

GAO

Report to the Subcommittee on
Strategic Forces, Committee on Armed
Services, House of Representatives

September 2008

MISSILE DEFENSE

Actions Needed to Improve Planning and Cost Estimates for Long-Term Support of Ballistic Missile Defense





Highlights of [GAO-08-1068](#), a report to the Subcommittee on Strategic Forces, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The Department of Defense (DOD) has spent a total of over \$115 billion since the mid-1980s to develop a Ballistic Missile Defense System (BMDS) comprised of land, air, and sea-based elements—such as missiles and radars—working together as an integrated system. Since the cost to operate and support a weapon system usually accounts for most of a system's lifetime costs, the resources needed to fund BMDS could be significant as DOD fields an increasing number of BMDS elements. In 2005, DOD began planning to transition responsibility for supporting BMDS elements from the Missile Defense Agency (MDA) to the services.

GAO was asked to assess the extent to which DOD has (1) planned to support BMDS elements over the long-term, and (2) identified long-term operation and support costs. To do so, GAO analyzed 7 BMDS elements that will be fielded by 2015, compared DOD's plans and cost estimates to DOD and GAO key principles, and assessed the extent to which MDA and the services have agreed on responsibilities for supporting and funding BMDS elements.

What GAO Recommends

GAO recommends that DOD establish a standard process for long-term BMDS support planning and establish a requirement to estimate BMDS operation and support costs. In response, DOD generally agreed stating that its draft proposal for managing BMDS is intended to handle these issues.

To view the full product, including the scope and methodology, click on [GAO-08-1068](#). For more information, contact John Pendleton at (404) 679-1816 or pendletonj@gao.gov.

MISSILE DEFENSE

Actions Needed to Improve Planning and Cost Estimates for Long-Term Support of Ballistic Missile Defense

What GAO Found

DOD has taken some initial steps to plan for BMDS support, but efforts to date are incomplete, and difficulties in transitioning responsibilities from MDA to the services have complicated long-term planning. DOD key principles for weapon system life-cycle management stress the importance of completing support plans that cover a system's expected useful life before it is fielded. Although MDA has developed some policies and guidance for BMDS support planning, it has not developed support plans for three of the seven elements that GAO examined, and MDA has not completed an overall support plan for the integrated system. DOD's long-term support planning for BMDS is incomplete because it has not established a standard process clearly specifying what support planning should be completed before fielding or how to transition the responsibility for supporting BMDS elements from MDA to the services. For five of the seven elements GAO examined, MDA and the services have been unable to reach agreement on who will be responsible for providing support after 2013. DOD has drafted a proposal for BMDS management that DOD officials have stated is intended, in part, to address these issues. However, the draft proposal lacks important details, and it is not clear when it is expected to be approved and implemented. Without a standardized process for long-term support planning, uncertainty will persist regarding how the elements will be supported over the long term.

DOD's recent efforts to develop operation and support cost estimates for BMDS elements have limitations and are not transparent for DOD and congressional decision makers. DOD and GAO key principles for cost estimating state that complete, credible, and independently verified cost estimates are important to support preparation of budget submissions over the short term as well as for assessing the long-term affordability of a program. DOD has started to develop operation and support cost estimates for the seven elements GAO examined, but those efforts are not yet complete and have limitations. First, the estimates are likely to change since DOD is still determining key assumptions. Second, DOD does not plan to have the estimates independently verified. Furthermore, the Future Years Defense Program, DOD's 6-year spending plan, does not fully reflect BMDS operation and support costs. DOD has not yet clearly identified BMDS operation and support costs because the department has not required that these costs are to be developed, validated, and reviewed, and it has not specified when this should be done or who is responsible for doing so. Although DOD's draft proposal for managing BMDS contains some funding suggestions, it does not address the operation and support cost limitations GAO identified. Without a requirement to develop and validate BMDS operation and support cost estimates, DOD will have difficulty preparing credible budget requests and assessing the affordability of BMDS over the long term.

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Abbreviations

BMDS	Ballistic Missile Defense System
DOD	Department of Defense
FYDP	Future Years Defense Program
MDA	Missile Defense Agency
USD (AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics

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United States Government Accountability Office
Washington, DC 20548

September 25, 2008

The Honorable Ellen O. Tauscher
Chairman
The Honorable Terry Everett
Ranking Member
Subcommittee on Strategic Forces
Committee on Armed Services
House of Representatives

The Department of Defense (DOD) has spent about \$57 billion to develop the Ballistic Missile Defense System (BMDS) since the Missile Defense Agency (MDA) was created in 2002, and a total of over \$115 billion since the mid-1980s. The BMDS is intended to be ultimately comprised of land, air, and sea-based elements—such as missiles and radars—working together as an integrated, layered system capable of defeating ballistic missiles of all ranges and in all phases of flight. DOD plans to field an increasing number of BMDS elements over the next several years, and since the cost to operate and support a weapon system traditionally accounts for over 70 percent of the total cost over the system’s lifetime, the resources needed to operate and support BMDS could be significant over time. Furthermore, in order to meet the President’s goal of fielding an initial ballistic missile defense capability in 2004, the Secretary of Defense granted MDA a significant amount of funding and decision-making flexibility by exempting it from traditional weapon system development regulations, but our prior work has shown that this flexibility has come at the cost of transparency and accountability and has made oversight more challenging.¹ Although MDA has programmed approximately \$800 million annually over fiscal years 2008 through 2013 to operate and support the BMDS elements, we previously reported that DOD has not included all known BMDS operating and support costs in its budget² and that BMDS operation and support costs are not identified and aggregated in the Future Years Defense Program, which is one of the principal sources of

¹GAO, *Defense Acquisitions: Missile Defense Acquisition Strategy Generates Results, but Delivers Less at a Higher Cost*, [GAO-07-387](#) (Washington, D.C.: Mar. 15, 2007).

²GAO, *Defense Acquisitions: Actions Needed to Ensure Adequate Funding for Operation and Sustainment of the Ballistic Missile Defense System*, [GAO-05-817](#) (Washington, D.C.: Sept. 6, 2005).

