



July 2018

COAST GUARD ACQUISITIONS

Actions Needed to Address Longstanding Portfolio Management Challenges

Accessible Version

GAO Highlights

Highlights of [GAO-18-454](#), a report to congressional requesters

Why GAO Did This Study

The Coast Guard spends billions of dollars on its major acquisition programs to meet its missions. GAO's prior work has identified the Coast Guard's reliance on its annual budget process to manage its acquisition portfolio as a challenge.

GAO was asked to review the recapitalization of the Coast Guard's acquisition portfolio. This report assesses, among other topics, the extent to which the Coast Guard has made changes to how it manages its acquisition portfolio.

GAO assessed Coast Guard's major acquisition programs to determine changes since GAO's 2014 portfolio review. GAO analyzed program baselines and interviewed Coast Guard officials. GAO analyzed the CIP for fiscal years 2014 through 2018, and reviewed the EOC's documentation.

What GAO Recommends

GAO recommends that the annual CIPs reflect acquisition trade-off decisions and their effects, and that the EOC review the overall acquisition portfolio and its affordability annually. DHS concurred with the CIP recommendation. DHS did not concur with the EOC recommendation. It noted that other existing Coast Guard bodies are responsible for evaluating and prioritizing funding. However, DHS stated that the EOC charter will be updated to require it to review the overall acquisition portfolio, including long-term planning. If this long-term planning accounts for budget realities for the acquisition portfolio, GAO believes the intent of the recommendation will be met.

View [GAO-18-454](#). For more information, contact Marie A. Mak at (202) 512-4841 or makm@gao.gov.

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What GAO Found

The Coast Guard, a component within the Department of Homeland Security (DHS), continues to manage its acquisitions through its annual budget process and the 5-year Capital Investment Plan (CIP)—congressionally mandated and used for oversight. This management approach creates constant churn as program baselines must continually re-align with budget realities instead of budgets being formulated to support program baselines. Further, Coast Guard officials said the CIP reflects the highest priorities of the department—such as the Offshore Patrol Cutter, which is the Coast Guard's highest priority—and that trade-off decisions are made as part of the annual budget process. However, the effects of these decisions, such as which acquisitions would take on more risk so others can be prioritized and adequately funded, are not communicated in the CIP to key decision makers, because including such information is not statutorily required. Over the years, this approach has left the Coast Guard with a build up—or bow wave—of near-term unfunded acquisitions, negatively affecting recapitalization efforts and limiting the effectiveness of long-term planning. Including the effects of these trade-offs in the CIP would align with GAO's cost estimating best practices. Until it does so, the Coast Guard limits its ability to manage its acquisition portfolio in the long-term, beyond the time covered in the 5-year CIP.

The Coast Guard's Offshore Patrol Cutter



Source: © 2016 Eastern Shipbuilding Group, Panama City, FL. | GAO-18-454

In response to a September 2012 GAO recommendation, the Coast Guard updated the Executive Oversight Council's (EOC)—a cross-directorate group that oversees major acquisition programs—charter in 2014 to require annual reviews of the acquisition portfolio collectively. However, EOC officials said that these annual reviews never occurred, and GAO found that the annual review requirement was removed from the charter in 2017. Thus, the Coast Guard is without a senior-level group charged to collectively review and ensure affordability of its acquisition portfolio. The Office of Management and Budget's *Capital Programming Guide* states that a senior-level executive committee should be responsible for reviewing the agency's entire asset portfolio and for making decisions on the proper composition of assets needed to achieve strategic goals within budget constraints.

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Abbreviations

ADE	Acquisition Decision Event
CIP	Capital Investment Plan
DHS	Department of Homeland Security
OMB	Office of Management and Budget
SLEP	Service Life Extension Project

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July 24, 2018

The Honorable John Thune
Chairman
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Duncan Hunter
Chairman
Subcommittee on Coast Guard and Maritime Transportation
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Dan Sullivan
United States Senate

Since 1996, the Coast Guard—a component within the Department of Homeland Security (DHS)—has been acquiring a portfolio of new surface and aviation assets as part of a multibillion-dollar recapitalization effort—replacing assets that have reached or will soon reach the end of their service lives. These assets are intended to conduct missions that range from illegal drug and migrant interdiction to search and rescue operations. For more than 15 years, we have reported extensively on the Coast Guard’s portfolio of major acquisition programs and its risks and uncertainties.¹ In our prior work, we found shortcomings in the Coast Guard’s acquisition planning practices, such as its reliance on the annual budget process to plan major acquisitions without a thorough plan to ensure the affordability of the entire acquisition portfolio.² This approach has resulted in delayed acquisitions and reduced capabilities. In September 2012, we recommended that the Coast Guard conduct a comprehensive portfolio review to focus on acquisition priorities.³

¹See list of related GAO products at the end of this report.

²GAO, *Coast Guard Acquisitions: Limited Strategic Planning Efforts Pose Risk for Future Acquisitions*, [GAO-17-747T](#) (Washington, D.C.: July 25, 2017); *Coast Guard Recapitalization: Matching Needs and Resources Continue to Strain Acquisition Efforts*, [GAO-17-654T](#) (Washington, D.C.: June 7, 2017); and *Coast Guard Acquisitions: Better Information on Performance and Funding Needed to Address Shortfalls*, [GAO-14-450](#) (Washington, D.C.: June 5, 2014).

³GAO, *Coast Guard: Portfolio Management Approach Needed to Improve Major Acquisition Outcomes*, [GAO-12-918](#) (Washington, D.C.: Sept. 20, 2012).

Although DHS agreed with our recommendation at the time, as of October 2017 it had not yet been implemented.

Subsequently, in June 2014, we recommended that the Coast Guard develop a 20-year fleet modernization plan to aid in identifying the assets that need to be recapitalized, the resources required, and the trade-offs necessary given fiscal constraints.⁴ DHS agreed with our recommendation but the Administration has not yet approved a 20-year plan.

Delayed acquisitions have also strained existing Coast Guard resources. Specifically, older assets in the fleet—such as the 210-foot and 270-foot Medium Endurance Cutters and *Polar Star* (heavy icebreaker)—have become more expensive to maintain as they continue to operate well beyond the estimated service life dates determined when they were built.

You asked us to review the Coast Guard's acquisition portfolio. This report assesses (1) the extent to which the Coast Guard has made changes to how it manages its acquisition portfolio and (2) how the Coast Guard is sustaining existing assets until new assets become operational.

To assess the extent to which the Coast Guard has changed how it manages its acquisition portfolio, we assessed the Coast Guard practices for managing the portfolio's affordability through long-term planning to determine how it has changed since our last Coast Guard acquisition portfolio review in 2014.⁵ We analyzed the Coast Guard's 5-year Capital Investment Plans (CIP) that supported the budget requests for fiscal years 2014 through 2018 to determine how the Coast Guard has managed the affordability of its acquisition portfolio. We compared Coast Guard practices for managing affordability and long-term planning with best practices outlined in GAO's *Cost Estimating and Assessment Guide* and prior GAO reports.⁶ We also reviewed a range of acquisition programs based on if they were already major acquisition programs (programs with a life-cycle cost estimate greater than or equal to \$300 million or a total acquisition cost greater than or equal to \$100 million) by

⁴[GAO-14-450](#).

⁵[GAO-14-450](#).

⁶[GAO-14-450](#); [GAO-12-918](#); and *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: Mar. 2009).

definition, the programs were part of our 2014 review, or they are likely to be major acquisition programs that will require significant funding in the near future. We reviewed charters for the Coast Guard's various cross directorate groups that help oversee Coast Guard acquisitions to identify responsibilities and membership, and conducted interviews with officials from these bodies to better understand their portfolio oversight activities. We also interviewed Coast Guard officials to ascertain the anticipated content of the 20-year Long-term Major Acquisitions Plan.

To assess how the Coast Guard is sustaining existing assets until new assets become operational, we selected and reviewed assets that were at or approaching their end of design service lives—an estimated period before the asset reaches obsolescence—and if the Coast Guard was planning to extend their design service lives through a Service Life Extension Project. We collected and analyzed program documentation on asset operational availability and mission capability, sustainment needs and maintenance history, and plans for extending the service lives of selected assets. We assessed Coast Guard expenditures on depot-level maintenance—which, according to the Coast Guard, is maintenance that is beyond the capability of the crew of a cutter or other asset—for fiscal years 2010 through 2017 for legacy assets, and compared them with annual funding estimates for those assets. Appendix I contains more information regarding our scope and methodology.

We conducted this performance audit from March 2017 to July 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Overview of Coast Guard’s Major Acquisition Programs

As of March 2018, the Coast Guard’s portfolio of major acquisitions has 10 programs, 2 more than during our June 2014 review, when the Coast Guard had 8 major acquisition programs (see figure 1).⁷ DHS defines major acquisition programs as those with life-cycle cost estimates of at least \$300 million.

Figure 1: Coast Guard Major Acquisition Portfolio in 2014 and 2018

2014 Coast Guard Recapitalization program of record	2018 Coast Guard Recapitalization program of record
National Security Cutter Offshore Patrol Cutter Fast Response Cutter Heavy Polar Icebreaker	National Security Cutter Offshore Patrol Cutter Fast Response Cutter Heavy Polar Icebreaker
Long Range Surveillance Aircraft (HC-130H/J) HC-144A Aircraft	Waterways Commerce Cutter Long Range Surveillance Aircraft (HC-130H/J) Medium Range Surveillance Aircraft (HC-144A/HC-27J)
H-65 Helicopter	H-65 Helicopter Conversion/Sustainment H-60 Helicopter Sustainment
Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) System	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) System

Source: GAO presentation of Coast Guard information. | GAO-18-454

Note: The 2014 baseline included only the HC-144A as the HC-27J did not have a baseline yet. As of our review, the current baseline includes both the HC-144A and HC-27J programs as part of the Medium Range Surveillance Aircraft Program. The Small Unmanned Aircraft System did not have a baseline in 2014 and, since its current cost estimate is less than \$300 million, it is not considered a major acquisition program. The Waterways Commerce Cutter will recapitalize the Coast Guard’s fleet of inland river, buoy, and construction tenders.

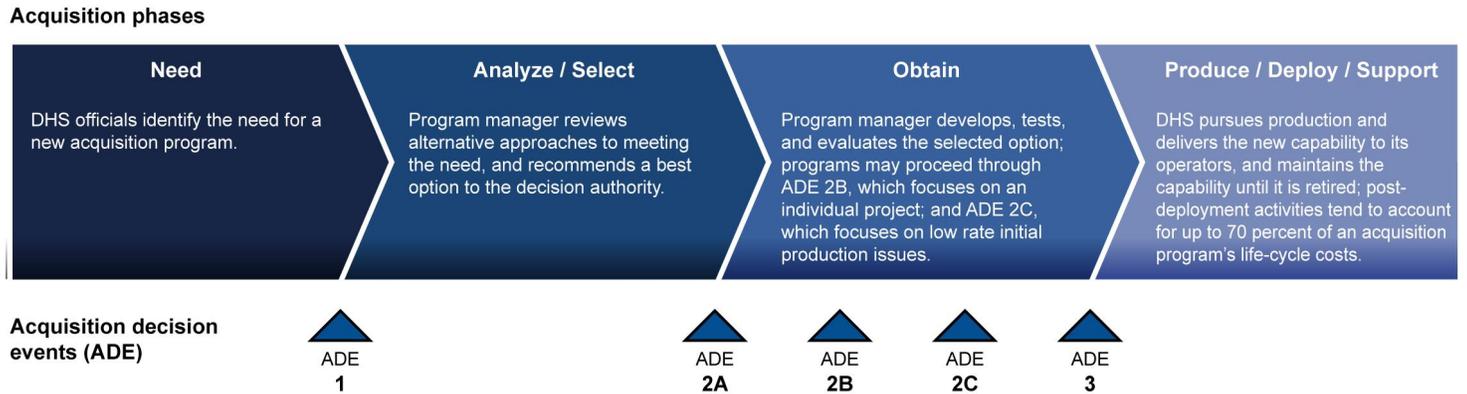
Appendix II provides information on the programs included in the Coast Guard’s major acquisition portfolio in 2018.

Programs in the acquisition portfolio progress through a series of four acquisition phases, accompanied by a series of acquisition decision

⁷[GAO-14-450](#).

events (ADE), outlined in the DHS’s acquisition life-cycle framework (acquisition process).⁸ Figure 2 depicts the acquisition process.

Figure 2: Department of Homeland Security (DHS) Acquisition Phases for Major Acquisition Programs



Source: GAO analysis of Department of Homeland Security (DHS) data. | GAO-18-454

Oversight of the Coast Guard’s Acquisition Portfolio

The Coast Guard currently has three cross-directorate groups that include members from the acquisitions, resources, and requirements directorates and are responsible for addressing and overseeing issues across the Coast Guard. Since 2011, these three groups—the Executive Oversight Council, the Systems Integration Team, and the Resource Councils—have helped oversee the Coast Guard’s acquisition portfolio. Table 1 provides information on the roles and responsibilities of these three groups.

