted in 2019, the Coast Guard has pushed out OPC delivery dates again. In May 2022, the Coast Guard modified ESG's delivery dates to install weapons systems and radars for OPCs 1 and 2 prior to delivery rather than after delivery, as originally planned. Program officials explained that the modification is intended to deliver the OPCs that are ready for operations faster. OPC 1's delivery date shifted by 10 months, from August 2022 to June 2023, while OPC 2's shifted by 6 months to April 2024. Furthermore, officials stated that the program faces risks in meeting the new delivery dates due to subcontractor manufacturing of shafts that were not to specification. As of August 2022, officials were still assessing the magnitude of the shaft nonconformances and how they would affect delivery dates.

The total procurement cost for all 25 OPCs in the 2022 estimate is $12.5 billion—slightly less than the 2021 estimate. However, since award of OPC's detail design to ESG in September 2016, the target price—which provides the basis for funding on the contract—for design and construction of OPCs 1 through 4 has increased by 55 percent. As of April 2022, about $415 million of the $659 million in extraordinary contractual relief has been obligated for contract cost increases and cash infusion for ESG to maintain production capability.

## Performance and Testing

We previously found that the program had not yet demonstrated a system-level prototype of its single critical technology in an operational environment when it began construction of the first three OPCs. In April 2022, the Coast Guard authorized the start of construction for OPC 4 with the critical technology—a small crane used to launch and recover cutter boats from the side of the OPC—still immature. This increases the risk of out-of-sequence construction and rework, which contribute to increased cost and schedule risk. Coast Guard officials stated that to mitigate these risks, the subcontractor producing the critical technology was to conduct developmental testing in December 2021. However, according to program officials, as of August 2022, the testing had not been completed due, in part, to COVID-19 effects and design delays.

As of August 2022, the program has conducted multiple cyber tests to assess the progress of cyber implementation. The tests resulted in recommendations that the program is addressing, including risks to be formally tracked by the OPC program's cyber team.

## Program Management

DHS approved a revised acquisition program baseline (APB) in March 2020, which established cost and schedule goals for stage 1 of the program and preliminary goals for stage 2. Program officials stated that they are in the process of establishing the stage 2 goals. In October 2020, we found that the program's APB did not include OPC delivery dates as schedule goals. We recommended that the program include delivery dates in the APB for both stages to increase decision makers' visibility into potential delays. However, as of August 2022, the program had not included stage 1 delivery dates in the APB, and the recent delays in delivery dates for OPCs 1 and 2 did not result in schedule breaches. Program officials stated that they were waiting to update both stages at the same time, despite stage 1 having its own APB.

The program reported that, as of June 2022, ESG had completed over 50 percent of construction for OPC 1, over 38 percent of construction for OPC 2, and over 10 percent of construction for OPC 3.

In October 2020, GAO made eight recommendations to DHS and the Coast Guard to address risks identified with the OPC program. As of September 2022, five of the eight recommendations had not yet been implemented. For additional information, see GAO-21-9.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. According to the program office, cost and schedule risks are typical challenges during lead ship construction, and COVID-19 contributed to the risks.

# Polar Security Cutter

The PSC program is intended to assist the Coast Guard in maintaining access to Arctic and Antarctic polar regions. The Coast Guard requires its PSCs to conduct multiple missions, including ice operations, defense readiness, marine environmental protection, and search and rescue. The Coast Guard plans to acquire three PSCs to recapitalize its heavy polar icebreaker fleet, which currently consists of one operational cutter that conducts an annual operation in the Antarctic.

Source: Halter Marine, Inc.. | GAO-23-106701


## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Quantity:** 3

**Key performance parameters:** 0 of 4 met

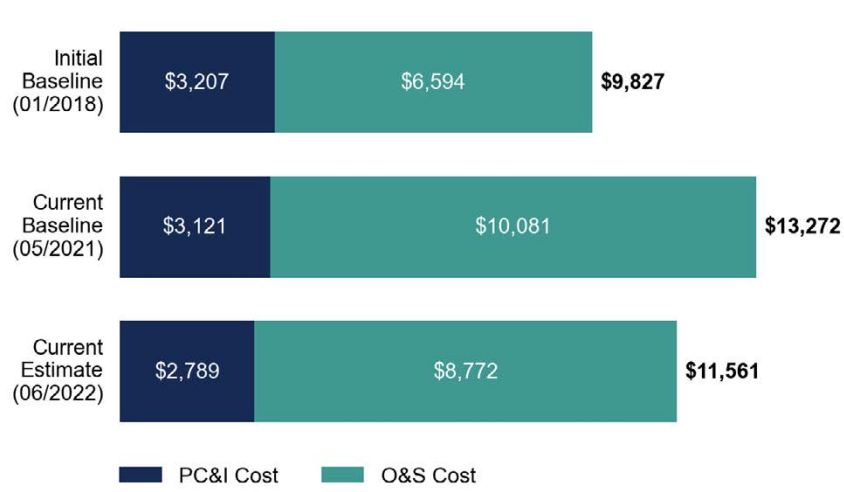
**Contracting approach:** The program awarded a contract to the shipbuilder in 2019 and included fixed-price incentive (firm-target) line items for the design and construction work.

**Next major milestone:** Critical design review by TBD

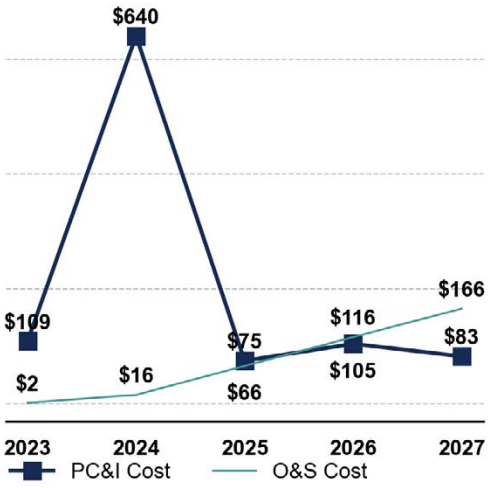
## Key Findings

- **Schedule.** The program no longer considers a May 2025 delivery date for the lead ship realistic. However, the program does not have enough information from the shipbuilder to determine a new delivery date or whether schedule goals will likely be breached.
- **Design and construction.** Design immaturity and the shipbuilder's inexperience working with the specialized steel needed for hull construction remain the program's top risks, according to program officials. To help train the shipbuilder's workforce, the program is planning for an early production phase prior to completion of the design, contrary to GAO leading practices. The critical design review, scheduled for December 2022, will likely need to be postponed given the status of design progress.
- **Management.** Oversight of the program is hampered. The shipbuilder's deficient business systems are not producing reliable accounting, schedule, and cost data. The Coast Guard is working with the shipbuilder to address these challenges.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# POLAR SECURITY CUTTER

## Cost and Schedule Status

In 2021, DHS approved PSC's revised acquisition program baseline (APB), which reflected a delayed schedule and higher life-cycle costs than the previously approved 2018 APB. However, as of August 2022, Coast Guard officials stated that they do not have reliable schedule information from the shipbuilder, Halter Marine, Inc., to determine whether it is likely to breach the schedule goals. For example, the contract delivery date for the lead ship is May 2025, which is 1 year later than initially planned. However, officials stated that May 2025 is no longer realistic because of challenges such as COVID-19 effects and the shipbuilder's inexperience with large government acquisitions. The program does not have enough information to determine and assess a new delivery date until Halter Marine, Inc., develops a new schedule, anticipated by March 2023. The program requested an adjustment to its schedule goals due to the effects of COVID-19 and is awaiting DHS approval.

According to Coast Guard officials, the program's top schedule risks are PSC's design immaturity, Halter Marine, Inc.'s inexperience with shaping the specialized steel needed for the hulls, and Halter Marine, Inc.'s contractor labor challenges. Coast Guard officials stated they are mitigating some of these risks by conducting studies on the specialized steel and planning for an early production phase. This phase will allow the shipbuilder to start constructing up to eight (out of 85) selected modules of the ship deemed to be low-risk prior to completing the ship's design. While this approach is intended to train the shipbuilder's workforce in working with the steel, starting construction prior to completing design is contrary to shipbuilding leading practices identified by GAO. If design changes are discovered after the modules are already constructed, the program may face costly rework and schedule delays.

Coast Guard officials stated that the program's main tool in mitigating cost risks is the contract type for design and construction of the cutters—fixed-price incentive (firm-target) with economic price adjustment. This type of contract provides the shipbuilder with an incentive to control costs.

## Performance and Testing

Design maturity continues to be a top risk identified by the program. Coast Guard officials stated that, as of August 2022, Halter Marine, Inc., had completed about 41 percent of the overall design. The program had planned to conduct a critical design review by December 2022 to further evaluate design maturity. However, Coast Guard officials stated that given the design progress, they will likely postpone the review to anywhere from May to December 2023. Coast Guard officials stated that they do not plan to authorize Halter Marine, Inc., to enter into the early production phase until after an initial critical design review and designs for the selected modules are mature.

Coast Guard officials stated that the program conducted a cyber resilience early operational assessment in May 2022 and deemed the results as sensitive. Coast Guard officials established two working groups to address cybersecurity issues, and cyber risks are managed as part of the program's risk management team.

## Program Management

The Coast Guard established an integrated program office and ship design team with the Navy. The Coast Guard also established a project residence office at the shipbuilder's facility in Pascagoula, Mississippi, to provide oversight of shipbuilding efforts. However, the shipbuilder's deficient business systems are hindering the Coast Guard's oversight of the program. In June 2022, an independent audit found that Halter Marine, Inc.'s accounting system had significant deficiencies that affected the reliability of billing and pricing information produced. Further, in July 2022, an independent compliance review found that Halter Marine, Inc.'s earned value management system had significant deficiencies that hampers the program's ability to monitor cost and schedule progress and develop a reliable schedule. Coast Guard officials stated that they are working with Halter Marine, Inc., to address these deficiencies.

In September 2018, GAO made six recommendations to DHS, the Coast Guard, and the U.S. Navy to address risks identified with the PSC program. As of September 2022, two of the six recommendations remain open. For additional information, see GAO-18-600.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. According to the program office, the PSC is the first heavy polar icebreaker built in the U.S. in over 40 years and will be one of the most complex vessels ever built by the Coast Guard. Program officials stated that they have worked closely with the shipbuilder to mature the design of the ship and mitigate production risk. Officials added that ongoing challenges with supply chain disruptions and COVID-19 have affected this effort.


# Waterways Commerce Cutter Program

WCC is intended to replace the Coast Guard's legacy fleet of construction and river/inland buoy tenders—cutters that support the mission to maintain or repair aids to navigation. These legacy cutters have an average age of more than 57 years. The primary mission for the WCCs is to establish, maintain, and operate aids to maritime navigation on the western rivers and inland waterways. This work supports the flow of economic activity along the nation's waterways. The program developed an acquisition strategy with two distinct segments that will be developed concurrently. Segment 1 will replace the river buoy tenders and inland construction tenders with a nearly common design, and segment 2 will replace the inland buoy tenders.

Source: Gibbs & Cox. | GAO-23-106701


## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 0 out of 5 met (KPPs yet to be tested)

**Contracting approach:** The program is acquiring segment 1 using a small business set-aside procurement.

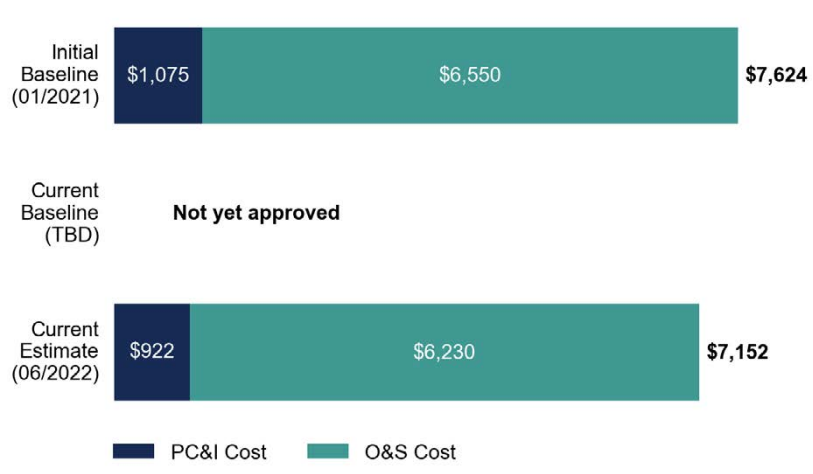
**Quantity:** 30 cutters (Segment 1: 16 river buoy tenders and 11 inland construction tenders; Segment 2: three inland buoy tenders)

**Next major milestone:** ADE 2B (initial approved APB) to be determined

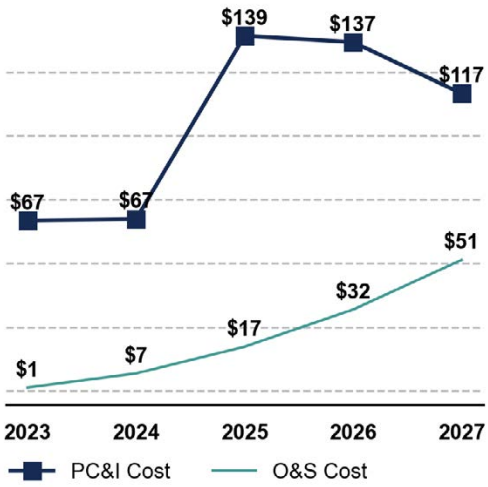
## Key Findings

- **Cost and schedule.** The contract award for the detailed design and construction contract for segment 1 and the acquisition decision event (ADE) 2B milestone have been delayed following a pre-award challenge. ADE 2B was planned to be achieved by June 2023. The program's June 2022 cost estimate remains below the preliminary acquisition program baseline (APB) goals. The initial APB is expected to be approved leading up to the ADE 2B milestone.
- **Performance and testing.** The program plans to achieve initial operational capability (IOC) before adjudicating the full results of initial operational testing. This raises the possibility of rework if testing identifies problems, such as design flaws, on cutters that have already been produced. The Coast Guard plans to mitigate this risk by using the preliminary results from initial testing to inform its initial operational capability decision.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# WATERWAYS COMMERCE CUTTER PROGRAM

## Cost and Schedule Status

In April 2021, DHS approved the program's ADE 2A, authorizing the program to enter the obtain phase of the acquisition life cycle and to set the low-rate production quantity. The Coast Guard took steps to accelerate the program by more than a year following congressional direction in the Explanatory Statement accompanying the Consolidated Appropriations Act, 2018. This acceleration is reflected in the program's objective date for initial operational capability of March 2025. Despite these efforts, the ADE 2B decision has been delayed following a pre-award protest in September 2022 related to the design and construction contract for segment 1. The Coast Guard now expects to achieve ADE 2B in late calendar year 2023 or early 2024. The program's June 2022 cost estimate remains below the preliminary APB goals for the acquisition of the 30 tenders. The program's initial APB is intended to be approved as part of the ADE 2B activities.