DOD budget information available to senior DOD leadership and Congress.³

In developing an integrated BMDS, DOD's intention was for MDA to develop BMDS elements and then transition the elements to the services which would operate and support them. In 2005, DOD began planning to transition responsibility for supporting BMDS elements from MDA to the services, which involves providing a ballistic missile defense element to a "lead" military service. Each lead service is responsible for providing personnel, force protection, operations and support, and for developing doctrine, organizations, and facilities requirements. The transition process also involves lead services beginning to assume responsibility for operating, supporting, and funding BMDS elements, necessitating negotiations between MDA and each lead service over which organization will provide and pay for each element's operating and support costs in specific years. DOD has developed a transition plan that covers the BMDS elements and is intended to guide the transition of roles and responsibilities from MDA to the services, document the status of agreements on cost sharing, and serve as a basis for preparing budget submissions. Another purpose of this transition plan is to highlight critical issues that are of executive interest for the overall BMDS, such as the critical issues of how BMDS elements will be managed over their life cycle, and how operation and support costs will be shared between MDA and the services.

Since traditional oversight mechanisms are not applied to BMDS, DOD has created various high-level groups to advise the Deputy Secretary of Defense on ballistic missile defense issues. Most recently, DOD created a new Missile Defense Executive Board in 2007 to recommend and oversee implementation of strategic policies, plans, program priorities, and investment options. The Board is developing a draft proposal for how to improve management of BMDS elements over their life cycle including transition of support responsibilities and how to fund operation and support costs.

³GAO, *Defense Management: Actions Needed to Improve Operational Planning and Visibility of Costs for Ballistic Missile Defense*, [GAO-06-473](#) (Washington, D.C.: May 31, 2006).

We reported earlier this year that DOD's transition efforts have, to date, been arduous and time-consuming.⁴ Also, the House Armed Services Committee has expressed concern about the apparent reluctance of the services to assume responsibility for acquiring, fielding, and sustaining missile defense capabilities.⁵ Considering the extensive advance planning required to establish and operate BMDS elements and potential effects on future resource needs, we were asked to examine DOD's plans for preparing to operate and support BMDS elements, including planning to transition BMDS elements to the services. Accordingly, we assessed the extent to which DOD has (1) planned for support of BMDS elements over the long term; and (2) identified the long-term operation and support costs for the BMDS elements it plans to field. For both objectives, we analyzed planning and cost data for the seven BMDS elements that are already fielded or planned for fielding by 2015. We also reviewed DOD policies and guidance that establish DOD's overall approach for preparing to operate and support weapon systems and ballistic missile defense. To assess the extent to which DOD has planned for support of BMDS elements, we compared the planning that had been done, including the extent to which MDA and the services have agreed on responsibilities for supporting BMDS elements, with DOD key principles⁶ for life-cycle management to determine what aspects may be missing that could hinder transition of responsibility for support of BMDS elements from MDA to the services and hinder the ability to provide long-term support.⁷ To assess whether DOD has identified the operation and support costs to operate and support the BMDS elements it plans to field, we compared the method DOD used in developing its operation and support cost estimates with key principles

⁴GAO, *Defense Acquisitions: Progress Made in Fielding Missile Defense, but Program Is Short of Meeting Goals*, [GAO-08-448](#) (Washington, D.C.: Mar. 14, 2008).

⁵H.R. Rep. No. 110-146, 259 (2007).

⁶DOD's key principles are contained in various documents such as: DOD Directive 5000.1, *The Defense Acquisition System* (May 12, 2003); DOD Instruction 5000.2, *Operation of the Defense Acquisition System* (May 12, 2003), OSD's *Designing and Assessing Supportability in DOD Weapon Systems* (October 24, 2003); DOD's *Defense Acquisition Guidebook* (December 20, 2004); MDA's *Integrated Program Policy* (July 18, 2005) and associated *Implementation Guide* (June 2, 2005); and MDA Directive 5010.09, *Ballistic Missile Defense System Sustainment* (April 13, 2006).

⁷Total life-cycle management is the management of all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a DOD weapon or system across its life cycle. In this engagement, we focused on the planning for fielding and sustainment over the expected life of the elements.

for developing accurate and reliable cost estimates⁸ and assessed the extent to which MDA and the services have or have not agreed on which organization is responsible for funding operation and support of BMDS elements. We discussed the results of our analyses on both objectives with DOD officials. We conducted this performance audit from August 2007 through September 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. See appendix I for a more complete description of our scope and methodology.

Results in Brief

DOD has taken some initial steps to plan for BMDS support, but efforts to date are incomplete, and difficulties in transitioning support responsibilities from MDA to the services have complicated long-term planning. DOD key principles for weapon system life-cycle management stress the importance of completing support plans that cover a system's expected useful life before it is fielded. Although MDA has developed some policies and guidance for BMDS support planning, it has not developed support plans for three of the seven elements we examined and MDA has not completed an overall support plan for the integrated system. As a result, MDA has been unable to conduct a support readiness assessment of the overall, integrated ballistic missile defense system as its policy intends. DOD's long-term support planning for BMDS is incomplete because it has not developed and instituted a standard process that clearly specifies what support planning should be completed before elements are fielded, identifies which organization is responsible for life-cycle management, involves the services, and specifies how to transition support responsibilities from MDA to the services. For example, MDA and the services have not routinely worked together on support planning, although a DOD directive states that MDA and the services shall work together to develop support and transition plans, and MDA has used inconsistent methods for negotiating transitions with the services.

⁸GAO, *Cost Assessment Guide: Best Practices for Estimating and Managing Program Costs, Exposure Draft*, [GAO-07-1134SP](#) (Washington, D.C.: July 2007). Life-cycle costs are the total cost to the government for a program over its full life, consisting of research and development, production, operations, maintenance, and disposal costs and are helpful in assessing whether a system's cost is affordable.

Moreover, MDA and the services have generally not agreed which organization should be responsible for life-cycle management. As a result, for five of the seven elements we examined, MDA and the services have been unable to reach agreement on which organization will be responsible for providing support after 2013. DOD has drafted a proposal for BMDS management that DOD officials have stated is intended, in part, to address these issues. However, the draft proposal lacks important details such as which organization is responsible for long-term support planning, when such plans should be completed, and who is accountable for ensuring such planning is completed, and it is not clear when this draft proposal is expected to be approved and implemented. Without a clear, agreed upon process for long-term support planning, including guidance for negotiating transition of the support responsibility from MDA to the services, uncertainty will persist regarding how the elements will be supported after 2013 and over the long term, and DOD will be unable to take advantage of lessons learned from the transition of successive elements. In order to improve long-term support planning for BMDS elements, we are recommending that DOD establish a standard process, based on key principles for life-cycle management, for long-term support planning.