⁸DHS policies and processes for managing its major acquisition programs are primarily set forth in Acquisition Management Directive (MD) 102-01 and DHS Acquisition Management Instruction 102-01-001. DHS has issued multiple updates to MD 102-01 and the instruction. DHS issued the current version of MD 102-01 on July 28, 2015, and the current version of the instruction on March 9, 2016.

Table 1: Coast Guard’s Cross-Directorate Groups

Cross-directorate group	Responsibilities	Members
Executive Oversight Council	Monitors major risks, addresses emergent issues, and provides direction to other cross-directorate teams, as required, to support successful planning, preparation, and execution of major acquisition programs.	Chaired by the Coast Guard’s Chief Acquisition Officer, the Assistant Commandant for all major acquisition and non-major non-Information Technology related acquisition reviews. Members of this Flag/Senior Executive Service-level group also include admirals of the Coast Guard’s acquisitions, resources, and requirements directorates.
Systems Integration Team	Supports the Executive Oversight Council with the management of issues, meets as needed to discuss specific issues, and provides a forum to discuss and resolve program issues that affect cross-directorate stakeholders.	Chaired by the Deputy Assistant Commandant for Capabilities and is a cross-directorate, cross-enterprise below the Flag/Senior Executive Service-level.
Resource Councils	Provide the oversight to address the concerns of each of the domain functional area stakeholders, such as Aviation; Cutters; Boat Forces; Command, Control, Communications, Computer, Intelligence, Surveillance, Reconnaissance and Information Technology (C4ISR&IT); and Shore Forces, while meeting the goals of the Coast Guard and Department of Homeland Security.	Chaired by the Assistant Commandant for Capabilities or a designated representative. Resource Councils are cross-directorate advisory boards below the Flag/Senior Executive Service-level that represent the domain functional areas.

Source: GAO presentation of Coast Guard information. | GAO-18-454

Each of these groups has a charter to identify its purpose and scope of responsibilities, which involve providing cross-directorate representation and information on all of the acquisition programs to help manage its portfolio. The Coast Guard updated the roles and responsibilities for two of its cross-directorate groups in its Major Systems Acquisition Manual, including how the groups are to interact and work together within the established acquisition governance framework.⁹ For example, the Resource Councils are to serve as advisors to the senior-level Executive Oversight Council. Each of the Resource Councils is to report directly to the Executive Oversight Council for issues within its own domain and report to the Systems Integration Team for issues that cross domains. The Executive Oversight Council oversees the acquisition governance framework and is positioned to delegate tasks to the other two cross-

⁹Coast Guard Commandant Instruction Manual 5000.10D, *Major Systems Acquisition Manual* (May 29, 2015). A previous version of the *Major Systems Acquisition Manual* highlighted the Executive Oversight Council as a review board that supports a knowledge-based acquisition management approach, but did not include any references to the Systems Integration Team or the Resource Councils.

directorates or obtain information from them to assist in the management of acquisitions to address problems related to acquisitions.

Asset Service Life and Maintenance of Legacy Assets

Coast Guard assets are developed with a specific design service life. According to Coast Guard officials, the design service life for aircraft is established as a maximum number of flight hours; while for cutters, the design service life is the number of years the cutter is expected to operate based on contractual design requirements.

An asset’s design service life can be extended through major maintenance events, such as Service Life Extension Projects (SLEP). SLEPs are funded with the Coast Guard’s acquisition, construction, and improvements appropriation account whereas routine depot-level maintenance is funded with the Coast Guard’s operating expenses appropriation account. SLEPs address specific systems and major maintenance to extend the service life of an asset beyond the original plan. A SLEP is not designed to increase an asset’s capability; it extends the service life by replacing obsolete, unsupportable, or maintenance-intensive equipment. Table 2 provides more details about the design service life and maintenance history of select legacy assets.

Table 2: Design Service Life and Major Maintenance History for Select Coast Guard Legacy Assets at or Approaching the End of Their Design Service Life, as of March 2018

Asset category	Asset	Design service life	Average age	Major maintenance history ^a
Surface assets	210-foot Medium Endurance Cutter	30 years	51 years	The 210-foot Medium Endurance Cutters completed a Midlife Maintenance Availability in 1987 and a Mission Effectiveness Project in 2010.
Surface assets	270-foot Medium Endurance Cutter	30 years	31 years	The 270-foot Medium Endurance Cutters completed a Mission Effectiveness Project in 2014. This effort was intended to minimize maintenance costs and maximize the reliability of critical systems, but not increase the service life of the cutters.
Surface assets	Heavy polar icebreaker: <i>Polar Star</i>	30 years	42 years	The <i>Polar Star</i> completed a reactivation maintenance period in 2013 that was intended to add an additional 7-10 years to its service life from the time of reactivation.

Asset category	Asset	Design service life	Average age	Major maintenance history ^a
Surface assets	Inland River , Buoy, and Construction Tenders (Inland Tenders)	30 years	53 years	From 2006 to 2016, a portion of the Inland Tender fleet underwent a limited maintenance program, referred to as the Inland River Tender Emergency Subsystem Sustainment program. This effort was meant to act as a bridging strategy until new assets could be acquired. This maintenance program, which used the operating expenses account, was intended to be a short-term, limited scope sustainment strategy targeting major engineering components.
Aviation assets	H-60	20,000 hours ^b	14,027 hours	The Coast Guard began an avionics upgrade and Service Life Extension Project on the H-60 fleet in 2002 that extended the aircraft's service life from 10,000 flight hours to 20,000 flight hours. This effort was completed in 2016.
Aviation assets	H-65	20,000 hours ^c	15,111 hours	The Coast Guard began an upgrade program on the H-65 fleet in 2000 to upgrade the avionics and engines among other components. According to Coast Guard officials, this would not be considered a maintenance program since it added capability to the aircraft.

Source: GAO presentation and analysis of Coast Guard data. | GAO-18-454

^aMajor maintenance history includes Service Life Extension Projects, Midlife Maintenance Availabilities, and Mission Effectiveness Projects—all funded with the Coast Guard's acquisition, construction, and improvements account. Midlife Maintenance Availabilities occur near the midpoint of a cutter's life and are intended to correct system obsolescence issues and maintain asset reliability and supportability throughout the remainder of the cutter's service life. Mission Effectiveness Projects are intended to sustain capabilities, replace obsolete or maintenance intensive equipment, complete major maintenance, and standardize configuration items.

^bThe H-60 had an original design service life of 10,000 hours. Its current service life is 20,000 hours following completion of a Service Life Extension Project.

^cAccording to Coast Guard officials, the H-65 manufacturer originally indicated that the H-65 airframe did not have a flight hour limit. However, additional analysis by the manufacturer revealed that certain structural components have a 20,000 flight hour service life limit.

Prior GAO Reviews

We have issued several reports since 2012 on the Coast Guard's management of its acquisition portfolio and the oversight of its depot-level maintenance resources. We have made several recommendations in these reports. For example, in September 2012, we found a mismatch

between resources needed to support all approved major acquisition program baselines and expected funding levels.¹⁰ This resulted in the Coast Guard requesting funding for programs as a part of its annual budget process below the levels identified in programs' life-cycle cost estimates, resulting in a bow wave of future funding requirements.¹¹ At the time, DHS and the Coast Guard acknowledged this resource challenge, but we found they had not developed a clear strategy for moving forward. At that time, DHS officials stated that funding variability results in inevitable trade-off decisions being made on an annual basis. We recommended that the Coast Guard conduct a comprehensive portfolio review to develop revised baselines that reflect acquisition priorities as well as realistic funding scenarios. DHS concurred with our recommendation. Since 2014, the Coast Guard has undertaken efforts to address this issue, but, as of October 2017, we found these efforts have not led to the significant trade-off decisions needed to improve the affordability of the Coast Guard's portfolio.

Additionally, in September 2012, we found that the Coast Guard had established an acquisition governance framework and that the Executive Oversight Council was well positioned to receive information from other cross-directorate groups in order to manage the acquisition portfolio. However, while the Executive Oversight Council had been active in overseeing individual programs, it had not met to oversee the portfolio collectively. Officials told us at that time that the portfolio oversight was done through the annual budget process. We found this approach to managing portfolio affordability was ineffective and facilitated immediate trade-offs, and did not provide the best environment to make decisions in developing a balanced long-term portfolio. We recommended that the Coast Guard identify the Executive Oversight Council as the governing body to oversee the Coast Guard's acquisition enterprise with a portfolio management approach. In addition, this council should supplement individual program reviews with acquisition portfolio-wide reviews to make performance and affordability trade-off decisions that will help ensure the Coast Guard is acquiring a balanced portfolio to meet mission needs. DHS concurred and the Coast Guard updated the Executive Oversight

¹⁰[GAO-12-918](#).

¹¹According to GAO's *Schedule Assessment Guide*, bow wave refers to a large amount of funding that will be required in the future to complete an acquisition due to deferred or delayed work. Often the funding required at the peak of a bow wave is unrealistic. See GAO, *Schedule Assessment Guide: Best Practices for Project Schedules*, [GAO-12-120G](#) (Washington, D.C.: May 2012).

Council's charter in 2014 to require the group to annually oversee the acquisitions collectively as a balanced long-term and affordable portfolio.

Similarly, in June 2014, we found that the Coast Guard had repeatedly delayed and reduced its capabilities through its annual budget process and did not know the extent to which it would meet mission needs and achieve desired results.¹² We reported that this was because the Coast Guard did not have a long-term fleet modernization plan that identified all acquisitions needed to meet mission needs over the next 20 years within available resources. We recommended that the Coast Guard develop a 20-year fleet modernization plan that identifies all acquisitions needed to maintain the current level of service and the fiscal resources necessary to build the identified assets. We recommended this plan consider trade-offs in cases where the fiscal resources needed to execute the plan are not consistent with annual budgets. DHS concurred, but, according to Coast Guard officials, the plan has yet to be approved.

In addition to reporting on the Coast Guard's management of its acquisition portfolio, we have also issued several reports on how it oversees depot-level maintenance funding. For example, in July 2012, we found that the Coast Guard's depot-level maintenance cost-estimating process did not fully reflect best practices.¹³ We recommended that the Coast Guard conform its estimated depot-level maintenance expenditures with cost-estimating best practices. DHS concurred; however, it raised several points that we found could limit the implementation of the recommendation. DHS stated, for example, that cost-estimating best practices are most applicable for new acquisitions. As our report noted, our cost-estimating best practices guide is intended to be applicable to programs and assets in all stages of their life cycles, including maintenance and support.

Additionally, in March 2017, we found that the cost estimates were not adjusted or updated over the course of an asset's service life, leading to a large discrepancy between expected and actual annual depot-level maintenance expenditures.¹⁴ We recommended that the Coast Guard

¹²GAO-14-450.

¹³GAO, *Coast Guard: Legacy Vessels' Declining Conditions Reinforce Need for More Realistic Operational Targets*, [GAO-12-741](#) (Washington, D.C.: July 31, 2012).

¹⁴GAO, *Coast Guard Cutters: Depot Maintenance Is Affecting Operational Availability and Cost Estimates Should Reflect Actual Expenditures*, [GAO-17-218](#) (Washington, D.C.: Mar. 2, 2017).

periodically update standard support levels, which are annual estimates for depot-level maintenance over the course of an asset's life cycle, to account for actual expenditures. DHS concurred with our recommendation and plans to complete actions to implement it by December 2018.

Effectiveness of the 5-Year Capital Investment Plan Is Limited and Coast Guard Does Not Review Its Acquisition Portfolio Collectively

The Coast Guard's 5-year CIP, a congressionally mandated report, does not fully reflect cost realities or acquisition needs. For example, the most recent CIP—from fiscal years 2018 through 2022—projects funding for its portfolio of major acquisitions that, over the 5-year period, exceeds average budget requests in the last several years. As such, we found that the Coast Guard continues to face the same programmatic risks that annual CIP-based planning perpetuates, similar to what we have been reporting since 2011.¹⁵ To address funding constraints, the Coast Guard has been in a reactive mode by making prioritization decisions through the annual budget process without identifying how trade-off decisions made in the current budget cycle will affect the future of the acquisition portfolio. As a result of this planning process, and as we found in 2012 and in this current review, the Coast Guard has continued to defer planned acquisitions to future years and left a number of operational capability gaps unaddressed that could affect future operations. Moreover, the Coast Guard has not conducted portfolio-wide oversight through its cross-directorate groups.

Coast Guard CIP-based Planning Has Shortcomings That Limit Its Effectiveness

The 5-year CIP is the Coast Guard's key acquisition portfolio planning tool. However, since 2011, we have reported on shortcomings that limit its effectiveness. As required by statute, the Coast Guard prepares a 5-year CIP that is required to be updated and submitted annually with the

¹⁵ [GAO-12-918](#) and GAO, *Coast Guard: Actions Needed as Approved Deepwater Program Remains Unachievable*, [GAO-11-743](#) (Washington, D.C.: July 28, 2011).

administration's budget request.¹⁶ This 5-year CIP provides information on the proposed budget for the upcoming fiscal year and the following 4 fiscal years. Coast Guard officials told us the 5-year CIP is the starting point for developing the acquisition, construction, and improvements budget for a given year, which funds asset acquisitions as well as major sustainment projects and infrastructure investments. Officials also indicated that operational commanders provide input for the budget, as do senior Coast Guard officials for operations, resources, and others who have a role within its resource governance construct.

