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Report to the Ranking Member, Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

September 2012

COAST GUARD

Portfolio Management Approach Needed to Improve Major Acquisition Outcomes

GAO-12-918

GAO
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Highlights

Highlights of GAO-12-918, a report to the Ranking Member, Subcommittee on Coast Guard and Maritime Transportation, Committee on Transportation and Infrastructure, House of Representatives

September 2012

COAST GUARD

Portfolio Management Approach Needed to Improve Major Acquisition Outcomes

Why GAO Did This Study

The Coast Guard is in the process of acquiring a multi-billion dollar portfolio of systems intended to conduct missions that range from marine safety to defense readiness. GAO has reported extensively on the Coast Guard's significant acquisition challenges, including those of its former Deepwater program, as well as areas in which it has strengthened its acquisition management capabilities. For this report, GAO assessed (1) the planned cost and schedule of the Coast Guard's portfolio of major acquisitions; (2) the steps the Coast Guard has recently taken to develop an affordable portfolio through its requirements process; and (3) the extent to which the Coast Guard is using cross-directorate teams to provide oversight and inform acquisition decisions. To conduct this work, GAO reviewed the Coast Guard's *Major Systems Acquisition Manual*, acquisition program baselines, capital investment plans, fleet mix analyses, and cross-directorate teams' charters and meeting documentation, and interviewed relevant Coast Guard and DHS officials.

What GAO Recommends

GAO recommends that the Commandant of the Coast Guard conduct a comprehensive portfolio review to develop revised acquisition program baselines and identify the Executive Oversight Council as the governing body to oversee acquisitions with a portfolio management approach to help ensure the Coast Guard acquires a balanced mix of assets. DHS concurred with both recommendations and noted planned actions to address the recommendations.

View GAO-12-918. For more information, contact John Hutton at (202) 512-4841 or huttonj@gao.gov.

What GAO Found

The planned cost and schedule of the Coast Guard's portfolio of major acquisitions is unknown because of outdated acquisition program baselines and uncertainty surrounding affordability. The Coast Guard's approved baselines, which reflect cost and schedule estimates, indicate the estimated total acquisition cost of Coast Guard major acquisitions could be as much as $35.3 billion—an increase of approximately 41 percent over the original baselines. However, the approved baselines for 10 of 16 programs do not reflect current cost and schedule plans because programs have breached the cost or schedule estimates in those baselines, changed in scope, or do not expect to receive funding to execute baselines as planned. Furthermore, a continued mismatch between resources needed to support all approved baselines and expected funding levels has required the Coast Guard to make decisions about which programs to fund and which programs not to fund as part of its annual budget process. Both DHS and the Coast Guard have acknowledged this resource challenge, but efforts to address this challenge have not yet resulted in a clear strategy for moving forward.

The Coast Guard has taken steps through its requirements process—a process that takes mission needs and converts them to specific capabilities—to address affordability, but additional efforts are required. For example, in an effort to consider affordability, the Coast Guard made some capability trade-offs when developing requirements for its largest acquisition, the Offshore Patrol Cutter. But whether the cutter ultimately will be affordable depends on some key assumptions in the cost estimate that are subject to change. At the fleet level, the Coast Guard completed two efforts to reassess what mix of assets it requires to meet mission needs, but neither effort used realistic fiscal constraints or considered reducing the number of assets being pursued. The mix of assets the Coast Guard is acquiring is based upon needs identified in 2005, but the Coast Guard may not be on a path to meet these needs and it has not re-examined the portfolio in light of affordability.

The Coast Guard has established an acquisition governance framework that includes the following cross-directorate teams: the Executive Oversight Council, the Systems Integration Team, and Resource Councils. The Executive Oversight Council—composed of admirals and senior executives—is well-positioned to delegate tasks to the other teams or obtain information as needed to assist in managing acquisitions. This Council has been active in meeting to discuss individual acquisitions; however, it has not met to discuss the portfolio as a whole. Coast Guard officials told us it manages portfolio affordability through the budget process. GAO's best practices work has found that successful commercial companies assess product investments collectively from an enterprise level, rather than as independent and unrelated initiatives. The Coast Guard's current approach of relying on the annual budget process to manage portfolio affordability involves immediate trade-offs but does not provide the best environment to make decisions to develop a balanced long-term portfolio.

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Abbreviations

ADE	Acquisition Decision Event
C4ISR	Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance
DHS	Department of Homeland Security
DOD	Department of Defense
NM	Nautical Miles

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United States Government Accountability Office
Washington, DC 20548

September 20, 2012

The Honorable Rick Larsen
Ranking Member
Subcommittee on Coast Guard and Maritime Transportation
Committee on Transportation and Infrastructure
House of Representatives

Dear Mr. Larsen:

The Coast Guard is in the process of acquiring a multi-billion dollar portfolio of systems intended to conduct missions that range from marine safety to defense readiness. We have reported extensively on the Coast Guard's significant acquisition challenges, including challenges with its former Deepwater program that was created to build and modernize ships, aircraft, and other capabilities.[1] This prior work identified problems in costs, management, and oversight that have led to delivery delays and other operational challenges for certain assets. Despite these challenges, our work has also recognized that the Coast Guard has taken steps to strengthen its acquisition management capabilities including reorganizing its acquisition directorate, applying the knowledge-based acquisition policies and practices outlined in its *Major Systems Acquisition Manual*, and developing acquisition program baselines for each asset. While these steps have given the Coast Guard better insight into asset-level capabilities and costs, we have previously recommended that the Commandant of the Coast Guard and the Secretary of the Department of Homeland Security (DHS) take additional actions to balance mission needs and affordability. For example, last year we recommended that the Commandant of the Coast Guard take actions—including identifying acquisition program priorities and incorporating cost and schedule best practices—to help ensure that programs receive and plan to a more predictable funding stream.[2] We also recommended that the Secretary of the Department of Homeland Security develop a working group to review

[1]While the Department of Homeland Security (DHS) and the Coast Guard no longer use the term "Deepwater" for the program aimed at recapitalizing its surface, air, and information technology capacity, the assets that made up the former Deepwater program currently constitute the majority of the Coast Guard's major acquisition programs.

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

the results of multiple fleet studies to identify cost, capability, and quantity trade-offs that would produce a program that fits within expected budget parameters.

We performed our work under the authority of the Comptroller General to conduct work on GAO's initiative to assist Congress with its oversight responsibilities. This report assesses (1) the planned cost and schedule of the Coast Guard's portfolio of major acquisitions; (2) the steps the Coast Guard has recently taken to develop an affordable portfolio through its requirements process; and (3) the extent to which the Coast Guard is using cross-directorate teams to provide oversight and inform acquisition decisions.

To assess the planned cost and schedule of the Coast Guard's major acquisitions portfolio, we reviewed the Coast Guard's *Major Systems Acquisition Manual*, key asset documents including acquisition program baselines and life-cycle cost estimates, the Fiscal Year 2013 President's Budget request and the fiscal years 2013-2017 capital investment plan. To assess the steps the Coast Guard has recently taken to develop an affordable portfolio through its requirements process, we reviewed the Coast Guard's Fleet Mix Analyses and DHS's Cutter Study. We also reviewed the Coast Guard's 2005 Integrated Deepwater System Mission Need Statement to determine the extent to which the capabilities being acquired matched the needs set forth in the plan. Further, we compared the National Security Cutter's and Offshore Patrol Cutter's missions, requirements, and costs to determine similarities and differences. To assess the extent to which the Coast Guard is using cross-directorate teams to provide oversight and inform acquisition decisions, we compiled and analyzed cross-directorate teams' charters. We also reviewed meeting minutes and briefing presentations for the Executive Oversight Council and Resource Councils from calendar years 2010 to 2011 to identify the extent to which cross-directorate teams are used to inform acquisition decisions. We interviewed Coast Guard officials in the acquisitions directorate as well as officials in the directorates responsible for budgeting and resources and for assessing and developing operational requirements (the capabilities directorate). In addition, we interviewed DHS officials from the Office of Program Accountability and Risk Management and the Office of Policy. Appendix I provides additional details about our scope and methodology.

We conducted this performance audit from November 2011 to September 2012 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

The Coast Guard is a multimission, maritime military service within DHS. The Coast Guard has a variety of responsibilities including port security and vessel escort, search and rescue, and Polar ice operations. To carry out these responsibilities, the Coast Guard operates a number of vessels, aircraft, and information technology systems. Since 2001, we have reviewed Coast Guard acquisition programs and reported to Congress, DHS, and the Coast Guard on the risks and uncertainties inherent in its acquisitions. Several of our reports have focused on the Coast Guard's former Deepwater acquisition program that was created to build and modernize ships, aircraft, and other capabilities. In our July 2011 report on the Deepwater program, we found that the program continues to exceed the cost and schedule baselines approved by DHS in 2007, but that several factors precluded a solid understanding of the program's true cost and schedule.[3] These factors included approved acquisition program baselines that did not reflect the current status of some programs, unreliable cost estimates and schedules for selected assets, and a mismatch between funding needed to support all approved Deepwater baselines and expected funding levels. We concluded that while the Coast Guard has strengthened its acquisition management capabilities, it needed to take additional actions to address the cost growth, schedule delays, and expected changes to planned capabilities.

The Coast Guard's current acquisition portfolio includes 16 major acquisition programs—12 of which were part of the former Deepwater program. Major acquisitions—level I and level II—have life-cycle cost estimates equal to or greater than $1 billion (level I) or from $300 million to less than $1 billion (level II) as outlined in the Coast Guard's *Major Systems Acquisition Manual*. Table 1 provides further information about the Coast Guard's major acquisition programs.

[3]GAO-11-743.

Table 1: Information on Coast Guard Major Acquisition Programs

Asset	Acquisition level	Asset purpose	Included as part of the former Deepwater Program (Yes/No)
Surface			
Fast Response Cutter	Level I	The Fast Response Cutter, also referred to as the Sentinel class, is a patrol boat designed to have high readiness, speed, adaptability, and endurance to perform a wide range of missions.	Yes
Medium Endurance Cutter Sustainment	Level I	The Medium Endurance Cutter sustainment project is intended to improve the cutters' operating and cost performance by replacing obsolete, unsupportable, or maintenance-intensive equipment.	Yes
National Security Cutter	Level I	The National Security Cutter is intended to be the flagship of the Coast Guard's fleet, with an extended on-scene presence, long transits, and forward deployment. The cutter and its aircraft and small-boat assets are to operate worldwide.	Yes
Offshore Patrol Cutter	Level I	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 aircraft and small boats.	Yes
Patrol Boat Sustainment	Level II	The Patrol Boat Sustainment project is intended to improve the cutters' operating and cost performance by replacing obsolete, unsupportable, or maintenance-intensive equipment.	Yes
Response Boat-Medium	Level I	The Response Boat-Medium replaces the aging 41' utility boats and other nonstandard boats.	No
Aviation			
HC-130H Long-Range Surveillance Aircraft	Level I	The HC-130H is the legacy Coast Guard long-range surveillance aircraft that the Coast Guard intends to update in multiple segments.	Yes
HC-130J Long-Range Surveillance Aircraft	Level II	The HC-130J is a four-engine turbo-prop aircraft that the Coast Guard has deployed with improved interoperability, C4ISR (see below), and sensors to enhance surveillance, detection, classification, identification, and prosecution.	Yes
HC-144A Maritime Patrol Aircraft	Level I	The Maritime Patrol Aircraft is a transport and surveillance, fixed-wing aircraft for search and rescue, enforcement of laws and treaties, and transportation of cargo and personnel.	Yes