DOD's recent efforts to develop operation and support cost estimates for BMDS elements have limitations and are not transparent for DOD and congressional decision-makers. DOD and GAO key principles for preparing cost estimates state that complete, credible, and independently verified cost estimates are important to support preparation of budget submissions over the short term as well as for assessing the long-term affordability of the program. Although DOD has started to develop operation and support cost estimates for all seven of the BMDS elements we examined, those efforts have limitations. First, the estimates are not yet complete and are likely to change over time, perhaps significantly since MDA and the services are still determining key assumptions, such as how support will be provided—by contractor, the service, or a combination of the two—and where some elements may be fielded and operated. Second, DOD does not plan to have its operation and support cost estimates independently verified, although doing so is a key principle for developing a credible estimate. Furthermore, the Future Years Defense Program (FYDP), DOD's 6-year spending plan, does not fully reflect BMDS operation and support costs that are expected to be incurred—and these are likely to be significant since operation and supports costs are typically over 70 percent of a system's total lifetime cost. DOD has not clearly identified BMDS operation and support costs because the department has not required that these costs are to be developed, validated, and reviewed, and it has not specified when this should be done or identified which

organization is responsible for doing so. DOD has drafted a proposal for the overall management of BMDS, which contains some funding suggestions, but the draft proposal lacks important details and does not address the operation and support cost limitations we identified. Without requiring development and validation of BMDS operation and support cost estimates, DOD will have difficulty preparing credible budget requests and assessing the affordability of BMDS over time. To increase transparency and improve fiscal stewardship of DOD resources for BMDS, we are recommending that DOD establish a requirement to estimate BMDS operation and support costs.

In written comments on a draft of this report, DOD concurred with one and partially concurred with five recommendations. DOD partially concurred with the three actions we recommended to improve long-term support planning for BMDS elements. DOD concurred with one and partially concurred with two of the actions we recommended to require DOD to estimate BMDS operation and support costs. In general, DOD stated that its draft proposal is intended to address these issues. However, as we point out in our report, DOD's draft proposal lacks specific details and does not fully address the limitations we found. For example, DOD's draft proposal does not specify when support plans should be completed or specify when operation and support cost estimates are to be developed, validated, and reviewed. By implementing our recommendations to improve support planning, DOD would be better positioned to reduce uncertainty regarding how the elements will be supported over the long term and improve the transition of support responsibility from MDA to the services. Also, we continue to believe that DOD should take additional actions to implement our recommendations so that it will be in a better position to prepare credible budget requests and assess the affordability of BMDS over time. The department's comments are reprinted in appendix II.

Background

The Missile Defense Agency plans to develop and field ballistic missile defense elements in increments called "blocks," with each block providing increasing levels of capability over the previous block.⁹ In doing so, MDA's

⁹Originally, MDA defined a block as a specific set of ballistic missile defense capabilities that it intended to field in a 2-year time period. For example, Block 2004 was defined as specific elements that MDA intended to field from January 2004 through December 2005. MDA's new block structure defines a block as fielding elements that address particular threats. For example, Block 1 is defined as elements to provide initial defense of the U.S. from North Korea.

charter states that MDA is responsible for assuring the supportability of the system and for developing plans with the services for BMDS elements early enough to support effective transition.

Life-Cycle Management

DOD policy¹⁰ calls for new weapon systems be managed using a life-cycle management approach, which should include all activities for acquiring, developing, producing, fielding, supporting, and disposing of a weapon system over its expected lifetime. In addition, each service is responsible for developing force structure to organize units to accomplish missions using the new system. Life-cycle management is to consider how the new system will be supported over its expected useful life because system engineering and design can have a significant effect on operations and support costs. Typically, support planning¹¹ begins early in development as DOD begins exploring concepts for a new weapon system and the support strategy is developed as the system is developed and completed before fielding. However, the DOD Inspector General reported in 2006 that MDA had not planned fully for system sustainment and had not developed a complete integrated logistics support plan. The report concluded that without improving its processes, including support planning, MDA faces increased risk in successfully integrating elements into a single system that will meet U.S. requirements for ballistic missile defense.¹²

A life-cycle cost estimate includes all costs associated with a weapon system's research and development, investment, military construction, operations and support,¹³ and disposal. Since operation and support costs historically are the largest portion (over 70 percent) of a weapon system's costs over its life, these costs can significantly affect development of a life-

¹⁰DOD Directive 5000.1, *The Defense Acquisition System* (May 12, 2003); DOD Instruction 5000.2, *Operation of the Defense Acquisition System* (May 12, 2003). The MDA Charter states that the MDA Director shall manage BMDS consistent with the principles of this policy.

¹¹DOD uses a variety of terms to refer to many different support documents—such as supportability strategy or integrated logistics support plans. Throughout this report, we will generically refer to these types of documents as “support planning” documents.

¹²Department of Defense, Office of the Inspector General, *Acquisition: System Engineering Planning for the Ballistic Missile Defense System*, D-2006-060 (Washington, D.C.: Mar. 2, 2006).

¹³Operations and support costs are the resources required to operate and support a weapon system and include maintenance of equipment/infrastructure, operations of forces, training and readiness, base operations, personnel, and logistics.

cycle cost estimate and were the focus of our analysis of DOD's cost estimates. DOD usually prepares an independent life-cycle cost estimate for major weapons systems, and these estimates typically form the basis for budget submissions. Using a life-cycle cost estimate helps support the budget process by providing estimates of the funding required to execute a program and can help assess whether resources are adequate to support the program. A key step in assuring the credibility of the estimate is acquiring an independent cost estimate by an entity separate from those connected to the program. Independent estimates tend to be higher and more accurate than estimates developed by a system's program office since independent estimators may be more objective and less likely to use optimistic assumptions.¹⁴

Transition Planning

In its 2007 transition plan, DOD recognized that as much time as possible—72 months or more—should be allotted to transition a BMDS element from MDA to a military service.¹⁵ The transition process may, for some elements, end at a point that DOD calls transfer—which is the reassignment of the MDA program office responsibilities to a service.¹⁶ According to MDA and Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics officials, not all BMDS elements will ultimately transfer; the decision to do so will be made on a case-by-case basis and the conditions under which this may happen have not yet been specifically identified for each element. MDA's 2004 charter states that the agency shall develop plans in conjunction with the services for BMDS elements during transition.¹⁷ The transition plan covers some overarching issues and contains separate sections for each BMDS element. For example, the transition plan includes some discussion for each element of various topics such as doctrine, organization, training, materiel, facilities, security, support strategies, and funding. DOD approved the first transition plan in September 2006 and approved the second plan in

¹⁴GAO-07-1134SP.

¹⁵Department of Defense, Missile Defense Agency, *Ballistic Missile Defense Agency 2007 Transition and Transfer Plan* (Washington, D.C.: Feb. 4, 2008).