As we have previously found, the Coast Guard's 5-year CIPs continue to demonstrate a pattern of certain planning practices, to include:

- not identifying priorities or trade-offs between acquisition programs and not showing the effect of current decisions on the overall affordability of the acquisition portfolio;
- projecting funding levels for the current budget year that do not reflect the full extent of the Coast Guard's projected acquisition needs; and
- projecting funding levels for future years that frequently surpass the average funding amounts requested by the Coast Guard in recent years.¹⁷

These shortcomings limit the Coast Guard's ability to manage the affordability of its acquisition portfolio. Coast Guard officials said the CIP reflects the highest priorities of the department within the given top funding level and that prioritization and trade-off decisions are made as part of the annual budget cycle. However, these decisions, and the resulting impacts on affected programs, are not articulated in the CIPs. While the Coast Guard is not required under statute to identify the effects of trade-off decisions in the CIP, failing to show which acquisitions would take on more risk so other acquisitions can be prioritized and adequately funded within budget parameters also makes it difficult for Congress and other stakeholders, such as DHS and the Office of Management and Budget (OMB), to understand other options the Coast Guard considered. GAO's *Cost Estimating and Assessment Guide* states that comparative

¹⁶14 U.S.C. § 2902. Since 2012, the Coast Guard has been required to submit its CIP with the President's budget in any given year. The CIP is approved by DHS and the Office of Management and Budget and, as we have reported in the past, is subject to significant change each year.

¹⁷[GAO-14-450](#) and [GAO-12-918](#).

analyses showing facts and supporting details among competing alternatives, such as budget priorities, should consider trade-offs needed to identify solutions and manage risk.¹⁸ Our past work has also highlighted other best practices for portfolio management, such as demonstrating comprehensive knowledge of the portfolio, including needs, gaps, and how to address those gaps; prioritizing investments through alignment of requirements, acquisition, and budget processes; and use of long-term planning.¹⁹

As we found in September 2012, the Coast Guard's approach of relying on the annual budget process to manage portfolio affordability does not provide the best basis for making decisions to develop a more balanced and affordable portfolio in the long-term.²⁰ In June 2014, we also found that there is no evidence that short-term budget decisions will result in a good long-term strategy, and the Coast Guard's annual budget-driven trade-off approach creates constant churn as program baselines must continually re-align with budget realities instead of budgets being formulated to support program baselines.²¹ This results in trade-off decisions between capability and cost being pushed into the future. For example, the Coast Guard has a stated requirement for three medium icebreakers and three heavy icebreakers, and has initiated an acquisition program for heavy icebreakers. Assets acquired under this program will replace the Coast Guard's only operating heavy icebreaker—the *Polar Star*—which is well past the end of its original design service life. The Coast Guard currently plans to have the three heavy icebreakers delivered in 2023, 2025, and 2026. Additionally, the Coast Guard operates one medium icebreaker, the *Healy*, which has an expected end of service life in 2029. Despite the requirement for three medium icebreakers, Coast Guard officials said they are not currently assessing acquisition of the medium polar icebreakers because they are focusing on the heavy icebreaker acquisition and plan to assess the costs and benefits of acquiring medium polar icebreakers at a later time.

This planning approach can also lead to delayed capabilities and program risks, as the 5-year CIP does not prioritize acquisition programs in its

¹⁸[GAO-09-3SP](#).

¹⁹[GAO-12-918](#).

²⁰[GAO-12-918](#).

²¹[GAO-14-450](#).

projections for the 5-year period. We found in 2017 that both acquisition needs—as articulated in program baselines—as well as the 5-year CIP’s funding projections frequently surpass the average requested funding amounts in recent years.²² Similarly, in this review, we found this to be the case in the 5-year CIP covering fiscal years 2018 through 2022.

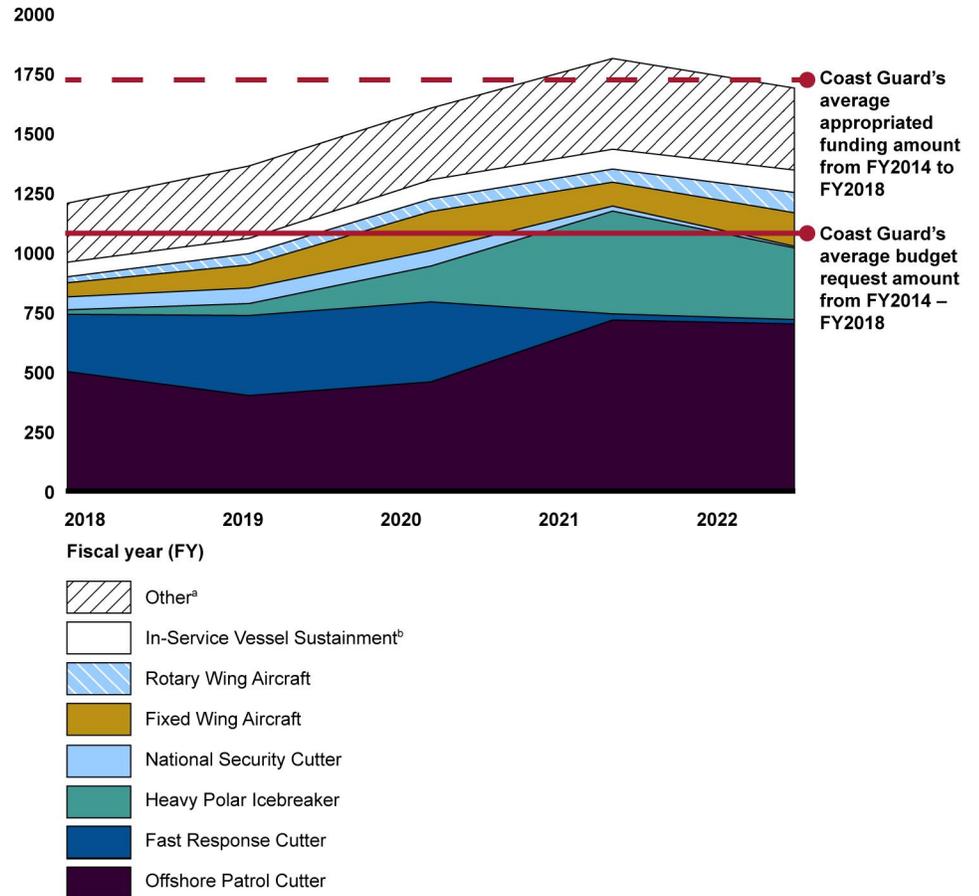
Congressional appropriations for Coast Guard acquisition, construction, and improvements in fiscal years 2013 through 2018 exceeded the Coast Guard’s requests. Explanatory materials on the annual appropriations acts for these fiscal years indicated, among other things, that funding was provided above requested amounts for procurement of one HC-130J aircraft each year. The House Committee on Appropriations report accompanying the Homeland Security appropriations bill for 2018 noted that the Secretary is expected to include adequate funding in the fiscal year 2019 budget request to normalize the recapitalization of the HC-130 fleet. Recent annual appropriations acts also direct the use of funds to contract for three National Security Cutters that were not a part of the program of record for the fleet of these cutters.

Absent any additional funding appropriated by Congress above Coast Guard requests, the acquisition portfolio put forth in the fiscal year 2018 CIP will not be affordable by fiscal year 2019 based on average recent budget requests. Figure 3 shows aggregate projected funding for various major Coast Guard acquisitions over the fiscal year 2018 through 2022 CIP, along with average budget requests and appropriations from fiscal years 2014 through 2018.

²²[GAO-17-747T](#).

Figure 3: Coast Guard's Acquisition, Construction, and Improvement Funding Projections as Depicted in Its Fiscal Year 2018 Capital Investment Plan for Fiscal Years 2018 through 2022

Dollars (in millions)



Source: GAO analysis of Coast Guard data. | GAO-18-454

Note: Acquisition, Construction, and Improvement is the Coast Guard's budget account for acquisition, procurement, construction, rebuilding, and improvement of vessels, aircraft, shore facilities, and military housing, aids to navigation systems and facilities, and command, control, communications, and computer systems and related equipment.

^aThe "other" category depicted in the graphic contains funding projections for software systems, acquisition personnel, and shore infrastructure, among others.

^bIn-service vessel sustainment represents necessary extensive maintenance and repairs, such as Service Life Extension Projects to sustain its legacy vessels.

Further, the previous Commandant of the Coast Guard testified in November 2017 that an annual acquisition budget of \$2 billion is needed to modernize the fleet and address other critical priorities, such as the

recapitalization of the Coast Guard's icebreaker fleet.²³ However, the fiscal year 2018 through 2022 CIP, dated October 2017, does not reflect this need for any year in its 5-year budget window. By not providing comprehensive information in the CIP on the acquisitions needed to perform its missions as well as the trade-offs necessary at different funding levels, the Coast Guard is not providing decision makers, including those in Congress, information to help decide which programs are the highest priority and which funding increases may or may not be consistent with the Coast Guard's programs of record, as approved by DHS. For example, even though recent annual appropriations acts direct the use of funds to contract for three additional National Security Cutters, the Coast Guard had not identified a need for these cutters as they were not part of the original program of record.

Coast Guard Is Developing a 20-Year Long-term Major Acquisitions Plan

The Coast Guard has initiated the development of a 20-year Long-term Major Acquisitions Plan, but it is incomplete as of March 2018. According to Coast Guard officials, the Coast Guard's efforts were in response to Congressional direction in 2016. In February 2016, Congress directed that the Coast Guard develop a Long-term Major Acquisitions Plan to cover the upcoming 2017 fiscal year, and for each of the 20 fiscal years thereafter, and stated that it should be updated every 2 years.²⁴ Specifically, each plan is to include the following: (1) the number and types of cutters and aircraft to be decommissioned; (2) the number and types of cutters and aircraft to be acquired to replace the cutters and aircraft or address an identified capability gap; and (3) the estimated level of funding in each fiscal year required to acquire the cutters, aircraft, and command and control systems as well as acquire, construct, or renovate shore-side infrastructure.

As of November 2017, officials told us that the Coast Guard was developing a 20-year Long-term Major Acquisitions Plan that specifically focused on its highest priority recapitalization and sustainment efforts for

²³Testimony of Coast Guard Commandant Paul Zukunft before the Senate Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard, November 16, 2017.

²⁴See Pub. L. No. 114-120, § 204(e) (codified at 14 U.S.C. § 2903(e)). The statute requires the Coast Guard to report for each of the 21 years the assets to be decommissioned, assets to be procured to replace those decommissioned and to fill capability gaps, and the estimated funding required in procuring new assets.

its assets and will focus on meeting the intent of the 2016 congressional mandate. These officials said that the plan will also be based on the Coast Guard's 5-year CIP and will contain the necessary sustainment activities for current assets, according to service life limitations and recapitalization efforts for assets that reach the end of their service lives. Coast Guard officials stated that the plan will not be a budget document, but rather an overall planning document for future budgets. As of March 2018, the Coast Guard had not completed this long-term plan.

Coast Guard Made Progress in Reducing Cost of the Portfolio but Reactive Planning Has Created Impending Surge of Unfunded Acquisitions

Since our 2014 review, the Coast Guard has generally demonstrated improved fiscal management of the major programs in its acquisition portfolio and made progress in acquiring the assets in the portfolio. At that time, we found that program cost increases were consuming significant amounts of funding, and the Coast Guard was further from fielding its planned fleet than it was in 2009, in terms of the fiscal resources needed to finish those programs—or the remaining investment required.²⁵ Since 2014, program costs have generally been stable and, from 2014 to 2018, the Coast Guard reduced the remaining investment required to complete those acquisitions by \$4.9 billion or 24 percent (see table 3).

Table 3: Total Estimated Acquisition Cost and Remaining Investment Required for Coast Guard Major Acquisition Portfolio in 2014 and 2018 (then-year dollars in millions)

Program	Total acquisition cost ^a		Remaining investment required	
	2014	2018	2014	2018
n/a				
National Security Cutter	\$5,682	\$6,135 ^b	\$1,316	\$248 ^b
Fast Response Cutter	4,243	4,243	2,547	1,562
Offshore Patrol Cutter	12,101	12,101	11,939	11,193
Medium Range Surveillance (HC-144A/HC-27J)	3,169 ^c	2,507	2,127 ^c	1,074
HC-130H/J	3,038	3,038	1,829	1,301
H-65 Conversion/Sustainment Projects	1,150	1,070	570	187
C4ISR	1,123	1,123	353	235

²⁵GAO-14-450.

Program				
n/a	2014	2018	2014	2018
Total	30,506	30,217	20,681	15,800
Change since 2014	n/a	(289)	n/a	(4,881)

Source: GAO presentation and analysis of Coast Guard data. | GAO-18-454

Note: n/a = not applicable.

The Heavy Polar Icebreaker and the small Unmanned Aircraft System were not included in our 2014 analysis, and those programs have only recently reached the point in the acquisition life cycle where they are required to have an approved baseline or a program plan; therefore, they were not included in this analysis.

^aTotal estimated acquisition cost is the threshold cost from the Acquisition Program Baseline.