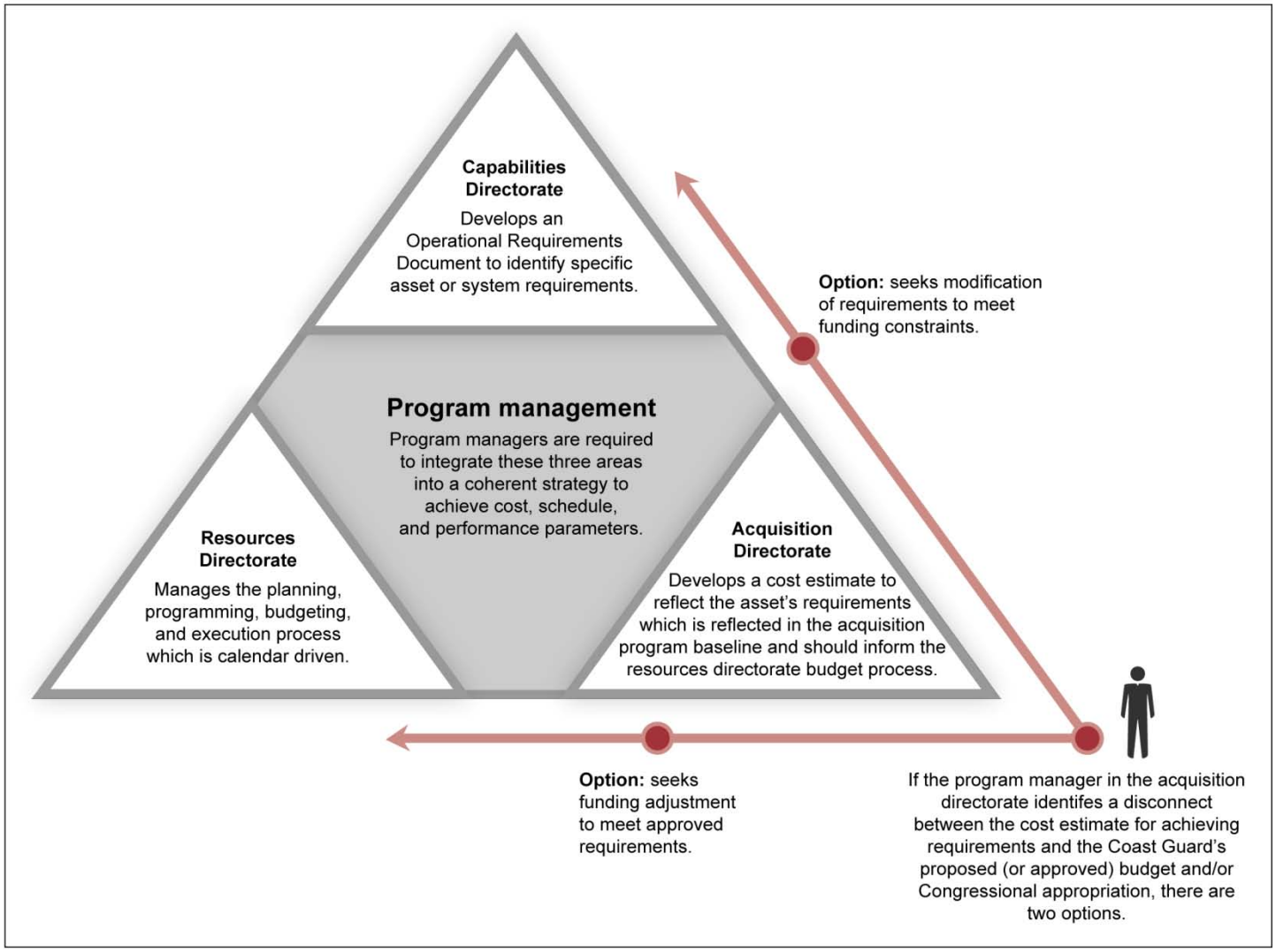
Asset	Acquisition level	Asset purpose	Included as part of the former Deepwater Program (Yes/No)
HH-60 Medium Range Recovery Helicopter	Level I	The HH-60 is a medium-range recovery helicopter designed to perform search-and-rescue missions offshore in all weather conditions. The Coast Guard has planned upgrades to the helicopter's avionics and sensors.	Yes
HH-65 Multi-mission Cutter Helicopter	Level I	The HH-65 Dolphin 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.	Yes
Unmanned Aircraft System	Level I	The Coast Guard is exploring the use of Unmanned Aircraft Systems to augment the service's cutter-and land-based aviation capabilities.	Yes
C4 & Information Technology			
Command, Control, Communications, Computer, Intelligence, Surveillance, and Reconnaissance (C4ISR) Suite	Level I	The Coast Guard is incrementally acquiring C4ISR capabilities, including upgrades to existing cutters and shore installations, acquisitions of new capabilities, and development of a common operating picture to provide operationally relevant information and knowledge across the full range of Coast Guard operations.	Yes
Interagency Operations Centers	Level I	Interagency Operations Centers are intended to improve operational capabilities; situational awareness; tactical decision making; and joint, coordinated emergency response.	No
Nationwide Automatic Identification System	Level I	The Nationwide Automatic Identification System is a data collection, processing, and distribution system that provides information to enhance safety of navigation and improve maritime domain awareness.	No
Rescue 21	Level I	Rescue 21 is an advanced command, control, and communications system intended to improve the Coast Guard's Search and Rescue mission by leveraging direction-finding technology to more accurately locate the source of distress calls.	No

Source: GAO presentation of Coast Guard data.

Three key Coast Guard directorates—capabilities, resources, and acquisition—are involved in the major acquisition process. Program managers in the acquisition directorate are required to integrate input from these three directorates into a coherent strategy to achieve specific cost, schedule, and performance parameters for their programs. Figure 1 identifies some key documents that program managers use in this

process and, according to the *Major Systems Acquisition Manual*, what should happen if a program manager's cost estimate for achieving requirements established by the capabilities directorate does not match Coast Guard's approved or proposed budget.

Figure 1: Program Management Responsibilities within the Major Systems Acquisition Management Framework



Source: GAO presentation of Coast Guard information.

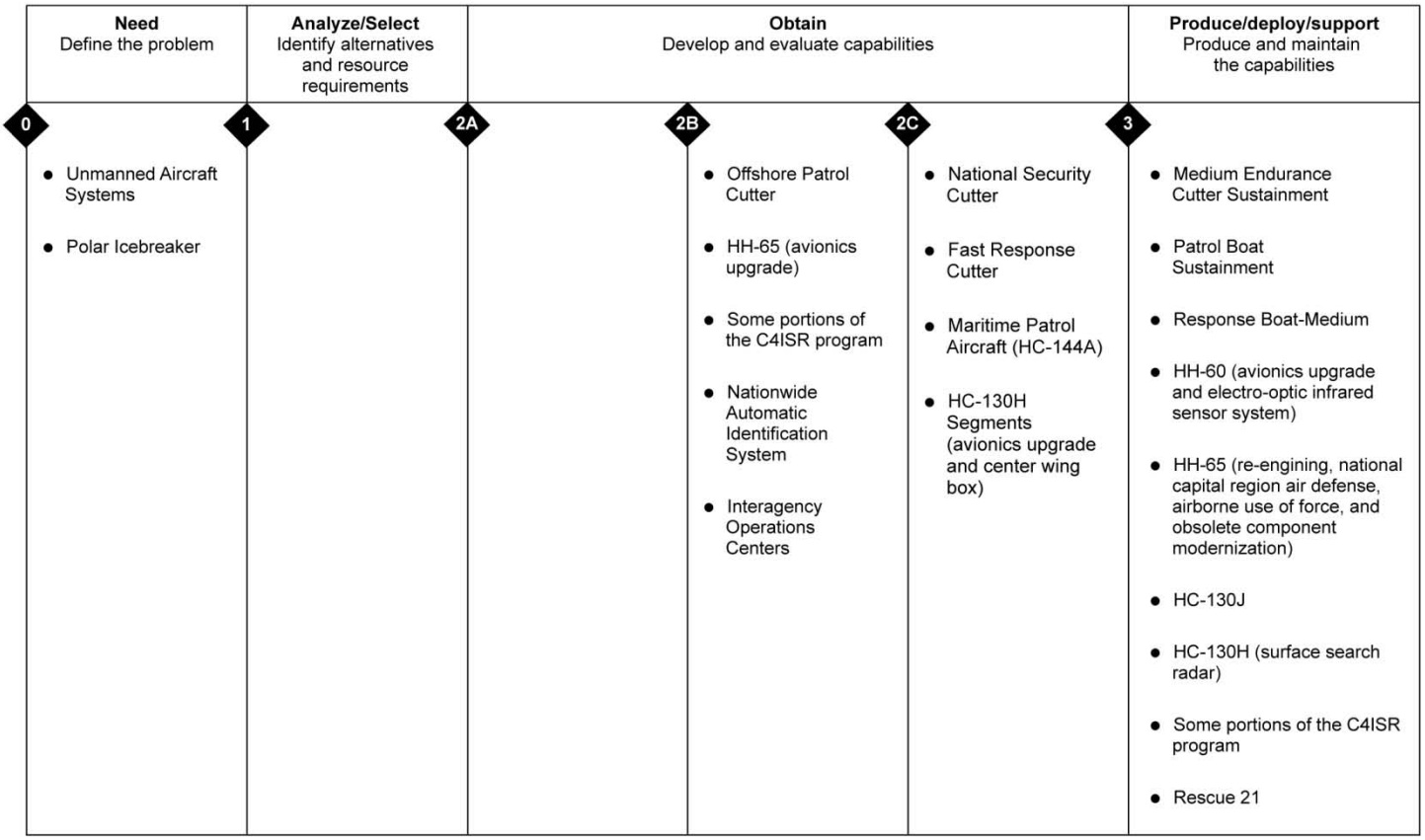
Additionally, major acquisition programs are to receive oversight from DHS's Investment Review Board, which is responsible for reviewing acquisitions for executable business strategies, resources, management,

accountability, and alignment to strategic initiatives. The Board also supports the Acquisition Decision Authority in determining the appropriate direction for an acquisition at key Acquisition Decision Events (ADE). At each ADE, the Acquisition Decision Authority approves acquisitions to proceed through the acquisition life-cycle phases upon satisfaction of applicable criteria. Further, Component Acquisition Executives at the Coast Guard and other DHS components are responsible in part for managing and overseeing their respective acquisition portfolios. DHS has a four-phase acquisition process:

- Need phase—define a problem and identify the need for a new acquisition. This phase ends with ADE-1, which validates the need for a major acquisition program.
- Analyze/Select phase—identify alternatives and select the best option. This phase ends with ADE-2A, which approves the acquisition to proceed to the obtain phase and includes the approval of the acquisition program baseline.
- Obtain phase—develop, test, and evaluate the selected option and determine whether to approve production. During the obtain phase, ADE-2B approves a discrete segment if an acquisition is being developed in segments and ADE-2C approves low-rate initial production. This phase ends with ADE-3 which approves full-rate production.
- Produce/Deploy/Support phase—produce and deploy the selected option and support it throughout the operational life cycle.

Figure 2 depicts where level I and II Coast Guard assets currently fall within these acquisition phases and decision events.

Figure 2: Coast Guard Level I and II Assets within DHS Acquisition Phases and Decision Events as of July 15, 2012



Source: GAO presentation of Coast Guard data.

In conjunction with the management of these programs through the acquisition process, the Coast Guard and DHS have also undertaken a series of studies in the past several years focused on requirements and the mix of assets in the Coast Guard's acquisition portfolio. Many of these studies have primarily focused on the assets that were part of the Deepwater program, commonly referred to by the Coast Guard as the program of record:

- In September 2003, the Coast Guard completed a performance gap analysis that determined the Deepwater fleet would have significant capability gaps in meeting emerging mission requirements following the September 11, 2001, terrorist attacks. Due to fiscal constraints, the Coast Guard decided not to make any significant changes to the planned Deepwater fleet, but did approve several asset capability changes that were reflected in the 2005 Mission Need Statement,

which outlines capabilities the Coast Guard needs to meet its mission demands.

- In December 2009, the capabilities directorate completed a fleet mix analysis which was intended to be a fundamental reassessment of the capabilities and mix of assets the Coast Guard needs to fulfill its Deepwater mission.
- In May 2011, the capabilities directorate completed a second fleet mix analysis which primarily assessed the rate at which the Coast Guard could acquire the program of record within a range of cost constraints.
- In August 2011, DHS completed a cutter study which developed alternative cutter fleets that equaled the acquisition cost, at the time of the analysis, of the cutter fleet program of record, and assessed the expected performance of these alternative fleets compared to the program of record.

In July 2011, we reported that it was unclear how DHS and the Coast Guard would reconcile and use these multiple studies to make trade-off decisions.[4] We recommended that the Secretary of the Department of Homeland Security develop a working group that includes participation from DHS and the Coast Guard's capabilities, resources, and acquisition directorates to review the results of the studies to identify cost, capability, and quantity trade-offs that would produce a program of record that fits within expected budget parameters. DHS concurred, but has not yet implemented this recommendation; the Senate Report accompanying the 2013 DHS Appropriations Bill directs the DHS and the Coast Guard to develop this working group.[5]

[4]GAO-11-743.

[5]S. Rep. No. 112-169, at 84-85 (2012).

Cost and Schedule of Portfolio Remains Unknown Because of Outdated Baselines and Uncertainty Surrounding Affordability

Outdated acquisition program baselines and uncertainty surrounding the affordability of the Coast Guard's acquisition portfolio continue to limit visibility into the current cost and schedule of the Coast Guard's major acquisitions. Even though the Coast Guard has revised 15 out of 16 baselines in its major acquisition portfolio at least once, 10 of those 15 baselines do not reflect the current cost or schedule of the programs. According to the acquisition program baselines that are approved as of July 2012 and total program cost for programs with no planned funding beyond fiscal year 2014, the Coast Guard is managing a portfolio of major acquisitions that could cost as much as $35.3 billion—or 41 percent more than the original estimate of $25.1 billion—but the majority of these baselines do not reflect the current status of these programs. DHS and the Coast Guard have acknowledged that affordability of the Coast Guard's portfolio is a challenge, but the mismatch between resources needed to support all approved baselines and anticipated funding levels continues to affect Coast Guard acquisitions. Some of this mismatch could be alleviated by the Coast Guard's current five-year budget plan which does not include the final two National Security Cutters; however, Coast Guard officials have stated that, regardless of this plan, it continues to support completing the program of record. A decision to pursue the final two National Security Cutters in the near-term budget years could have significant portfolio-wide implications.

Coast Guard Continues to Lack Updated Baselines That Identify the Planned Cost and Schedule of Its Portfolio

The Coast Guard has revised baselines for 15 of the 16 programs in its major acquisition portfolio at least once; however, 10 of the 15 revised baselines do not reflect the current cost or schedule of the programs. We found that the revised baselines do not reflect current cost and schedule for one or more of the following reasons:

- Program reported a cost or schedule breach to DHS, but does not have a DHS-approved baseline to reflect corrective actions for the breach as required.[6] Seven out of 16 programs in the Coast Guard's major acquisition portfolio fall into this category. The dates of these breach notifications range from April 2009 through December 2011.
- Program has changed in scope, which could have cost and/or schedule implications, but its DHS-approved baseline does not reflect

[6]An acquisition program baseline breach of cost, schedule, or performance is an inability to meet the threshold value of the specific parameter.

these changes. Two out of 16 programs in the Coast Guard's major acquisition portfolio fall into this category.