¹⁶Due to the confusion over the terms "transition" and "transfer", DOD attempted to clarify the distinction in the *BMDS 2007 Transition and Transfer Plan* as explained here. Although the terms have sometimes been used interchangeably, throughout this report we use the term "transition" to refer to all activities short of a program office "transfer", consistent with the distinction made in the 2007 plan.

¹⁷Department of Defense Directive 5134.9, *Missile Defense Agency*, (Oct. 9, 2004).

February 2008. DOD intends for its plan to guide the transition of roles and responsibilities from MDA to the services and serve as a basis for preparing budget submissions. Another purpose of DOD's transition plan is to highlight critical issues that are of executive interest for the overall BMDS. For example, the latest plan included a critical issue of how BMDS capabilities will be managed over their life cycle and another critical issue is how operation and support costs will be shared between MDA and the services. Table 1 below shows the BMDS elements, when they were or are planned to be fielded, and which service has been designated as the lead for each element.

Table 1: List of Selected Ballistic Missile Defense Elements, the Lead Service, and When the Element Was or Is Planned to Be Fielded¹

BMDS element	Element description	Lead service	Date lead service designated	Date element initially fielded or planned to be fielded
Ground-based Midcourse Defense	This element is designed to protect the U.S. homeland against incoming ballistic missiles launched from Northeast Asia and the Middle East.	Army	October 2006	September 2004
Aegis Ballistic Missile Defense	This ship-based element is designed to protect deployed U.S. forces, allies, and friends against ballistic missile attacks and to serve as a forward-deployed sensor, especially in support of the ground-based mission.	Navy	October 2006	September 2004 (for surveillance and track function) December 2005 for Standard Missile -3
Upgraded Early Warning Radar	This sensor is designed to provide updated midcourse missile tracking data to the ground-based element.	Air Force	October 2006	December 2004 for first radar. Others in December 2007, and December 2009.
AN/TPY-2 Radar (forward-based)	This transportable, land-based X-band radar will be forward-based to provide additional advance warning of ballistic missile launches.	Army	February 2006	June 2006 for first radar. Others in fiscal years 2009 and 2011.
Cobra Dane	This sensor is designed to provide updated midcourse missile tracking data to the ground-based element.	Air Force	February 2006	October 2004
Sea-based X-Band Radar	This radar, built on a moveable sea platform, will improve the ability to acquire, track, and discriminate decoys during the midcourse of flight.	Navy nominated ²	March 2007	February 2007
Terminal High-Altitude Area Defense	This ground-based element is designed to defend deployed U.S. forces and population centers against short and medium range ballistic missiles.	Army	October 2006	November 2010 for first fire unit. Others in fiscal years 2013 and 2014.
European Interceptor Site	This element is designed to protect the U.S. homeland, allies, and friends against incoming ballistic missiles launched from the Middle East.	Army	October 2006	2012
European Midcourse Radar	This land-based X-band radar will be forward-based to provide tracking data to the European Interceptor Site.	Air Force	August 2007	2012
Adjunct Sensor	This sensor may provide additional tracking data to supplement that of the AN/TPY-2 radars.	unknown	n/a	2013

Source: GAO summary of DOD information.

¹The table does not include those elements that are not scheduled to be fielded by 2015 such as the Airborne Laser or Space Tracking and Surveillance System. Also, the table does not include the Patriot Advanced Capability-3 because it transferred to the Army in March 2003.

²According to officials in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, the Navy has not yet been officially designated as the lead service for this radar. However, the Navy and MDA have been negotiating management, operations, support, and funding responsibilities.

Oversight

Since BMDS development does not have to follow DOD's traditional development and requirements processes, oversight of BMDS has evolved over the years. Although the Director of the Missile Defense Agency reports to the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics, senior-level groups have been formed to provide the Under Secretary advice on the BMDS program. In 2002, the Secretary of Defense established a group of senior DOD officials to advise the Director of the Missile Defense Agency and the Under Secretary of Defense for Acquisition, Technology, and Logistics to support decision-making on the ballistic missile defense program and make recommendations on policy, operations, acquisition, and resource matters that affect the overall BMDS. In March 2007, DOD replaced this group with a new Missile Defense Executive Board to recommend and oversee implementation of strategic policies and plans, program priorities, and investment options. The Board is supported by four standing committees, one of which is to oversee transition from MDA to the services and provide oversight for system operation and support. In carrying out its duties, the Board is developing a draft proposal for improving BMDS life-cycle management including a funding strategy. DOD's intention is that this draft proposal will address program planning, including funding for operations and maintenance, long-term support planning, and how to improve the transition of elements from MDA to the services. Finally, various other formal and informal groups have emerged that participate in the BMDS development and fielding process. For example, there are element-specific working groups that discuss transition issues such as the one devoted to negotiating an agreement between the Navy and MDA for the sea-based radar. Other groups have emerged to provide a forum for updating service leadership on the status of BMDS issues, discussing issues related to logistics and support, and identifying planning that needs to be done for European ballistic missile defense.

One major source of anticipated program costs available to Congress is the Future Years Defense Program (FYDP). The FYDP provides information on DOD's current and planned budget requests. It is one of DOD's principal tools to manage the spending for its capabilities and is available to help inform DOD and Congress about spending plans for a 6-

year time period and to make resource decisions in light of competing priorities. The FYDP is a report that resides in an automated database, which is updated and published to coincide with DOD's annual budget submission to Congress. The current FYDP, submitted with DOD's fiscal year 2008 budget, included data through fiscal year 2013. Likewise, the FYDP that will be submitted with DOD's fiscal year 2010 budget will include data through fiscal year 2015.

This report is one in a series of reports we have issued on ballistic missile defense (see the list of Related GAO Products at the end of this report). Most recently, we found that DOD lacks a sound process for identifying and addressing the overall priorities of the combatant commands when developing ballistic missile defense capabilities.¹⁸ We reported in May 2006 that DOD had not established the criteria that must be met before BMDS can be declared operational.¹⁹ Also, in April 2007, we found that DOD and congressional decision-makers could benefit from more complete information to assess basing, support, infrastructure, budget requests, and DOD spending plans when considering BMDS program and investment decisions.²⁰ Also, we issue an annual assessment of DOD's progress in developing BMDS, and in March 2008, we reported that the high level of investment MDA plans to make in technology development warrants some mechanism for reconciling the cost of these efforts with the program's progress.²¹

¹⁸GAO, *Ballistic Missile Defense: Actions Needed to Improve the Process for Identifying and Addressing Combatant Command Priorities*, [GAO-08-740](#) (Washington, D.C.: July 31, 2008).