^bThis total includes a 9th National Security Cutter that was not requested by the Coast Guard but for which Congress, in the Consolidated Appropriations Act 2016, directed that of the funds provided by the Act, not less than \$640 million be immediately available and allotted to contract for the production of the 9th NSC. However, this total does not include the 10th and 11th National Security Cutters for which Congress, in the Consolidated Appropriations Act, 2017, and Consolidated Appropriations Act, 2018, respectively, directed the use of acquisition, construction, and improvements funds to contract for the 10th and 11th National Security Cutters. The 10th and 11th National Security Cutters are not yet part of the program of record, and the Coast Guard is in the process of updating the National Security Cutter's acquisition program baseline to reflect them.

^cIn 2014, this included only the HC-144A aircraft. In 2014 the Coast Guard restructured the HC-144A program to include 14 C-27J aircraft, re-designating the combined acquisition the Medium Range Surveillance Program.

However, while the Coast Guard has reduced the remaining investment required to complete its acquisition portfolio, there is little room for additional major acquisitions based on recent budget requests. For example, the National Security Cutter and Fast Response Cutter—two of the Coast Guard's most expensive acquisitions programs—both experienced delays and were not delivered as originally scheduled. As a result, these delays stretched its acquisition budget longer than intended. Going forward, our analysis indicated that once the Coast Guard begins funding construction of Offshore Patrol Cutters—another major acquisition program critical in replacing vessels well past their service lives—that program is expected to consume a significant portion of the Coast Guard's planned acquisition, construction, and improvements budget between 2018 and 2032, also raising uncertainties in how the Coast Guard will be able to fund other priorities.

According to the previous Commandant of the Coast Guard, the Offshore Patrol Cutter is the Coast Guard's top priority and, as such, the Coast Guard will prioritize its budget requests for the Offshore Patrol Cutter before other assets, potentially limiting funds requested for other acquisition programs. This approach will limit the portfolio for the foreseeable future and affect other new programs, such as the Heavy Polar Icebreaker and Waterways Commerce Cutter. These two programs

represent critical needs for the Coast Guard, as the legacy assets they are intended to replace are well past their designed service lives, but there are limited resources for them if acquisition of the current portfolio is to be completed as scheduled.

- The polar icebreaker program has an estimated total acquisition cost of more than \$3 billion and, according to the Coast Guard, is needed to alleviate a potential icebreaking mission capability gap. Heavy icebreakers are needed, as Coast Guard officials also indicated, to provide year-round access to the Polar Regions, including the clearance of a navigable channel for access to the National Science Foundation's McMurdo Research Station on Ross Island, Antarctica as well as to facilitate other national security interests in polar waters. DHS approved the icebreaker program for entry into the obtain phase of the acquisition process in March 2018. The Coast Guard—in partnership with the Navy—is expected to award a contract for design and construction of up to 3 heavy polar icebreakers by June 2019, and plans for the first icebreaker to be delivered by the end of fiscal year 2023. We recently reported on this program in April 2018 and have an ongoing review that is expected to be completed by summer 2018.²⁶
- DHS recently approved a new program, known as the Waterways Commerce Cutter program, to recapitalize aging vessels such as its fleet of 35 Inland Tenders (river, buoy, and construction tenders). The assets in the current fleet continue to age beyond their expected service lives and the Waterways Commerce Cutter program is currently in the analyze/select phase of the acquisition process. Coast Guard officials said they are still determining how many new vessels are needed to provide capabilities similar to the current fleet of vessels that replace or relocate river buoys and builds fixed aids to navigational marine structures. A life-cycle cost estimate has not yet been developed for this program, but, according to Coast Guard officials, the preliminary rough order of magnitude estimate for total acquisition cost is \$1.1 billion.

As we reported in July 2017, the Coast Guard has no method in place to capture the effects of deferred acquisitions on its future portfolio.²⁷ The lack of a long-term plan, as discussed earlier, and determining priorities

²⁶GAO, *Coast Guard Acquisitions: Status of Coast Guard's Heavy Polar Icebreaker Acquisition*, [GAO-18-385R](#) (Washington, D.C.: Apr. 13, 2018).

²⁷[GAO-17-747T](#) and [GAO-17-654T](#).

and making trade-off decisions based on the annual budget have put the Coast Guard in a reactive planning mode each year. We found that this type of reactive planning and the Coast Guard's constrained budget environment have created a bow wave of near-term unfunded acquisitions, negatively affecting future acquisition efforts and potentially affecting future operations.²⁸ This bow wave consists of new acquisition programs and recapitalization efforts, as well as high-cost maintenance projects that use the acquisition construction and improvements account, which continue to put pressure on available resources. These projects include some that are not currently identified in the acquisition portfolio. For instance, the Coast Guard's 87-foot patrol boats are forecast to require recapitalization beginning in 2023. Additionally, the ocean-going 175-foot coastal buoy tenders—not included in the Waterways Commerce Cutter program—are past the point in their service lives when a midlife maintenance availability would normally have been conducted.²⁹ However, we found that the Coast Guard has historically operated vessels well past their expected end of service life, and it will likely need to do so with these assets given limited available acquisition funding.

Furthermore, the Coast Guard has identified more than \$1.5 billion in shore infrastructure projects, which are paid for with funding from the acquisition, construction, and improvements account that it has not been able to address, primarily due to lack of funding, among other reasons. Some of these projects are detailed in an unfunded priorities list the Coast Guard submitted to congressional committees in July 2017 pursuant to statutory requirements.³⁰ Among the projects identified are recapitalization for waterfront facilities damaged in hurricanes; major acquisition systems infrastructure associated with homeporting the ninth National Security Cutter; and a number of pier replacements, building construction, and navigational aid realignment projects in several locations. The Explanatory Statement regarding the Consolidated Appropriations Act, 2018, reflected approximately \$135 million in acquisition, construction, and improvements funding for shore

²⁸According to GAO's schedule assessment guide and cost estimating and assessment guide, bow wave refers to a large amount of funding that will be required in the future to complete an acquisition due to deferred or delayed work. Often the funding required at the peak of a bow wave is unrealistic. See [GAO-12-12OG](#) and [GAO-09-3SP](#).

²⁹Midlife maintenance availabilities occur near the midpoint of a cutter's life and are intended to correct system obsolescence issues and maintain asset reliability and supportability throughout the remainder of a cutter's service life.

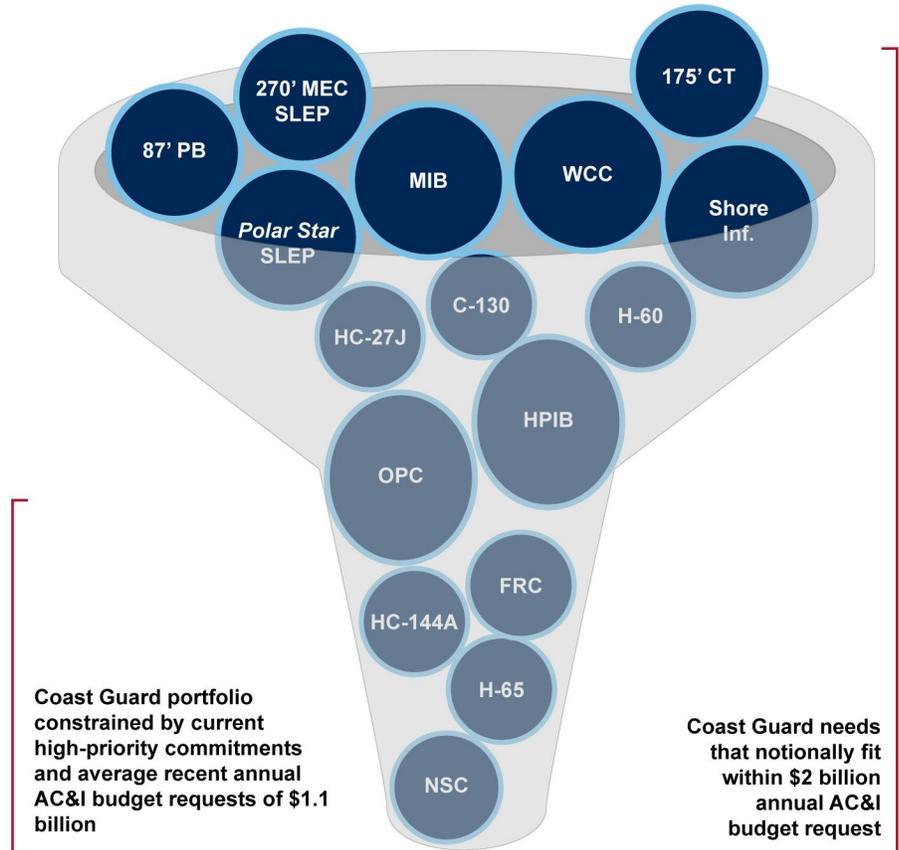
³⁰Pub. L. No. 112-213, § 213 (codified, as amended, at 14 U.S.C. § 2902).

infrastructure/construction projects, including for some previously unfunded priorities.³¹ We currently have an ongoing review to assess Coast Guard shore infrastructure projects and expect to issue a report in early 2019.

Figure 4 shows the current and future acquisitions that, based on current Coast Guard programs and requirements, need to be addressed in order for the Coast Guard to meet its statutory missions, along with the backlog of shore infrastructure projects noted above. For more information about the Coast Guard's 11 mission areas, including which assets perform each mission, see appendix III.

³¹The Coast Guard also received \$112 million in its operating expenses account under the Bipartisan Budget Act of 2018 for disaster relief for hurricanes Harvey, Irma, and Maria. Pub. L. No. 115-123.

Figure 4: Notional Depiction of Coast Guard Acquisition Priorities in Constrained Budget Environment



AC&I = Acquisition, Construction & Improvement
 Polar Star SLEP (Service Life Extension Program)
 WCC = Waterways Commerce Cutter
 Shore Inf. = Shore Infrastructure
 H-60 = H-60 Helicopter SLEP
 H-65 = H-65 Helicopter Conversion and Sustainment and SLEP
 C-130 = HC-130J (aircraft)
 FRC = Fast Response Cutter
 NSC = National Security Cutter
 OPC = Offshore Patrol Cutter
 HPIB = Heavy Polar Icebreaker
 270' MEC SLEP = 270-foot Medium Endurance Cutter SLEP
 87' PB = 87-foot Patrol Boats
 175' CT = 175-foot Coastal Tenders
 MIB = Medium Icebreaker
 HC-27J = HC-27J (aircraft)

Source: GAO analysis of Coast Guard data. | GAO-18-454

Federal standards for internal control state that quality information that is appropriate, current, complete, accurate, accessible, and timely is necessary for an organization to achieve its objectives.³² The Coast Guard has not communicated quality information to Congress or demonstrated how deferred acquisitions will affect the future acquisition portfolio. Including information in the CIP, such as how trade-off decisions will affect other programs in the portfolio, would allow decision makers, including Congress, to better understand Coast Guard priorities and how changes to one program might potentially affect other programs.

Coast Guard Does Not Conduct Oversight of Its Acquisitions Portfolio Collectively

The Coast Guard has a management body in place to conduct oversight of its major acquisition programs; however, this management body has not conducted oversight across the entire acquisition portfolio from a collective approach.³³ Among the Coast Guard's three cross-directorate groups, the Executive Oversight Council is positioned to oversee the portfolio collectively and has the potential to implement key portfolio-wide management practices, including conducting formal reviews and issuing reports. This council has cross-directorate senior-level management representation, access to information on acquisition programs, and support from the other two cross-directorate groups (the Systems Integration Team and the Resource Councils). However, this council has not carried out these portfolio-wide practices. Since 2012, the responsibilities of the Executive Oversight Council regarding portfolio-wide management have been changed multiple times (see figure 5).³⁴

³²GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington D.C.: September 2014).

³³According to OMB guidance, portfolio-wide management should collectively prioritize capital assets, such as the Coast Guard's major acquisition programs.

³⁴Coast Guard Executive Oversight Council Charter Memorandum 5000, June 21, 2017; Coast Guard Executive Oversight Council Charter Memorandum 5000, December 12, 2014.

Figure 5: Timeline of the Coast Guard’s Executive Oversight Council’s Leadership Role in Portfolio-wide Management, 2012-2017



Source: GAO analysis of Coast Guard information. | GAO-18-454

In 2014, the Coast Guard updated the Executive Oversight Council’s charter, in response to our September 2012 recommendation, adding the responsibility for portfolio-wide oversight to include conducting an annual review to assess and oversee acquisitions collectively. However, during our current review, we found that the Coast Guard revised the council’s charter in June 2017, removing this responsibility. According to Executive Oversight Council officials, this responsibility was removed from the 2017 charter because the council did not conduct these annual reviews. Instead, Executive Oversight Council officials indicated that the council facilitates a balanced and affordable portfolio of acquisition programs through the individual program-level reviews. GAO’s *best practices work* states that successful organizations assess product investments in

aggregate, rather than as independent products or programs.³⁵ For example, by considering the requirements, acquisition, and budget processes collectively, it helps organizations prioritize their product investments.