- Program does not expect to receive funding beyond fiscal year 2014, but its DHS-approved baseline still reflects such funding. Four out of 16 programs in the Coast Guard's major acquisition portfolio fall into this category. Based on the fiscal years 2013-2017 capital investment plan, Coast Guard officials do not anticipate funding for these programs through fiscal year 2017 which means the programs cannot execute their current baselines as planned.[7]

These outdated baselines do not provide DHS, Coast Guard, and Congress with accurate information about the current cost and schedule of the Coast Guard's major acquisition portfolio. According to the *Major Systems Acquisition Manual*, the acquisition program baseline provides a critical reference point for measuring and reporting the status of program implementation and revised baselines should be submitted to DHS within 90 days after reporting a breach. Coast Guard officials acknowledged that the approved baselines do not reflect the status of many programs, but stated the update process is lengthy and sometimes interrupted by decisions made in the budget process each year. For example, the National Security Cutter program office formally notified DHS of a cost and schedule breach in November 2011 and program officials told us that Coast Guard leadership is reviewing a draft baseline. However, officials stated that the draft baseline may no longer be valid because it was based on a funding profile that was changed in the fiscal year 2013-2017 capital investment plan submitted to Congress, triggering the need to update the baseline once again.[8] Likewise, in response to our request for current cost estimates and schedules for each program, senior resource directorate officials told us that current estimates were not available for release because they did not know how they would be affected by future funding allocations.

[7]The Coast Guard's capital investment plan is a 5-year plan presented to Congress that includes acquisition, construction, and improvements. The Coast Guard updates the capital investment plan annually, and it represents the Coast Guard's submission for the President's budget in any given year. The capital investment plan is approved by DHS and Office of Management and Budget and, as we have reported in the past, is subject to significant change each year. See GAO-11-743.

[8]In commenting on a draft of this report, Coast Guard officials stated that a new baseline was submitted for approval in July 2012.

Without a stable funding profile, program managers will likely always be at a disadvantage as they must frequently update baselines based on the budget rather than having a stable budget reflecting program baselines. Furthermore, our prior Department of Defense (DOD) work has found that balancing investments late in the budget process often leads to additional churn in programs, such as increased costs and schedule delays, and encumbers efforts to meet strategic objectives.[9] We made a recommendation in July 2011 that the Coast Guard adopt action items found in the acquisition directorate's October 2010 *Blueprint for Continuous Improvement (Blueprint)* such as promoting stability in the capital investment plan by measuring the percentage of projects stably funded year to year in the plan, ensuring acquisition program baseline alignment with the capital investment plan by measuring the percentage of projects where the acquisition program baselines fit into the capital investment plan, and establishing project priorities as a Coast Guard-wide goal.[10] By promoting stability in the capital investment plan, the Coast Guard may be able to address the churn in the acquisition program budgeting process and help ensure that programs receive and can plan to a more predictable funding stream. DHS concurred, but has not yet fully implemented this recommendation. Coast Guard officials told us that the acquisition directorate did develop a metric to measure the percentage of programs stably funded from year to year, which confirmed wide fluctuations in funding for most programs from year to year. However, it is unclear whether the Coast Guard will pursue the remaining action items.

While Coast Guard officials acknowledged that baselines for many of its major acquisitions do not reflect the current status of the programs, even using the approved program baselines as of July 2012 and total program cost for programs with no planned funding beyond fiscal year 2014, the estimated total acquisition cost of Coast Guard major acquisitions could be as much as $35.3 billion. This is about $10 billion more than original baselines which totaled $25.1 billion and represents an increase of approximately 41 percent. Figure 3 compares each major acquisition asset's cost from the original program baseline with the latest revised baselines that have been approved by the Coast Guard, if available. For

[9]GAO, *Defense Acquisitions: A Knowledge-Based Funding Approach Could Improve Major Weapon System Program Outcomes*, GAO-08-619 (Washington, D.C.: July 2, 2008).

[10]GAO-11-743.

those programs with no planned funding beyond fiscal year 2014, figure 4 compares the original baseline with estimated total program cost based on budget data.

Figure 3: Total Acquisition Cost Estimates for Coast Guard Portfolio of Major Programs as of July 2012 (Part 1 of 2)

Assets with planned funding beyond 2014	Original baseline	Revised baseline[a]	Percent change	Does revised baseline reflect current program?
Offshore Patrol Cutter	$8,098	$12,101	49	✚ DHS approved a revised program baseline in April 2012.
National Security Cutter	$3,450	$4,749	38	⊘ Breach: program reported a cost and schedule breach to its revised baseline in November 2011.
Fast Response Cutter	$3,206	$4,243	32	⊘ Breach: program reported a schedule breach in December 2011, but does not expect a change in cost.
Maritime Patrol Aircraft	$1,706	$2,400	41	⊘ Breach: program reported a schedule breach in July 2009.
HH-65	$741	$1,242	68	⊘ Change in scope: program will not be developing a shipboard helicopter handling, securing and traversing system. Removal of this planned technology should lower the cost for this program, unless the cost of other planned work increases. Coast Guard officials also stated that they no longer plan to pursue surface search radar capability for this program.
HH-60	$451	$487	8	⊘ Breach: program reported a cost and schedule breach in September 2010. Coast Guard is also deferring indefinitely its plans to upgrade the HH-60s with a surface search radar and C4ISR due to budget constraints.
HC-130J	$11	$3,038	389	✚ DHS approved a baseline in July 2012 which combines the HC-130J and HC-130H into a single program of record.
HC-130H	$610			
Unmanned Aircraft System	$503	n/a	n/a	Revised baseline not required yet because program has not entered the obtain phase.
C4ISR	$1,353	$2,522	86	⊘ Breach: program reported a schedule breach in October 2010 and also reported that the current funding levels will not allow the program to execute the acquisition as planned. Coast Guard officials stated that a revised baseline is under Coast Guard review.
Subtotal	**$20,129**	**$31,285**	**55**	

✚ Acquisition Program Baseline reflects current program.

⊘ Acquisition Program Baseline does not reflect current program.

Source: GAO analysis of Coast Guard data.

Note: Dollars in then-year millions.

[a]If the revised baselines present both threshold costs (the maximum costs allowable before a breach occurs) and objective costs (the minimum cost expected), threshold costs are used. For those programs that comprised the former Deepwater program, this allows traceability to the original $24.2 billion Deepwater baseline (the original baselines) while also showing how much programs could now cost based upon revised baselines. Furthermore, as identified in the table, costs are expected to increase further for programs that have reported a cost breach.

Figure 4: Total Acquisition Cost Estimates for Coast Guard Portfolio of Major Programs as of July 2012 (Part 2 of 2)

Assets with no planned funding beyond 2014	Original baseline	Estimated total program cost[a]	Percent change	Does baseline reflect current program?
Response Boat-Medium	$401	$508	27	⊘ Change in scope: program plans to buy 166 boats instead of 180 boats.
Interagency Operations Centers	$90	$74	-18	⊘ Program needs to update project cost estimate, but officials stated this is not feasible in the current fiscal climate.[b] In addition to the costs outlined in the original baseline, the program also has an unfunded requirement to provide expanded sensors to fill the gaps in situational awareness. According to the current life cycle cost estimate, that could cost $228 million.
Nationwide Automatic Identification System	$277	$120	-57	⊘ Breach: program reported a cost and schedule breach in April 2009. In addition, the program is indefinitely deferring its plan for continuous nationwide coverage as detailed in the revised baseline, which program officials expect will decrease the acquisition cost.
Rescue 21	$250	$845	238	⊘ Breach: program reported a schedule breach in November 2011. In addition, the program plans to use a commercial-off-the-shelf solution to meet tailored operational requirements of the Western Rivers and Alaska regions. Coast Guard officials stated they expect this to reduce the acquisition cost.
Medium Endurance Cutter	$317	$293	-8	✚ Estimated total program cost is below the program's threshold cost of $321 million in its revised acquisition program baseline.
Patrol Boats Sustainment	$117	$156	33	✚ Estimated total program cost is below the program's threshold cost of $167 million in its revised acquisition program baseline.
Subtotal	**$1,452**	**$1,996**	**37**	

Portfolio total				
Assets with planned funding beyond 2014	$20,129	$31,285	55	
Assets with no planned funding beyond 2014	$1,452	$1,996	37	
Other costs including project management	$3,557	$2,044[c]	-43	
Portfolio total	**$25,138**	**$35,325**	**41**	

✚ Acquisition Program Baseline reflects current program.

⊘ Acquisition Program Baseline does not reflect current program.

Source: GAO analysis of Coast Guard data.

Note: Dollars in then-year millions.

[a]For those programs with no planned funding beyond fiscal year 2014, the estimated total program cost equals dollars appropriated to date plus planned funding in the fiscal year 2013-2017 capital investment plan.

[b]GAO reported in February 2012 that Coast Guard officials stated the Interagency Operations Centers' cost estimate needs to be updated because it is not accurate, and that those updates would also be made to the baseline. Coast Guard has stated that in a constrained fiscal environment, it is not feasible to revise the estimate. See GAO, *Maritime Security: Coast Guard Needs to Improve Use and Management of Interagency Operations Centers*, GAO-12-202 (Washington, D.C.: Feb. 13, 2012).

[c]Coast Guard states that other costs including program management do not require a new baseline, but provided us with an updated estimate.

As we have previously reported, the cost increases associated with many of these revised baselines reflect the Coast Guard's and DHS's efforts to better understand the acquisition costs of individual assets that formerly made up the Deepwater program, as well as provide insight into the drivers of cost growth.[11] For example, the Coast Guard has attributed the more than $1 billion rise in the Fast Response Cutter's cost to a reflection of actual contract cost from the September 2008 contract award and costs for shore facilities and initial spare parts not included in the original baseline. Another example of the Coast Guard gaining more insight into the cost of individual assets is the Offshore Patrol Cutter program. The initial Deepwater baseline included an $8 billion estimate for the Offshore Patrol Cutter program. However, program officials stated they did not have good data for how the lead systems integrator for the Deepwater program generated the original estimate, and that the current estimate approved by DHS in April 2012—with a threshold of approximately $12 billion—is higher likely because the original estimate was developed before the program requirements were established. Program officials also cited delays in the program, and the corresponding inflation associated with those delays, as additional reasons for the cost increase. Even though the Coast Guard used the original 2007 Deepwater Baseline estimate of $8 billion to characterize the expected cost of the program multiple times to Congress, it now characterizes the revised acquisition program baseline as the initial cost estimate for the program.

Without baselines that reflect current cost and schedule, DHS and the Coast Guard will not have adequate information to determine if the Coast Guard can afford other major acquisition programs that are expected to begin within the next few years. The Coast Guard is in the early stages of planning for several new acquisitions including icebreakers, river buoy tenders, and a biometrics-enabled identity program. In addition, officials

[11]GAO, *Coast Guard: Deepwater Requirements, Quantities, and Cost Require Revalidation to Reflect Knowledge Gained*, GAO-10-790 (Washington, D.C.: July 27, 2010); and GAO-11-743.

at the Coast Guard's Aviation Logistics Center told us they recently identified that the end of service life for the HH-60s and HH-65s could be reached as early as the 2022 time frame—not the 2027 time frame as originally planned. Officials added that this will require the Coast Guard to either buy new HH-60s and HH-65s or conduct a service life extension—previous service life extensions have been funded with acquisition dollars. Coast Guard officials told us that additional research is being conducted regarding the life expectancy of these helicopters, including using forecasting models to update service life limits. Regardless, officials also stated that the Coast Guard plans to maintain continuous operational capability. Furthermore, we recently reported that the medium endurance cutters may also need a service life extension program to limit operational gaps until the Offshore Patrol Cutters are in service.[12] Given that the Coast Guard does not have adequate information concerning the cost of its current portfolio, it is not well positioned to accurately assess the affordability of these programs as requirements are developed for these new assets.

Upcoming Budget Decisions Will Likely Have Portfolio-wide Implications

The mismatch we reported in July 2011 between resources needed to support all approved program baselines and expected funding levels continues to affect the Coast Guard, requiring it to make decisions about which programs to fund and which programs not to fund as part of the annual budget formulation process. For example, in the fiscal year 2013 budget request, the following major acquisition programs were funded at a level lower than identified in the programs' life cycle cost estimates for that year: Maritime Patrol Aircraft, Fast Response Cutter, HC-130J/H, and C4ISR. Combined, the Coast Guard requested approximately $500 million less than what was identified in the life cycle cost estimates for these programs. The funding needs for these programs have not gone away and the Coast Guard will have to fund those activities in future fiscal years.