¹⁹GAO-07-473.

²⁰GAO, *Missile Defense: Actions Needed to Improve Information for Supporting Future Key Decisions for Boost and Ascent Phase Elements*, [GAO-07-430](#) (Washington, D.C.: Apr. 17, 2007).

²¹[GAO-08-448](#).

DOD Has Taken Some Initial Steps to Plan for Support of BMDS, but Planning to Date Is Incomplete and Complicated by Difficulties in Transitioning Support Responsibilities to the Services

DOD has taken some initial steps to plan for BMDS support, but planning efforts to date are incomplete. In addition, long-term support planning has been complicated by difficulties in transitioning responsibility for providing support from MDA to the services. While DOD has drafted a proposal for BMDS management that DOD officials have stated is intended, in part, to address this issue, the draft proposal lacks important details. DOD's long-term support planning for BMDS is incomplete because DOD has not developed and instituted a standard process that clearly specifies what support planning should be completed before elements are fielded, identifies which organization is responsible for life-cycle management, involves the services, and specifies how to transition support responsibilities from MDA to the services. Without such an established process that is enforced, DOD faces uncertainty over how BMDS elements will be supported over the long term and will be limited in its ability to improve support planning for future BMDS elements.

MDA Has Developed Some Guidance for BMDS Support Planning but Efforts to Date Are Incomplete

While MDA has developed some guidance for developing support plans for BMDS elements and the overall system, based on Presidential and Secretary of Defense direction, MDA has focused on fielding a defensive ballistic missile capability as soon as practical. In 2005, MDA issued an Integrated Program Policy and a companion Implementation Guide,²² which directed MDA's BMDS element offices to develop support plans for each element, as well as develop an integrated support plan for the entire system, update these plans every 2 years, and complete an assessment of readiness of the integrated plan to support operations of the overall BMDS.

Nevertheless, planning efforts are incomplete. According to officials, as of August 2008, three of the seven elements we examined, the forward-based radar, the sea-based radar, and the European radar, do not have support plans in place. Additionally, a fourth element, the Ground-based Midcourse Defense element, has a plan that was initially completed in 2005, but the plan is now out of date, does not reflect the current configuration of the element, and it is therefore currently being updated.

²²Department of Defense, *Integrated Program Policy Version 2.0*, Missile Defense Agency (July 18, 2005); Department of Defense, *Ballistic Missile Defense Integrated Program Policy Implementation Guide Version 2.0*, Missile Defense Agency (June 2, 2005).

MDA has also issued a sustainment directive which states that support planning should be completed as elements move through various development phases.²³ MDA's directive specifies four phases with associated criteria that should be completed before exiting a phase to ensure, in part, effective long-term support of BMDS elements. Accordingly, initial support plans for a BMDS element should be completed before an element progresses from the programming and planning phase to the program execution phase and before the final deployment phase when an element is fielded. However, two of the elements we examined did not have support plans, even though they had progressed to a subsequent phase of development. One of these elements, the sea-based radar, has been categorized by MDA officials as being in the program execution phase, but officials stated that currently there is no support plan for this element and MDA has just recently begun to develop one. In addition, MDA officials told us that portions of the forward-based radar's development are described as being in the deployment phase since the element has been fielded, but as of August 2008, there was no support plan for the radar and officials told us a plan would be completed by the end of the year. MDA officials recognize that past efforts in support planning have been incomplete. In response, MDA is proposing forming a logistics directorate, but it is not clear what the roles and responsibilities of this group will be or how soon the group will be fully staffed.

Incomplete support planning is not a new issue. In 2006, DOD's Inspector General reported²⁴ that MDA had not developed an overall, integrated, BMDS-wide support plan, but had developed a summary document containing only general support planning information for four elements. The DOD Inspector General's report concluded that without improving support planning, MDA faced increased risk in successfully integrating elements into a single system that will meet U.S. requirements. In 2006, MDA revised the document to include information on a total of 8 elements, but the document still did not contain more than high-level information on how each individual element would be supported and did not contain specific detail for how support would be managed across the integrated

²³Department of Defense, *Ballistic Missile Defense System Sustainment, MDA Directive 5010.09*, Missile Defense Agency, (April 13, 2006). The MDA sustainment directive lists the four phases as: capability-based requirements, programming and planning, program execution, and capability-based deployment.

²⁴Department of Defense, Office of the Inspector General, *Acquisition: System Engineering Planning for the Ballistic Missile Defense System*, D-2006-060 (Mar. 2, 2006).

system. As of August 2008, MDA still had not developed an overall, integrated, BMDS-wide support plan. Without current support plans for every element and an integrated, system-wide support plan, MDA will be unable to conduct a support readiness assessment of the overall, integrated ballistic missile defense system as directed by its guidance. As a result, MDA cannot ensure that the integrated system has appropriate plans in place to support operations.