In addition, Coast Guard officials said that a portfolio-wide affordability review or assessment is undertaken by the Systems Integration Team—a cross-directorate, cross-enterprise group below the flag/Senior Executive Service-level—to help inform the annual budget process. The Systems Integration Team’s responsibilities outlined in its current charter include addressing issues tasked by the Executive Oversight Council chair, reporting to the council on cross-programmatic issues, and providing recommendations to the council.³⁶ For example, officials with the Systems Integration Team said they met with, and gathered information from, each of the Resource Councils and briefed the Executive Oversight Council in February 2018 with proposals for looking at investments collectively across the Coast Guard enterprise to include potential priorities and trade-offs. They said the briefing included a review of the upcoming annual budget, a look at the overall portfolio of major acquisition programs over the next 10 years, and prospective new start initiatives at low, medium, and high funding levels. It is unclear what actions the Executive Oversight Council has taken as a result of the Systems Integration Team briefing. However, we found that the Executive Oversight Council did not review the portfolio from a collective perspective.

Further, the members of the Systems Integration Team, who inform and report to the senior-level Executive Oversight Council, are not at the appropriate senior position to oversee or make decisions for the acquisition portfolio. Specifically, the Executive Oversight Council’s revised 2017 charter states that the Systems Integration Team is to support the council in its role to facilitate a balanced and affordable portfolio as a whole. However, as the higher-level cross-directorate group, the Executive Oversight Council has not engaged in overseeing or reporting on the acquisition portfolio collectively and annually. OMB’s 2017 *Capital Programming Guide* outlines a capital programming

³⁵GAO, *Best Practices: An Integrated Portfolio Management Approach to Weapon System Investments Could Improve DOD’s Acquisition Outcomes*, [GAO-07-388](#) (Washington, D.C.: Mar. 30, 2007).

³⁶Coast Guard Systems Integration Team Charter Memorandum 5420, December 4, 2017.

process, including how agencies should effectively and collectively manage a portfolio of capital assets.³⁷ This OMB guidance states that a senior-level executive review committee should be responsible for reviewing the agency's entire capital asset portfolio on a periodic basis and for making decisions or priorities on the proper composition of agency assets needed to achieve strategic goals and objectives within the budget limits. In the case of the Coast Guard, only the Executive Oversight Council has representation at the senior-level executive level and has the responsibility for oversight of its major acquisition programs. Without collective portfolio reviews at the senior management level, the Coast Guard does not have sufficient cross-directorate information to determine needed trade-offs in the major acquisitions realm, considering budget realities.

Coast Guard Plans to Extend Service Lives of Certain Legacy Assets as Sustainment Costs and Other Risks Are Increasing

Given the Coast Guard's limited acquisition budget in recent years, it is unclear how the Coast Guard will be able to fund planned Service Life Extension Projects (SLEP) on several aging assets in order to sustain them—that is, keep them operating at acceptable levels—until replacement assets are available. We found that each of these sustainment efforts involves a certain amount of risk. For example, according to Coast Guard officials, they plan to operate H-65 and H-60 helicopters to flight hours beyond what has been flown for those aircraft. In addition, several of the Coast Guard's aging cutters have spent more on depot-level maintenance than was planned. Combined, these cutters—the 210-foot and 270-foot Medium Endurance Cutters, the icebreaker *Polar Star*, and Inland Tenders—expended in excess of \$460 million more than what was originally estimated (standard support levels) from 2010 to 2017. When combined with the challenges facing the acquisition portfolio noted above, the Coast Guard will likely struggle to pay for the maintenance of older assets, a situation that could lead to deferred maintenance and lost operational capability, as we found in our July 2012 review and in our current review.³⁸ As discussed earlier, the 20-

³⁷OMB's 2017 Capital Programming Guide, Supplement V 3.0 OMB Circular A-11, Planning, Budgeting, and Acquisition of Capital Assets.

³⁸[GAO-12-741](#).

year long-term plan, if completed as directed by our June 2014 recommendation and subsequent congressional direction, will begin to lay out the prioritization of all efforts, trade-offs, and impacts.³⁹

Coast Guard Intends to Extend the Service Lives of Certain Legacy Assets

The Coast Guard currently operates several assets that have passed, or will soon pass, the end of their design service lives—the total period for which they were designed to operate. We found that these legacy assets are generally meeting metrics for availability to conduct operations; however, they are in need of major maintenance overhauls—or SLEPs—in order to continue providing capabilities to operators. According to Coast Guard officials, SLEPs are necessary because the Coast Guard does not have the funds available to initiate a new major acquisition program to recapitalize these assets in the short term, or because a significant amount of maintenance work is required to keep these assets operational until replacements are fielded. Table 4 provides details about the Coast Guard’s plans for SLEPs for selected assets.

Table 4: Selected Legacy Asset Service Life Extension Projects

Asset	Expected benefit of Service Life Extension Project	Date project plans to approve cost and schedule baselines	Planned project completion
H-65	10,000 additional flight hours to extend the service life to the mid-2030s to align recapitalization efforts with the Department of Defense’s Future Vertical Lift program ^a	March 2018 ^d	September 2024
270-foot Medium Endurance Cutter	To extend the service life of some of the cutters until they can be decommissioned as Offshore Patrol Cutters become operational ^b	June 2019	September 2028
H-60	10,000 additional flight hours to extend the service life to the mid-2030s to align recapitalization efforts with the Department of Defense Future Vertical Lift program ^{a,c}	December 2019	September 2027
<i>Polar Star</i>	Add 3 to 5 years to service life until the delivery of the second new Polar Icebreaker	December 2019	To be determined

Source: GAO presentation and analysis of Coast Guard data. | GAO-18-454

^aThe current service life for the H-65 and H-60 is 20,000 flight hours.

³⁹[GAO-14-450](#).

^bAccording to Coast Guard officials, the Coast Guard is evaluating how many of the 270-foot Medium Endurance Cutters will be included in the Service Life Extension Project and how long the cutters will need to continue operating until they are replaced by Offshore Patrol Cutters.

^cCoast Guard officials explained that they are evaluating whether to add 10,000 hours to the life of the current H-60 fleet, which would result in a service life of 30,000 hours, or use newer H-60 aircraft from the Navy and add an additional 10,000 hours to those aircraft for a service life of 20,000 hours.

^dThe H-65 Service Life Extension Project is expected to cost \$61.6 million.

These planned SLEPs involve several risks including technical, scheduling, and funding. While SLEPs will extend these assets' expected service lives, they will also add cost to an already constrained Coast Guard acquisition, construction, and improvements account. Since these projects use these funds, we would expect them to be included in the Coast Guard's forthcoming 20-year long-term plan so that decision makers and stakeholders can see their effects on the broader acquisition portfolio. Additional detail on these planned SLEPs follows.

H-65 and H-60 Aircraft

The Coast Guard is planning to conduct a SLEP that will add an additional 10,000 hours to the H-65 rotary-wing aircraft, taking the service life of each aircraft in the fleet to 30,000 hours. The Coast Guard is evaluating alternatives to extend the service lives of the H-60 fleet. According to DHS, two options the Coast Guard is considering include utilizing newer H-60 aircraft from the Navy and conducting a SLEP on those aircraft to extend their service lives to 20,000 hours or extending the life of the current fleet to 30,000 hours. Coast Guard officials said that this will allow both the H-65 and H-60 aircraft to operate into the mid-2030s so that the Coast Guard can focus funds from the acquisition, construction, and improvements account on the Offshore Patrol Cutter procurement and align its next helicopter acquisition effort with the Department of Defense's future vertical lift acquisition plans. However, there are risks associated with these SLEP plans. According to Coast Guard officials, they plan to operate H-65 and H-60 helicopters to flight hours beyond what has been flown for those aircraft. The Coast Guard is working with the original manufacturers to identify structural components that would need to be replaced to accomplish the service life extension.

Figure 6: The Coast Guard's H-65 and H-60 Aircraft



Source: United States Coast Guard (left) and United States Coast Guard, Petty Officer 3rd Class Joshua Canup (right). | GAO-18-454

From fiscal years 2012 to 2017, the H-65 operational availability—time available to conduct missions—averaged 70.9 percent and the H-60 averaged 73.5 percent, compared to their target of 71 percent. Both aircraft generally met their target but are approaching their end of service lives, with the H-65 expected to reach its 20,000 flight hour limit starting in 2020 and the H-60 in 2023. The Coast Guard expects the H-65 SLEP to cost about \$61.6 million, but the H-60 SLEP cost is unknown because the effort has not progressed to the acquisition decision event at which a cost estimate is required to be approved. The H-60 SLEP was recently approved for entry into the analyze and select phase, where it was designated as a level 1 program, which DHS defines as programs with estimated life-cycle costs greater than or equal to \$1 billion.⁴⁰

Heavy Icebreaker *Polar Star*

The Coast Guard conducted reactivation work on the *Polar Star* from 2010 to 2013, and the icebreaker resumed its missions for the annual breakout of the National Science Foundation's McMurdo Research Facility in Antarctica in 2014. The Coast Guard is planning a SLEP on the *Polar Star* to keep it operational until the first and second new heavy polar icebreakers are delivered (planned for 2023 and 2025, according to current acquisition plans) in order to bridge a potential operational gap. This approach would allow the Coast Guard to operate a minimum of two heavy icebreakers once the first polar icebreaker is delivered. The approach would also provide the Coast Guard with a self-rescue

⁴⁰Coast Guard Commandant Instruction Manual 5000.10D, *Major Systems Acquisition Manual* (May 29, 2015).

capability—the ability for one icebreaker to rescue the other if it became incapacitated while performing icebreaking operations.

Figure 7: The Coast Guard's Icebreaker *Polar Star*



Source: United States Coast Guard. | GAO-18-454

The Coast Guard's plan to conduct the *Polar Star* SLEP during its existing annual depot-level maintenance periods may not be feasible given the amount of maintenance already required on the cutter. The *Polar Star's* mission capable rating has been decreasing in recent years and reached a low point of 29 percent—well below the target of 41 percent—from October 2016 to September 2017. Based on mission capable data, we found this is mostly due to additional time spent in depot-level maintenance, which has increased in recent years from about 6 months in 2015 to more than 8 months in 2017.

Additionally, the *Polar Star* has required extensions of about 3 months for its annual dry dock periods—the period of time when a cutter is removed from the water so that maintenance can be conducted—in 2016 and 2017 to complete required maintenance activities. These dry docks were originally planned to last between 2-1/2 months and 4 months. These extensions also compressed the amount of time that the crew had to prepare for its annual mission to Antarctica, which, according to members of the *Polar Star* crew, placed a large stress on the crew, risked the quality of work, and reduced or eliminated the crews' planned rest and personal preparation for their roughly 4-month deployment. Based on our analysis, these delays and extensions are likely to continue as the cutter ages. According to Coast Guard officials, the *Polar Star's* SLEP work will

be conducted during the annual dry dock periods by adding an additional 1 or 2 months to the annual dry docks. However, if the work is unable to be completed during this time frame, it could force the Coast Guard to miss its commitment to conduct the annual Antarctica mission. Coast Guard maintenance officials stated that until the *Polar Star* completes the SLEP, its repairs will likely continue to get more expensive and time consuming. We will continue to monitor the *Polar Star's* SLEP through our annual review of DHS programs.

As we found in July 2017, the *Polar Star* SLEP effort has a rough order cost estimate of \$75 million, which is based on the reactivation work completed in 2013.⁴¹ However, this estimate may be unrealistic based on assumptions the Coast Guard used, such as that it would continue to use parts from the Coast Guard's other heavy polar icebreaker, the *Polar Sea*, which has been inactive since 2010.⁴² The Coast Guard's recent assessment of the *Polar Star's* material condition—the physical condition of the cutter, which includes the hull structure, habitability, major equipment systems, and spare parts availability—was completed in January 2018.⁴³ The material assessment stated that many of the available parts from the *Polar Sea* have already been removed and installed on the *Polar Star*. As a result of the finite parts available from the *Polar Sea*, the Coast Guard may have to acquire new parts for the *Polar Star* that could increase the \$75 million SLEP estimate. The *Polar Star's* recent material assessment will form the basis to determine which systems will be overhauled during the SLEP and for a more detailed cost estimate. The Coast Guard expects the program to reach the obtain phase of the acquisition life cycle by December 2019, at which time the *Polar Star* could reach the end of its current useful service life (currently projected to be between 2020 to 2023). This timeline contains risk that the *Polar Star* could be rendered inoperable before the cutter is able to undergo a SLEP.

⁴¹[GAO-17-747T](#).

⁴²The *Polar Sea* is the sister ship to the *Polar Star* and has been inactive since experiencing a major engine casualty in June 2010.

⁴³The Ship Structure and Machinery Evaluation Board is the prime source of information on the material condition and remaining service life of the cutter classes. This information allows the Coast Guard to formulate cutter acquisition plans and modernization alternatives. A fundamental step in this planning cycle is to periodically evaluate the remaining service life of each cutter and standard boat class and compare this against the future mission requirements. The board thoroughly evaluates the material condition of the cutter or standard boat class and determines its remaining service life.