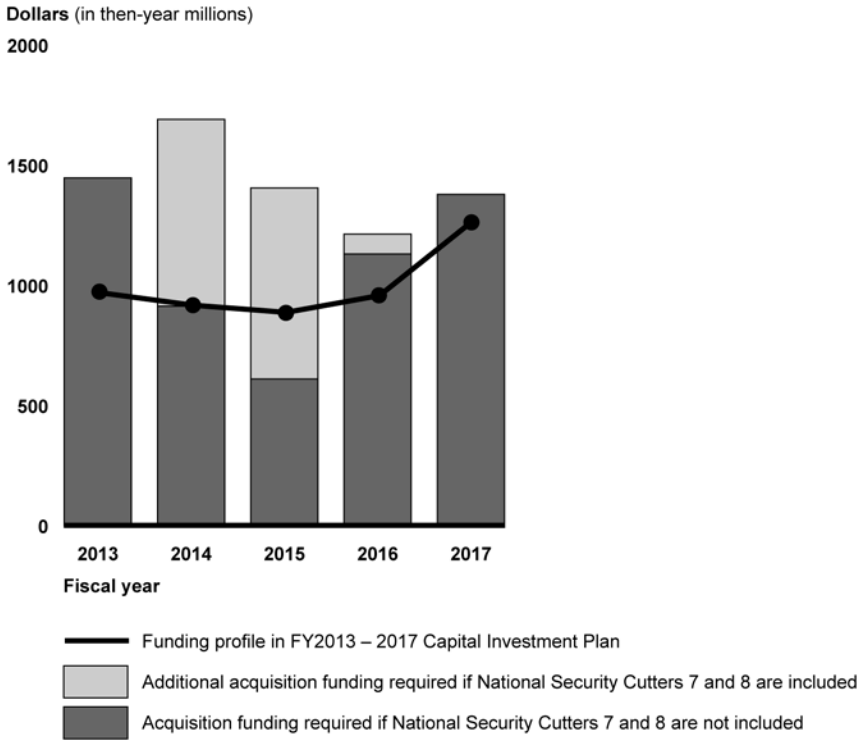
Both DHS and the Coast Guard have acknowledged this resource challenge, but efforts to address these challenges have not resulted in a clear strategy for moving forward. For example, in an April 2011 acquisition decision memorandum concerning Coast Guard acquisition

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

program breaches, DHS stated that future breaches in Coast Guard programs would almost be inevitable as funding resources diminish. DHS also directed the Coast Guard to develop a plan for showing program tradeoffs that illuminates the balance between operational commitments, recapitalization, and the realities of the capital investment plan. Following the Coast Guard's presentation of the plan to DHS, DHS issued a second acquisition decision memorandum in August 2011 which stated the Coast Guard presented a global, systematic, and overarching solution to future funding shortfalls that addressed programmatic, resource, and operational impacts. However, a senior DHS official involved with this review told us that the presentation only brought to light the challenges, and did not present a solution. The briefing slides provided to us were redacted due to the Coast Guard's belief that they contained budget negotiation information so we were unable to reconcile whether a solution was presented. Coast Guard officials stated they had no other examples of a similar portfolio-wide review to address future funding shortfalls. Without a portfolio analysis to establish long-term priorities to guide the budget process, it will be difficult for Coast Guard to address this mismatch of funding and understand how decisions concerning one program affect another program.

Some of the resource challenges in near-term years could be alleviated if the Coast Guard executed its fiscal year 2013-2017 capital investment plan. For example, this plan does not include funding for National Security Cutter 7 in fiscal year 2014 or National Security Cutter 8 in fiscal year 2015, as was the plan in previous years. However, resource and acquisition directorate officials told us that the Coast Guard continues to support a program of record of eight National Security Cutters. A senior Coast Guard acquisition official added that the Coast Guard has an urgent need for the last two cutters and not buying these two ships would require major adjustments to other acquisition plans. However, as seen in figure 5, if the Coast Guard chooses to pursue National Security Cutter 7 in fiscal year 2014 and National Security Cutter 8 in fiscal year 2015, there will be a significant mismatch in funding required based on life cycle cost estimates versus expected funding levels in the fiscal year 2013-2017 capital investment plan—especially given that some of the activities not funded in fiscal year 2013 are expected to be funded in subsequent years.

Figure 5: Funding Profile in Fiscal Years 2013-2017 Capital Investment Plan Compared to Funding Required for a Subset of Coast Guard Major Acquisitions



Source: GAO analysis of Coast Guard data.

Note: The major acquisition programs in this comparison include National Security Cutter, Fast Response Cutter, Offshore Patrol Cutter, HH-65, Maritime Patrol Aircraft, HC-130H, HC-130J, and C4ISR. The Coast Guard's fiscal years 2013-2017 capital investment plan shows reduced funding levels to zero beyond fiscal year 2014 for Response Boat-Medium, Nationwide Automatic Identification System, Rescue 21, and Interagency Operations Centers as well as indefinitely defers plans for some HH-60 upgrades. These programs are not included in this comparison. Unmanned Aircraft Systems and Icebreakers are not included in this comparison because these programs are not at a point in the acquisitions process that requires a life cycle cost estimate. These omissions do not affect the comparison presented in this figure.

If National Security Cutters 7 and 8 are included in future budgets, decision makers will likely be faced with a difficult choice: pull funds from other high-priority federal programs to support Coast Guard acquisitions or accept that some capabilities the Coast Guard promised will have to be

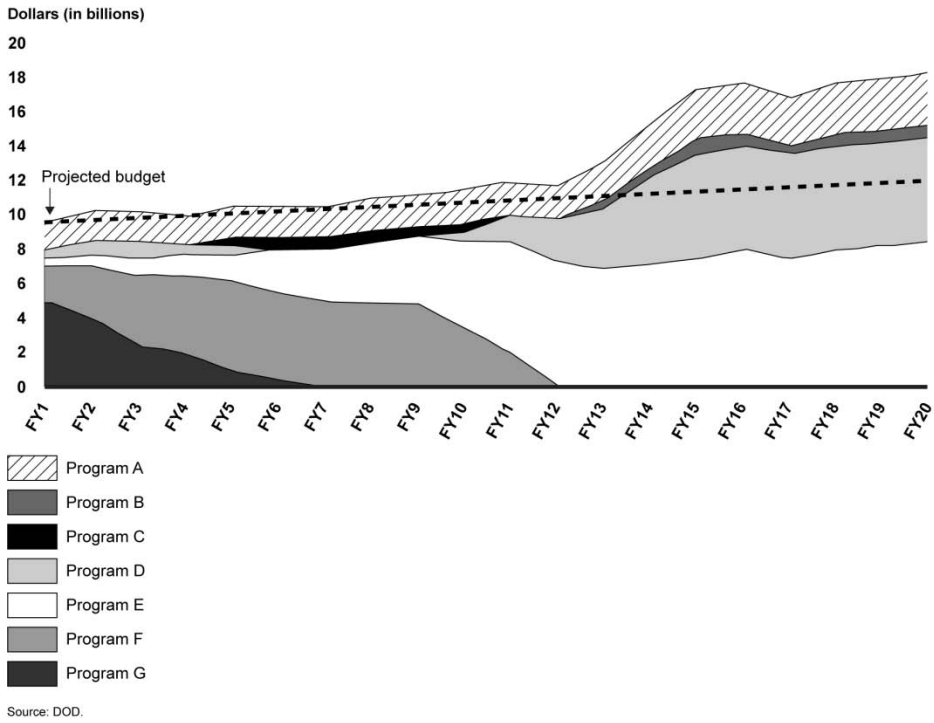
deferred to later years.[13] However, deferring costs could lead to what is commonly characterized as a bow-wave—or an impending spike in the requirement for additional funds—unless the Coast Guard proactively chooses to make some tradeoff decisions by re-examining requirements.

Coast Guard acquisition officials told us that one way it is trying to address portfolio affordability is through an update to its *Major Systems Acquisition Manual*. According to draft language, the acquisition directorate's Office of Resource Management will be required to maintain a chart to visually depict all competing acquisition program priorities within the capital investment plan at various points in time. Officials told us that each acquisition program will be required to include this chart in its required materials for future acquisition decision events. This update to the Coast Guard's acquisition manual follows best practices outlined in GAO's *Cost Estimating and Assessment Guide* with the exception that the guide notes the affordability assessment should, preferably, be conducted several years beyond the programming period.[14] Figure 6 is the chart included in GAO's Cost Estimating and Assessment Guide.

[13]In the committee reports accompanying the 2013 DHS Appropriations Bills, both the House and Senate Committees on Appropriations proposed funding for long lead time materials for the 7th National Security Cutter in fiscal year 2013. The Senate Committee also expressed support for buying all 8 National Security Cutters.

[14]GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).

Figure 6: An Example of an Affordability Assessment



Source: DOD.

Note: FY = fiscal year.

The usefulness of the Coast Guard's chart will be dependent upon the extent to which the Coast Guard makes tradeoff decisions now about which programs it is going to fund in the near-term so that it can develop and present a realistic depiction of funding needs within expected budget parameters. For example, Coast Guard officials told us that the Maritime Patrol Aircraft program will be the first acquisition program required to include this chart in its prepared materials for its full-rate decision event in September 2012. However, whether the Maritime Patrol Aircraft program is affordable within the context of the Coast Guard's entire acquisition portfolio is largely dependent upon other programs, including whether the Coast Guard buys National Security Cutters 7 and 8. Until these near-term affordability issues are decided and acquisition program baselines are updated to reflect current costs, the Coast Guard's chart may be of limited value because the data may not be accurate and complete.

Opportunities Exist to Address Affordability through the Requirements Process

Opportunities exist for the Coast Guard to address the affordability of the fleet and major cutters through the requirements process, which takes broad mission and capability needs and converts them to system-specific capabilities.[15] The Coast Guard completed two efforts to reassess the mix of assets but both efforts only used its program of record, based upon the 2005 Mission Need Statement, as the basis of the analysis and did not consider realistic fiscal constraints. While the Coast Guard remains committed to this 2005 Mission Need Statement, it may not be on a path to achieve several of the capabilities necessary to respond to mission demands identified after September 11, 2001, or realize its vision for a presence-based operating concept. Combined with cost growth, the Coast Guard is at risk of pursuing a fleet that is not affordable and will not be able to operate in the manner envisioned. Balancing capability and affordability is also a concern for the Coast Guard's and DHS's largest acquisition, the Offshore Patrol Cutter—which Coast Guard officials stated is the first acquisition in the Deepwater surface fleet in which the Coast Guard had complete control over the requirements development process. However, even though the Coast Guard has made some changes to reduce the estimated acquisition cost of the Offshore Patrol Cutter, DHS Office of Policy and the Office of the Chief Financial Officer have expressed concern regarding future cost growth and the program crowding out other Coast Guard programs in future budget years. Further, the requirements and missions for the Offshore Patrol Cutter have similarities to those of the National Security Cutter though their costs vary at this time.

Coast Guard Remains Committed to the Program of Record Amid Affordability Concerns and Capability Shortfalls

The Coast Guard completed two efforts to reassess the mix of assets that comprised its former Deepwater program but as we reported in May 2012, both efforts only used its program of record as the basis of the analysis and did not consider realistic fiscal constraints.[16] The Coast Guard's first effort, Fleet Mix Phase One, did not use cost constraints and

[15]The requirements process starts with a mission analysis, which assesses a deficiency in a capability that will prevent the Coast Guard from adequately conducting mission(s) and provides justification for preliminary options for satisfying these deficiencies. This analysis also leads to the development of an operational requirements document, which is the formal statement of the operational performance and related parameters for a proposed concept or system. Requirements development is the key link between the mission capability gap and a material solution.

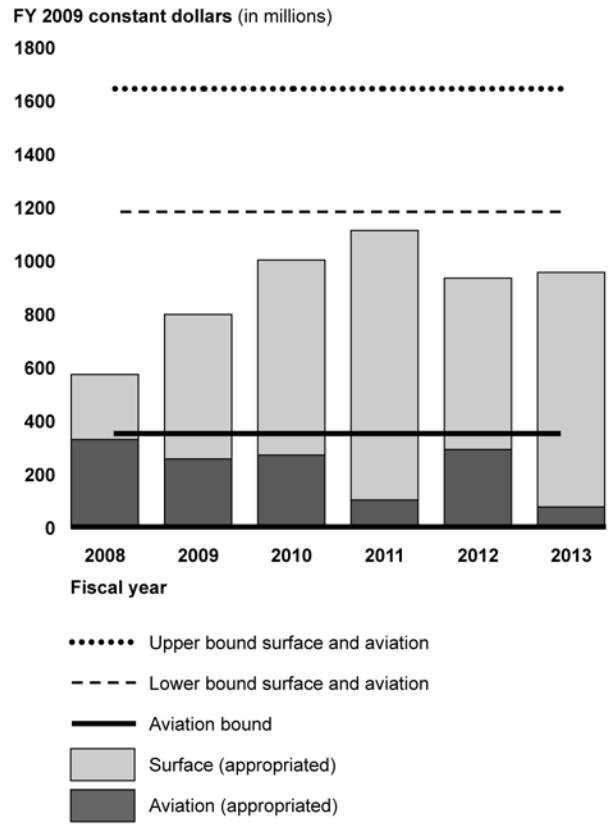
[16]GAO, *Observations on the Coast Guard's and the Department of Homeland Security's Fleet Studies*, GAO-12-751R (Washington, D.C.: May 31, 2012).

found that the Coast Guard requires a fleet that could cost $65 billion to meet its long term strategic goals, which is about $40 billion more than the $24.2 billion program of record. Coast Guard officials told us that they do not consider the $65 billion fleet to be affordable and are not using it to inform decision making. In the second effort, Fleet Mix Phase Two, the Coast Guard analyzed how long it would take to buy the program of record under two different funding constraints: (1) an upper bound of $1.64 billion per year and (2) a lower bound of $1.2 billion per year for surface and aviation assets.[17] Both of these bounds kept the aviation funding level constant at $350 million per year. As we reported in May 2012, and as shown in figure 7, both the upper and lower bound funding scenarios are greater than the Coast Guard's past 5 years of appropriations and its fiscal year 2013 request, indicating the upper bound funding level is unrealistic and the lower bound is optimistic.[18]

[17]Constant fiscal year 2009 dollars. We previously reported that the Coast Guard did not document its methodology for establishing these constraints and there was confusion about their genesis. See GAO-11-743.