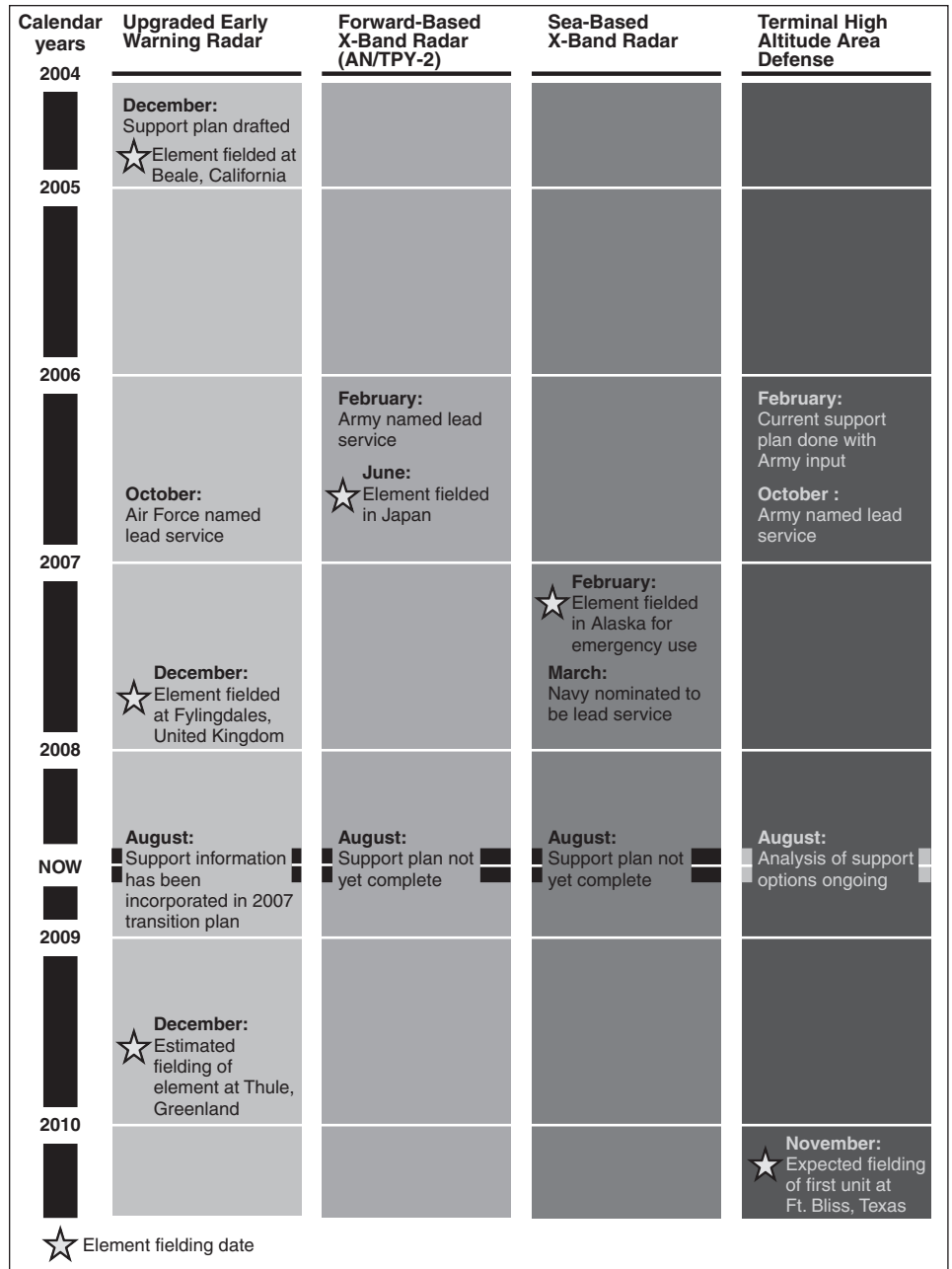
DOD's Support Planning for BMDS Has Not Followed Key Principles

DOD's planning to support BMDS over the long term has not followed DOD's key principles of weapon system life-cycle management. Although BMDS is not required to follow traditional weapon system life-cycle management processes, MDA's charter states that BMDS will be managed consistent with the principles of the traditional weapon system process and that the office of the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)) and MDA will determine which principles will be applied to the management of BMDS. However, USD (AT&L) and MDA have not determined and communicated to the services which parts of the usual life-cycle management processes apply to each element. Our prior work has shown that organizations should have defined guidance for planning and should communicate this guidance to stakeholders.²⁵

While DOD's key principles of weapon system life-cycle management state that support plans should be completed before a system is fielded, DOD has fielded BMDS elements before developing support plans. Of the elements we examined, three of the five elements that had been fielded as of August 2008 did not have support plans in place before the element was fielded. MDA fielded the Ground-based Midcourse Defense element in 2004 for limited defensive operations, but a support plan was not developed until 2005 and, officials said, it is now out of date. Similarly, MDA fielded a forward-based radar in Japan in 2006, but as of August 2008, the element still did not have a support plan. Finally, as of August 2008, MDA has not completed a support plan for the sea-based radar, even though the element was fielded in 2007 and is available for emergency use. Figure 1 below shows, for selected elements, a comparison of when the element was fielded to when the element's support plan was, or is expected to be, completed.

²⁵GAO, *Results-Oriented Cultures: Implementation Steps to Assist Mergers and Organizational Transformations*, GAO-03-669 (Washington, D.C.: July 2, 2003).

Figure 1: Timeline Comparing When Four Elements Were Fielded with Support Plan Completion



Source: GAO analysis of DOD information.

MDA's support planning may not cover the elements' expected useful life. Typically, weapon system developers are expected to develop support plans that provide detail for support that will be provided throughout a system's life cycle. MDA officials told us that, in general, BMDS elements have an expected useful life of 20 years. However, MDA's sustainment directive only applies until support responsibilities for an element have transitioned from MDA to the lead service. In general, MDA has agreed to support BMDS elements via contractors through 2013. However, Army and Navy officials told us that in some cases, they may prefer to perform some support functions within their organization and have begun some efforts to determine to what extent that should be done. For example, the Terminal High Altitude Area Defense (THAAD) element support plan assumes contractor-provided support, but Army officials told us that MDA and the Army are currently conducting an analysis of support options for THAAD, including contractor- or service-provided or a mix of the two. Depending on results of analyses of support options, BMDS support planning for some elements may change, making it difficult for DOD to consolidate element support planning into an overall, integrated system support plan.

Difficulties in Transitioning BMDS Elements from MDA to the Services Complicate Long-term Support Planning

DOD has experienced difficulties in long-term support planning because DOD has not developed and instituted a standard process that clearly specifies what support planning should be completed before elements are fielded, identifies which organization is responsible for life-cycle management, involves the services, and specifies how to transition support responsibilities from MDA to the services. Until DOD takes action to do so, DOD will be unable to ensure that individual elements will be sustained after 2013. Also, without such a standard process, DOD's long-term support planning for BMDS has been faced with a number of challenges.

The first challenge affecting long-term support planning is that MDA and the services have not agreed on which organization should be responsible for long-term life-cycle management responsibilities, including developing long-term support plans. DOD policy and guidance state that the program manager is responsible for life-cycle management activities, including developing support plans, and is the single point of accountability for sustainment of a weapon system throughout its life. Additionally, our prior work has shown that establishing clear roles and responsibilities can improve outcomes by identifying who is accountable for various activities. However, in negotiating transition for some BMDS elements, MDA and the services disagree over which organization will be responsible for

performing life-cycle management responsibilities, such as providing and planning for support over the long term. As a result, for five of the seven elements we examined, MDA and the services have been unable to reach agreement on who will be responsible for providing support and how these elements will be supported after 2013, even though MDA officials have stated that most elements are expected to have a useful life of 20 years. For example, MDA hopes to have the Army assume support responsibilities after 2013 for the Terminal High Altitude Area Defense element, the forward-based radar, and the Ground-based Midcourse Defense element. However, Army officials stated that they have not agreed to take over support of these elements at that time. Moreover, Navy officials stated that all life-cycle issues have to be considered to prevent the emergence of unplanned, future costs and intend to have the responsibilities for life-cycle support of the sea-based radar understood and apportioned between MDA and the Navy and documented prior to the formal transfer of the element. Table 2 below shows, by element, whether there is agreement on who provides support after 2013 and on who should be responsible for life-cycle management, and the status of support planning.