Medium Endurance Cutters

The Coast Guard operates two fleets of Medium Endurance Cutters (270-foot and 210-foot cutters) and both are either approaching or have exceeded their design service lives. According to Coast Guard maintenance officials, the primary problem facing the 270-foot Medium Endurance Cutters is obsolescence given the age of these cutters. The cutters have several systems that are no longer manufactured, and in many cases the original manufacturer no longer makes parts for the systems, such as the generators, fire pumps, and main diesel engines. In order to sustain the 270-foot Medium Endurance Cutters until the Offshore Patrol Cutters—replacements for the Medium Endurance Cutters—are delivered, the Coast Guard is planning to conduct a SLEP. Officials stated they are evaluating how many of the 13 cutters will undergo the SLEP. The Coast Guard does not have a cost estimate for the SLEP, but officials said that the project should enter the obtain phase and complete its first cost estimate by June 2019.

Figure 8: The Coast Guard’s 270-Foot Medium Endurance Cutter



Source: United States Coast Guard, Petty Officer 2nd Class Lisa Ferdinando. | GAO-18-454

Despite the age and condition of the cutters, the mission capable rate for the 270-foot Medium Endurance Cutters has been increasing since the fleet first started using the metric in August 2014 and has met its minimum target of 49 percent. Specifically, the 270-foot Medium Endurance Cutters’ mission capable rate increased from 47.6 percent in

2015 to 69.4 percent in 2017.⁴⁴ This indicates that the Coast Guard has been increasing the amount of time that the cutters are available to conduct operations. However, the mission capable rating of 69.4 percent in 2017 is above the maximum target—61 percent—which means the Coast Guard is operating the cutters more than planned. This could be troublesome since the percentage of time above the 61 percent target is time that is allocated to depot-level maintenance, meaning these cutters are not spending as much time as planned in maintenance. In May 2016, we found that deferring maintenance can lead to declining ship conditions and longer maintenance periods that can reduce a ship's operational availability.⁴⁵

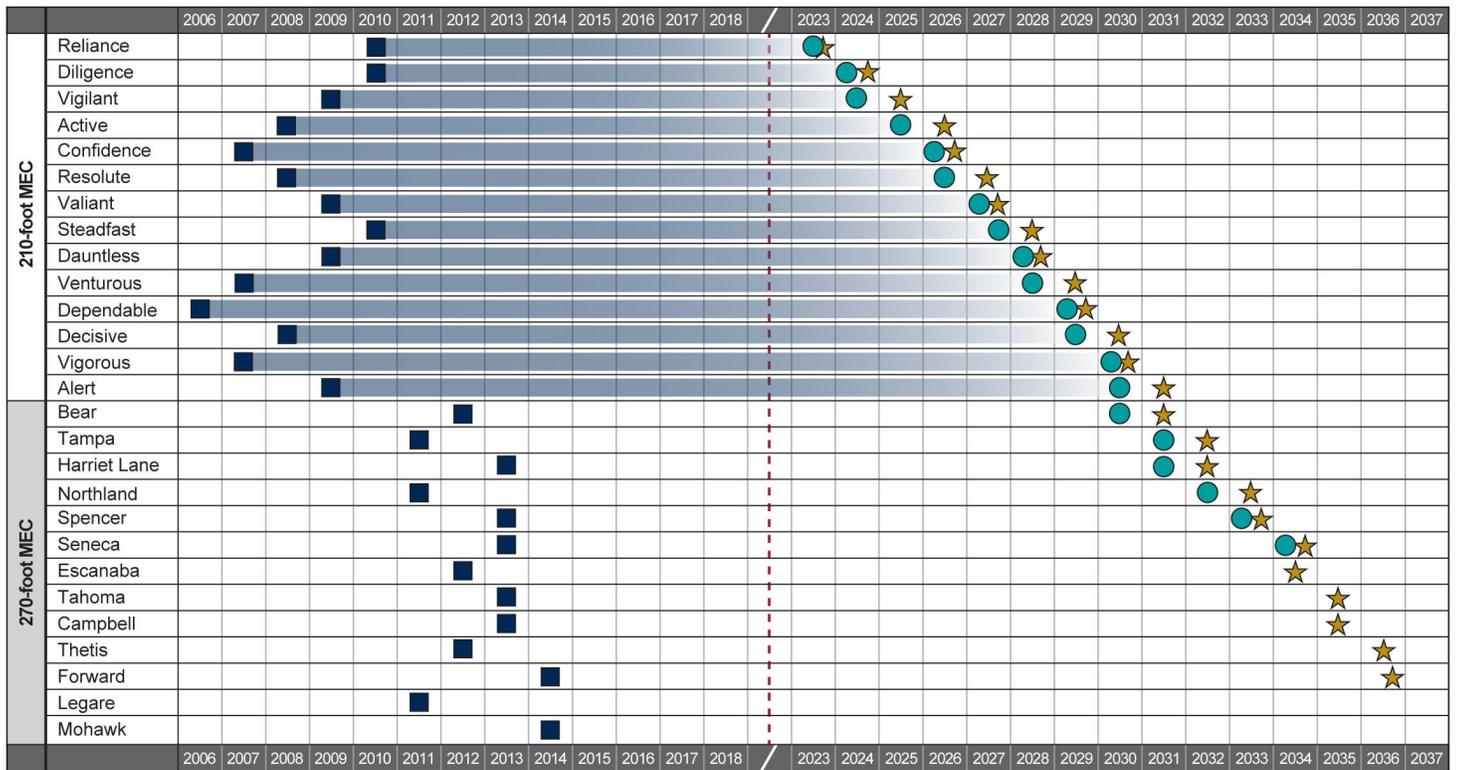
The Coast Guard is also evaluating how long the 270-foot Medium Endurance Cutters should remain in service. According to Coast Guard officials, this decision is at least partially dependent on the delivery of the Offshore Patrol Cutters—specifically the shipbuilder's ability to deliver 2 cutters per year, which is expected to start in fiscal year 2024 with the 4th and 5th cutters. Officials stated that the Coast Guard does not plan to operate any Medium Endurance Cutters once all 25 Offshore Patrol Cutters are operational, yet the fiscal year 2018 through 2022 CIP report indicates that 7 of the 270-foot Medium Endurance Cutters will still be in service when all 25 Offshore Patrol Cutters are delivered and operational. Officials said this is a contingency plan in case not all Offshore Patrol Cutters are delivered on time. As we found in June 2017, the Coast Guard completed refurbishment work on the 210-foot and 270-foot Medium Endurance Cutters in 2014, but this was not intended to extend the cutters' service lives.⁴⁶ Figure 9 shows the delivery dates for the Offshore Patrol Cutters and the decommissioning dates for the legacy Medium Endurance Cutters.

⁴⁴The mission capable target for the 270-foot Medium Endurance Cutters is 49 to 61 percent.

⁴⁵GAO, *Military Readiness: Progress and Challenges in Implementing the Navy's Optimized Fleet Response Plan*, [GAO-16-466R](#) (Washington, D.C.: May 2, 2016).

⁴⁶[GAO-17-654T](#).

Figure 9: Comparison of the End of the Service Life for the Legacy Medium Endurance Cutters and the Planned Offshore Patrol Cutter Delivery Dates



- End of service life as of 2012
- Assets not undergoing Service Life Extension Program
- Decommissioning date in fiscal year 2018 Capital Investment Plan
- Full operational date for each Offshore Patrol Cutter

Source: GAO analysis of Coast Guard documents. | GAO-18-454

Note: The fiscal year 2018 Capital Investment Plan does not specifically list when each hull will be decommissioned, but lists the number of hulls to be decommissioned each year. We notionally went in order of the oldest to the newest cutters as provided by the Coast Guard.

The Coast Guard plans to have two Offshore Patrol Cutters delivered per year starting in 2024, but the full operational date is two years later due to the need for post-delivery work.

The Coast Guard conducted a Major Maintenance Availability on the 210-foot Medium Endurance Cutters between 1987 and 1998 that added 15 years to their service lives. The end of service life shown represents this 15 year extension.

The fiscal year 2018 through 2022 CIP shows that there is little, if any, gap between when the 210-foot and 270-foot Medium Endurance Cutters will be removed from service and when the Offshore Patrol Cutters will be operational. However, both Medium Endurance Cutter classes will be well past their end of service lives by the time they are decommissioned. For

instance, in our July 2012 report, we reported that the 210-foot Medium Endurance Cutter *Dependable* reached its end of service life in 2006.⁴⁷ In addition, based on the fiscal year 2018 through 2022 CIP, we found that the Coast Guard plans for the cutter to operate for an additional 23 years (until 2029) without any major sustainment work to extend its service life. While it is not unusual for the Coast Guard to operate cutters for longer than originally planned, the acquisition schedule for fielding the Offshore Patrol Cutters will result in some of the Medium Endurance Cutters being expected to operate up to 30 years beyond their original design service lives when they are removed from service.

In the February 2017 Sustainability Assessment of the 210-foot Medium Endurance Cutters, the Coast Guard rated 5 of the 14 cutters as a high risk for sustainability, which reflects either a poor material condition or high maintenance costs.⁴⁸ Additionally, the most recent material condition assessments for the Medium Endurance Cutters, which were completed in 2015, found that the:

- 210-foot Medium Endurance Cutters cannot be expected to meet operational requirements using the normal depot-level maintenance funding levels due to the time required to complete maintenance and the increased maintenance costs in recent years; and
- mission effectiveness of the 270-foot Medium Endurance Cutters will continue to degrade without a near-continuous recapitalization of older sub-systems.

Further, according to the fiscal year 2018 through 2022 CIP, the Coast Guard is planning to operate some of the Medium Endurance Cutters for about the same period of time as other Medium Endurance Cutters that will undergo the SLEP project. This raises questions as to how those cutters that do not go through the SLEP will continue operating until their planned decommissioned date, which in some cases is the same time period as those cutters undergoing the SLEP. As shown in figure 9, the 210-foot Medium Endurance Cutter *Alert* will be decommissioned in 2030 and will not undergo a SLEP, while the 270-foot Medium Endurance Cutter *Bear* will also be decommissioned in 2030 and could undergo the SLEP. In July 2012, we found that as assets age beyond their design

⁴⁷[GAO-12-741](#).

⁴⁸Sustainability Assessments are annual assessments that rank each cutter's ability to be affordably sustained.

service lives, they can negatively affect the Coast Guard's operational capacity to meet mission requirements as the cutters require more maintenance.⁴⁹ As discussed earlier, in response to Congressional direction, as the Coast Guard continues its development of a 20-year Long-term Major Acquisitions Plan, it is important to include more details about the 270-foot Medium Endurance Cutter SLEP, including when the SLEP should begin and how much service life the SLEP should add to the cutters.⁵⁰

Depot-Level Maintenance Costs for Aging Assets Are Increasing

As legacy assets operate longer than originally planned, they are becoming costlier to maintain, which introduces risk to an already constrained Coast Guard budget. For example, depot-level maintenance expenditures from fiscal years 2010 to 2017 for the 210-foot and 270-foot Medium Endurance Cutters, *Polar Star*, and Inland Tenders exceeded by \$460 million the assets' estimated costs for depot-level maintenance (standard support levels—the Coast Guard's annual estimates for depot-level maintenance) since these assets are near the end of or have exceeded their expected service lives. Specifically, over the 8-year period the:

- 210-foot Medium Endurance Cutters' expenditures were about \$151 million (219 percent) more,
- 270-foot Medium Endurance Cutters' expenditures were \$192 million (265 percent) more,
- *Polar Star's* expenditures were about \$15 million (31 percent) more,⁵¹ and
- Inland Tenders expenditures were about \$102 million (151 percent) more than standard support levels.

The most recent material assessments for the 210-foot and 270-foot Medium Endurance Cutters, completed in September 2015 and

⁴⁹[GAO-12-741](#).

⁵⁰[GAO-14-450](#).

⁵¹The *Polar Star's* expenditures are calculated from 2014 to 2017 since it was in a reactivation period prior to 2014 and was not operational.

November 2015 respectively, stated that the cutters' current standard support level funding is not sufficient to continue funding the necessary maintenance activities. The assessments noted that there is the likelihood that maintenance will be deferred, postponed, or modified to accommodate this funding shortfall and that the cutters could degrade at an increasing rate if additional funding is not identified. According to Coast Guard guidance, once the cost to maintain or repair equipment is in excess of 50 percent of a cutter's annual standard support level, it is considered to have zero years of remaining service life. The 210-foot and 270-foot Medium Endurance Cutters and Inland Tenders exceeded this threshold each year from 2010 to 2017 and the *Polar Star* exceeded this threshold in 2016. This indicates that, although the legacy cutters we reviewed continue to perform missions, the Coast Guard is accepting a significant level of risk based on the cutters' increased depot-level maintenance expenditures, and that these cutters could experience catastrophic failures. Such an event could result in assets being removed from service without available replacement assets. Our March 2017 recommendation that the Coast Guard periodically update standard support levels to account for actual expenditures would, if implemented, begin to address this problem so that standard support levels would better align with depot-level maintenance expenditures.