[18]GAO-12-751R.

Figure 7: Fleet Mix Phase Two Upper and Lower Bounds Compared to Coast Guard's Past Appropriations and Fiscal Year 2013 President's Budget Request



Source: GAO analysis of Coast Guard and past appropriations data.

Notes: FY = fiscal year. The aviation funding level used in the study was $350 million/year for both the upper bound and lower bound constraints.

The program of record that the Coast Guard remains committed to is based upon its 2005 Mission Need Statement, which Coast Guard officials told us serves as the guiding document for its recapitalization effort. This Mission Need Statement outlines capabilities the Coast Guard needs to meet its mission demands, including 11 capabilities established after September 11, 2001. In addition, it identifies those capabilities that would allow the Coast Guard to become more proactive through increased surveillance and presence, as opposed to responding to events

after they occur.[19] According to the Mission Need Statement, this presence-based operating concept will lead to operations that detect and interdict threats as far from the United States as possible.

While the Coast Guard remains committed to this 2005 Mission Need Statement, it may not be on a path to achieve several of the capabilities necessary to address gaps that emerged following the September 11, 2001, terrorist attacks. We traced 11 system performance capabilities identified in the 2005 Mission Need Statement through various program documents, including the 2007 Deepwater acquisition program baseline, operational requirements documents, and testing documentation to identify which capabilities the Coast Guard is currently planning to acquire. As seen in table 2, the Coast Guard's progress in acquiring the capabilities identified in this document is mixed as it has acquired some capabilities while other capabilities have been refined or clarified over time, are no longer planned for certain assets, or have been cancelled altogether.

[19]Effective presence means having the right assets and capabilities at the right place at the right time.

Table 2: Status of 11 Capabilities Identified in the Coast Guard's 2005 Mission Need Statement

Capabilities identified in the 2005 Mission Need Statement	Assets planned for in 2007 Program of Record	Currently planned assets	GAO assessment of extent to which current status is expected to deliver capability identified in Mission Need Statement	
Naval Operational Capabilities and DOD Interoperability for the Fast Response Cutter[a]	Fast Response Cutter	Fast Response Cutter	●	Naval Operational Capabilities—the Fast Response Cutter is designed to conduct all patrol boat functions in accordance with this concept, but this has not yet been operationally tested. DOD Interoperability—the Coast Guard plans for the Fast Response Cutter to exchange voice and data with DOD and partners. The Fast Response Cutter will not exchange near real time battle data with DOD, which Coast Guard officials told us was never the intent of the Mission Need Statement.
Organic Air Transport for National Strike Force Teams	HC-130J and HC-130H	HC-130J and HC-130H	●	The HC-130J and HC-130H are capable of transporting National Strike Force Teams.
Airborne Use of Force Capability on all Rotor Wing Aviation Assets	HH-60 and HH-65	HH-60 and HH-65	●	The Coast Guard has completed the airframe modifications to provide Airborne Use of Force capability on all HH-60s and HH-65s.
Naval Operational Capabilities and DOD Interoperability for the Offshore Patrol Cutter	Offshore Patrol Cutter	Offshore Patrol Cutter	○	Naval Operational Capabilities—Coast Guard officials stated that there are no longer plans to use the Offshore Patrol Cutter in accordance with the major cutters section of the Naval Operations Concept due to affordability. DOD Interoperability—the Coast Guard plans for the Offshore Patrol Cutter to exchange voice, video, and data with DOD and partners but, according to officials, will not have a key system to exchange near real-time battle data.
Intelligence Information Sharing and Exchange Capabilities Embedded in Maritime Domain Awareness	National Security Cutter Offshore Patrol Cutter Fast Response Cutter HC-130J HC-130H Maritime Patrol Aircraft HH-60 HH-65 Unmanned Aerial vehicle	National Security Cutter Offshore Patrol Cutter Fast Response Cutter Maritime Patrol Aircraft	○	National Security Cutter—has a facility to interoperate with the intelligence community (top secret data). Offshore Patrol Cutter—this capability is an objective requirement so the cutter does not have to be designed with this capability. The threshold requirement is that space, weight, and power be designed into the vessel to add-on such a system in the future. Fast Response Cutter and Maritime Patrol Aircraft—are required to have the capability to process secret-level data. HC-130J/H—capability deferred for secret-level data.

Chemical, Biological, Radiological, Defense and Decontamination Capability for all assets	National Security Cutter Offshore Patrol Cutter HC-130J HC-130H Maritime Patrol Aircraft HH-60 HH-65	National Security Cutter HC-130J (objective)	●	National Security Cutter has a requirement to operate in a contaminated area for up to 36 hours, but did not have the required equipment during the most recent operational test event (January 2011). Coast Guard officials stated that they have since made changes to the National Security Cutter that will enable it to meet this requirement. These changes have not yet been operationally tested. HC-130J has an objective requirement to operate in a contaminated area for up to 36 hours. However, this asset has not undergone testing to see if this requirement has been met.
Anti-Terrorism, Force Protection of deepwater assets, particularly when operating at the outer layer with the Navy	National Security Cutter Fast Response Cutter	National Security Cutter Offshore Patrol Cutter	●	National Security Cutter did not have the systems required to pass this test in its most recent operational assessment (January 2011). Coast Guard has issued a clarification memo in advance of operational test and evaluation which removes this capability as a key performance parameter, but it remains a critical issue which the testers must examine to evaluate the system's capability to safely perform its missions. The Offshore Patrol Cutter lists Anti-Terrorism Force Protection capabilities as critical, but the operational requirements document does not identify what enables this capability.
Common Operating Picture capabilities inherent within Maritime Domain Awareness for data exchange, synchronization, correlation, reachback, and command and control	National Security Cutter Offshore Patrol Cutter Fast Response Cutter HC-130J HC-130H Maritime Patrol Aircraft HH-60 HH-65 Unmanned aerial vehicle	All planned assets except the HH-60 and HH-65	●	The Coast Guard planned to buy an integrated C4ISR system for each asset to enable greater awareness. As we reported in July 2011, the Coast Guard has spent over $600 million purchasing a C4ISR system that is difficult to maintain and does not yet achieve the system-of-systems capability and the Coast Guard's helicopters are no longer going to be a part of this system.[b]
Underwater capability to detect and avoid swimmers for the National Security Cutter	None	National Security Cutter	❍	The National Security Cutter has a requirement related to vulnerability against mines/swimmer/underwater objects, but was not built with capabilities to detect swimmers or mine-like objects. This shortfall is described in Navy evaluations of the National Security Cutter including: (1) a combat systems ship qualifications trials report (August 2009), which stated that detecting a person in the water was an unrealistic requirement for National Security Cutter, and by (2) the most recent National Security Cutter operational assessment (January 2011). Coast Guard has issued a clarification memo in advance of operational test and evaluation which requires only space, weight, and power for this capability.

Air Intercept capability for the Maritime Patrol Aircraft	None	None	❍	This capability is not a requirement for the Maritime Patrol Aircraft and program officials said that there are no plans to change the design. The legacy aircraft, HU-25, which conducted air intercept missions has the capability of traveling 400 knots while the Maritime Patrol Aircraft can only travel 170 knots.
Capability for Vertical Intercept and Vertical Delivery of boarding teams	HH-60 and HH-65	None	❍	The Coast Guard has suspended its vertical insertion capabilities due to limited resources.

Legend:

● Current status expected to deliver capability identified in the Mission Need Statement;
◒ Current status expected to deliver part of the capability identified in the Mission Need Statement;
❍ Current status not expected to deliver capability identified in the Mission Need Statement.

Source: GAO analysis of Coast Guard documentation.

[a]Naval Operations Concept 2010 (NOC 10) describes when, where and how U.S. naval forces will contribute to enhancing security, preventing conflict, and prevailing in war in order to guide Maritime Strategy implementation in a manner consistent with national strategy.

[b]GAO-11-743.

In addition to these 11 capabilities, the Coast Guard also identified the need for persistent wide-area surveillance in the 2005 Mission Need Statement to achieve the presence-based vision. Two of the solutions required to enable this capability, in addition to the C4ISR system discussed in table 2, are data transmission capacity—or bandwidth—and Unmanned Aerial Systems. However, the Coast Guard has struggled to supply its assets with the bandwidth necessary to support information-based operations. Further, as we previously reported, the Unmanned Aerial Systems were envisioned as a key component of the Deepwater system that would enhance surveillance capability on board the National Security Cutter and Offshore Patrol Cutter and also from land. Congress has appropriated over $100 million since 2003 to develop an Unmanned Aerial System, but the Coast Guard terminated the program due to cost increases and technical risks in June 2007. According to Coast Guard officials, the Coast Guard established a partnership with the Navy's Fire Scout program in October 2008 and has developed plans to install a system that will facilitate a future demonstration of the Fire Scout on the National Security Cutter. As an interim solution, the Coast Guard has proposed a non-major acquisition to purchase a smaller, less capable, and less costly unmanned aerial vehicle. In August 2012, the Coast Guard held a technical demonstration on board the National Security Cutter that experimented with a possible Navy solution, called the Scan Eagle, which may satisfy the Coast Guard's need for a smaller, less capable unmanned aerial vehicle. The Coast Guard currently has plans for a more in-depth demonstration in fiscal year 2013.

Due to these capability shortfalls, the Coast Guard is at risk of purchasing a fleet that will not be able to close all of the gaps identified following the September 11, 2001 terrorist attacks or fully conduct operations in a presence-based manner. While the 2005 Mission Need Statement presented a business case for the Coast Guard's future investments, the Coast Guard has not re-examined the value of these assets in light of the difficult affordability decisions likely to come. By continuing to pursue some capabilities and not others without reevaluating the portfolio as a whole, the Coast Guard is increasing the risk that it may not accomplish the goals envisioned in 2005 and cannot ensure it is maximizing the value of the assets it is buying.

Coast Guard Took Positive Steps to Improve Requirements Development and Consider Affordability for the Offshore Patrol Cutter

The Coast Guard took some steps to improve the requirements development process for the Offshore Patrol Cutter—the largest acquisition in DHS's acquisitions portfolio and, according to officials, the first acquisition in the Deepwater surface fleet in which the Coast Guard had complete control over the requirements development process. The Coast Guard undertook studies and analysis that, in part, considered the measurability and testability as required by guidance of the following four key performance parameters: operating range, operational sustainment and crew, speed, and patrol endurance. For example, the range requirement, which is the distance the cutter can travel between refueling, is clearly stated as a minimum acceptable requirement of 8,500 nautical miles at a constant speed of 14 knots to a maximum level of 9,500 nautical miles. Although cutters typically transit at various speeds over the course of a patrol, the Coast Guard conducted analysis to determine that the 14 knots speed at the minimum and maximum ranges would provide enough days between refueling given the percentage of time that the Coast Guard normally operates at certain speeds. By developing a measurable range requirement, the Coast Guard helped to promote a clear understanding of Offshore Patrol Cutter performance by potential shipbuilders and sought to balance the cost of additional range with the value that it provides. Furthermore, officials at the independent test authority—the Navy's Commander Operational Test and Evaluation Force—told us that they have been actively involved through the requirements development process and many of their questions regarding testability have been resolved.

Two other key performance parameters—seakeeping and interoperability—are not as consistent with the Coast Guard's guidelines of measurability and testability as identified in the *Major Systems Acquisition Manual*.[20] For example the seakeeping key performance parameter described in the requirements document states that the Offshore Patrol Cutter shall be able to launch small boats and helicopters in 8.2- to 13.1-foot waves. However, in the specifications document, which is used to translate the requirements document into a level of detail from which contractors can develop a reasonably priced proposal, the Coast Guard states that the Offshore Patrol Cutter shall be able to launch small boats and helicopters in no more than 10.7 foot waves while transiting in a direction that minimizes the pitch and roll of the vessel—an important detail not specified in the requirements document. Further, the interoperability key performance parameter states that the Coast Guard must be able to exchange voice, video, and data with the Department of Defense and Homeland Security agencies. However, it does not list specific external partners or substantial details regarding the systems required to exchange data and the types and size of these data that could be examples of measurability and testability. This key performance parameter does not make this distinction between parts of the military that the Coast Guard operates with most often, such as the U.S. Navy and the intelligence community, and simply requires interoperability with all of DOD. Similarly, the interoperability key performance parameter does not specify the DHS agencies for which the Coast Guard must exchange data with, which makes this parameter difficult to test. Coast Guard's independent testing officials agreed that this key performance parameter, as currently written, is not testable in a meaningful way and stated that there are ongoing efforts to improve the clarity of this requirement.

During the requirements development process for the Offshore Patrol Cutter, the Coast Guard also made some decisions with respect to affordability. The following are examples where the Coast Guard made capability trades that are expected to help lower the program's acquisition cost:

- Speed—after a series of analyses, the Coast Guard decided to reduce the minimum acceptable speed from 25 to 22 knots thereby,

[20]Seakeeping refers to a vessel's ability to withstand harsh sea states to conduct operations or survive. Sea states refer to the height, period, and character of waves on the surface of a large body of water.

according to officials, potentially eliminating the need for two diesel engines. According to a study completed by the Coast Guard, this trade could reduce the acquisition cost of each cutter by $10 million.