Initial operational capability will be achieved following test and evaluation and certification that the first hull of each WCC variant satisfies all key performance parameters, which represent threshold requirements that are essential to perform the aids to navigation mission. Full operational capability (FOC), which will be achieved when all cutters have been fully fielded, is planned for 2032.

## Performance and Testing

The WCC cutters are intended to conduct the same missions in the same geographic regions as the existing legacy fleet. According to program officials, because the WCC cutters will be slightly more capable, it was determined that fewer were needed to meet mission needs. For example, the WCC tenders have a speed threshold requirement of 11 knots and an objective requirement of 13 knots, whereas the legacy tenders have a speed between 10 and 12 knots. The WCC fleet is intended to also have more endurance and deck load capacity, allowing it to cover more distance during a mission.

Program officials said that they plan to conduct initial operational testing on each cutter variant. The preliminary APB states that, to maintain the program's accelerated schedule, initial operational capability is planned to occur before the formal completion of initial operational testing. DHS policy states that operational test and evaluation should be completed to support ADE 3, which is when assets are produced and deployed. If assets are deployed before testing is complete, it raises the risk of potential rework and retrofits. Program officials stated they plan to mitigate this risk by having the program's independent test agent, the Navy's Operational Test and Evaluation Force, provide a brief of the preliminary results once testing is complete. However, this brief will occur prior to completion of the full initial test report, in order to inform the initial operational capability decision.

According to Coast Guard officials, the program plans to conduct a cybersecurity tabletop exercise in fiscal year 2023 that will review the chosen vendor's design for vulnerabilities. The exercise will likely include subject matter experts from the U.S. Navy, among other groups.

## Program Management

The first segment plans to acquire new river buoy tenders and inland construction tenders. Program officials said that these two variants are being designed together because of their similar requirements and to make sustainment more efficient. Officials expect these two designs to have 95 percent commonality, and the primary differences will be the length of the cutters and the working deck equipment onboard. According to program officials, they released a request for proposals in April 2021 for the first segment, and offers were received in August 2021. The program planned to award the detailed design and construction contract by the third quarter of fiscal year 2022. However, after a pre-award challenge, the program postponed the contract award until fiscal year 2023. Coast Guard officials stated that after the pre-award challenge, the planned date for reaching ADE 2B was delayed. The program expects to purchase 16 river buoy tenders and 11 inland construction tenders.

The second segment plans to acquire the inland buoy tenders, which have more unique requirements. The program is working with the U.S. Army Corps of Engineers to develop a Coast Guard specific design for this segment since there is nothing available commercially that meets the Coast Guard's needs. This segment will begin construction after the other two variants so that, according to officials, the program can maximize commonality with the other two variants. The program expects to purchase three inland buoy tenders.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. Coast Guard officials stated that it awarded the segment 1 contract in October 2022, but the start of work was delayed following a bid protest. Program milestones will be updated following resolution of the protest. Coast Guard officials also provided technical comments, which we incorporated where appropriate.


# 270' Medium Endurance Cutter Service Life Extension Program

The Coast Guard's 270' MEC fleet is used for search and rescue, drug interdiction, and other missions. All 13 cutters in the class have reached the end of their original 30-year design service life, and the designated replacement for the MEC is the Offshore Patrol Cutter (OPC). The 270' MEC SLEP is intended to extend the service life of six of the 13 cutters up to 10 years to help close the operational capability gap until OPCs begin operational service. The cutters that undergo the SLEP work are intended to continue operating into the 2030s.

Source: U.S. Coast Guard, Petty Officer 2nd Class Lisa Ferdinando. | GAO-23-106701


## Program Information

**Component:** U.S. Coast Guard (USCG)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 0 out of 6 KPPs met (KPPs yet to be tested)

**Quantity:** 6 cutters

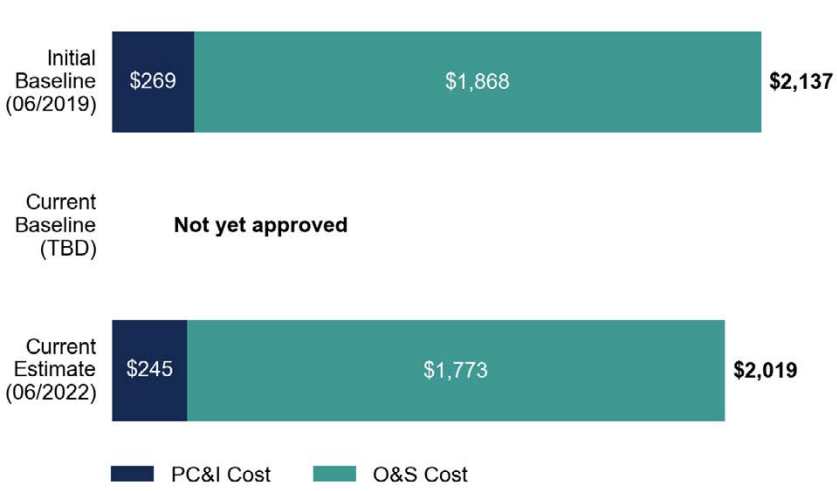
**Contracting approach:** Sole-source contract with the original equipment manufacturer for the main diesel engines. Full and open competition for the initial electrical generation system long lead-time material contract. Both contracts are firm-fixed-price. SLEP work will be conducted organically at the Coast Guard Yard in Baltimore, MD.

**Next major milestone:** Approval for acquisition decision event (ADE) 2C by September 2023

## Key Findings

- **Testing.** The Coast Guard completed the first prototype of the electrical systems (three generators, switch boards, and machinery control system) in April 2022 on the cutter *Seneca* and conducted two different testing periods to assess the new systems. The test report showed that the electrical updates met requirements. Further testing of the gun weapon system, scheduled after completion of the second prototype, is needed. The second electrical prototype hull, *Harriet Lane,* arrived at the Coast Guard Yard in March 2022 and Coast Guard officials expect to complete it by February 2023. The second prototype will receive the same work as the first prototype with the addition of a new weapon system, which will be included on the six cutters undergoing service life extension work.
- **Management.** The Coast Guard is expecting to commence work on the first SLEP cutter by June 2023. In addition to new electrical systems and a new weapon system, the first two cutters will receive new main diesel engines, while the remaining SLEP cutters will receive remanufactured engines.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions

# 270' MEDIUM ENDURANCE CUTTER SERVICE LIFE EXTENSION PROGRAM

## Cost and Schedule Status

The MEC SLEP program is currently meeting its cost and schedule baseline goals established in the initial acquisition program baseline (APB), which was approved by DHS leadership in June 2019 for the combined milestone for ADE 2A/2B. The initial APB calls for the service life extension of six of the 13 270' MECs, which are scheduled to be delivered between 2024 and 2028.

We previously reported that, while the Coast Guard has initiated the SLEP for at least six of the 270' MECs, the program acknowledged there is a high risk that the 270' MECs could experience system failures faster than they can be replaced or repaired. If necessary, the Coast Guard plans to mitigate this risk by adjusting the selection and order of cutters that will undergo the SLEP. In June 2022, Coast Guard officials stated that the six cutters scheduled for the SLEP effort are not experiencing increasing system failures.

The program plans to reach ADE 2C by March 2023, which is 6 months before the APB threshold date. At that time, the first cutter is expected to enter the SLEP process with planned delivery in 2024.

The program's June 2022 cost estimate update shows a $174 million cost increase over 1 year due to rising operations and sustainment costs. However, the overall program cost estimate remains below the initial baseline established in June 2019. According to DHS officials, the Coast Guard plans to update its life-cycle cost estimate at ADE 2C by March 2023.

## Performance and Testing

The 270' MEC SLEP includes the acquisition of two major systems: the main diesel engines and the electrical system, which includes the ship-service and emergency generators. The SLEP will also include structural refurbishment to stern tubes, as well as updating the gun weapon system. The SLEP will not introduce new capabilities and instead targets systems requiring replacement to address reliability, supportability, and obsolescence.

According to Coast Guard officials, the program plans to replace the main diesel engines on the first two cutters with new engines and install remanufactured engines in the remaining four cutters. The Coast Guard awarded a contract for long-lead materials for the engines in December 2020. Coast Guard officials stated that the first remanufactured engine is planned to be installed into the third cutter in fiscal year 2026. To mitigate risk related to replacing the electrical system on the cutters, DHS leadership authorized the program to use two electrical system prototypes. The Coast Guard completed the first prototype in April 2022 and expects to complete the second by February 2023. The production cost of the first prototype exceeded original estimates by 62 percent, which the Coast Guard concluded was due to non-availability of commercial technical data during the estimating process and a lack of experience installing new generators and switchboards on the nearly 40-year-old cutters. There is a risk that subsequent cutters could experience a similar cost increase during production.

The Coast Guard conducted an Operational Assessment in fiscal year 2022 through a tabletop exercise and a review of the electrical systems while the cutter effort was underway. The intent of the review was to assess the upgraded electrical systems and subsystems, among other issues. The test report shows that the electrical system updates met the program's requirements. In addition, Coast Guard officials indicated that the feedback from operators has been positive thus far.

The program plans to demonstrate its six KPP through a series of test events. The program's KPPs are related to speed, endurance, range, boat and helicopter operations, and interoperability with systems from various partners. The test and evaluation master plan, approved in May 2019, calls for operational test and evaluation to begin in fiscal year 2025.

## Program Management

The Coast Guard plans to conduct the SLEP at the Coast Guard Yard in Baltimore, Maryland primarily with a government workforce. To address the uncertainty of the OPC delivery schedule, Coast Guard officials stated the SLEP contracts may provide upgrades for up to all 13 270' MECs, if necessary. According to Coast Guard officials, they have not made a determination regarding the need to expand the SLEP work beyond six cutters, and likely will not do so until after completing initial operational testing in September 2025.

Coast Guard officials stated they do not believe that the current condition of the MECs will necessitate conducting the SLEP activities on more than six cutters. They added that any expansion of the SLEP program beyond six cutters would require an APB adjustment. According to the program's June 2019 APB, the six MECs in the SLEP program have an average unit cost of $44 million.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. Coast Guard officials provided technical comments, which we incorporated where appropriate.

U.S. Customs and
**Border Protection**


# Automated Commercial Environment

ACE is a software that is intended to collect, process, and manage trade data submitted electronically by the international trade community. ACE aims to provide private and public sector stakeholders with access to information required for the release of imported cargo and the clearance of exported cargo to increase the efficiency of operations at U.S. ports and enable faster decision-making. The ACE Core functionality, which established the system for managing trade data, has been deployed. ACE Collections collects and processes duties owed on imported goods and is still being developed incrementally.

Source: CBP and stock.adobe.com. | GAO-23-106701


## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** Information Technology

**Acquisition level:** 1

**Key performance parameters:** 4 of 4 met

**Contracting approach:** The program uses multiple existing contracts for IT services, software development, and sustainment. In 2019, the program awarded a time-and-materials task order to Dev Technology Group for development and operations and support of the Collections software.

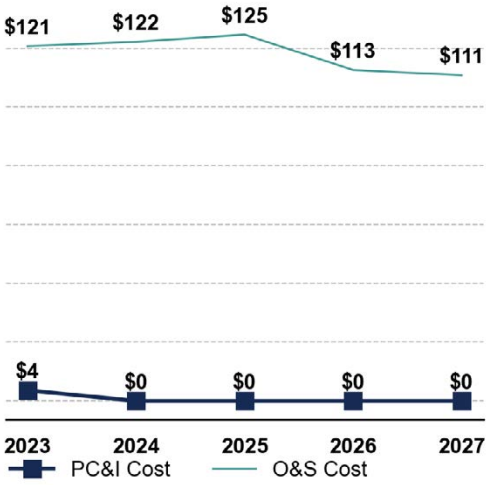
**Next major milestone:** Full operational capability for ACE Collections expected in July 2024

## Key Findings

- **Cost.** In January 2021, the program updated its life-cycle cost estimate to extend the program's life cycle to 2031, but has not yet updated its acquisition program baseline to reflect this change. CBP officials continue to monitor affordability concerns for keeping the system current with the trade community's needs and plan to solicit a competitive contract for operations and support for ACE Collections in 2024.
- **Testing.** In October 2021, the ACE Core functionality was determined to be not cyber resilient. The program is working to address the test agent's recommendations. It expects to reassess cyber resiliency in February 2024, when the program conducts follow-on operational testing for the ACE Collections functionality.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# AUTOMATED COMMERCIAL ENVIRONMENT

## Cost and Schedule Status

In December 2020, DHS approved the Acquisition Decision Event (ADE) 2B for Collections software releases 6-7. These are the last two releases needed for CBP to retire the existing legacy system. ACE has deployed Collections software releases 1-6 and expects to deploy Collections software release 7 before full operational capability (FOC), which is expected to be achieved by July 2024.

The program is funding Collections releases 4-6 with a $15 million transfer from the Technology Modernization Fund, an IT working capital fund, that CBP is required to repay, along with additional funding from CBP to fund release 7. With software releases 6-7, Collections' approved total life-cycle cost threshold is $171 million. The program is monitoring affordability challenges and the potential for an eighth release that would affect future costs. However, release 8 is an enhancement not required to reach FOC and is not included in the program's latest acquisition program baseline (APB).

The program updated the life-cycle cost estimate in January 2021 to extend the program's life cycle from fiscal years 2026 to 2031 to incorporate the program's sustainment strategy. In July 2022, program officials stated that they are updating the APB to reflect changes made to the program's life cycle. According to CBP officials, these updates will enable the program to conduct capability enhancements to existing functionalities such as accommodating trade regulatory changes, among other things.

## Performance and Testing

In October 2021, the test agent determined that the ACE Core program was not cyber resilient and made a number of recommendations to address identified vulnerabilities with the ACE network and systems. In July 2022, CBP officials said that they are addressing the recommendations as they transition to the cloud-based environment under the ACE Collections program and will reassess cyber resilience for the ACE program after the deployment of release 7. In November 2018, DHS's Director, Office of Test and Evaluation (DOT&E) determined that ACE Core functionality met all four of its key performance parameters (KPP)—system availability, providing cargo data for targeting, processing import and export documents electronically, and acting as a single window for trade data—and was operationally suitable and effective with limitations. The test agent determined that all critical operational issues for the ACE Core functionality had been resolved during follow-on operational testing completed in July 2020.