Conclusions

The Coast Guard continues to use the annual budget process to address the affordability of its portfolio of major acquisition programs by making trade-off decisions that result in delayed acquisitions and reduced capabilities. This approach places decision makers, including those in Congress in a position of committing fiscal resources to individual programs without knowing whether they are affordable or achievable within the context of the Coast Guard's overall portfolio. While the 5-year CIP shows the Coast Guard's immediate trade-off decisions, it does not show how these decisions could affect other programs in the portfolio or future acquisition efforts. Not providing comprehensive information in the CIP on the acquisitions needed to perform its missions, the trade-offs necessary at different funding levels, and the impact of the trade-off decisions made, the CIP limits the information available to decision makers, including those in Congress.

In addition, the Coast Guard currently is not conducting key oversight that could facilitate a balanced, affordable portfolio. While the Coast Guard has a group in place to conduct portfolio reviews as a part of the annual

budget cycle in the Systems Integration Team, it does not have senior-level executive representation or responsibilities necessary for the oversight and management of the portfolio as a whole. The Executive Oversight Council is a flag/Senior Executive Service-level group that monitors major risks and provides direction to other cross-directorate teams. In the past, this council had a documented role to annually review and oversee the Coast Guard's overall acquisition portfolio, but it never conducted these reviews. Without collective portfolio reviews at the senior management level, the Coast Guard does not have sufficient information to determine needed trade-offs between the major acquisition programs while also considering the affordability of the portfolio and budget realities.

Recommendations for Executive Action

We are making the following two recommendations to the Coast Guard:

The Commandant of the Coast Guard should work with Congress to include in the Coast Guard's annual 5-year CIP a discussion of the acquisition programs it prioritized that describes how trade-off decisions made could affect other acquisition programs, such as by delaying recapitalization efforts or needing to conduct Service Life Extension Projects for legacy assets. (Recommendation 1)

The Commandant of the Coast Guard should require the Executive Oversight Council, in its role to facilitate a balanced and affordable acquisition portfolio, to annually review the acquisition portfolio collectively, specifically for long-term affordability. (Recommendation 2)

Agency Comments and Our Evaluation

We provided a draft of this report to DHS for review and comment. DHS's written comments are reprinted in appendix IV. The Coast Guard also provided technical comments that we incorporated into the report as appropriate. In responding to a draft of our report, DHS concurred with our first recommendation and non-concurred with our second recommendation. In its response, with respect to our second recommendation DHS noted that several existing organizations within the Coast Guard—such as its Investment Board, Deputies Council, and Investment Review Board—are responsible for making decisions regarding out-year funding. Further, DHS noted that the Executive

Oversight Council works outside the Planning, Programming, Budgeting, and Execution process and that the phrase “long-term affordability” is subject to interpretation in the context of our recommendation. DHS also stated that, to meet the spirit of our recommendation, the Coast Guard will update the Executive Oversight Council’s charter to require a review of the collective acquisition portfolio, specifically evaluating long-term planning.

We believe that updating the Executive Oversight Council’s charter to include long-term planning is a positive step. However, long-term affordability, as discussed throughout this report, should include the budget realities faced by the Coast Guard in its major acquisition portfolio. If the planning accounts for long-term funding considerations to achieve the Coast Guard’s acquisition goals and objectives, we believe the intent of our recommendation would be met.

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

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



Marie A. Mak
Director, Contracting and National Security Acquisitions

Appendix I: Objectives, Scope, and Methodology

The objectives of this report are to assess (1) the extent to which the Coast Guard has made changes to how it manages its acquisition portfolio and (2) how the Coast Guard is sustaining existing assets until new assets become operational.

To examine the extent to which the Coast Guard has changed how it manages its acquisition portfolio, we assessed Coast Guard practices for managing the portfolio's affordability and long-term planning. We looked at the portfolio to determine how its composition changed since our last Coast Guard acquisition portfolio review in 2014.¹ We selected a range of acquisition programs based on if they were already major acquisition programs (programs with a life-cycle cost estimate greater than or equal to \$300 million or a total acquisition cost greater than or equal to \$100 million) by definition, the programs were part of our 2014 review, or they are likely to be major acquisition programs that will require significant funding in the near future.

Using acquisition program baselines, we also identified changes in the expected total acquisition costs of these programs using the threshold costs and compared them with what we reported in 2014. We used the threshold acquisition costs—the maximum amount the program should cost as approved by DHS—when referring to the total acquisition cost of a program. We calculated the remaining investment required for each program by taking the total acquisition cost, as reported in the program's acquisition program baseline, and subtracting the funding reflected for the program in Explanatory Statements regarding annual appropriations acts through fiscal year 2018 appropriations.

We reviewed program documentation and interviewed officials from program offices and the Coast Guard's capabilities and engineering directorates. These discussions helped identify program achievements as well as any risks associated with realizing planned cost, schedule, and capability targets. We analyzed Coast Guard 5-year Capital Investment

¹[GAO-14-450](#).

Plans (CIP) that supported the budget requests for fiscal years 2014 through 2018 to determine how the Coast Guard has managed the affordability of its acquisition portfolio. We also compared annual appropriations acts and accompanying explanatory materials since fiscal year 2014 with acquisition needs and capability gaps identified in the CIPs. We compared Coast Guard practices for managing the affordability of its acquisition portfolio and long-term planning with best practices outlined in GAO's *Cost Estimating and Assessment Guide* and prior GAO reports.² In addition, we reviewed Atlantic Area Command annual area planning assessments for fiscal years 2011 through 2016 and other Coast Guard documents highlighting shore-side infrastructure and vessel recapitalization needs. We reviewed charters for Coast Guard cross directorate groups—the Executive Oversight Council and Systems Integration Team—that help oversee Coast Guard acquisitions—to identify responsibilities and membership for these organizations, and conducted interviews with officials from these bodies to better understand their portfolio oversight activities. We also reviewed surface and aviation fleet mix studies and other strategy and planning documents. We interviewed Coast Guard officials about the anticipated content of the 20-year Long-term Major Acquisitions Plan. Additionally, we interviewed officials from the Coast Guard resources directorate; the Coast Guard's two operational commands (Pacific Area Command and Atlantic Area Command); the Department of Homeland Security (DHS) offices for Program Accountability and Risk Management, and Program Analysis and Evaluation; and the Office of Management and Budget (OMB) to discuss Coast Guard planning and budget preparation. We visited Eastern Shipbuilding Group and the Offshore Patrol Cutter Project Resident Office in Panama City Beach, Florida, to discuss Offshore Patrol Cutter production.

To examine how the Coast Guard is sustaining existing assets until new assets become operational, we selected assets to review that were at or approaching their end of design service lives—an estimated period before the asset reaches obsolescence—and if the Coast Guard was planning to conduct a Service Life Extension Project (SLEP). We collected and analyzed program documentation on asset operational availability and mission capability, sustainment needs and maintenance history, and plans for extending the service lives of selected assets. We assessed Coast Guard expenditures on depot-level maintenance—which, according

²[GAO-14-450](#); [GAO-12-918](#); and [GAO-09-3SP](#).

to the Coast Guard, is maintenance that is beyond the capability of the crew—for fiscal years 2010 to 2017 for legacy assets, and compared them with standard support levels—annual funding estimates for depot-level maintenance—for those assets over that same time period. We interviewed Coast Guard officials from the Long Range Enforcer Product Line Office, which is responsible for sustainment of the *Polar Star*, the Coast Guard’s only active heavy icebreaker. We conducted site visits—based on Coast Guard’s availability of assets—to the Coast Guard’s Medium Endurance Cutter Product Line Office in Portsmouth, Virginia, and the Aviation Logistics Center in Elizabeth City, North Carolina. We also toured a 270-foot Medium Endurance Cutter in Portsmouth, Virginia, and interviewed the officers serving on the cutter at the time. Based on the nature of the information we collected, we are not making any generalizable statements from these site visits.

We conducted this performance audit from March 2017 to July 2018 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: The Coast Guard's Major Acquisition Portfolio

The Coast Guard's major acquisition portfolio comprises 10 surface, aviation, and command and control programs. Major acquisition programs are those with life-cycle cost estimates of at least \$300 million. Table 5 provides quantities and descriptions of each major acquisition program in the Coast Guard's 2018 portfolio.

Table 5: Coast Guard Major Acquisition Portfolio as of March 2018

Category	Name	Quantity planned ^a	Quantity delivered	Description
Surface	National Security Cutter	9 ^b	6	The 418-foot National Security Cutter is the flagship of the Coast Guard's fleet, providing improved seakeeping abilities, higher sustained transit speeds, and greater endurance and range. The cutter, with its aircraft and small-boat assets, operates worldwide.
Surface	Offshore Patrol Cutter	25	0	The Offshore Patrol Cutter is intended to conduct patrols for homeland security functions, law enforcement, and search-and-rescue operations. It will be designed for long-distance transit, extended on-scene presence, and operations with deployable aircraft and small boats. The first ship is expected to be delivered in 2021.
Surface	Fast Response Cutter	58	28	The Fast Response Cutter, also referred to as the Sentinel class, is a 154-foot patrol boat that operates with a small boat and is designed to have high readiness, speed, adaptability, and endurance to perform a wide range of missions.
Surface	Heavy Polar Icebreaker	3	0	The Heavy Polar Icebreaker is intended to replace the aging <i>Polar Star</i> and is intended to operate in both Arctic and Antarctic waters. The first icebreaker is expected to be delivered in 2023.

Appendix II: The Coast Guard's Major Acquisition Portfolio

Category	Name	Quantity planned^a	Quantity delivered	Description
Surface	Waterways Commerce Cutter (new)	TBD	0	The Waterways Commerce Cutter program is intended to replace multiple types of legacy inland river, buoy, and construction tenders that establish, maintain, and operate aids to navigation equipment on the nation's waterways. All but two of the legacy fleet have surpassed their design service life and are in need of recapitalization; the oldest vessels are more than 70 years old. The program was approved to enter the analyze and select acquisition phase in January 2018.
Aviation	Long Range Surveillance Aircraft – HC-130J	22	11	The HC-130J is a four engine turbo-prop aircraft that is replacing the legacy HC-130H models. The HC-130J is a new variant that the Coast Guard has deployed with improved interoperability, C4ISR, and sensors. The Coast Guard is fielding a new mission system processor on all aircraft that is intended to enhance operator interface and sensor management, and replace obsolete equipment.
Aviation	Medium Range Surveillance Aircraft – HC-144A	18	18	The HC-144A and the C-27J aircraft form the Coast Guard's Medium Range Surveillance aircraft fleet. The HC-144 is a twin-engine propeller driven, transport and surveillance, fixed-wing aircraft for search and rescue, enforcement of laws and treaties, and transportation of cargo and personnel. The Coast Guard reduced the overall number of aircraft from 36 to 18 following the transfer of the C-27J aircraft from the Air Force. The Coast Guard is fielding a new mission system processor on all aircraft that is intended to enhance operator interface and sensor management, and replace obsolete equipment.
Aviation	Medium Range Surveillance Aircraft – HC-27J (quantities reflect missionized aircraft)	14	0	The C-27J is a twin-engine aircraft and was transferred from the Air Force. The Coast Guard is fielding a new mission system processor on all aircraft that is intended to enhance operator interface and sensor management, and replace obsolete equipment.

Appendix II: The Coast Guard's Major Acquisition Portfolio

Category	Name	Quantity planned^a	Quantity delivered	Description
Aviation	H-65 – Short Range Helicopter (quantities reflect progress implementing segment VI)	98	2	<p>The H-65 is the Coast Guard's short range recovery helicopter. It is being upgraded to improve its engines, sensors, navigation equipment, avionics, and other capabilities in multiple segments. The upgrades allow for greater reliability, maneuverability, and interoperability between the H-65 and other government assets.</p> <p>The program is focused on the final phases of upgrades to the radar system, the automatic flight control system, and avionics. The Coast Guard is planning to conduct a Service Life Extension Project on the fleet to add an additional 10,000 hours, which will allow the aircraft to operate into the mid-2030s.</p>
Aviation	H-60 – Medium Range Helicopter (quantities reflect progress implementing Service Life Extension Project) (new)	TBD	0	<p>The H-60 is the Coast Guard's medium-range recovery helicopter designed to perform search and rescue missions in all weather conditions. The Coast Guard is planning to conduct a Service Life Extension Project on the fleet to add an additional 10,000 hours, which will allow the aircraft to operate into the mid-2030s.</p>
Command and Control	Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)	n/a	n/a	<p>Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems provide situational awareness, data gathering and processing, and information exchange tools that are installed in a variety of Coast Guard cutters and aircraft. According to the current C4ISR program's baseline, the program encompasses the acquisition of C4ISR systems tailored for the National Security Cutter, Fast Response Cutter, Offshore Patrol Cutter, Polar Icebreaker, HC-130J and HC-144 aircraft, and legacy vessels. However, Coast Guard officials reported the program is now primarily working on the C4ISR system on the National Security Cutter.</p>

Source: GAO presentation of Coast Guard information. | GAO-18-454

Note: n/a = not applicable, TBD = to be determined.

^aThe quantity planned is based on the program's approved Acquisition Program Baseline.

^bCongress, in the Consolidated Appropriations Act, 2017, and Consolidated Appropriations Act, 2018, respectively, directed the use of acquisition construction and improvements funds to contract for the 10th and 11th National Security Cutters. The Coast Guard is in the process of updating the program's documentation to include these additional cutters.