- Stern Launch—the Coast Guard removed the stern launch ramp capability from the Offshore Patrol Cutter design. While this trade-off may inhibit the launch and recovery of small boats in certain conditions, such as substantial roll or side-to-side movement of the vessel, Coast Guard officials stated that it will reduce the cost of the cutter because a stern launch ramp requires the cutter to be heavier, thus adding cost.
- C4ISR—the Coast Guard eliminated a minimum requirement for an integrated C4ISR system and instead is requiring a system built with interfaces to communicate between different software programs. According to Coast Guard officials, the Coast Guard now plans to use a Coast Guard-developed software system—Seawatch—rather than the more costly lead systems integrator-developed software system currently installed on the National Security Cutter, even though this system does not provide the Coast Guard with the capability to exchange near real-time battle data with DOD assets.

The improvements and affordability decisions that the Coast Guard has made in its requirements development process for the Offshore Patrol Cutter are even more evident when compared with the process for generating requirements for its other major cutter—the National Security Cutter. Due to the nature of the lead systems integrator strategy that the Coast Guard initially used to buy the National Security Cutter, Integrated Coast Guard Systems developed the requirements, designed, and began producing the National Security Cutter before the requirements document was completed.[21] The Coast Guard did not have an operational requirements document at the time the Coast Guard awarded the construction contract for the first cutter in 2004, but the Coast Guard documented the requirements in 2006. Further, even as the third National Security Cutter was in production, Coast Guard was refining the requirements and, in January 2010, made the decision to clarify some key

[21]In June 2002, the Coast Guard awarded a contract to Integrated Coast Guard Systems, a joint venture formed by Northrop Grumman and Lockheed Martin, as a lead systems integrator to execute the Deepwater program using a system-of-systems approach. Under this approach, the Coast Guard provided the contractor with broad, overall performance specifications—such as the ability to interdict illegal immigrants—and the lead systems integrator determined the specifications for the Deepwater assets. In 2007, Coast Guard took over the systems integrator role.

performance parameters such as anti-terrorism/force protection and underwater mine detection because the existing requirements were not testable. To further remedy the lack of clear requirements, Coast Guard officials stated that they are currently developing a second version of the requirements document that improves the specificity and definition of many of the National Security Cutter's requirements and will be used as criteria during operational testing. To date, the Coast Guard has not reduced the National Security Cutter's capability for the purpose of affordability as it has done for the Offshore Patrol Cutter. However, according to Coast Guard officials, there is a revised acquisition program baseline under review which will reflect an ongoing effort to lower the acquisition cost of the vessel.

Major Cutter Requirements and Missions Have Similarities, but Costs Vary Greatly and Concerns Remain about Affordability

The requirements and missions for the National Security Cutter and the Offshore Patrol Cutter programs have similarities, but the actual cost for one National Security Cutter compared to the estimated cost of one Offshore Patrol Cutter varies greatly. Even though the Coast Guard took steps to consider affordability while developing the requirements for the Offshore Patrol Cutter, those affordability decisions do not explain the magnitude in the difference between these two costs. Table 3 compares the expected performance of a National Security Cutter with the objective/threshold requirements of an Offshore Patrol Cutter, the missions each cutter is expected to perform, and the actual/estimated costs for each cutter.

Table 3: Major Cutter Requirements and Ship Characteristics Compared to Cost

	National Security Cutter	Offshore Patrol Cutter
Key performance Parameter	**Expected performance[a]**	**Objective/threshold**
Operating Range	12,000 nautical miles (nm) at the most economical speed	9,500 nm / 8,500 nm at 14 knots sustained speed
Interoperability	• Exchange voice and data with • Coast Guard • Department of Defense • DHS agencies • North Atlantic Treaty Organization • international partners	• Exchange voice, data and video with • Coast Guard • Department of Defense • DHS agencies • North Atlantic Treaty Organization • international partners • commercial and private vessels or aircraft
Size of crew	108 Sailors	90 Sailors / 104 sailors
Seakeeping	All operations through mid-Sea State 5	Primary missions through Sea State 5 / same for threshold
Speed/maneuverability	32 knots	25 knots / 22 knots
Patrol endurance	60 days	60 days / 45 days
Statutory missions[b]		
	• Defense Readiness • Drug Interdiction • Living Marine Resources • Search and Rescue • Alien Migrant Interdiction Operations • General Law Enforcement • Ports, Waterways, and Coastal Security • Marine Environmental Protection	• Defense Readiness, but according to officials, cannot transit with carrier strike group • Drug Interdiction • Living Marine Resources • Search and Rescue • Alien Migrant Interdiction Operations • General Law Enforcement • Ports, Waterways, and Coastal Security
Acquisition cost per Cutter[c]	Approximately $760 million	Approximately $300 million

Source: GAO analysis of Coast Guard documentation.

[a]For the National Security Cutter, speed is based on the results of an operational assessment and the remaining measurements are thresholds that were not tested as a part of the January 2011 operational assessment.

[b]The Coast Guard has 11 statutory missions that range from marine safety to defense readiness. According to the requirements document, the National Security Cutter is expected to conduct components of other missions, such as international ice patrol (a component of Ice Operations) and foreign vessel inspection (a component of Marine Safety). While the Offshore Patrol Cutter requirements document does not specifically call out these mission components, the cutter's planned capabilities are expected to conduct these mission components as well.

[c]Acquisition costs are in fiscal year 2016 dollars and compare the 5th cutter purchased for each fleet and, therefore, this comparison holds the learning curve constant.

This comparison raises questions whether the Offshore Patrol Cutter could be a less expensive, viable substitute for the National Security Cutter or whether there are assumptions built into the Offshore Patrol Cutter cost estimate, not related to requirements, which are driving the estimated costs down.[22] With respect to the first, DHS, motivated by concerns about the affordability of the National Security Cutter program, completed a Cutter Study in August 2011 which included an analysis to examine the feasibility of varying the combination of objective—or optimal performing—Offshore Patrol Cutters and National Security Cutters in the program of record. Through this analysis, DHS found that defense operations is a key factor in determining the quantity of National Security Cutters needed and that the Coast Guard only needs 3.5 National Security Cutters per year to fully satisfy the planned requirement for defense-related missions.[23] DHS concluded that with six National Security Cutters the Coast Guard can meet its goals for defense operations and mitigate some of the near-term capacity loss of the five National Security Cutter fleet modeled in the Cutter Study. DHS Program Analysis and Evaluation officials stated that this, in conjunction with other information, helped to inform the decision to not include the last two National Security Cutter hulls—hulls 7 and 8—in the fiscal years 2013-2017 capital investment plan. However, the DHS Cutter Study also notes that the time line for the two acquisitions makes a trade-off between the National Security Cutter and the Offshore Patrol Cutter difficult since the National Security Cutter program is in production whereas the Offshore Patrol Cutter program is only in the design phase. Similarly, we have reported that the Coast Guard may face an operational gap in its ability to perform missions using major cutters due to the condition of the legacy fleet.[24]

With respect to the second possibility that there are assumptions built into the Offshore Patrol Cutter cost estimate that are driving the estimated costs down, the Coast Guard included three key assumptions in the Offshore Patrol Cutter's life cycle cost estimate, generally not related to

[22]For the purposes of this review, we did not assess the Offshore Patrol Cutter's life cycle cost estimate in accordance with our best practices.

[23]In the DHS Cutter Study, the defense readiness mission—a mission in which the Coast Guard provides assets to the Department of Defense to meet its military strategy—is fully satisfied before other mission areas are assessed. In doing so, defense operations is the highest mission priority, only to be met through the use of National Security Cutters.

[24] GAO-12-741.

the cutter's key requirements, which lower the estimated cost in comparison to the actual cost of the National Security Cutter. These three assumptions are:

- **Learning Curve**. The Coast Guard assumes that the shipyard(s) will generally continue to reduce the labor hours required to build the Offshore Patrol Cutter through the production of all 25 vessels. This may prove optimistic, particularly for later ships in the class, because the amount of additional learning per vessel–or efficiencies gained during production due to improving the manufacturing process to build the ship in a way that requires fewer labor hours–typically decreases over time in a shipbuilding program.
- **Military versus Commercial Standards**. The life cycle cost estimate assumes that certain areas of the Offshore Patrol Cutter's construction and material would reflect an average of 55 percent commercial standards—or construction standards that are typically used for military sealift ships that provide ocean transportation—and 45 percent military standards—or construction standards typically used for Navy combat vessels.[25] Any changes in this assumption could have a significant effect on the cost estimate because military standards require more sophisticated construction applications, particularly in the areas of shock hardening and signature reduction, to prepare a ship to survive battle. Such sensitivity could help to explain the difference in costs between the Offshore Patrol Cutter program and the National Security Cutter program and officials stated that the latter program is being built to about 90 percent military standards.
- **Production Schedule.** The cost estimate reflects the Coast Guard's plan to switch from building one Offshore Patrol Cutter per year to building two Offshore Patrol Cutters per year beginning with the fourth and fifth vessel in the class. If the Coast Guard cannot achieve or maintain this build rate due to budget constraints, it may choose to stretch the schedule for the program which in turn could increase costs.

[25]The International Maritime Organization requires a ship's design and construction to be approved by ship classification societies, including the American Bureau of Shipping, which establishes and maintains standards for commercial and naval ships. These societies also class vessels, which is a determination that a ship meets the appropriate set of guidelines. Classed commercial ships are designed to conform with the rules for building these types of vessels while classed naval combat ships are designed to conform with naval vessel rules.

Coast Guard program officials generally agreed that these three variables are important to the cost of the Offshore Patrol Cutter and are key reasons why the Coast Guard expects one Offshore Patrol Cutter to cost less than half of one National Security Cutter. However, these officials recognized that the cost estimate for the Offshore Patrol Cutter is still uncertain since the cutter has yet to be designed—thus, the National Security Cutter's actual costs are more reliable. Coast Guard program officials also added that the cost estimate for the Offshore Patrol Cutter is optimistic in that it assumes that the cutter will be built in accordance with the current acquisition strategy and planned schedule. They noted that any delays, design issues, or contract oversight problems—all of which were experienced during the purchase of the National Security Cutter—could increase the eventual price of the Offshore Patrol Cutter.

According to the April 2012 acquisition decision memorandum, which documents DHS's approval for the Coast Guard to move forward and award design contracts for the Offshore Patrol Cutter, DHS Office of Policy and the Office of the Chief Financial Officer raised concerns about the potential for cost growth and this program crowding out other Coast Guard programs in future austere budget years. In response to concerns about affordability, DHS is requiring the Coast Guard to return for a special program review—one that is not required by acquisition guidance—before it awards a production contract, which is currently planned for fiscal year 2016. DHS Program Accountability and Risk Management officials told us that a new life cycle cost estimate is not required if the Coast Guard can demonstrate during this meeting that the acquisition cost and schedule in the approved acquisition program baseline are still valid. However, if there is a significant difference from the currently approved life cycle cost estimate, DHS would direct the Coast Guard at that time to update the life cycle cost estimate.

Cross-Directorate Acquisition Oversight Groups Have Potential to Strengthen Management of Portfolio

The Coast Guard has established an acquisition governance framework that includes the following teams: Executive Oversight Council, Systems Integration Team, and Resource Councils. The Coast Guard is currently working on an update to its *Major Systems Acquisition Manual* that will articulate expectations for how these groups will interact. We found that the highest level team, the Executive Oversight Council—a group of admirals and senior executives—has actively conducted oversight meetings to govern the acquisition process for major acquisitions in the Coast Guard's portfolio. However, these meetings were focused on individual programs and the Council has not acted upon some information presented to it that could help to manage the portfolio as a whole. Coast

Guard officials told us that portfolio affordability decisions are handled through the budget process. However, this approach results in year to year adjustments to individual programs that do not optimize the long-term value of the portfolio.

Coast Guard Has Established an Acquisition Governance Framework That Is Still Evolving

The Coast Guard has established a governance framework to provide leadership for the Coast Guard's acquisition enterprise that includes the following teams: the Executive Oversight Council, Systems Integration Team, and Resource Councils. All of these teams have cross-directorate representation including members from the acquisitions, resources, and requirements directorates. These members are generally senior leaders including admirals, captains, and civilian executives. Each group has a charter to identify their purpose and scope of responsibilities. Table 4 provides an overview of each team according to their charters.

Table 4: Overview of the Executive Oversight Council, Systems Integration Team, and Resource Councils

Team	Directorate Chair	Established	Responsibilities
Executive Oversight Council	Acquisitions Directorate	November 2010	Charter: Admiral/Senior Executive Service-level forum established to monitor major risks, address emergent issues, review acquisition phase exit criteria, and provide direction to cross-directorate teams, as required to support successful execution of major and non-major acquisitions. Officials told us that members of the Executive Oversight Council are also members of the Investment Board which is responsible for building the Coast Guard's budget.
Systems Integration Team	Capabilities Directorate	December 2011	Charter: Captain/GS-15 team established to support the Executive Oversight Council and Resource Councils to perform systems integration functions by providing a forum to discuss and resolve project issues that directly or indirectly impact cross-directorate stakeholders.
Resource Councils[a] • Aviation Resource Council • Cutter Resource Council • C4ISR Resource Council	• Capabilities Directorate • Capabilities Directorate • Capabilities and Intelligence Directorates	• February 2006[b] • September 2010 • July 2010	Charter: Teams of senior officers established to oversee aviation/cutter/C4ISR challenges that affect more than one directorate. Officials told us that acquisitions are one facet in the scope of their responsibilities including decommissioning, maintenance, and budget execution.