Table 2: Status of Agreements and Support Plans for Long-term Support and Life-cycle Management of BMDS Elements

Element	Lead service	Agreement on support after 2013 and life-cycle management responsibilities	Status of element support plan development
Ground-Based Midcourse Defense	Army	No	Boeing developed a support plan in 2005, but it did not include Army input. MDA officials said the 2005 plan is out of date and they are drafting a new version and plan to include Army input.
AN/TPY-2 (forward-based)	Army	No	MDA officials say they are drafting a plan, but the Army's involvement is to be determined.
Terminal High Altitude Area Defense (THAAD)	Army	No	The most recent version of the element support plan is dated February 2006, included Army input, and was signed by both MDA's THAAD office and Army THAAD commanders.
Aegis Ballistic Missile Defense	Navy	Yes	No separate support plan for Aegis BMD exists. The element relies on the Navy's existing Aegis operations and logistics support infrastructure.
Sea-Based X-Band Radar	Navy nominated	No	MDA officials said they plan to draft one by the end of calendar year 2008, but the Navy's involvement is to be determined.
Upgraded Early Warning Radar	Air Force	Yes	The Air Force drafted a support plan in 2004, but the strategy has since been incorporated into the annual transition plan.
European Midcourse Radar	Air Force	No	MDA and the Air Force are planning to have the contractor develop a support plan.

Source: GAO summary of DOD information.

Second, although DOD has designated a lead service to assume support responsibilities for most BMDS elements that have been or will be fielded by 2015, MDA and the services have not consistently worked together to develop plans to transition responsibility for long-term support. A DOD directive states that lead services, who will assume support responsibilities for BMDS, should work with MDA to develop transition and support plans.²⁶ However, there was little or no service input in developing transition plans for three of the seven elements we examined—the ground-based element, sea-based radar, and the European radar. The services have been involved in support planning for ballistic missile defense capabilities added to already existing, legacy systems, but not routinely involved in support planning for newer elements. For example, MDA officials told us the Air Force was involved in support planning for the Upgraded Early Warning Radar since a ballistic missile defense

²⁶Department of Defense Directive 5134.9, *Missile Defense Agency* (Oct. 9, 2004).

capability was added to an existing Air Force radar. Similarly, the Navy included support planning for the Aegis Ballistic Missile Defense element in its existing support for Aegis ships. For non-legacy elements, however, services have either not been involved in support planning at all or have not been involved “early” enough to influence design decisions that may affect how an element is to be supported. For example, after the 2004 fielding of the ground-based element, the contractor developed a support plan for the element, but MDA and Army officials told us that since the plan was developed before the Army was named lead service, the plan had little to no Army input. Further, the Army stated that it is reluctant to assume responsibility for support contracts involving design decisions made without Army involvement. Also, Army officials said that it would have been helpful if they had input into facilities and security design decisions for the forward-based radar that were made before they were named lead service.

Third, MDA and the services use methods to negotiate transition of support responsibilities from MDA to the services that are inconsistent, resulting in confusion over which method is authoritative and binding. Our prior work has shown that it is important for organizations to provide clear and complete guidance to their subordinate organizations.²⁷ According to our analysis of the transition plan and what DOD officials have told us, it is unclear whether the transition plan is binding on the parties, and the plan does not provide specific guidance to the services or MDA for how to transition support responsibilities of individual elements. As a result, the transition plan is not the preferred forum for negotiating transition for all elements. For example, Air Force officials told us that they prefer using the transition plan as their negotiation forum because it identifies open issues unique to each element, and documents what MDA and the Air Force will do in specific years. In contrast, Navy officials told us that they prefer to use a memorandum of agreement to document transition agreements for each element that is signed by MDA and Navy leaders since it can take several months for the transition plan to be approved. As a result of the transition plan timing, Navy officials told us that the transition plan may not always reflect the Navy’s views, particularly for new elements such as the sea-based radar. Without a clear agreement on how to negotiate transition of support responsibilities, MDA

²⁷GAO, *Military Transformation: Additional Actions Needed by U.S. Strategic Command to Strengthen Implementation of Its Many Missions and New Organization*, [GAO-06-847](#) (Washington, D.C.: Sept. 8, 2006)

has proposed that each service have a memorandum of agreement that would provide a strategic overview of how BMDS elements will transition from MDA to a service. These service memoranda of agreement would be supplemented by an element-specific transition plan that would provide a detailed, tactical view and specify when and how responsibilities, such as support, will transition from MDA to the service. However, DOD has not documented that this approach is the preferred method. As a result, transition of support responsibilities seems to occur ad hoc, element by element, with no standard process. Further, DOD will not be able to take advantage of lessons learned from one transition effort to the next without a consistent, documented process for how support responsibilities are transitioned from MDA to the services.

DOD Is Developing a Draft Proposal for Managing BMDS, but the Draft Proposal Lacks Important Details

The Missile Defense Executive Board is developing a proposal to improve management of BMDS elements, in part, to address support and transition issues. DOD created the Missile Defense Executive Board in 2007 to recommend and oversee implementation of strategic policies, plans, program priorities, and investment options for BMDS. The draft proposal states that BMDS should be managed as a portfolio to ensure major decisions take into account the BMDS life-cycle and include all major stakeholders. The proposed portfolio management suggests defense-wide funding for research and development, procurement, operation and support, and military construction. Finally, the draft proposal states that the responsibilities of DOD stakeholders in BMDS life-cycle management should be clarified. As the Board's Chair, the office of USD (AT&L) has taken the lead in developing this draft proposal. USD (AT&L) officials explained that this draft proposal is intended to bridge the gap that exists between the traditional life-cycle system management processes and how BMDS is currently being fielded and managed. This process is also intended to: identify which principles of traditional life-cycle system management should be applied to BMDS, such as milestone reviews and support planning; specify how to transition responsibility for support from MDA to the services; and explain when a lead service should become involved.

However, the draft proposal is very general and lacks important details. In particular, the draft proposal does not specify the role or timing for service involvement in developing support plans for elements, that support plans are to cover the elements' expected life, be completed before fielding, how MDA and the services should negotiate transition of responsibility for providing support of BMDS elements, or when the draft proposal is expected to be approved and implemented. Also, MDA and USD (AT&L) officials told us that the draft proposal would not require discussions

about life-cycle management for elements until the element has a lead service—which makes it difficult for the lead service to provide input into support decisions.