According to CBP officials, operational testing for ACE Collections is planned to begin in February 2024 and will be conducted at various ports of entry. In July 2022, CBP officials said the program, in coordination with DOT&E, decided to conduct operational testing for ACE Collections after the deployment of release 7 instead of release 6, which was later than initially planned. In December 2020, DHS approved a revised operational requirements document (ORD), which was updated to reflect ACE Collections critical operational issues and its planned FOC date. There were no updates to the program's four KPPs, but DOT&E had concerns on how the program plans to evaluate operational effectiveness for Collections since there are no updated testable requirements for this specific functionality in the revised ORD. Furthermore, the test agent will have to rely on interviews with users to determine the degree to which ACE Collections effectively automates collections processing. CBP officials said they will rely on user feedback that is collected during testing after the system is implemented to determine if ACE Collections has effectively automated collections processing.

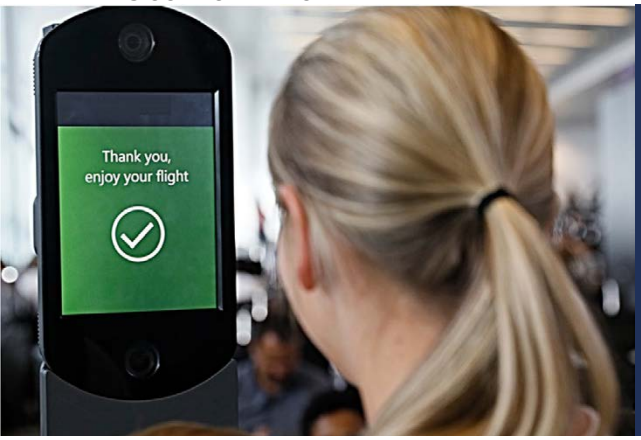
## Program Management

In July 2020, the General Services Administration (GSA) awarded CBP a $15 million transfer from the Technology Modernization Fund for ACE Collections releases 4-6. CBP plans to repay the funds by the end of 2026 from other CBP accounts and with cost savings the program expects to achieve as it shifts from legacy system maintenance to a less costly cloud-based environment. CBP officials meet with GSA regularly to provide reports on the status of the program and alert GSA of any issues.

CBP officials are also tracking and managing program risks related to contracting, among other things. For example, CBP officials stated, in July 2022, that bid protests of the Development and Operations and Maintenance Support contract are still ongoing. In April 2022, CBP officials told us the program increased the ceiling on the bridge contract in order to continue development. In July 2022, officials said they will award a competitive contract in 2024.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate.




# Biometric Entry-Exit

BE-E aims to identify foreign nationals that stay in the U.S. beyond their authorized periods of admission. The program is developing capabilities to match travelers to photos in DHS databases through its Traveler Verification Service (TVS) as they enter and exit the U.S. at air, sea, and land ports of entry. U.S. Customs and Border Protection (CBP) plans to implement BE-E in segments that align with those environments. The program deployed the air segment and is currently focused on the sea segment. For the air and sea segments, the equipment that captures the biometric photo data will be owned and operated through public-private partnerships with airlines and cruise lines. Land segment equipment will be owned and operated by CBP.

Source: CBP. | GAO-23-106701


## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** IT

**Acquisition level:** 1

**Key performance parameters (KPP):** 4 out of 4 met for the air segment. KPPs for the other segments are being developed.

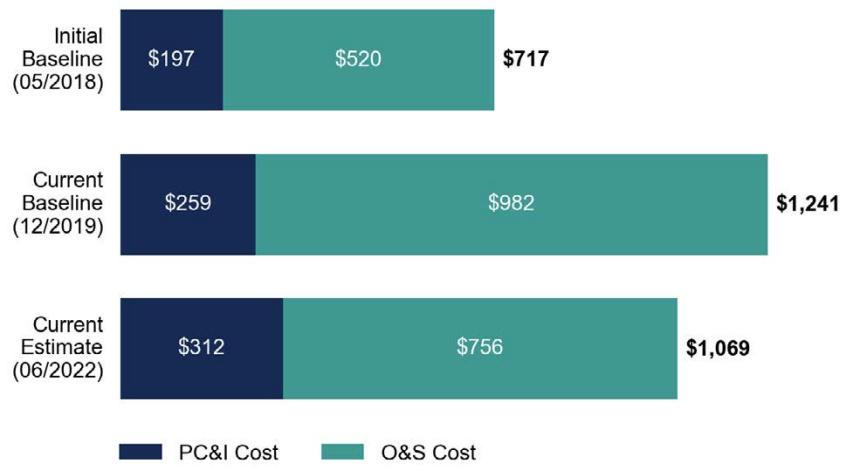
**Contracting approach:** The program has used multiple contracts to procure items and services including IT services, cameras, and identity verification services.

**Next major milestone:** Sea segment combined ADE 2A/3 milestone by the end of calendar year 2023

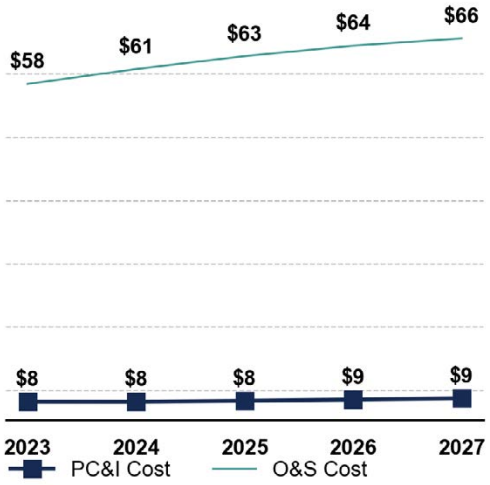
## Key Findings

- **Cost and schedule**. The air segment achieved full operational capability (FOC) in 2021 and the program is working toward a combined acquisition decision event (ADE) 2A/3 for the sea segment. Program officials shared that initial planning for the land segment is underway. The program faces continuing funding challenges due to fewer than expected visa application fees that fund the program.
- **Testing**. The program is in the process of updating its operational requirements document (ORD) to include the sea segment. The program plans to undergo additional testing after addressing previously identified cyber resiliency deficiencies.
- **Program management**. The program continues to use public-private partnerships with airlines and cruise lines at ports of entry to facilitate the program.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# BIOMETRIC ENTRY-EXIT

## Cost and Schedule Status

After achieving FOC for the air segment in July 2021, the program is currently working toward a combined ADE 2A/3 milestone for the sea segment by the end of calendar year 2023, more than 2 years later than the originally planned June 2021 date. The sea segment is using the same biometric matching service used for the air segment and intends to deploy it once all the appropriate acquisition life-cycle documentation is completed and approved. Program officials stated they expect the sea segment to cost less than the air segment because it will leverage the same industry partnership approach and TVS architecture to process entries and exits. Program officials reported that they plan to begin testing to determine which capabilities are needed for the land segment and what the associated costs are. Program officials also stated they expect the land segment to be more expensive than the sea segment based on the need for new equipment and infrastructure.

The program continues to face funding challenges due to fewer than expected visa application fees. Program officials stated that the program was to be funded by fees assessed on new visa applications and renewal applications. In reality, officials explained, the program is only receiving funding from new visa applications because the government is not assessing fees on renewal applications. Additionally, they stated that funding challenges have been exacerbated by COVID-19 and the related travel restrictions, which resulted in fewer new visa applications again in FY 2022. In September 2022, the program estimated that it would receive $26 million to $27 million in funding from fees for FY 2022. This is considerably less than the approximately $115 million per year that was estimated by the Congressional Budget Office to be available for funding. Officials stated that they continue to mitigate these shortfalls through coordination with other CBP officials. However, they stated, affordability may impact the program's schedule goals in the future.

According to program officials, the June 2022 current estimate for the program includes costs for air, sea, and land segments, while the December 2019 baseline only included costs for the air segment.

## Performance and Testing

The program met its KPPs for the air segment and is in the process of updating its ORD to include requirements for the sea segment. Updates to the ORD plan include one new KPP and adjusted threshold and objective rates based on testing conducted for the air segment. As of September 2022, program officials said the ORD was not yet approved. Three KPPs for the sea segment—true acceptance rates, false acceptance rates, and system availability—remain the same from the air segment while interoperability has been added as the new KPP. The true acceptance and false acceptance rates are measures of the biometric matching performance and provide a level of confidence for confirmed crossing records and the identification of imposters. Additionally, the program plans to have six critical operational issues (COI). These COIs help the program assess the system's ability to provide the intended capabilities.

Follow-on operational test and evaluation on the air segment in August 2021 found the program to be not cyber resilient. This testing was done through an adversarial assessment that focused on several internal and external threat scenarios. Program officials stated that the program addressed the deficiencies found in testing and as of July 2022, these have been resolved. In a June 2022 letter of assessment, the Director, Office of Test and Evaluation recommended that the program complete a second adversarial assessment. Program officials said that they intend to conduct this adversarial assessment in early FY 2023 in advance of the ADE 2A/3 milestone for the sea segment to confirm the cyber resiliency of the system.

## Program Management

The program still has staffing gaps that need to be addressed, which it is mitigating by using staff from other areas of CBP. Program officials additionally shared that they try to coordinate with other CBP programs that rely on the same ports of entry to identify efficiencies that can be made, such as by aligning deployment schedules for CBP personnel.

The program continues to use public-private partnerships at ports of entry to run the program. These partnerships with airlines, airports, and cruise lines allow for these private entities to own, maintain, and operate the biometric data capture equipment, while the government maintains the biometric matching service. In September 2022, program officials told us they have received commitment letters from 40 airports and airlines and nine cruise lines for these partnerships.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program provided technical comments, which we incorporated where appropriate.

# Border Wall System Program

BWSP was initiated in response to an executive order issued in January 2017, which stated that the executive branch is to secure the border through the immediate construction of a physical wall on the southern border of the U.S. The border wall system is intended to prevent the illegal entry of people, drugs, and contraband by enhancing existing barriers along the U.S. southern border. The border enforcement zone may also include detection technology, surveillance cameras, lighting, and roads for maintenance and patrolling.

Source: USACE, Defense Visual Information Distribution Service. | GAO-23-106701

## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** DHS leadership approved three key performance parameters for the program—related to preventing unauthorized border crossings, resistance to thrown objects, and maintainability—that apply to all BWSP baselined segments. According to CBP, as segments of the border wall are constructed, U.S. Army Corps of Engineers (USACE) officials validate that the wall meets construction requirements. However, CBP officials stated that operational testing of the constructed border wall system, which includes the integration with related surveillance technologies, was paused in response to the January 2021 presidential proclamation.

**Contracting approach:** BWSP plans to solicit multiple award indefinite-delivery, indefinite-quantity task order contracts. The specific project location will be determined based on availability of funding, Border Patrol requirements, and congressional departmental directives.

## Program Comments

We provided a draft of this assessment to the program office for review and comment. CBP officials provided technical comments, which we incorporated where appropriate.

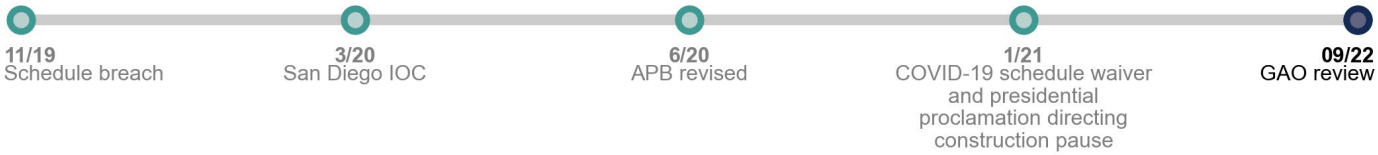
## Key Findings

In July 2022, DHS issued an amendment to its plan, stating its intention to prioritize the expenditure of the fiscal year 2018 through 2021 appropriations received by BWSP. This amendment sets forth the plan to continue addressing safety requirements; identify and address environmental damage from past barrier construction; and install barrier system attributes, such as lighting, cameras, and detection technologies in areas where the Department of Defense (DOD) previously constructed physical barriers.

Specifically, DHS intends to use fiscal year 2018 and 2019 appropriations to continue addressing safety hazards, identify actions to address environmental damage from past barrier construction, and install system attributes. According to the amended plan, DHS will use fiscal year 2020 and 2021 appropriations to close out the projects funded by DOD by, for example, completing construction of roads; installing system attributes; and addressing environmental damage caused by past barrier construction. In January 2021, a new presidential proclamation directed DOD and DHS to pause construction of the border wall and pause the obligation of funds for the wall, to the extent permitted by law. In June 2021, DHS announced its plan to prioritize the expenditure of the remaining funds. According to DHS's announcement, the previous administration planned to spend over $15 billion on wall construction with over $10 billion of those funds provided by DOD from military projects and other sources.

DHS approved acquisition program baselines (APB) for funding received in fiscal years 2018 and 2019, and a preliminary APB was approved by CBP's Component Acquisition Executive for funding received in fiscal year 2020. DHS received $1.375 billion in funding for construction of barrier systems along the southwest border in fiscal year 2021, but has not developed an APB identifying the scope of work. BWSP relies on the integration of related surveillance technologies that are not fully accounted for in the approved APBs, such as the Remote Video Surveillance System and Linear Ground Detection System. In addition, DOD provided support and funding for the construction of barriers and infrastructure along the southern border. USACE has worked on and been reimbursed for the management of border wall system construction activities—including engineering support and assisting CBP with real estate acquisition—for both DHS and DOD funded efforts. Both USACE and CBP have awarded construction contracts.

# BORDER WALL SYSTEM PROGRAM (FISCAL YEAR 2018)




## Segment Information

**Component:** CBP

**Acquisition type:** Non-IT

**Acquisition level:** 1

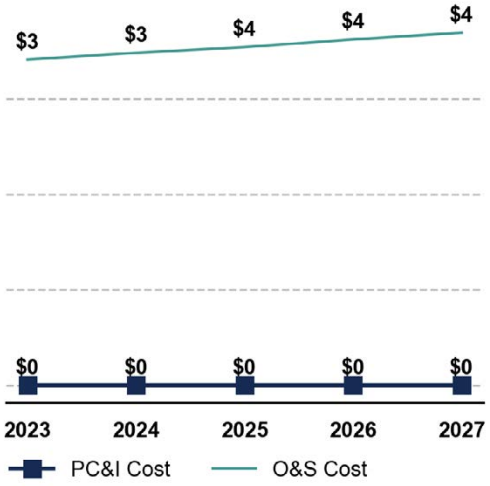
**Baseline goals established**: Approximately 56 miles in the Rio Grande Valley; approximately 11 miles in the San Diego segment. The program achieved initial operational capability (IOC) for the San Diego segment in March 2020 but is not achieving its baseline goals.