Source: GAO presentation of Coast Guard data and interviews.

[a]There are two other Resource Councils—Boat and Shore Forces—which have responsibilities not related to major acquisitions.

[b]Coast Guard officials told us that the Aviation Resource Council was the first resource council and formed several years ago to help ensure that decisions made by Integrated Coast Guard Solutions under the Deepwater program reflected aviation specific sponsor needs. The Coast Guard approved an updated charter for this group in September 2010.

The Coast Guard is currently updating its *Major Systems Acquisition Manual* to document how these teams will interact within this established framework. The previous version of the manual highlights the Executive Oversight Council as a review board that supports a knowledge-based acquisition management approach, but does not include any references to the Systems Integration Team or the Resource Councils. Based on draft language of the update to the manual, the Systems Integration Team and Resource Councils will serve as senior level advisors to the Executive Oversight Council. Each of the Resource Councils will report directly to the Executive Oversight Council for issues within their own domain—cutter, aviation, or C4ISR—and report to the Systems Integration Team for issues that cross domains. The Systems Integration Team will be responsible for coordinating the resolution of these issues

raised by the Resource Councils as well as providing coordinated recommendations to the Executive Oversight Council. In addition, the Systems Integration Team will meet quarterly to review Resource Council meeting minutes to help ensure issues that affect more than one council are being appropriately recognized.

Although Coast Guard officials stated the way in which teams are expected to interact with one another is still formalizing, we found that the following examples illustrate that the Executive Oversight Council oversees the acquisition governance framework and is well-positioned to delegate tasks to the other teams or pull information from them as needed to assist in the management of acquisitions or solve problems related to acquisitions:

- At a June 2011 Executive Oversight Council meeting to discuss the Patrol Boat and Medium Endurance Cutter Sustainment programs, the Council tasked the Cutter Resource Council to provide recommendations for unobligated Patrol Boat project funds.
- At an August 2011 Executive Oversight Council meeting to discuss the Coast Guard's acceptance of the third National Security Cutter, the issue of the operational usefulness of the ship's side door was raised. Officials suggested that the Cutter Resource Council may have a role in this discussion from an engineering perspective.
- According to officials, in Fall 2011, the Executive Oversight Council tasked the Systems Integration Team to assist in producing a strategy for sharing unclassified aviation imagery collected on classified systems so that it can be available for use throughout the Coast Guard.[26] This is a cross-domain issue that was initially raised by the Aviation program office and involved the C4ISR and aviation stakeholders, among others. Coast Guard officials told us that a recommendation is currently in draft form.
- A February 2012 memo documents Executive Oversight Council approval of the C4ISR Resource Council's recommendations to clarify requirements in the Offshore Patrol Cutter's requirements document.

[26]In July 2011 we reported that operators told us that sharing data gathered by the Maritime Patrol Aircraft during the Deepwater Horizon spill was difficult because all information gathered by the aircraft was maintained on a classified system. See GAO-11-743.

Executive Oversight Council Is Conducting Program Level Oversight, but Opportunities Exist to Strengthen Its Review of the Acquisitions Portfolio

The Executive Oversight Council has been active in meeting with individual programs to discuss the current status of the acquisition or particular issues, review key program documents, and help prepare program managers in advance of briefing more senior Coast Guard and DHS officials. According to Coast Guard documentation we reviewed, in 2010 and 2011, the Executive Oversight Council met 38 times with individual program managers to discuss major acquisitions.[27] The Council conducted its meetings on a program by program basis and did not meet to discuss issues across the portfolio. The results of these meetings generally led to the council members taking one of four actions:

- requesting follow-up information or another meeting,
- elevating issues and/or making a recommendation to the Deputy Commandant for Mission Support, Deputy Commandant for Operations, and/or Vice Commandant,
- making an acquisition management decision, or
- determining no further action is necessary as the meeting was primarily for informational purposes.

Table 5 provides some examples of these meeting results:

[27]In addition, the Executive Oversight Council met 23 times to discuss issues outside the scope of major acquisition programs, including non-major acquisitions and administrative acquisitions topics.

Table 5: Key Examples of Executive Oversight Council Actions in 2010 and 2011

Executive Oversight Council meeting outcomes	Acquisition program reviewed	Targeted outcome	Coast Guard action
Requested follow-up information or meeting	Polar Icebreaker Reviewed polar business case analysis throughout multiple meetings and requested follow-on discussions	To be informed about the progress of the business case analysis and be prepared to brief more senior leadership	As of the end of 2011, the Coast Guard continued to gather additional information
Elevated issues and/or made formal recommendation to more senior officials (Vice and Deputy Commandants) or DHS	National Security Cutter Made recommendation to Vice Commandant: Remove Aircraft Ship Integrated Secure and Traverse from the National Security Cutter program	To replace a system that did not work	Removed Aircraft Ship Integrated Secure and Traverse on current and future National Security Cutters
	HC 130 H/J Made recommendation to Vice Commandant: revise acquisition strategy to consist of a hybrid mix of 11 HC-130Hs and 11 HC-130Js into a combined acquisition program baseline	To streamline program management and integrate acquisition time lines	Submitted combined baseline to DHS
Made an acquisition management decision	Fast Response Cutter Tasking to Program: submit Breach Notification Memo, schedule breach due to lead ship delivery delay	To follow breach notification process and document/provide breach remediation plan and new baseline	Notified DHS of schedule breach in December 2011
	CG-LIMS Based on program status review, Executive Oversight Council moved to issue a decision memorandum to inform the Deputy Commandant of Mission Support on the reclassifying of CG-LIMS to a non-major acquisition	To align expected project cost with appropriate acquisition category	Submitted request to DHS
Met for informational purposes without actions documented	Fleet Mix Analysis 2 Executive Oversight Council received a briefing on the fleet mix analysis phase 2 to come to agreement on the pertinent information presented and the evolution of the analysis since fleet mix phase 1, but did not pursue further action on the study	To be prepared to inform and brief Coast Guard senior leadership on relevant issues	No action

Source: GAO presentation of Coast Guard data.

While the Executive Oversight Council is positioned to have direct access to complete information on the progress of all acquisition programs as it conducts acquisitions oversight with support from the Systems Integration Team and Resource Councils, it has not acted on some information presented that could help the Coast Guard manage its portfolio as whole. Our best practices work has found that successful commercial companies assess product investments collectively from an enterprise level, rather

than as independent and unrelated initiatives, and prioritize investments by integrating the requirements, acquisition, and budget processes.[28] This approach empowers leadership to make decisions about the best way to invest resources and holds managers accountable for outcomes. Organizations should use an integrated approach to prioritize needs and allocate resources in accordance with strategic goals, so they can avoid pursuing more products than they can afford and optimize return on investment. Appendix II provides additional details about four key portfolio management practices including: clearly define and empower leadership; establish standard assessment criteria, and demonstrate comprehensive knowledge of the portfolio; prioritize investments by integrating the requirements, acquisition, and budget processes; and continually make go/no-go decision to rebalance the portfolio. These best practices suggest that one potential positive of the Deepwater program as envisioned was the prospect of making trades within the portfolio as opposed to trying to manage and optimize each program individually. As we reported in April 2011, Coast Guard officials told us that as it began assuming the system integrator function from the Deepwater contractor in 2007, it believed it needed a forum to make trade-offs and other program decisions especially in a constrained budget environment and established the Executive Oversight Council.[29] We did identify instances in which the Executive Oversight Council was presented with opportunities to manage its acquisitions as a portfolio, but tasks were not completed or no action was taken:

- At the request of the Executive Oversight Council, in September 2010, the Systems Integration Team briefed the Council on strategic courses of action to revise acquisition program baselines under a budget constraint, but officials from the Systems Integration Team stated that the briefing led to no decisions or further taskings.[30] Coast Guard officials stated that the briefing was also given to the Deputy Commandant for Mission Support and the Deputy Commandant for Operations.

[28]GAO-07-388.

[29]GAO, *Coast Guard: Opportunities Exist to Further Improve Acquisition Management Capabilities*, GAO-11-480. (Washington, D.C.: April 13, 2011).

[30]While the Systems Integration Team's charter was not signed until December 2011, officials told us the team was called upon to complete this task in 2010.

- The Acquisition Directorate's October 2010 *Blueprint for Continuous Improvement* included action items for the Executive Oversight Council to establish, document and approve project priority review time lines as well as publish project priority guidance to support a larger goal of developing and implementing effective and efficient decisonmaking to maximize results and manage risk within resource constraints. The planned completion dates for these activities was the end of fiscal year 2011, but these action items have not yet been completed. Officials responsible for developing the *Blueprint* explained that the action items and associated completion dates may have been optimistic given the amount of cross-directorate collaboration required.
- In May 2011 the Executive Oversight Council received a briefing on Fleet Mix Analysis Phase 2, but no decisions or recommendations based on this analysis were made. Coast Guard officials stated that the briefing was also given to the Deputy Commandant for Mission Support and the Deputy Commandant for Operations. A senior Coast Guard official who is the point of contact for the Council stated that the council's responsibility was to be informed of the matter but does not have a decision authority. We also found no discussion of DHS's Cutter Study—which includes scenarios that could affect the Coast Guard's surface fleet—through our review of meeting minutes from 2010 and 2011.

While the Executive Oversight Council has had opportunities to discuss affordability of the entire portfolio and make informed trade-off decisions, Coast Guard officials told us that all of these decisions are handled through the annual budget process, which also takes into account budgeting for operating expenses. However, the Coast Guard's current approach of relying on the budget process to manage the affordability of its portfolio has proven ineffective. The preparation of the annual budget request involves immediate trade-offs, but does not provide the best environment to make decisions to develop a balanced, long-term portfolio. As we have previously reported, given that the Coast Guard is managing more programs than its budget can support, and it does not review its portfolio outside of the annual budget process, the Coast Guard has relied on budget decisions each year to drive the acquisitions process.[31] As a result, program managers react to the budget request each year as opposed to having a reliable funding profile consistent with

[31]GAO-11-743.

their approved baselines by which to execute their programs. One of the responsibilities in the Executive Oversight Council's charter is to synchronize projects with planning, programming, budgeting, and execution milestones to align them for successful completion of key milestones, but Coast Guard officials acknowledged that this alignment has not yet occurred.

Conclusions

The Coast Guard has made progress in improving its acquisition management capabilities. Yet the Coast Guard continues to manage a portfolio of acquisitions that lacks up-to-date, DHS-approved baselines to reflect current costs and schedules and that will likely cost significantly more than originally planned. While its portfolio requires more funding on an annual basis than its expected budget can support, the Coast Guard has not yet fully implemented our recommendation from July 2011 to adopt action items to promote stability in the capital investment plan, ensure program baselines are aligned with the capital investment plan, and establish project priorities as a Coast Guard-wide goal. In the absence of up-to-date program baselines, the Coast Guard makes decisions about which programs to fund and which programs not to fund as part of its annual budget process as opposed to having a stable and meaningful long-term capital investment plan based on identified needs. This puts Congress and the taxpayer in the position of having to commit resources to individual programs without knowing whether they are affordable, or achievable, within the context of the overall portfolio. Furthermore, unplanned demands for additional funds are likely as the Coast Guard begins to start new acquisition programs. If the Coast Guard continues to make expedient decisions in the near-term environment of budget decisions without an effective means of portfolio management, there is no way to help ensure that near-term budget decisions are optimized and in the best interest of the Coast Guard's acquisition portfolio in the long term.

The Coast Guard has made improvements in its process to develop requirements for the Offshore Patrol Cutter in response to concerns about affordability, but has not reassessed the mix of assets in its portfolio for the same purpose. The Coast Guard may not be on track to acquire many of the capabilities identified as necessary after September 11, 2001, while stating that those mission needs are still guiding the ongoing acquisitions. It is unclear, given the Coast Guard's decisions not to pursue some of these capabilities, whether it will obtain a balanced mix of assets and the presence-based operating concept called for in its 2005 Mission Need Statement. Furthermore, the Coast Guard remains committed to

purchasing its major cutter program of record even though the requirements of the two cutters have similarities, yet have very different expected costs. It is too early to know what the Offshore Patrol Cutter will eventually cost, but the current estimate includes some assumptions that may help explain the differences in the estimated cost of the Offshore Patrol Cutter when compared to the National Security Cutter.

The Coast Guard's initiative to establish an acquisition governance board—the Executive Oversight Council—provides an opportunity for it to strengthen portfolio management practices that we found contribute to the success of commercial companies. For example, given its cross-directorate representation and direct access to complete information on all acquisition programs—with support from the Systems Integration Team and Resource Councils—the Council has the potential to implement key portfolio management practices such as prioritizing investments by integrating the requirements, acquisition, and budget processes. But the Council has not engaged in these portfolio-wide reviews, and instead, the Coast Guard continues to manage its acquisitions through the budget process. Until the Executive Oversight Council begins to use the individual program information it receives to manage its portfolio of acquisitions—including informing strategic trade-off decisions—the Coast Guard will continue to operate in an environment where its needs are not balanced with available resources.