Appendix III: Coast Guard Missions

The Coast Guard performs 11 statutory missions, some of which align with DHS missions (such as undocumented migrant interdiction; defense readiness; and ports, waterways, and coastal security) and some of which are broader (such as search and rescue, and living marine resources). Table 6 shows select Coast Guard assets we reviewed and which of the 11 statutory missions they perform.

Table 6: Coast Guard Missions Performed by Ongoing Major Acquisition Program Assets

Coast Guard Asset	Coast Guard Missions										
	n/a	Search and Rescue	Marine Safety	Aids to Navigation	Ice Operations	Defense Readiness	Illegal Drug Interdiction	Undocumented Migrant Interdiction	Other Law Enforcement	Ports, Waterways and Coastal Security	Marine Environmental Protection
National Security Cutter	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Offshore Patrol Cutter	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Fast Response Cutter	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	No	Yes
Heavy Polar Icebreaker	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
H-65	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
H-60	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Medium Range Surveillance Aircraft	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Long Range Surveillance Aircraft	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: GAO presentation of Coast Guard data. | GAO-18-454

Appendix IV: Comments from the U.S. Department of Homeland Security

**Appendix IV: Comments from the U.S.
Department of Homeland Security**

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



**Homeland
Security**

July 10, 2018

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

Re: Management Response to Draft Report: GAO-18-454, "COAST GUARD
ACQUISITIONS: Identifying Effects to Priorities and Assessing the Collective Portfolio
Could Mitigate Costs and Capability Risks"

Dear Ms. Mak:

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

The Department is pleased to note GAO's recognition that since 2014, the Coast Guard has generally demonstrated improved fiscal management of the major programs in its acquisition portfolio. The Coast Guard is committed to improving its ability to manage its acquisition portfolio in the long-term, which includes increased use of cost estimating best practices identified by GAO.

The draft report contained two recommendations. The Department concurs with one recommendation and non-concurs with the other. Attached find our detailed response to each recommendation. Technical comments were previously provided under a separate cover.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Jim H. Crumpacker".

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

Attachment

**Attachment: Management Response to Recommendations
Contained in GAO-18-454**

GAO recommended that the Commandant of the Coast Guard:

Recommendation 1: Work with Congress to include in the Coast Guard’s annual 5-year CIP [Capital Investment Plan] a discussion of the acquisition programs it prioritized that describes how trade-off decisions made could affect other acquisition programs, such as by delaying recapitalization efforts or needing to conduct Service Life Extension Projects for legacy assets.

Response: Concur. The Coast Guard Office of Budget and Programs will work with DHS Office of the Chief Financial Officer to include additional information in future submissions of CIP reports addressing how trade-off decisions made could affect other major acquisition programs. The first update to the CIP report is targeted for submission with the FY 2021 President’s Budget. Estimated Completion Date (ECD): March 31, 2020.

Recommendation 2: Require the Executive Oversight Council [EOC], in its role to facilitate a balanced and affordable acquisition portfolio, to annually review the acquisitions portfolio collectively, specifically for long-term affordability.

Response: Non-concur. The Investment Board (IB), Deputies Council (DPC), and Investment Review Board (IRB) are bodies within Coast Guard’s organizational structure that evaluate and prioritize funding, while the EOC works outside of the Planning, Programming, Budgeting, and Execution (PPBE) process. The phrase “long-term affordability” is subject to interpretation in the context of this recommendation. Generally speaking, any discussions/decisions regarding Coast Guard out-year funding levels happen within the bodies listed above (e.g., IB, DPC, IRB), who prioritize and align Coast Guard strategic priorities with funding levels. During the PPBE process, these bodies identify and prioritize the Coast Guard’s strategic needs, resources, and risks to support the development and execution of plans and budgets within the five year Future Years Homeland Security Program (FYHSP). However, in order to meet the spirit of this recommendation, the Coast Guard will update the EOC charter to require a review of the collective acquisitions portfolio, specifically evaluating long-term planning. ECD: September 30, 2019.

Appendix V: GAO Contact Staff and Acknowledgments

GAO Contact

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

Staff Acknowledgments

In addition to the contact above, Rick Cederholm, Assistant Director, Peter W. Anderson, John Crawford, Kristine Hassinger, Andrew Redd, Suzanne Sterling, and Roxanna Sun all made key contributions to this report.

Appendix VI: Accessible Data

Data Tables

Accessible Data for Figure 1: Coast Guard Major Acquisition Portfolio in 2014 and 2018

2014 Coast Guard Recapitalization program of record	2018 Coast Guard Recapitalization program of record
<ul style="list-style-type: none"> National Security Cutter Offshore Patrol Cutter Fast Response Cutter Heavy Polar Icebreaker Long Range Surveillance Aircraft (HC-130H/J) HC-144A Aircraft H-65 Helicopter Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) System 	<ul style="list-style-type: none"> National Security Cutter Offshore Patrol Cutter Fast Response Cutter Heavy Polar Icebreaker Waterways Commerce Cutter Long Range Surveillance Aircraft (HC-130H/J) Medium Range Surveillance Aircraft (HC-144A/HC-27J) H-65 Helicopter Conversion/Sustainment H-60 Helicopter Sustainment Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) System

Source: GAO presentation of Coast Guard information. | GAO-18-454

Accessible Data for Figure 3: Coast Guard's Acquisition, Construction, and Improvement Funding Projections as Depicted in Its Fiscal Year 2018 Capital Investment Plan for Fiscal Years 2018 through 2022

n/a	Dollars (in millions)									
Fiscal year (FY)	Offshore Patrol Cutter	Fast Response Cutter	Heavy Polar Icebreaker	National Security Cutter	Fixed Wing Aircraft	Rotary Wing Aircraft	In-Service Vessel Sustainment ^b	Other	Coast Guard's average budget request amount from FY2014 to FY2018	Coast Guard's average appropriated funding amount from FY2014 to FY2018
2018	500	240	19	54	59	25	61	247	1079	1720

Appendix VI: Accessible Data

n/a	Dollars (in millions)									
Fiscal year (FY)	Offshore Patrol Cutter	Fast Response Cutter	Heavy Polar Icebreaker	National Security Cutter	Fixed Wing Aircraft	Rotary Wing Aircraft	In-Service Vessel Sustainment ^b	Other	Coast Guard's average budget request amount from FY2014 to FY2018	Coast Guard's average appropriated funding amount from FY2014 to FY2018
2019	400	335	50	65	97	47	64	303	1079	1720
2020	457	335	150	65	163	53	80	300	1079	1720
2021	716	26	430	21	100	55	83	380	1079	1720
2022	700	18	300	7	140	85	94	343	1079	1720

Source: GAO analysis of Coast Guard data. | GAO-18-454

Accessible Data for Figure 5: Timeline of the Coast Guard's Executive Oversight Council's Leadership Role in Portfolio-wide Management, 2012-2017

Coast Guard's Executive Oversight Council (established 2010)				
2012 – 2013	2014	2015	2014 – 2017	2017

Coast Guard's Executive Oversight Council (established 2010)				
2012 – 2013	2014	2015	2014 – 2017	2017
In September 2012, we recommended the Commandant of the Coast Guard identify the Executive Oversight Council as the governing body to oversee acquisitions with a portfolio-wide management approach. In January 2013, the Coast Guard revised its Major Systems Acquisition Manual to, among other things, provide that the Executive Oversight Council will conduct an annual review to assess and oversee acquisitions collectively as a balanced long-term affordable portfolio consisting of a balanced mix of assets that optimizes Coast Guard mission execution.	In December 2014, in response to our September 2012 recommendation, the Coast Guard made changes to the charter of the Executive Oversight Council by adding portfolio-wide oversight as a responsibility, including conducting an annual review to assess and oversee acquisitions collectively as a balanced long-term and affordable portfolio consisting of a balanced mix of assets that optimizes Coast Guard mission execution.	In May 2015, the Coast Guard revised its Major Systems Acquisition Manual to, among other things, remove the Executive Oversight Council's annual review of acquisitions collectively to oversee a balanced long-term affordable portfolio consisting of a mix of assets to optimize mission execution, and replace it with a review and assessment, as part of the annual Acquisition Decision Event-0 process, of the collection of current programs plus candidate new start initiatives with the intent of providing a balanced set of affordable acquisition programs that meet mission needs across the collective life cycle.	Coast Guard officials stated that between December 2014 and June 2017, the Executive Oversight Council never conducted annual portfolio-wide reviews, which were part of their responsibilities in the 2014 charter.	In June 2017, the Coast Guard revised the Executive Oversight Council's charter and removed its responsibility to annually review acquisitions collectively and replaced it with facilitating a balanced and affordable portfolio of acquisition programs.

Source: GAO analysis of Coast Guard information. | GAO-18-454

Agency Comment Letter

Accessible Text for Appendix IV: Comments from the U.S. Department of Homeland Security

Page 1

U.S. Department of Homeland Security

Washington, DC 20528

Homeland Security

July 10, 2018

Marie A. Mak

Director, Contracting and National Security Acquisitions

U.S. Government Accountability Office

441 G Street, NW

Washington, DC 20548

Re: Management Response to Draft Report: GAO-18-454, "COAST GUARD ACQUISITIONS: Identifying Effects to Priorities and Assessing the Collective Portfolio Could Mitigate Costs and Capability Risks"

Dear Ms. Mak:

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

The Department is pleased to note GAO's recognition that since 2014, the Coast Guard has generally demonstrated improved fiscal management of the major programs in its acquisition portfolio. The Coast Guard is committed to improving its ability to manage its acquisition portfolio in the long-term, which includes increased use of cost estimating best practices identified by GAO.

The draft report contained two recommendations. The Department concurs with one recommendation and non-concurs with the other. Attached find our detailed response to each recommendation. Technical comments were previously provided under a separate cover.

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

Sincerely,

JIM H. CRUMPACKER, CIA, CFE

Director

Departmental GAO-OIG Liaison Office

Attachment

Page 2

Attachment: Management Response to Recommendations Contained in GA0-18-454

GAO recommended that the Commandant of the Coast Guard:

Recommendation 1: Work with Congress to include in the Coast Guard's annual 5-year CIP [Capital Investment Plan] a discussion of the acquisition programs it prioritized that describes how trade-off decisions made could affect other acquisition programs, such as by delaying recapitalization efforts or needing to conduct Service Life Extension Projects for legacy assets.

Response: Concur. The Coast Guard Office of Budget and Programs will work with DHS Office of the Chief Financial Officer to include additional information in future submissions of CIP reports addressing how trade-off decisions made could affect other major acquisition programs. The first update to the CIP report is targeted for submission with the FY 2021 President's Budget. Estimated Completion Date (ECD): March 31, 2020.

Recommendation 2: Require the Executive Oversight Council [EOC], in its role to facilitate a balanced and affordable acquisition portfolio, to annually review the acquisitions portfolio collectively, specifically for long-term affordability.

Response: Non-concur. The Investment Board (IB), Deputies Council (DPC), and Investment Review Board (IRB) are bodies within Coast Guard's organizational structure that evaluate and prioritize funding, while the EOC works outside of the Planning, Programming, Budgeting, and Execution (PPBE) process. The phrase "long-tenn affordability" is subject to interpretation in the context of this recommendation. Generally speaking, any discussions/decisions regarding Coast Guard out-year funding levels happen within the bodies listed above (e.g., IB, DPC, IRB), who prioritize and align Coast Guard strategic priorities with funding levels. During the PPBE process, these bodies identify and prioritize the Coast Guard's strategic needs, resources, and risks to support the development and execution of plans and budgets within the five year Future Years Homeland Security Program (FYHSP). However, in order to

meet the spirit of this recommendation, the Coast Guard will update the EOC charter to require a review of the collective acquisitions portfolio, specifically evaluating long-term planning. ECD: September 30, 2019.

Related GAO Products

Homeland Security Acquisitions: Leveraging Programs' Results Could Further DHS's Progress to Improve Portfolio Management. [GAO-18-339SP](#). Washington, D.C.: May 17, 2018.

Coast Guard Acquisitions: Status of Coast Guard's Heavy Polar Icebreaker Acquisition. [GAO-18-385R](#). Washington, D.C.: April 13, 2018.

Coast Guard Acquisitions: Limited Strategic Planning Efforts Pose Risk for Future Acquisitions. [GAO-17-747T](#). Washington, D.C.: July 25, 2017.

Coast Guard Recapitalization: Matching Needs and Resources Continue to Strain Acquisition Efforts. [GAO-17-654T](#). Washington, D.C.: June 7, 2017.

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

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

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

Coast Guard: Portfolio Management Approach Needed to Improve Major Acquisition Outcomes. [GAO-12-918](#). Washington, D.C.: September 20, 2012.

Coast Guard: Legacy Vessels' Declining Conditions Reinforce Need for More Realistic Operational Targets. [GAO-12-741](#). Washington, D.C.: July 31, 2012.

Coast Guard: Action Needed as Approved Deepwater Program Remains Unachievable. [GAO-11-743](#). Washington, D.C.: July 28, 2011.

Coast Guard: Progress Being Made on Deepwater Project, but Risks Remain. [GAO-01-564](#). Washington, D.C.: May 2, 2001.

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