## Key Findings

- **Cost and schedule**. As part of breach remediation, CBP conducted a root cause analysis for the fiscal year 2018 segment. Officials said that the program has not yet updated its acquisition program baseline. DHS intends to continue to prioritize the expenditure of the fiscal year 2018 appropriations to address safety requirements and identify actions to address environmental damage from past barrier construction, and to install barrier system attributes, such as lighting and cameras, in areas where a physical barrier was constructed.
- **Program management.** During 2021-2022, the Department of Justice resolved 35 cases through revestment of the condemned property, in which the interest acquired by the United States was revested in the parties that previously had an interest in the property. In addition, the Department of Justice resolved 11 more cases through dismissal. CBP, in coordination with the U.S. Army Corps of Engineers, is finalizing transactions for pending offers to sell land within the Rio Grande Valley, according to officials.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# BORDER WALL SYSTEM PROGRAM (FISCAL YEAR 2019)

**5/19**
ADE 2A/B

**1/21**
Presidential proclamation directing construction pause

**09/22**
GAO review

## Segment Information

**Component:** CBP

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Baseline goals established**: An additional 53 miles in the Rio Grande Valley. The program initially planned to complete construction of the border barrier; provide interfaces for technologies, such as the Remote Video Surveillance System; and achieve full operational capability by March 2023.

## Key Findings

- **Cost and schedule.** The January 2021 presidential proclamation directed DHS to pause the obligation of funds for construction of the border wall system to the extent permitted by law. In response, DHS announced, in October 2021, that CBP, in coordination with the U.S. Army Corps of Engineers, intends to terminate all border barrier contracts located within the Rio Grande Valley segment. DHS intends to continue to prioritize the expenditure of the fiscal year 2019 appropriations to address safety requirements; identify actions to address environmental damage from past barrier construction; and install barrier system attributes such as lighting and cameras, in areas where a physical barrier was constructed, according to the amendment to the DHS Border Wall Plan from July 2022.
- In fiscal year 2019, DHS received $601 million from the Treasury Forfeiture Fund (TFF) for border security. DHS officials stated that since Treasury funds were redirected from other law enforcement purposes, DHS will ultimately return excess funds to the TFF. DHS reported that, as of July 2022, it had returned approximately $455 million in unobligated funds to the Department of Treasury.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions

# BORDER WALL SYSTEM PROGRAM (FISCAL YEAR 2020)

**4/20** Preliminary APB approved

**6/20** ADE 2A

**1/21** Presidential proclamation directing construction pause

**09/22** GAO review

## Segment Information

**Component:** CBP

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Baseline goals established**: Approximately 69 miles of new border wall system construction in the Laredo, Texas sector.

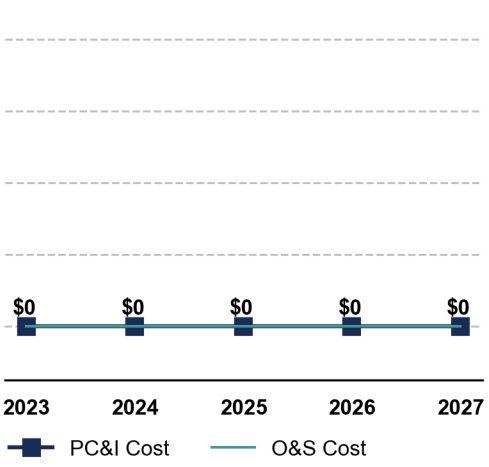
## Key Findings

- **Cost and schedule.** As of July 2022, CBP officials said that the program's life-cycle cost estimate was updated to reflect the cancelation of the construction of 69 miles of barrier in the Laredo segment. In October 2021, DHS announced that CBP, in coordination with the U.S. Army Corps of Engineers, intended to terminate the remaining border barrier contracts located within the Laredo segment.

  In July 2022, DHS issued an amendment to its Border Wall Plan, stating its intention to prioritize expenditure of appropriations received for the barrier system. DHS plans to prioritize the expenditure of the fiscal year 2020 appropriation for two actions in areas where DOD previously constructed barriers with military construction or counter-drug funding, according to the amendment to the DHS Border Wall Plan. First, DHS plans to prioritize remaining project safety requirements, including the construction of roads and site drainage measures, and addressing environmental damage caused by past border barrier construction. Second, it will prioritize the installation of barrier system attributes such as lighting and cameras in these areas.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# Cross Border Tunnel Threat

CBTT is intended to help U.S. Customs and Border Protection (CBP) monitor subsurface activity along the U.S. land border and to detect and remediate cross border tunnels. CBTT is comprised of two underlying projects—Persistent Surveillance and Detection (PSD), which provides continuous subsurface detection capability; and Mobile Detection Tunnel Toolkit (MDTT), which provides enhanced detection capabilities using active sensors selected for the local geology.

Source: CBP. | GAO-23-106701

- **4/20** Persistent surveillance and detection ADE 2A
- **9/22** GAO review
- **3/24** Persistent surveillance and detection IOC
- **9/24** Integrated operational test and evaluation
- **10/24** Persistent surveillance and detection ADE 2B/3
- **12/32** Persistent surveillance and detection FOC

## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** IT/Mixed

**Acquisition level:** 1

**Key performance parameters (KPP):** 0 out of 5 KPPs met for PSD (Testing planned for after the completion of Segment 1).

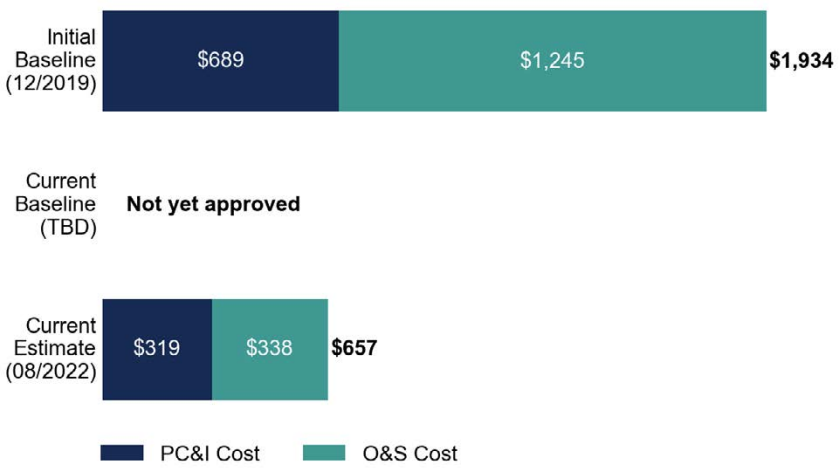
**Contracting approach:** As of 2020, contracts were awarded to three vendors that have the potential to meet persistent surveillance and detection program needs, according to CBP officials and a DHS memorandum. CBTT plans to review the three solutions and select one for award for the full production contract.

**Next major milestone:** Initial operational capability (IOC) by March 2024

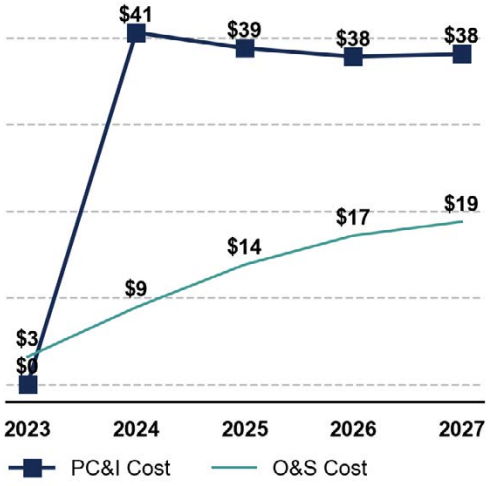
## Key Findings

- **Cost.** CBTT officials made significant changes to the scope of the program in the summer of 2022, both by adding the new MDTT capability and by reducing by 63 miles the length of southwest border to be surveilled at full operational capability (FOC). As a result of these changes, the program revised its cost estimate in August 2022.
- **Testing.** CBTT officials adjusted their testing approach, which is intended to inform the award of the full production contract. These officials said that they are initiating those efforts with 1-year operational use periods for each of the three systems under consideration. Among other things, officials believe this approach will provide better opportunities to collect feedback on the three systems from CBTT's user community.

## BASELINE AND CURRENT ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# CROSS BORDER TUNNEL THREAT

## Cost and Schedule Status

As of August 2022, CBTT officials updated the life-cycle cost estimate to account for significant changes to the scope of the program. Specifically, the program plans to incorporate the addition of the MDTT capability; costs associated with the adjudication and remediation of sites flagged as potential tunnels; and a reduction in the length of southwest border to be surveilled by 63 miles at FOC.

In April 2020, DHS approved initiation of acquisition decision event (ADE) 2A for CBTT's tunnel detection capability—PSD. At that time, DHS leadership also authorized the deployment of PSD technologies along Segment 1, which covers 6 miles of the highest priority sectors of the southwest border, for initial operational capability. DHS leadership noted that further deployments to support FOC—designated Segment 2—would require updates to key program acquisition documents and DHS approval in order to proceed.

CBTT has completed system installation at two locations covering roughly 2 miles along Segment 1 and begun installation at the other locations. As of September 2022, officials expect the remaining 4 miles of installations to be completed by April 2023.

CBTT officials told us that they continue to encounter affordability challenges. As of August 2022, the program is not fully funded and program officials identified a $256 million shortfall over the program's lifetime. The program is mitigating this shortfall by considering a phased approach to reach FOC. The program is flexible and can adjust the program schedule to satisfy funding shortfalls until this milestone has been achieved.

## Performance Execution

In October 2021, CBTT began its first 1-year operational use period at one of the Segment 1 locations to review the effectiveness of the installed system and obtain feedback from users. These efforts are expected to continue at the other Segment 1 locations through at least the end of fiscal year 2023. The program originally planned to take a more traditional test and evaluation approach. Officials explained, however, that the operational use periods provide better opportunities to obtain feedback from users. They also stated that this approach is more cost effective than rigorously testing three systems completely prior to awarding a production contract to only one of the related vendors. A formal test and evaluation approach is still planned to determine the final production system.

CBTT has not yet performed the necessary testing to assess whether the system will reflect the desired capabilities, originally planned to begin in June 2022. CBTT plans to test and validate these capabilities in fiscal year 2024 after the three vendors have completed work on the IOC mileage of 6 miles to inform evaluation of the technologies supporting the award of the full PSD production contract. In its operational requirements document, CBTT's users established five KPPs related to the PSD technologies: probability of detection, ability to detect subterranean activity, locate tunnels, reliability, and cyber resilience. However, in April 2022, CBTT officials told us that they are revising the KPPs to include MDTT.

Program officials told us that CBTT's cyber resilience KPP is intended to allow them to evaluate how the systems would respond in the event of a security breach. CBTT held a cyber tabletop exercise to inform the test strategy for this KPP and more are planned.

## Program Management

CBTT efforts for Segment 1 are contracted to three vendors—two through an interagency agreement with the Army Engineering Research and Development Center and the third through a contract awarded by CBP. During fiscal year 2024, CBTT plans to select one of these vendors to continue the program.

According to CBTT officials, constraints on program funding could cause program delays. In the immediate term, they are taking various actions to mitigate these schedule risks, such as having current staff take on responsibilities for the unfunded positions. For the future, CBTT officials are coordinating with CBP leadership to try to address staffing shortfalls.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. CBP officials provided technical comments, which we incorporated where appropriate.

# Integrated Surveillance Towers

In March 2022, the IST program consolidated four existing surveillance tower systems under a single program structure: Integrated Fixed Towers (IFT); Autonomous Surveillance Towers (AST); Remote Video Surveillance System Upgrade (RVSS-U), legacy towers that were not upgraded; and the Northern Border RVSS (NB-RVSS). IST requires integration with a single common operating picture capability and user interface. Surveillance towers detect items of interest and send surveillance data to the common operating picture through a secure network at a command and control center at a Border Patrol station.

Source: CBP. | GAO-23-106701

- **3/22** IST program of record established
- **9/22** Draft request for proposal released
- **9/22** GAO review
- **9/23** Anticipated contract award
- **3/24** IOC
- **3/34** FOC

## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** IT/Mixed

**Acquisition level:** 1

**Quantities delivered:** AST (195); IFT (50); RVSS-U (149); NB-RVSS (27)

**Key performance parameters (KPP):** 3 out of 3 KPPs met for IFT and RVSS. CBP has not yet tested KPPs for future IST deployments.

**Contracting approach:** IST is establishing a new multiple award contract to procure and deploy surveillance tower hardware, according to CBP officials.

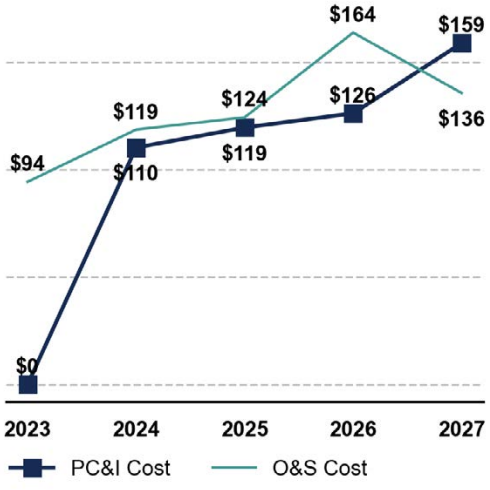
**Next major milestone:** Anticipated contract award by September 2023

## Key Findings

- **Cost and schedule**. IST has funding challenges that may lead to increased risk of obsolescence and nonoperational towers. The program is working to develop an affordable acquisition program baseline.
- **Performance execution**. According to CBP officials, IST is developing its test strategy in coordination with DHS's Director, Office of Test and Evaluation. The program's test plan may address acceptance testing of new solutions, system acceptance testing, and sensor integration testing. IST has taken action to address cyber resilience by planning to have contractors submit security plans for IST systems.
- **Program management**. IST requires integration with the U.S. Border Patrol's Common Operating Picture (COP) program. The IST program is working on strategies to mitigate the potential risk that the COP's software does not integrate with IST's proposed sensor suite solutions.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# INTEGRATED SURVEILLANCE TOWERS

## Cost and Schedule Status

Funding is a risk for the IST program. IST has no new funding as of fiscal year 2023. Without additional PC&I funding, investments would be deferred until fiscal year 2029, at earliest. In addition, CBP officials said that they would continue to request operations and sustainment funding to repair operational towers that fail. IST is responsible for the sustainment of 825 towers, but it is unlikely to sustain them all with the current planned reductions in operations and sustainment funding. Delaying technology refreshes for legacy towers increases the risk of obsolescence and towers being nonoperational.

By the end of September 2022, IST was expected to present an affordable baseline to DHS's Acquisition Review Board that supports future IST deployments and sustainment activities beyond those already approved in the consolidated programs. The IST program manager reported as of September 2022, however, that the program's acquisition program baseline was still in review and the Acquisition Review Board meeting had not been scheduled. According to this official, IST's other acquisition documents are being finalized, including the life-cycle cost estimate.