Recommendations for Executive Action

- To help the Coast Guard create stability in the acquisition process and provide decision makers, including DHS, Office of Management and Budget, and Congress, with current information to make decisions about budgets, we recommend that the Commandant of the Coast Guard conduct a comprehensive portfolio review to develop revised baselines that reflect acquisition priorities as well as realistic funding scenarios.
- To strengthen the Coast Guard's acquisition governance framework and better prepare the Coast Guard in a constrained fiscal environment, we recommend that the Commandant of 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. The Executive Oversight Council should supplement individual program reviews with 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, given the Coast Guard is not currently on a path to

achieve several capabilities identified in the 2005 Mission Need Statement.

Agency Comments and Our Evaluation

We provided a draft of this report to DHS and the Coast Guard for comment. In its written comments, DHS concurred with both recommendations. The written comments are reprinted in appendix III.

With respect to the first recommendation, that the Coast Guard conduct a comprehensive portfolio review to develop revised baselines that reflect acquisition priorities as well as realistic funding scenarios, DHS agreed and stated the Coast Guard will conduct a portfolio-wide review following submittal of the next President's budget request. Furthermore, DHS stated that the Coast Guard is committed to ensuring acquisition plans are executable in the current fiscal climate and noted that the Coast Guard is currently revising its acquisition program baselines and several new baselines are in the approval process. However, DHS added that funding has varied considerably over the last several years making it extraordinarily difficult to predict future budget authority with precision and, as a result, it is inevitable that trade-off decisions will need to be made on an annual basis. We understand that the budget process is a dynamic environment in which some trade-off decisions may have to be made on an annual basis, but we believe that the Coast Guard should develop revised baselines that reflect acquisition priorities as well as realistic funding scenarios to minimize the magnitude of trade-offs needed each year resulting from the current mismatch between resources needed to support all approved program baselines and expected funding levels. Without such long-term priorities, program managers will likely always be at a disadvantage of having to continuously update baselines to react to the Coast Guard's budget planning as opposed to having a stable budget profile reflecting the baselines.

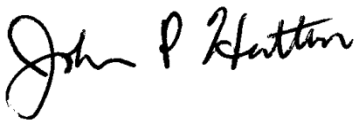
In concurring with our second recommendation, DHS stated that the Coast Guard will identify the Executive Oversight Council as the governing body to oversee the Coast Guard's acquisition enterprise with a portfolio management approach.

The Coast Guard also provided technical comments that were incorporated, as appropriate.

We are sending copies of this report to interested congressional committees, 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 huttonj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.

Sincerely yours,



John P. Hutton
Director
Acquisition and Sourcing Management

Appendix I: Scope and Methodology

In conducting this review, we relied in part on the information and analysis in our past work, including reports completed in 2010, 2011, and 2012.[1] Additional scope and methodology information on each objective of this report follows.

To assess the planned cost and schedule of the Coast Guard's major acquisitions portfolio, we reviewed each asset's original acquisition program baseline and revised baseline, if an approved, revised baseline was available. To determine whether these baselines reflected the current status of the program, we reviewed breach notifications, the fiscal year 2013 President's Budget request, and interviewed officials from program offices. We also reviewed the Coast Guard's *Major Systems Acquisition Manual* to identify when programs are required to update baselines. In comparing original costs to revised baseline costs, if a revised baseline presents both threshold costs and objective costs, threshold costs were used. For those programs that comprised the former Deepwater program this methodology allows traceability to the original $24.2 billion Deepwater baseline while also showing how much programs could now cost based upon revised baselines. Furthermore, some programs have reported a cost breach to the revised baseline and costs are expected to increase beyond the threshold values. In making this comparison for those programs with no planned funding beyond fiscal year 2014, the estimated total program cost equals dollars appropriated to date plus planned funding in the fiscal years 2013-2017 capital investment plan. Further, we analyzed the Coast Guard's fiscal years 2013-2017 expanded capital investment plan to identify the planned annual funding levels for each major acquisition program. We then compared those planned funding levels to the annual funding needs identified in the program's life cycle cost estimate to determine whether there was a match. If an approved life cycle cost estimate was not available, we used the annual funding needs identified by the Coast Guard in the expanded capital investment plan. We also interviewed Coast Guard officials from the acquisitions directorate and resources directorate to discuss future funding plans as well as to discuss the Coast Guard's plans for the National Security Cutter program to determine how those plans could affect other programs. We also interviewed officials from the Department of Homeland Security (DHS) Program Accountability and Risk Management

[1] GAO-10-790, GAO-11-743, and GAO-12-751.

and DHS Office of Policy to discuss their oversight responsibilities for Coast Guard programs.

To assess the steps the Coast Guard has recently taken to develop an affordable portfolio through its requirements process, we obtained and analyzed Fleet Mix Analysis Phase One, Fleet Mix Analysis Phase Two, and the DHS Cutter Study. We also relied on our past work that reviewed Coast Guard appropriations from fiscal years 2008 through 2012 and the President's budget request for fiscal year 2013 to analyze how fiscal assumptions in the studies compared with past appropriations. Further, we examined the 2005 Mission Need Statement to determine the extent to which the capabilities being acquired matched the needs set forth in this plan. In doing so, we traced 11 system performance capabilities identified in the 2005 Mission Need Statement through various program documents, including the 2007 Deepwater acquisition program baseline, operational requirements documents, and testing documents to identify which capabilities the Coast Guard is currently planning to acquire. In addition to reviewing fleetwide requirements, we also reviewed the requirements development process for the National Security Cutter and the Offshore Patrol Cutter. We focused on these two assets as they are the two largest cost drivers in the Coast Guard's major acquisition portfolio. To examine the Offshore Patrol Cutter's requirements development process, we reviewed the Coast Guard's *Major Systems Acquisition Manual* and Requirements Guidance and interviewed officials in the capabilities directorate to discuss the process and to identify key documents and studies that guided this process. We also compared the National Security Cutter's and Offshore Patrol Cutter's missions, requirements, and costs to determine similarities and differences. We used Coast Guard budget documentation to determine the cost of the fifth National Security Cutter and then used the Offshore Patrol Cutter's life cycle cost estimate which identified the average cost of the fourth and fifth Offshore Patrol Cutters. We discussed the comparison between the National Security Cutter and Offshore Patrol Cutter with DHS and Coast Guard officials.

To assess the extent to which Coast Guard is using cross-directorate teams to provide oversight and inform acquisition decisions, we interviewed officials from the acquisition and resource directorates to identify what teams the Coast Guard has established as part of an acquisition governance framework. We also reviewed the charters for each of those teams. We then collected and analyzed meeting minutes and briefing presentations for the Executive Oversight Council and Resource Councils from calendar years 2010-2011, but we did not do the

same for the Systems Integration Team because it was just forming during this time period. We also reviewed the acquisition directorate's *Blueprint* to identify what action items had been tasked to these teams. We interviewed senior representatives from the Executive Oversight Council, Systems Integration Team, and chairs of the Aviation, Cutter and C4ISR Resource Councils to understand their specific roles and responsibilities for managing acquisition programs and informing recapitalization decisions. We also interviewed stakeholders from the acquisitions and resources directorates to gather their understanding of the roles of the Executive Oversight Council, Systems Integration Team and Resource Councils, and the nature and extent of their interaction with these groups. Furthermore, we referred to previous GAO work on best practices for portfolio management to identify the extent to which the Coast Guard's framework implements this management approach.

To support our review, we requested information and documents pertaining to the current cost estimates and schedules for each asset in the Coast Guard's major acquisitions portfolio, a copy of the DHS-directed briefing in which Coast Guard was to develop a plan for showing program tradeoffs, and several sets of Executive Oversight Council meeting minutes. The Coast Guard did not provide us current cost estimates and schedules, the complete DHS-directed briefing, or all sets of meeting minutes because officials stated these documents included budget negotiation information.

We conducted this performance audit from November 2011 to September 2012 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: Key Portfolio Management Practices

	The following list identifies several key practices that can improve outcomes when managing a portfolio of multiple programs.
Clearly define and empower leadership	• Those responsible for product investment decisions and oversight should be clearly identified and held accountable for outcomes. • Portfolio managers should be empowered to make decisions about the best way to invest resources. • Portfolio managers should be supported with cross-functional teams composed of representatives from key functional areas.
Establish standard assessment criteria, and demonstrate comprehensive knowledge of the portfolio	• Specific criteria should be used to ensure transparency and comparability across alternatives. • Investments should be ranked and selected using a disciplined process to assess the costs, benefits, and risks of alternative products. • Knowledge should encompass the entire portfolio, including needs, gaps, and how to best meet the gaps.
Prioritize investments by integrating the requirements, acquisition, and budget processes	• Requirements, acquisition, and budget processes should be connected to promote stability and accountability. • Organizations should use an integrated approach to prioritize needs and allocate resources, so they can avoid pursuing more products than they can afford, and optimize return on investment. • Resource allocation across the portfolio should align with strategic goals/objectives, and investment review policy should use long-range planning.
Continually make go/no-go decisions to rebalance the portfolio	• Program requirements should be reviewed annually to make recommendations on proposed changes/descoping options. • As potential new products are identified, portfolios should be rebalanced based on those that add the most value. • If project estimates breach established thresholds, the product should be immediately reassessed within the context of the portfolio to determine whether it is still relevant and affordable. • Agencies should use information gathered from post-implementation reviews of investments, as well as information learned from other organizations, to fine-tune the investment process and the portfolios to shape strategic outcomes.

Previous Reports Establishing Key Acquisition Management Practices

- *Defense Acquisitions: Assessments of Selected Weapon Programs*, GAO-10-388SP (Washington, D.C.: March 30, 2010)
- *Department of Homeland Security: Billions Invested in Major Programs Lack Appropriate Oversight*, GAO-09-29 (Washington, D.C.: November 18, 2008)
- *Best Practices: An Integrated Portfolio Management Approach to Weapon System Investments Could Improve DOD's Acquisition Outcomes*, GAO-07-388 (Washington, D.C.: March 30, 2007)
- *Information Technology Investment Management: A Framework for Assessing and Improving Process Maturity*, GAO-04-394G (Washington, D.C.: March 2004)
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Appendix III: Comments from the Department of Homeland Security and Coast Guard

U.S. Department of Homeland Security
Washington, D.C. 20528

Homeland Security

September 13, 2012

John P. Hutton
Director
Acquisition and Sourcing Management
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Draft Report GAO-12-918, "COAST GUARD: Portfolio Management Approach Needed to Improve Major Acquisition Outcomes"

Dear Mr. Hutton:

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

The Department appreciates GAO's recognition of the significant challenges faced by the U.S. Coast Guard and actions it has taken to meet mission needs while strengthening acquisition capabilities.

The draft report contained two recommendations with which the Department concurs. Specifically, GAO recommended the Commandant of the Coast Guard:

Recommendation 1: To help Coast Guard create stability in the acquisition process and provide decision makers, including DHS, Office of Management and Budget, and Congress, with current information to make decisions about budgets, conduct a comprehensive portfolio review to develop revised baselines that reflect acquisition priorities as well as realistic funding scenarios.

Response: Concur. The Coast Guard will conduct a portfolio-wide review following submittal of the President's budget request (expected second quarter of Fiscal Year (FY) 2013). The Coast Guard is committed to ensuring its acquisition plans are executable in the current fiscal climate and completing a comprehensive portfolio review. As stated in GAO's report, the Coast Guard is currently revising its Acquisition Program Baselines (APBs) and has several new APBs in the approval process.

While Acquisition, Construction and Improvements (AC&I) are being revised, it remains a challenge for the Coast Guard to make precise funding assumptions in this dynamic fiscal climate. Over the past several years, AC&I funding has varied considerably; for example, in FY 2005 the budget provided $1.0 billion, growing to $1.5 billion in FY 2011. Two years later the FY 2013 budget was less than $1.2 billion. As illustrated above, there is significant variability in the Coast Guard's budget, and therefore it is extraordinarily difficult to predict

future budget authority with precision. Thus, it is inevitable that trade-off decisions will need to be made on an annual basis.

The assets required to meet Coast Guard statutorily required missions do not change on the basis of budgetary constraints. While changes in the fiscal environment may impact the rate and efficiency at which the Coast Guard can acquire new cutters, aircraft, boats and C4ISR systems to replace aging and failing equipment, it does not reduce or otherwise change the needs of the Service. The tradeoffs made to date by the Coast Guard reflect the best possible use of our existing resources. The Coast Guard will continue to focus the resources allotted to address our highest operational risks to provide the best and most efficient service to the Nation.

Recommendation 2: To strengthen the Coast Guard's acquisition governance framework and better prepare the Coast Guard in a constrained fiscal environment, identify the Executive Oversight Council as the governing body to oversee the Coast Guard's acquisition enterprise with a portfolio management approach. The Executive Oversight Council should supplement individual program reviews with 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, given the Coast Guard is not currently on a path to achieve several capabilities identified in the 2005 Mission Need Statement.

Response: Concur. The Coast Guard will identify the Executive Oversight Council as the governing body to oversee the Coast Guard's acquisition enterprise with a portfolio management approach.

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

Sincerely,

for Jim H. Crumpacker
Director
Departmental GAO-OIG Liaison Office

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Appendix IV: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, individuals making key contributions to this report include Katherine Trimble, Assistant Director; Molly Traci; Jose Cardenas; Mya Dinh; Laurier Fish; Laura Greifner; Kristine Hassinger; and Andrea Yohe.

Related GAO Products

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