In March 2022, DHS approved the IST program as a new program of record to consolidate four legacy surveillance tower programs. IST plans to procure and deploy the remaining previously approved deployments, and conduct sustainment for all legacy programs. These deployments have all achieved acquisition decision event (ADE) 3 milestones as of 2021. As a result, IST is considered to be a post-ADE 3 program, according to IST officials.

In May 2022, DHS approved IST's request to purchase up to an additional 67 autonomous surveillance towers with the $62.8 million received by the program in fiscal year 2022. These towers are rapidly deployable, relocatable, and provide reliable short-range radar scanning with renewable power. IST's initial program baseline will include these additional towers because they are beyond the authorized deployments in the legacy autonomous towers program.

## Performance Execution

DHS approved IST's operational requirements document in November 2021. This document does not contain any new requirements or capabilities beyond what was deployed under the legacy programs. IST identifies three KPPs in this document, for detection, availability, and data transmission rate.

IST's test strategy is still evolving. IST officials are in discussion with DHS's Director, Office of Test and Evaluation about developing a test plan for the program. Because IST is expected to be a post-ADE 3 program, according to CBP officials, a test and evaluation master plan is not required. IST plans to conduct testing prior to the acceptance of each of its planned contractors' solution. These tests include system acceptance testing with the COP software and sensor integration testing, among others.

IST has taken steps to address cyber resilience. Each of IST's contractors plans to submit a system security plan to implement and maintain security controls of IST systems. These plans provide the information needed for an authorizing official to render a security accreditation decision for IST systems.

## Program Management

DHS officials said that IST is in the process of establishing a new multiple award indefinite-delivery, indefinite-quantity contract vehicle to support IST hardware procurement and deployment. CBP officials said that the contract request for proposal is planned for final release by December 2022, and contract award is anticipated by September 2023. CBP officials reported that they plan to use $5 million in available prior year funding to fund the base award of the contracts in fiscal year 2023.

The IST program requires integration with the COP program. IST will transmit item of interest data to the COP, where operators will classify the threat level and communicate with Border Patrol agents so they respond accordingly. IST program officials are working in collaboration with COP officials to ensure that the COP program will be interoperable with IST systems. There is risk that if the COP's software does not integrate with IST's proposed sensor suite solutions, the IST tower deployments will be delayed. As an alternative, IST may incorporate an option in the program's new contract with vendors' solutions to address any integration issues. DHS's Acquisition Review Board requested that COP integration milestones be included in IST's acquisition strategy going forward.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. CBP officials provided technical comments, which we incorporated where appropriate.

# Medium Lift Helicopter

U.S. Customs and Border Protection (CBP) uses MLH for law enforcement and border security operations; air and mobility support and transport; search and rescue; and other missions. CBP's MLH fleet consists of 35 aircraft acquired from the U.S. Army in three different models (UH-60A, UH60-M, and HH-60L). CBP previously acquired four modern UH-60M aircraft and converted six of its 16 older UH-60A aircraft into more capable UH-60L models. CBP is also acquiring 15 reconfigured Army HH-60L aircraft to be converted into the UH-60L model and pursuing a replacement solution for the remaining 10 UH-60A.

Source: CBP. | GAO-23-106701


## Program Information

**Component name:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** Non-IT

**Acquisition level:** Level 1

**Key performance parameters:** 5 of 5 met

**Contracting approach:** The program has an interagency agreement with the Army to convert aircraft and provide logistical and sustainment support for the entire fleet. All Army awarded contracts in support of the MLH program are cost-plus-fixed-fee.

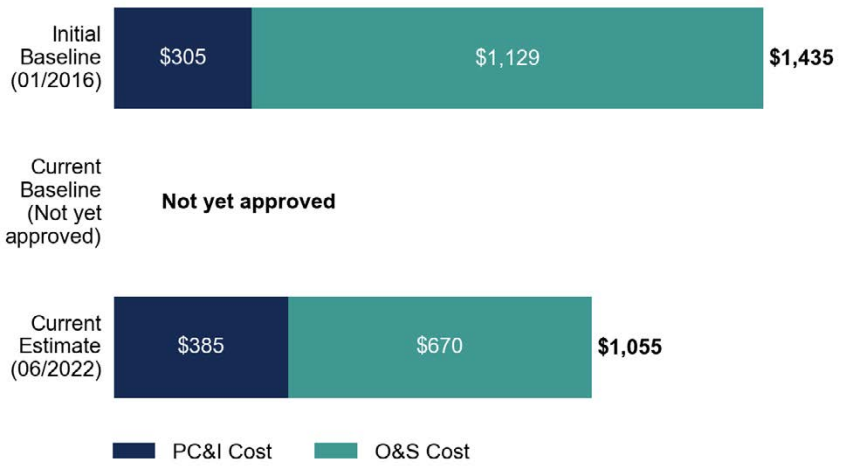
**Quantity:** The program is revising its APB to increase quantity from 20 to 35 aircraft.

**Next major milestone:** DHS approval of the program's rebaselined cost and schedule goals to support the increased quantity of 35 aircraft is expected in September 2022

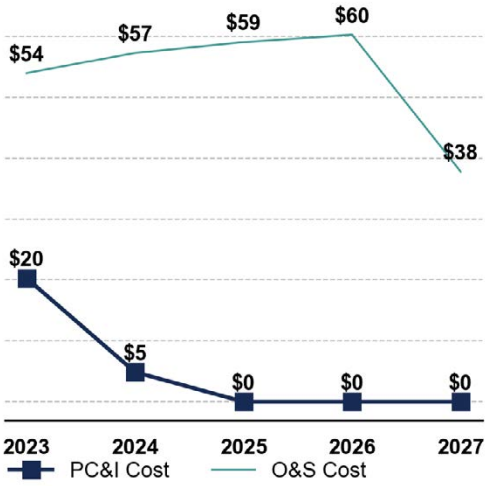
## Key Findings

- **Cost**. In January 2022, DHS approved the program's request to modify the baseline aircraft quantity from 20 to 35 aircraft. The program is updating its life-cycle cost estimate, acquisition program baseline, and other key acquisition documents to demonstrate that its rescoped baseline of 35 aircraft is affordable.
- **Schedule.** Delivery of the remaining reconfigured Army HH-60L aircraft, approved in 2018, is delayed due to supply chain issues and engineering and design changes. The program will not declare a schedule breach because it is already in the process of rebaselining, but plans to include schedule remediation plans in its updated acquisition documentation.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# MEDIUM LIFT HELICOPTER

## Cost and Schedule Status

As of September 2022, the program was awaiting DHS approval of its revised acquisition documentation to formally rebaseline the program's full operational capability (FOC) quantity from 20 to 35 aircraft. DHS leadership approved the new FOC quantity in January 2022 and directed the program to update its key acquisition documentation to reflect the affordability of this increased baseline. DHS subsequently approved CBP to transfer up to 23 UH-60s from the Army to replace the program's 10 aging UH-60A aircraft in its inventory, which CBP plans to use for spare parts as of February 2022. This decision aligns with an April 2021 fleet mix study that CBP commissioned to determine an optimal strategy to achieve a FOC quantity of 35 aircraft. To achieve this increased quantity, CBP plans to convert 15 HH-60L aircraft from Army into the UH-60L model and to replace the 10 aging UH-60A aircraft in addition to the 10 previously acquired aircraft (four UH-60M and six UH-60A converted into the UH-60L configuration).

In July 2018, DHS leadership granted approval for the program's acquisition decision event (ADE) 3. Specifically, this allowed MLH to replace CBP's remaining 10 UH-60A aircraft with reconfigured Army HH-60L aircraft on a one-to-one basis for conversion to UH-60L models, but temporarily relieved the program from removing the UH-60A aircraft from its inventory in August 2020. As of September 2022, the program has accepted delivery of five of these reconfigured aircraft, but supply chain and design changes delayed the delivery of the remaining aircraft. The program plans to receive the 10th converted aircraft by March 2023, which exceeds the program's approved FOC milestone of September 2022 in its current baseline. The program notified DHS leadership of these delays and CBP officials told us they will not declare a schedule breach after coordinating with DHS because the program is rebaselining to increase its FOC quantity from 20 to 35 aircraft. The program's revised acquisition documentation is intended to address schedule remediation activities for the delivery of remaining reconfigured HH-60L aircraft.

## Performance and Testing

CBP determined that the converted UH-60L and UH-60M aircraft met all five of the program's key performance parameters through operational testing conducted in fiscal years 2012 and 2014. However, DHS's Director, Office of Test and Evaluation did not validate these results because UH-60 was not considered a major acquisition program when the tests were conducted. The program's key performance parameters relate to interdiction; transporting of persons and equipment; and conducting search and rescue missions.

In January 2016, DHS leadership directed the program to conduct acceptance functional flight checks on a reconfigured HH-60L to UH-60L model prototype prior to receiving approval to proceed replacing the remaining UH-60A aircraft. This testing concluded in February 2018 and identified one issue, which CBP officials said a minor design change resolved, resulting in DHS's approval to replace the remaining seven UH-60A aircraft. A retrofit was completed on the initial HH-60L, and the design change will be implemented on subsequent aircraft. CBP officials noted that pilots will perform additional inspections prior to accepting all future reconfigured aircraft. In June 2021, CBP officials told us that delivery of the fourth and fifth reconfigured HH-60L aircraft was delayed by up to 3 months to account for required engineering and design changes that were identified during acceptance testing of the second and third aircraft. In December 2021, the program identified that these engineering and design changes were also required on the sixth through 10h reconfigured HH-60L aircraft, resulting in additional delivery delays.

CBP does not plan to conduct formal operational test and evaluation on the reconfigured HH-60L because, according to CBP officials, the aircraft has minimal differences from the converted UH-60L aircraft that was previously tested by the Army. Similarly, in August 2022, CBP officials said they do not plan to conduct additional cybersecurity testing for the reconfigured aircraft because the Army already conducted cybersecurity testing on these platforms.

## Program Management

CBP previously acquired UH-60 as a part of its Strategic Air and Marine Program (StAMP). In July 2016, DHS leadership designated UH-60 as a separate and distinct major acquisition program. In October 2018, CBP officials told us they continue to maintain a consolidated program office where the same staff from StAMP support all remaining acquisitions, including MLH. In August 2022, CBP officials said they are working to fill a cost estimating personnel gap but they are leveraging matrixed staffing support across like programs through CBP's Office of Acquisitions.

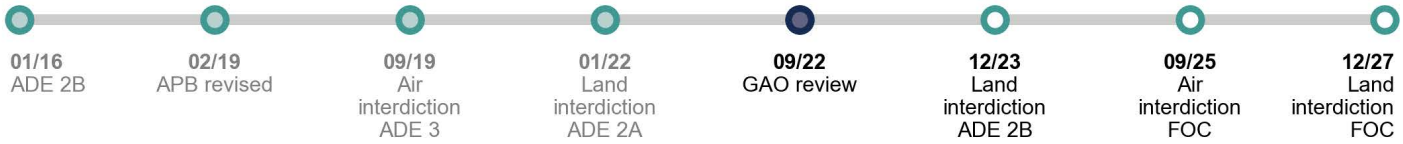
## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate.

# Multi-Role Enforcement Aircraft

MEA are fixed-wing, multi-engine aircraft that can be configured to perform multiple missions, including maritime, air, and land interdiction as well as signals detection to support law enforcement. MEA are equipped with search radar and an electro-optical/infrared sensor to support maritime surveillance and airborne and land tracking missions. MEA are being acquired in four different configurations, each with their own acquisition milestones. MEA is intended to replace U.S. Customs and Border Protection's (CBP) fleet of aging C-12, PA-42, and BE-20 aircraft.

Source: CBP. | GAO-23-106701




## Program Information

**Component name:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** Non-IT

**Acquisition level:** 1

**Key performance parameters:** MI: 5 of 5; AI: 2 of 2; LI: 0 of 4 met

**Contracting approach:** In 2009, the program awarded a contract to Sierra Nevada Corporation to build the maritime interdiction (MI) and AI aircraft. The program awarded a single-award indefinite-delivery, indefinite-quantity contract to Science and Engineering Services for production of the LI aircraft in September 2022.

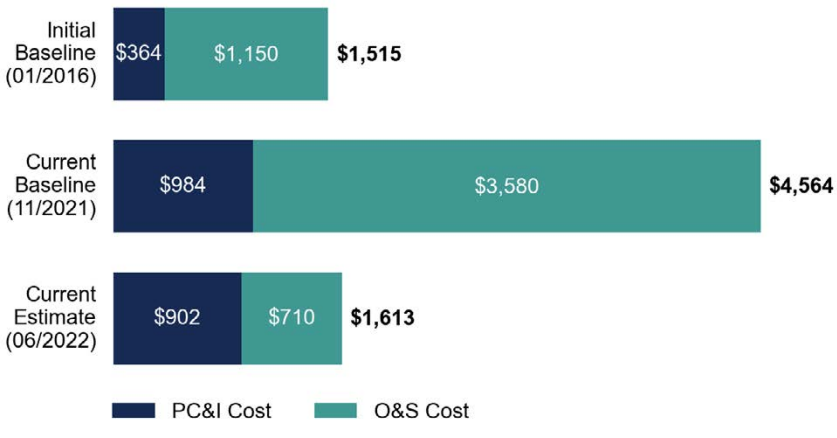
**Quantity:** The program's revised APB increased baseline quantity from 29 to 35 MEA.

**Next major milestone:** ADE 2B in 12/2023

## Key Findings

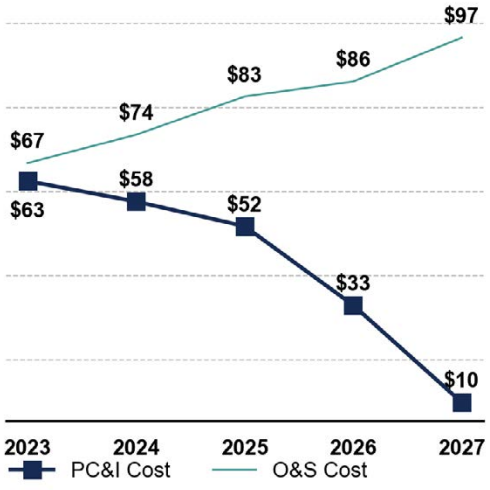
- **Schedule.** The MEA program received acquisition decision event (ADE) 2A approval for six land interdiction (LI) aircraft in December 2021 and released a draft request for proposal for the LI configuration in January 2022. The program awarded the LI contract in September 2022. In addition, 10 of 13 air interdiction (AI) aircraft have been delivered with full operational capability planned for fiscal year 2025.
- **Testing.** A December 2021 technical assessment recommended that the program improve its risk management processes and document how the sensors and mission system are integrated into the aircraft to inform requirements and system design for the LI configuration. Further, the program completed classified cybersecurity testing for the AI aircraft and shared results with CBP and DHS officials to address cyber security and cyber resilience concerns.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




Note: According to program officials, the current baseline is preliminary.

## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# MULTI-ROLE ENFORCEMENT AIRCRAFT

## Cost and Schedule Status

In November 2021, DHS leadership approved the program's revised acquisition program baseline (APB), which included six LI aircraft in addition to the previously approved 13 MI and 13 AI aircraft, for a total of 35 MEA. DHS leadership subsequently granted the program ADE 2A approval for the LI configuration, authorizing the program to award the production contract and procure up to three of the six approved LI aircraft. As of August 2022, CBP officials confirmed that the program accepted delivery of 10 AI aircraft and anticipates delivery of the remaining three by March 2023, with full operational capability planned for fiscal year 2025.

In June 2022, DHS released a request for proposal for the LI configuration. The program awarded a single award indefinite-delivery, indefinite-quantity contract to Science and Engineering Services in September 2022.

The program updated its life-cycle cost estimate in May 2021 to include the preliminary costs for the addition of the LI aircraft. There is a funding shortfall between the program's budget and cost estimate, but the program plans to use funding from previous fiscal years that remained available for obligation, known as carryover funding, starting in fiscal year 2023 to ensure affordability. CBP plans to establish mandatory cost and schedule baselines for the LI configuration in preparation for ADE 2B, which is expected to occur by December 2023.

## Performance and Testing

In April 2016, CBP identified capability needs in three additional mission areas and proposed increasing the program's quantity from 16 MI aircraft to include additional configurations. The Joint Requirements Council (JRC) endorsed CBP's findings but recommended that CBP develop a number of requirements documents for each. In response, CBP developed an operational requirements document in 2019 to include 13 AI aircraft, and another in 2020 to include six LI aircraft. The JRC validated the documents in December 2018 and February 2021, respectively. In April 2022, CBP officials stated that they plan for the requirements for the signals detection aircraft to be completed in fiscal year 2025.

The program previously met all five of its key performance parameters (KPP) for the MI configuration related to interdiction, air mobility, and mission system integration and operation. The program established two additional KPPs for the AI configuration, which have been met, and four additional KPPs for the LI configuration related to radar detection. The program is tracking moderate risks related to land radar performance and integration of the mission management system with contractor furnished aircraft, including sensors and equipment. CBP officials said they will assess vendors' radar performance during source selection and plan to work with the mission system owner and the winning LI vendor to minimize integration risks.

The program initiated a two-phased follow-on operational test and evaluation (OT&E) effort in May 2019. During the first phase, the program demonstrated that it met the two AI KPPs. The second phase of OT&E is intended to assess cybersecurity. CBP officials told us that they completed a threat assessment for the program in 2020 and completed additional cybersecurity tests on the AI aircraft in 2021, but the results have not been released. According to CBP officials, they implemented several cybersecurity actions from this testing and re-tested the AI aircraft in summer 2022, but the resulting report has not been released.

In December 2021, DHS Science and Technology (S&T) conducted a Technical Assessment to inform the ADE 2A decision for the LI configuration. S&T recommended that the program prioritize and improve its risk management processes; document how the sensors and mission system are integrated into the aircraft to better inform requirements and system design; and trace operational requirements to capability gaps to ensure solution capabilities address mission needs.

## Program Management

In August 2022, CBP officials said they are taking action to mitigate staffing gaps. For example, officials told GAO that they are working to hire a cost estimator and fund additional engineering, program management, and logistics positions. Officials also stated that they are leveraging staff from other offices within CBP, as needed, to mitigate staffing gaps in other areas. Although CBP previously acquired MEA as a part of its Strategic Air and Marine Program (StAMP), DHS leadership designated MEA as a separate and distinct acquisition program in July 2016. In October 2018, CBP officials told GAO that MEA remains a consolidated program office where the same staff from StAMP support all remaining acquisitions, including MEA.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate.


# Non-Intrusive Inspection (NII) Systems and NII Integration Programs

NII Systems provides an effective and nondestructive means to detect and prevent illegal entry and exit into the U.S. while allowing the legitimate flow of travel and commerce. U.S. Customs and Border Protection (CBP) uses large- and small-scale NII units at air, sea, and land ports of entry to examine containers, railcars, passengers and other items. The units are imaging systems used to penetrate large conveyances such as railcars or small conveyances such as luggage. NII Integration is intended to help CBP integrate existing and future NII units into CBP's network, and includes air, sea, and land segments.

Source: CBP. | GAO-23-106701


## Program Information

**Component:** U.S. Customs and Border Protection (CBP)

**Acquisition type:** Mixed (IT/Non-IT)

**Acquisition level:** 1

**Key performance parameters (KPP):** NII Systems, 3 out of 3 met. NII Integration, 0 of 4 met (testing has not begun).

**Contracting approach:** NII Systems uses firm-fixed-price contracts to procure proven capabilities. NII Integration issued a request for information (RFI) in fiscal year 2022 to inform future acquisitions.

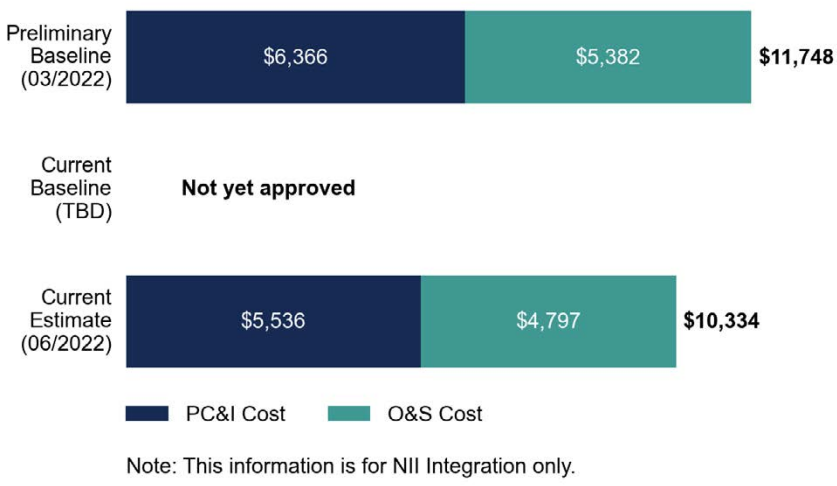
**FOC quantities:** 4,879 small scale units, 405 large scale units.

**Next major milestone:** NII Integration ADE 2B planned for March 2025

## Key Findings

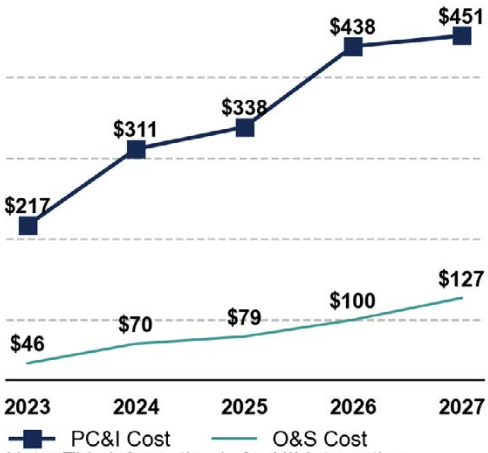
- **Cost and schedule.** NII Systems achieved full operational capability (FOC) in April 2022 and, in September 2022, NII Integration achieved acquisition decision event (ADE) 2A, according to program officials. Program officials also stated that the ability to meet future milestones will depend on future funding.
- **Cybersecurity.** NII Integration is working on the inclusion of cybersecurity activities while early in the acquisition life cycle.
- **Program management.** The program still faces staffing gaps but is mitigating the issue with matrixed staff and contractor assistance.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




Note: This information is for NII Integration only.

## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions




Note: This information is for NII Integration only.

# NON-INTRUSIVE INSPECTION (NII) SYSTEMS AND NII INTEGRATION PROGRAMS

## Cost and Schedule Status

NII Systems achieved FOC in April 2022 after a March 2021 baseline adjustment to the quantity of units deployed to meet user needs. Starting in fiscal year 2023, NII Systems plans to begin the transition to sustainment.

According to program officials, NII Integration achieved its ADE 2A milestone in September 2022, 7 months later than the February 2022 date previously estimated by program officials. Program officials explained that the delay was mainly due to the validation of key acquisition documents taking longer than expected. Moving forward, the land/rail, sea, and air segments plan to follow separate paths for development and implementation of their respective solutions and each intends to have its own ADE 2B and ADE 3 milestones.

The NII Systems life-cycle cost estimate includes costs that were needed to bring NII Integration to ADE 2A. Program officials shared that NII Integration's ability to meet future milestones will depend on the funding it receives in coming years and the schedule may have to be adjusted.

## Performance and Testing

Program officials stated that NII Systems continues to meet its three program level KPPs, which include inspection rate, examination, and operational availability. NII Integration completed its operational requirements document (ORD) in September 2022. The ORD has four KPPs, with two focused on transmission of data, one on the rate of scans, and one on cyber resiliency. Additionally, NII Integration has four critical operational issues (COI), which the program plans to examine during operational testing and evaluation. These COIs cover processing requirements for support of the mission, timely sharing of information, operational suitability, and cybersecurity.

Both NII Systems and NII Integration are making efforts to address cybersecurity activities laid out in DHS Instruction 102-01-012 based on where they are in the acquisition life cycle. Officials stated that since the NII Systems program is post ADE 3, cybersecurity efforts are limited to the completion of an annual cybersecurity assessment and the 3-year authority to operate renewal process. By contrast, NII Integration is implementing cybersecurity activities outlined in the instruction for programs at ADE 2A, which include a cyber resiliency KPP, updates to the Risk Assessment Report, and a Cybersecurity Risk Recommendation Memo. NII Integration intends to conduct cyber resiliency testing that will include a cyber tabletop exercise and an adversarial assessment.

## Program Management

Both NII Systems and NII Integration face a continuing shortage in staffing and consider this gap to be one of their top risks. The programs currently rely on matrixed staff from other CBP offices and contractor staff to fill in the gaps and keep the programs running. Program officials stated that the NII programs were recently reorganized under the CBP Office of Field Operations' Planning, Program Analysis, and Evaluation division. According to program officials, this office intends to conduct an assessment of both programs to determine the best way to move forward and resolve these staffing gaps.

NII Integration issued an RFI on Automated Threat Recognition (ATR) in June 2022. CBP officials are using this RFI as part of market research to inform the program on how best to deploy ATR solutions with existing NII Integration system deployments, implementation of new x-ray scanning concepts, and in response to current and future threats. Program officials told us that the program is currently working on refining the RFI for the Common Integration Platform in collaboration with others at DHS. This platform should have the capability to ensure NII data can be accessed, shared, secured, and governed through a data exchange framework. Additionally, it plans to provide a standardized operational user interface and be integrated with the ATR engine to process NII data and display findings to CBP officials. A program official stated that the program plans to use the knowledge from the RFIs to update functional requirements documents and as the basis for the technical baseline.

## Program Office Comments

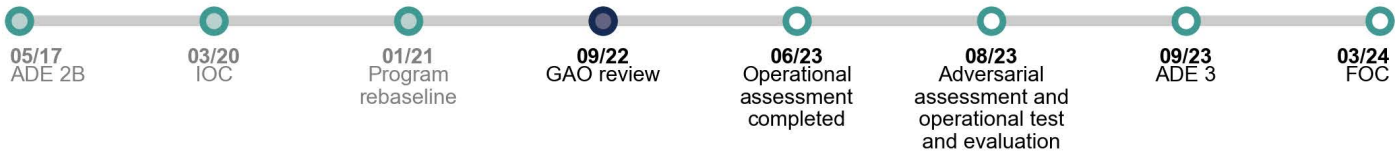
We provided a draft of this assessment to the program offices for review and comment. The programs provided technical comments, which we incorporated where appropriate.

# Additional Components and **Major Acquisition Programs**

# Grants Management Modernization

GMM aims to simplify and coordinate all of the Federal Emergency Management Agency's (FEMA) grant programs into one integrated system, FEMA Grants Outcomes (FEMA GO). GMM plans to establish a common grants life cycle and platform for its users, replacing nine non-integrated, legacy systems used to manage over 40 active grant programs. This integrated approach intends to provide additional transparency into grants' statuses and the effects of grant spending on community and individual readiness and recovery. The creation of this system supports FEMA's strategic goals to strengthen national preparedness and resilience to support citizens and first responders.

Source: FEMA. | GAO-23-106701




## Program Information

**Component:** Federal Emergency Management Agency (FEMA)

**Acquisition type:** IT

**Acquisition level:** 2

**Key performance parameters:** 0 of 4 met, but testing not yet started

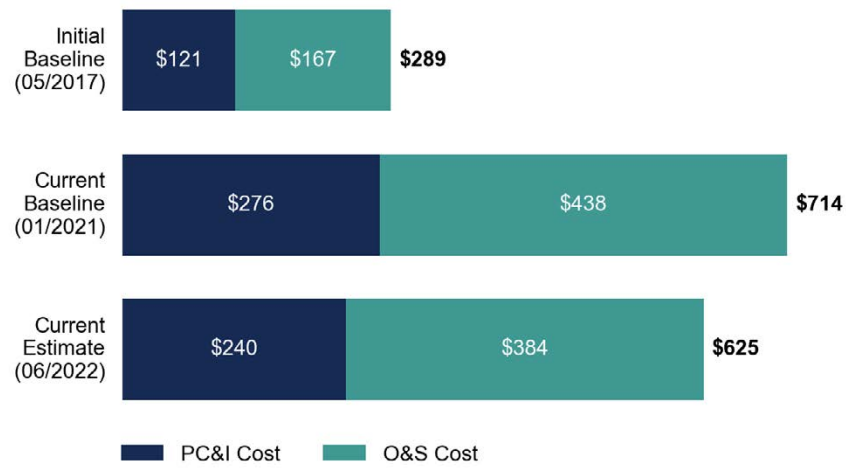
**Contracting approach:** GMM is part of a DHS Agile pilot program and uses an iterative acquisition and development approach. The program primarily uses firm-fixed-price contracts because of the reduced cost risk to the government. The program allows for the use of other contract types based on analysis and vendor feedback.

**Next major milestone:** acquisition decision event (ADE) 3 by September 2023

## Key Findings

- **Cost and schedule**. Citing delays due to COVID-19, the program requested an adjustment to its full operational capability (FOC) milestone from September 2023 to no later than March 2024. The program is awaiting DHS approval.
- **Performance and testing**. The program is updating its operational requirements document and test and evaluation master plan based on increased knowledge of program risks and requirements. The program plans to conduct an operational assessment starting in the first quarter of fiscal year 2023, followed by an adversarial assessment and operational test and evaluation in the third quarter.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions

# GRANTS MANAGEMENT MODERNIZATION

## Cost and Schedule Status

After rebaselining the program's cost and schedule in January 2021, GMM plans to further extend its planned FOC date from September 2023 to no later than March 2024. Based on the program's definition, FOC will occur with the deployment of all grants management life-cycle phases, grant pre-award to closeout, and business functions needed to support all grant types.

In August 2022, the program requested schedule relief under the July 2022 DHS memo that allows for baseline adjustments of up to 6 months to account for delays related to COVID-19. In its request, the program cited unplanned software development needed to configure a new grant program authorized by the CARES Act and to support system modifications and developer support to conduct peer panel review events virtually due to COVID-19 lockdown restrictions. Program officials shared that FEMA leadership approved the adjustment and the program is now waiting on final DHS approval. In the originally approved acquisition program baseline, the program intended to reach FOC by September 2020—3 and one-half years earlier than the current planned schedule. The program still faces some schedule risks related to uncertainties with software development but is actively mitigating them.

The program's June 2022 cost estimate of $625 million is comparable to the 2020 life-cycle cost estimate that included increased costs for system development, data migration, government personnel, and help desk support.

## Performance and Testing

The program has four KPPs related to cybersecurity, reliability, service availability, and resilience to technical failures. Officials reported that the program is currently updating its operational requirements document and test and evaluation master plan based on a better understanding of risks as program requirements have evolved through the iterative Agile development approach. Some of these changes include updating the definition of FOC, refining requirements, and ensuring testability and relevance of KPPs. The program intends to begin conducting an operational assessment in the first quarter of fiscal year 2023, which program officials stated will continue into the third quarter. Additionally, program officials shared that an adversarial assessment and operational test and evaluation will take place in the third quarter of fiscal year 2023. Program officials reported that the KPPs will not be assessed until final operational test and evaluation is conducted in the second half of fiscal year 2023.

Program officials reported challenges related to the variety of cybersecurity policies that they are asked to follow, but stated that they are working with the FEMA Chief Information Security Officer to address them.

In addition to measuring system performance through testing and evaluation of its KPPs, the program also tracks user satisfaction and performance through seven business goals that it hopes to meet before reaching FOC. These goals are considered to be essential outcomes that indicate whether the GMM solution has successfully met critical, business-focused mission needs, including ease of use and the extent to which user needs are met.

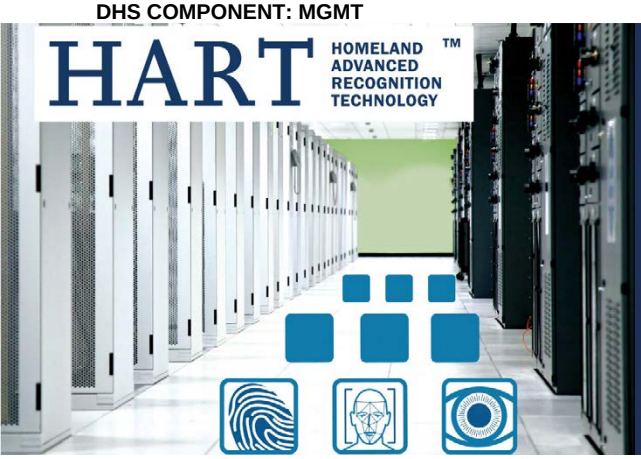
## Program Management

Program officials stated that the program is fully staffed and turnover is low. Officials shared that they received funding for eight new positions for help desk support for GMM users by the end of December 2022. Officials also stated that five of the positions are currently filled and they are actively working to fill the final three positions. The program previously reported that staff had not generally been certified to the required levels, but program officials stated that, as of October 2022, all staff are meeting requirements.

In April 2019, GAO made eight recommendations to FEMA to address risks identified with GMM. As of September 2022, one recommendation has not been implemented. For additional information, see GAO-19-164.

## Program Office Comments

We provided a draft of this assessment to the program office for review and comment. The program office provided technical comments, which we incorporated where appropriate. Program officials stated that the program is on track to deliver full life-cycle grants management capabilities before the targeted FOC date. Program officials stated that the program will support funding for 18 grant programs as well as incorporate disaster grants into the FEMA GO system in fiscal year 2023. The remaining grant programs will start using the system in fiscal year 2024. Program officials also reported that the upcoming operational test and evaluation results will support the ADE 3 and FOC events.




# Homeland Advanced Recognition Technology

HART is intended to replace DHS's legacy biometric identification system—known as IDENT—which stores, processes and shares biometric information on citizens and foreign nationals with the U.S. government and foreign partners to support legitimate travel, trade, and immigration. HART is expected to facilitate visa issuance, law enforcement actions, and intelligence analyses, among other functions. It is also expected to provide advanced capabilities to not only match but also fuse, store, and share information using multiple biometrics (fingerprints, face and iris). The program is focused on Increment 1—the core operating infrastructure—and Future Capabilities to address enhanced capabilities.

Source: Office of Biometric Identity Management. | GAO-23-106701


## Program Information

**Component:** Management Directorate

**Acquisition type:** Information Technology

**Acquisition level:** 1

**Key performance parameters:** 0 of 9 met

**Contracting approach:** The original task order, awarded in 2017, included firm-fixed-price line items and other line items. In 2021, the contract was modified to include more cost reimbursable line items, to address issues with the prioritization of work and, according to program officials, definition of the acceptance criteria.

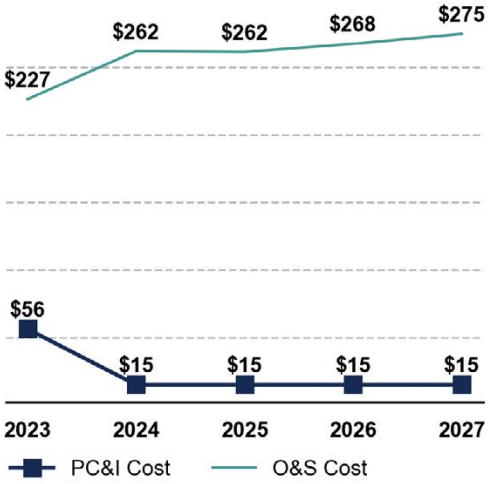
**Next major milestone:** Initial operational capability (IOC) by September 2023

## Key Findings

- **Schedule.** DHS removed HART from breach status in May 2022. At that time, DHS approved a new baseline that focuses only on Increment 1 and achieving IOC, approximately 4 years later than the original IOC baseline date.
- **Performance.** Full operational capability (FOC), originally planned to occur by September 2021, included Increment 1 through 4 capabilities that allowed for advantages over IDENT. These include fusing multiple existing biometrics (fingerprint, face and iris) to improve identification. A date for program FOC has not yet been established.
- **Management.** The program plans to update the HART Acquisition Program Baseline to support HART Future Capabilities, which will include additional capabilities after HART reaches IOC.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions


## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# HOMELAND ADVANCED RECOGNITION TECHNOLOGY

## Cost and Schedule Status

In May 2022, DHS removed HART from breach status and approved a new baseline. The program breached its cost and schedule goals in 2020 due to technical challenges and rework resulting from an overly complex, high-risk design, and disagreements between the contractor and program officials on interpretations of program requirements. The new baseline covers Increment 1—the infrastructure necessary to operate HART as the biometric services system of record. Initial operational capability entails setting up a new flexible, scalable system architecture and moving biometric data from IDENT to HART. Officials also plan to begin to decommission IDENT. Completion of Increment 1 includes, according to program officials, enhanced biometric matching performance and delivery of core HART services. The planned date for initial operational capability is September 2023. This marks the delivery of HART as the system of record and the decommissioning of the legacy IDENT system, approximately 4 years later than the originally planned date of December 2019.

The program originally planned to deliver all capabilities and reach full operational capability by September 2021. However, the planned date for reaching program full operational capability will not be determined until DHS begins the planning for HART Future Capabilities in 2023. Future Capabilities is intended to include additional capabilities after HART initial operational capability. The work includes fusing multiple existing biometrics (fingerprint, face and iris) to improve the accuracy of identity matching and the addition of other biometrics and services. Delays in delivering planned capabilities and continued reliance on IDENT represent a significant challenge to meeting user needs for DHS and its partner agencies, which include the Departments of Defense, Justice, and State, as well as state and local law enforcement agencies and the international community.

The current acquisition program baseline cost is limited to Increment 1 and is not comparable to the initial baseline estimate approved in 2016. We have ongoing work reviewing the reliability of the HART program's 2022 cost and schedule estimates. Due to schedule delays and having to operate IDENT longer than planned, the program is not fully funded. Program officials said that in fiscal year 2022, the HART shortfall was addressed through reprogramming and the IDENT shortfall was addressed through a technical assistance package. To mitigate shortfalls in fiscal year 2023, program officials are seeking additional funding and reprioritizing activities as needed to align with existing funding, among other things.

## Performance and Testing

In March 2022, the program established a multidisciplinary team to prioritize the remaining development and test activities for Increment 1, which include data and customer migration from IDENT and customer testing of HART's services. The team is also assisting the program as it prepares to conduct parallel operations and an operational assessment for Increment 1 in 2022. According to program officials, the date of the Operational Assessment will be determined based on the results of the Operational Test Readiness Review planned for November 3, 2022. That operational assessment is intended to, according to officials, determine HART's progress toward meeting core capabilities including operational effectiveness, suitability, interoperability, and resilience.

HART officials stated that they have completed multiple cybersecurity tabletop exercises and vulnerability-related activities. More exercises are planned. These tests will help them determine what work needs to be completed prior to Increment 1 initial operational capability.

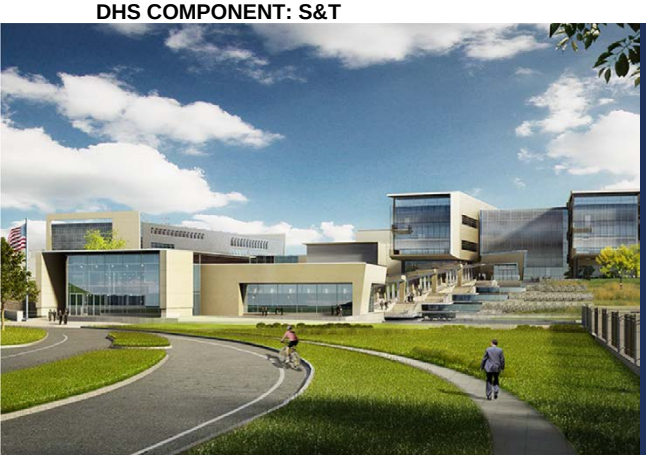
The four Increment 1 key performance parameters (KPP) relate to fingerprint and iris identification, including the accuracy rate for these. While none of the KPPs have been validated, two—fingerprint and iris search accuracy rate—have been assessed by program testing and were found to be successfully met during large-scale biometric accuracy tests.

## Program Management

In September 2021, DHS modified the HART task order contract type. Work previously performed under firm-fixed-price line items is now being done on a cost reimbursable basis. According to officials, government subject matter experts assuming the role of product owner will allow the government to set priorities more effectively, decide on success criteria, and drive the remaining development and testing activities. The modification also limited the scope of work to Increment 1, among other things. Program officials stated that the contractor now provides enhanced metrics to provide more insight into the work being completed weekly to program officials who provide feedback to the contractor. According to officials, this communication is due to the program's updated quality assurance and surveillance plan.

## Program Office Comments

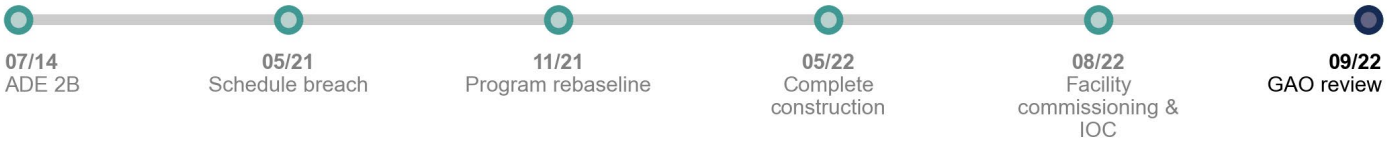
We provided a draft of this assessment to the program office for review and comment. HART officials provided technical comments, which we incorporated where appropriate.



# National Bio and Agro-Defense Facility

DHS constructed NBAF as a state-of-the-art laboratory in Manhattan, Kansas, to replace the Plum Island Animal Disease Center. This facility has been the primary facility for laboratory research for the past 60 years. Agricultural defense responsibilities, such as protection from zoonotic diseases that threaten public health, are assigned to both DHS and the U.S. Department of Agriculture (USDA). After validating that the building systems perform according to the design, USDA plans to operate the facility to conduct research, develop vaccines, and provide enhanced capabilities to protect against foreign animal diseases.

Source: NBAF Design Partnership. | GAO-23-106701




## Program Information

**Component:** Science and Technology Directorate

**Acquisition type:** non-IT

**Acquisition level:** 1

**Key performance parameters:** 1 out of 1 met

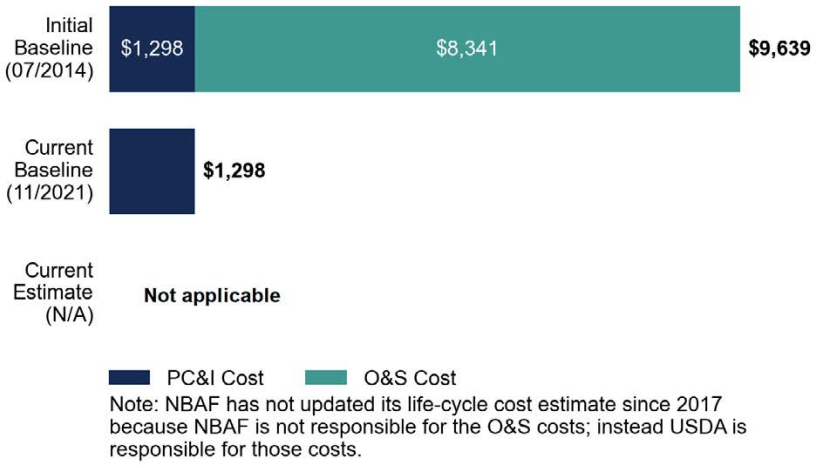
**Contracting approach:** DHS awarded a contract with firm-fixed-price line items to a construction manager in 2009 through a competitive process based on the awardee's expertise in constructing biocontainment labs. Modifications added site preparation, construction, and commissioning.

**Next major milestone:** No major milestones remain for the program under DHS

## Key Findings

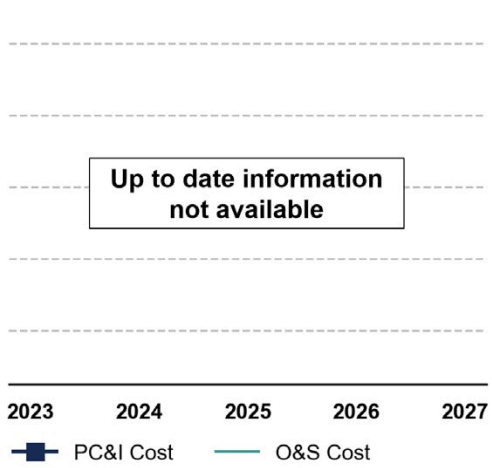
- **Schedule**. Program officials stated that the program completed the joint facility commissioning and initial operational capability (IOC) milestone in August 2022. DHS will now transfer responsibility to USDA, according to a program official.
- **Program management**: In September 2022, program officials reported that transition of the facility to USDA was nearly complete.

## BASELINE AND CURRENT COST ESTIMATES dollars in millions




Note: NBAF has not updated its life-cycle cost estimate since 2017 because NBAF is not responsible for the O&S costs; instead USDA is responsible for those costs.

## ESTIMATED PROGRAM COSTS FOR FY 2023-2027 dollars in millions



# NATIONAL BIO AND AGRO-DEFENSE FACILITY

## Cost and Schedule Status

NBAF completed facility construction in May 2022 and according to officials achieved IOC with commissioning in August 2022, 15 months later than planned. The program breached its schedule in 2020 and 2021 due to delays associated with COVID-19 and unforeseen technical issues, respectively. According to a program official, DHS will transfer operational responsibilities to USDA in the first quarter of fiscal year 2023.

Program officials stated that the program remained on track to meet and not exceed its acquisition program baseline (APB) cost threshold of $1.3 billion. In August 2019, DHS approved an addendum to the program's APB, which stated that the program would no longer be responsible for operations and sustainment costs. The program's 2017 life-cycle cost estimate included more than $8 billion in operations and sustainment costs, which are covered by USDA.

## Performance and Testing

The program's single key performance parameter was met when the facility was commissioned. A program official stated that the commissioning process started in the design phase and continued through construction and to the final testing of components and systems. According to the official, the commissioning agent was involved in all phases to ensure continuity. A final commissioning report is anticipated to be submitted no sooner than January 2023.Officials told us that retesting of equipment that sat idle due to COVID-19 delays revealed no concerns about performance.

As activities at the facility are intended to be executed by USDA staff, it was determined in a 2018 memo that responsibility for cybersecurity would fall to USDA. Program officials stated that they worked closely with USDA officials to address any potential IT and cybersecurity issues during the construction process.

## Program Management

Based on a 2019 memorandum of understanding, DHS and USDA established a joint transition team to assist in the facility's transfer. In September 2022, program officials reported that the transition was nearly complete and that the final step underway was to ensure USDA operations staff have familiarity with all aspects of the laboratory's safety systems.

## Program Office Comments

We provided a draft of this assessment to the program offices for review and comment. The programs provided technical comments, which we incorporated where appropriate.

# 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 selected DHS major acquisition programs are (1) meeting their baseline goals, (2) mitigating any COVID-19-related effects on delivery of capabilities, and (3) implementing cybersecurity activities.

This report is a public version of a sensitive report that we issued in March 2023. This report included additional information related to major acquisition programs' cybersecurity activities. DHS deemed some of the information related to this objective, including a related recommendation, to be sensitive, and which must be protected from public disclosure. Although the information provided in this report is more limited, it addresses the same objectives and uses the same methodology as the sensitive report.[1]

To address these objectives, we selected 25 of DHS's 39 major acquisition programs.[2] We selected 14 of DHS's 21 level 1 acquisition programs—those with life-cycle cost estimates 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 in January 2022. We also included two additional programs that were level 2 acquisitions with life-cycle cost estimates between $300 million and less than $1 billion in the obtain phase. Additionally, we reviewed nine other level 1 or level 2 major acquisition programs that we identified were at risk of not meeting their cost estimates, schedules, or capability requirements, based on our past work and discussions with DHS officials. We excluded the remaining 14 major acquisition programs for a variety of reasons, including lower risk programs already in deployment.

We met with representatives from DHS's Office of Program Accountability and Risk Management—DHS's main body for acquisition oversight—as a part of our scoping effort to determine which programs, if any, were facing difficulties in meeting their cost estimates, schedules, or capability

[1]GAO, *DHS Annual Assessment: Major Acquisition Programs Are Generally Meeting Goals, but Cybersecurity Policy Needs Clarification,* GAO-23-105641SU (Washington, D.C.: Mar. 16, 2023).

[2]Our review included 25 of the 29 programs that we reviewed in GAO, *DHS Annual Assessment: Most Acquisition Programs Are Meeting Goals Even with Some Management Issues and COVID-19 Delays*, GAO-22-104684 (Washington, D.C.: Mar. 8, 2022).

requirements. The 25 selected programs were sponsored by seven 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 Review**

| Component | Program | Level 1 program in the Obtain phase at the initiation of GAO's audit | Level 1 or level 2 program identified to be at risk[a] |
|---|---|---|---|
| Cybersecurity and Infrastructure Security Agency | Continuous Diagnostics and Mitigation | X | — |
| | National Cybersecurity Protection System | X | — |
| | Next Generation Network Priority Services Phase 1 | — | X |
| | Next Generation Network Priority Services Phase 2 | — | X |
| DHS Management Directorate | Homeland Advanced Recognition Technology | X | — |
| Federal Emergency Management Agency | Grants Management Modernization | — | X |
| Science and Technology Directorate | National Bio and Agro-Defense Facility | X | — |
| Transportation Security Administration | Checkpoint Property Screening System | X | — |
| | Credential Authentication Technology | — | X |
| U.S. Coast Guard | Long Range Surveillance Aircraft | X | — |
| | Medium Range Recovery Helicopter (MH-60T) Sustainment Program | X | — |
| | Medium Range Surveillance Aircraft | X | — |
| | Offshore Patrol Cutter | X | — |
| | Polar Security Cutter | X | — |
| | Waterways Commerce Cutter Program | X | — |
| | 270' Medium Endurance Cutter Service Life Extension Program | X | — |
| U.S. Customs and Border Protection | Automated Commercial Environment | X | — |
| | Biometric Entry-Exit | — | X |
| | Border Wall System Program | X | — |
| | Cross Border Tunnel Threat | X | — |

| Component | Program | Level 1 program in the Obtain phase at the initiation of GAO's audit | Level 1 or level 2 program identified to be at risk[a] |
|---|---|---|---|
| | Integrated Surveillance Towers | — | X |
| | Medium Life Helicopter | — | X |
| | Multi-Role Enforcement Aircraft | X | — |
| | Non-Intrusive Inspection Integration | — | X |
| | Non-Intrusive Inspection Systems Program | — | X |

Legend: X = applicable rationale; — = not applicable

Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-23-106701

[a]Programs with Xs in this column are either Level 2 programs in the obtain phase or Level 1 and Level 2 programs that we identified as at risk of not meeting their cost estimates, schedules, or capability requirements based on our past work.

To determine the extent to which DHS's major acquisition programs are meeting their cost, schedule, and performance goals, we collected key acquisition documentation for each of the 25 programs, such as all life-cycle cost estimates and acquisition program baselines (APB) approved at the department level since DHS's acquisition management policy went into effect in November 2008. DHS policy establishes that all major acquisition programs should have a department-approved APB—which establishes a program's critical cost, schedule, and performance parameters—at acquisition decision event 2B. Nineteen of the 25 programs had one or more department-approved life-cycle cost estimates and APBs between November 2008 and September 30, 2022.[3] We excluded the six programs without department-approved APBs from any aggregated analyses. We determined that another program, the Border Wall System Program, should also be excluded from our aggregated analyses, due to the January 2021 Presidential Proclamation directing a pause in the construction of the border wall to the extent permitted by law. Ultimately, eighteen of the 25 programs were included in our portfolio analysis. We used APBs to identify the initial and current cost and schedule goals for the programs. When costs were presented in acquisition program baselines in base-year dollars, we worked with program officials to convert those costs to then-year dollars for the

[3]The remaining six programs—Cross-Border Tunnel Threat, Integrated Surveillance Towers, Medium Range Recovery Helicopter (MH-60T), Next Generation Network Priority Services Phase 2, Non-Intrusive Inspection (NII) and NII Integration, and Waterways Commerce Cutter—did not receive department approval of their initial APBs by September 30, 2022. Therefore, we excluded them from our assessment of whether programs are on track to meet their schedule and cost goals during fiscal year 2022.

purposes of our report. We did not assess their methodology. For the purposes of this review, we used the date that DHS leadership signed the relevant acquisition decision memorandum to signify the date of an event, including acquisition decision events. We did so to address instances in which leadership approval did not occur on the date of the Acquisition Review Board or other meeting described in the memorandum. We used a questionnaire to collect standardized information about cost, schedule and performance; COVID-19 effects; and cybersecurity activities.

We also met with program officials to identify causes and effects associated with any identified schedule and cost goal changes, including changes as a result of the COVID-19 pandemic. We identified the number of programs with DHS-approved APBs that achieved performance goals during fiscal year 2022 by assessing the number of programs that the Office of the Director, Operational Test and Evaluation determined (1) had completed testing of deployed capabilities and (2) had key performance parameters that were generally met.

To determine programs' efforts to mitigate COVID-19–related cost and schedule effects, we first reviewed the July 2022 DHS memorandum granting level 1 and selected level 2 programs the ability to adjust their APB schedule baseline goals up to 6 months (or more with leadership approval) due to COVID-19 effects. We then reviewed baseline adjustment memorandums or other documentation associated with programs that made use of this authority, as applicable. We also reviewed additional program documentation and conducted interviews with programs in our scope to determine any additional COVID-19 cost and schedule effects and how programs mitigated these effects.

To determine the extent to which programs are implementing cybersecurity activities, we reviewed DHS Instruction 102-010-012 *Cybersecurity through the Acquisition Lifecycle Framework* and assessed the 25 programs' implementation of a newly required activity for these programs. This activity was the development of Cybersecurity Risk Recommendation Memorandums (CRRM), which are required for programs that conducted an acquisition decision event (ADE). We identified which programs have had ADEs since DHS issued the July 2020 instruction. For those seven programs, we asked for the CRRMs. We also interviewed program, component, and headquarters officials to discuss program implementation of acquisition cybersecurity policies.

Subsequently, we drafted preliminary assessments for each program. When drafting these assessments, we combined the Non-Intrusive

Inspection Systems Program with the Non-Intrusive Inspection Integration program because the Non-Intrusive Inspection Integration program is a follow-on effort that has not yet established a preliminary APB. In addition, we drafted three assessments for the Border Wall System Program—one for each of fiscal years 2018, 2019, and 2020—because the program established acquisition program baselines for each fiscal year that funding was provided. Finally, we drafted the Next Generation Network Priority Services Phase 1 and 2 programs as two assessments because the Phase 2 program established a preliminary acquisition program baseline. After drafting the assessments, we shared them with program and component officials and gave those officials an opportunity to submit comments to help us correct any inaccurate or outdated information, or clarify, as appropriate.

We conducted this performance audit from January 2022 to March 2023 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. We subsequently worked with DHS from March to April 2023 to remove information contained in our sensitive March 2023 report. This public version was also prepared in accordance with these standards.

# Appendix III: Comments from the Department of Homeland Security

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

Homeland Security

April 11, 2023

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

Re: Management Response to Draft Report GAO-23-106701, "DHS Annual Assessment: Major Acquisition Programs Are Generally Meeting Goals but Cybersecurity Policy Needs Clarification"

Dear Ms. Mak:

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

DHS leadership is pleased to note GAO's positive recognition that as of the end of fiscal year 2022, most of the DHS major acquisition programs in GAO's review with a Department-approved baseline—a summary of measurable estimates indicating how the system will perform, when it will be delivered, and what it will cost—were meeting their cost and schedule goals. Programs also continued to report the effects from the COVID-19 pandemic, and most had not needed to adjust their baselines because of this. DHS remains committed to being a good steward of the taxpayer dollars invested in a diverse portfolio of major acquisition programs to help execute its many critical missions.

The draft report contained one recommendation with which the Department concurs. Enclosed find our detailed response to that recommendation. DHS previously submitted technical comments addressing several accuracy, contextual, and other issues under a separate cover for GAO's consideration.

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

Sincerely,

JIM H CRUMPACKER Digitally signed by JIM H CRUMPACKER Date: 2023.04.11 07:45:55 -04'00'

JIM H. CRUMPACKER, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Enclosure

**Enclosure: Management Response to Recommendation Contained in GAO-23-106701**

GAO recommended that the Secretary of Homeland Security:

**Recommendation 1:** Ensure that, as the department updates its Instruction 102-01-012, it clarifies (1) which major acquisition programs are required to have completed risk management memorandums prior to acquisition decision events, and (2) when exemptions apply.

**Response:** Concur. The DHS Management Directorate Office of Program Accountability and Risk Management is working with the DHS Chief Information Security Officer Program Management and Governance Division to identify areas of DHS Instruction 102-01-012, "Cybersecurity through the Acquisition Lifecycle Framework," that require revision. Specifying which acquisition programs are required to complete risk management memoranda and when exemptions apply will be one of the areas that will be clarified in the next revision. ECD: March 30, 2024.

# Appendix IV: GAO Contact and Staff Acknowledgments

## GAO Contact

Marie A. Mak at (202) 512-4841 or makm@gao.gov

## Staff Acknowledgments

In addition to the contact listed above, Angie Nichols-Friedman (Assistant Director), Katheryn Hubbell (Analyst-in-Charge), Ryan Braun, Shelby Clark, and TyAnn Lee made key contributions to this report. Other contributors included Erin Carr, John Crawford, Alexandra Dew Silva, Lorraine Ettaro, Gina Flacco, Stephanie Gustafson, Claire Li, Alexis Olson, Shannin O'Neill, Scott Purdy, Jenny Shinn, Anne Louise Taylor, Joshua Timko, Shaunyce Wallace, Alyssa Weir, Alexandra Wilk, Marshall Williams Jr., and Robin Wilson.

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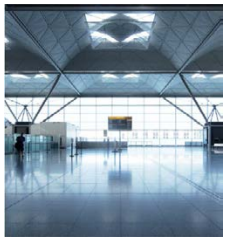

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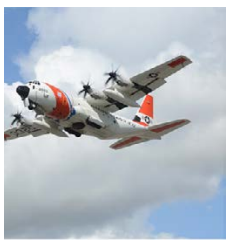

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# Related GAO Products

*DHS Annual Assessment: Most Acquisition Programs Are Meeting Goals Even with Some Management Issues and COVID-19 Delays*. GAO-22-104684. Washington, D.C.: March 8, 2022.

*Southwest Border: Schedule Considerations Drove Army Corps of Engineers' Approaches to Awarding Construction Contracts through 2020*. GAO-21-372. Washington, D.C.: June 17, 2021.

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