Despite Recent Efforts, Operation and Support Cost Estimates for BMDS Elements Have Limitations and Are Not Transparent

DOD's recent efforts to develop operation and support cost estimates for BMDS elements have limitations and are not transparent for DOD and congressional decision-makers. Although DOD has started to develop operation and support cost estimates for BMDS elements, the estimates are not complete and have limitations. Furthermore, BMDS operation and support costs are not transparent in the Future Years Defense Program (FYDP). DOD has not yet clearly identified BMDS operation and support costs because the department has not required that these costs are to be developed, validated, and reviewed according to key principles for cost estimating, and it has not specified when this should be done or identified who is responsible for doing so. DOD has developed a draft proposal for the overall management of BMDS, but the draft proposal lacks important details and does not address the limitations we identified. Without a requirement to develop operation and support cost estimates, DOD and the services will have difficulty preparing credible and transparent budget requests and face unknown financial obligations over the long term, thus hindering decision-makers' ability to make informed tradeoffs among competing priorities both across BMDS elements and across the department.

DOD Is Developing Some BMDS Operation and Support Cost Estimates, but Efforts Are Not Yet Complete

DOD is developing operation and support cost estimates for all seven of the BMDS elements we examined, which it intended to use in preparing its fiscal year 2010 through 2015 spending plan and to facilitate transition of funding responsibilities from MDA to the services.²⁸ Thus far, MDA and the services have jointly developed and agreed on cost estimates for only two of the seven elements we examined—the Aegis ballistic missile defense and the Upgraded Early Warning Radar. MDA and the services have not yet completed the joint estimates for operation and support costs for the remaining five elements. The status of each of these remaining efforts is summarized below.

²⁸MDA and the services' joint effort to estimate operation and support costs is separate from MDA's development of cost estimates for the BMDS blocks. The block estimates will include research, development, and procurement costs only and will not include operation and support costs. Also, MDA intends to ask the Cost Analysis Improvement Group to independently validate the block estimates.

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- **Army—Ground-based Midcourse Defense, Terminal High Altitude Area Defense, and the forward-based radar:** As of July 2008, MDA and the Army had not completed operation and support cost estimates for these three elements. MDA initially planned to complete the estimates by February 2008. The Army and MDA have agreed on the methodologies for developing operation and cost estimates. However, Army officials stated that, as of July 2008, the estimates are not complete because some of the assumptions may change and the estimates have not been reviewed and approved by the Army Cost Review Board. For example, an Army cost estimator told us that the estimate for the forward-based radar is not complete because many of the major assumptions that will drive costs, such as physical site location, infrastructure, and security requirements, remain undetermined.
 - **Air Force—European radar:** The Air Force and MDA began to develop a joint estimate for the European radar in August 2008 and plan to update the estimate as assumptions are refined. However, since all base operating support requirements are not finalized, the Air Force spending plan for fiscal years 2010 through 2015, which is due to the Office of the Under Secretary of Defense (Comptroller) in August 2008, may not include all the operation and support costs for the European radar.
 - **Navy—Sea-based radar:** The Navy and MDA plan to develop a joint estimate in fiscal year 2009. However, MDA and the Navy have separately developed operation and support cost estimates for this element. Using their separate estimates, MDA and Navy officials met to discuss the differences. According to MDA and Navy cost estimators, the Navy's estimate was approximately \$10 million a year higher than MDA's, but MDA officials agreed that the Navy's estimated platform maintenance costs were more accurate. The resulting cost estimate is intended to support a cost-sharing agreement between MDA and the Navy which, as of August 2008, had not been finalized.

MDA and some service officials told us that the longer it takes to finish the estimates and agree on funding responsibilities, the less likely it is that these estimates will be reflected in the spending plans for fiscal years 2010 through 2015, which are currently under development. MDA officials have stated that their intention is to update these estimates annually, beginning in October 2009; however, as of August 2008, there were no signed agreements or requirements for the agency to do so.

Ongoing Efforts to Develop Operation and Support Cost Estimates Have Limitations

MDA and the services are beginning to estimate BMDS operation and support costs, but these efforts have limitations. First, the initial estimates are not yet complete and are likely to change over time, perhaps significantly, since MDA and the services are still determining key assumptions, such as how support will be provided—by contractor, the service, or a combination of the two—and where some elements may be fielded and operated. DOD and GAO key principles for preparing cost estimates state that complete and credible cost estimates are important to support preparation of budget submissions over the short term as well as to assess the long-term affordability of the program.

As discussed earlier in this report, MDA and the services have not completed long-term support planning and they are still in the process of determining where some BMDS elements will be fielded and operated. DOD and GAO key principles for developing accurate and reliable cost estimates recommend that all assumptions that can profoundly influence cost should be identified before calculating the estimate.²⁹ However, MDA and the services have not determined how some of the elements will be supported over the long term, which will affect operation and support costs, such as maintenance, base operating support, and facilities. For instance, during research, development, and fielding, MDA is using contractors to support the BMDS elements. However, after the elements transition from MDA to the services, the services may decide to support the elements using their own military personnel and facilities or possibly a combination of contractor support and military service support. For example, if the Army used its own operation and support personnel, the cost estimate could increase, since Army would require facilities costing about \$138 million for 41 different buildings.

Further, assumptions about where two of the BMDS elements will be fielded and operated could change which, when finalized, could affect key assumptions and the resulting cost estimate. An official in the Office of the Secretary of Defense, Cost Analysis Improvement Group, stated that any ambiguity in the estimate's assumptions lowers the quality of the estimate and creates uncertainty about the results. For example, the Navy and MDA

²⁹Key principles for developing accurate and reliable cost estimates are drawn from DOD guidance and our Cost Assessment Guide. DOD, Office of the Secretary of Defense, Cost Analysis Improvement Group, *Operating and Support Cost-Estimating Guide* (May 1992 and October 2007); GAO, *Cost Assessment Guide: Best Practices for Estimating and Managing Program Costs, Exposure Draft*, [GAO-07-1134SP](#) (Washington, D.C. July 2, 2007).

have not determined the amount of time the sea-based radar will spend on location in Adak, Alaska, in transit, and at sea. The greater use of fuel alone for increased time spent in-transit could significantly affect the operation and support cost estimate for the sea-based radar. Also, in developing the cost estimate for the Terminal High Altitude Area Defense, MDA and Army assumed peacetime operations with all of the units to be located at one site within the continental United States. However, if the Army decides to forward deploy one or more of the units for peacetime rotations, as is done for other similar weapon systems such as the Patriot system, the cost estimate could change significantly. Also, additional infrastructure and operation and support costs may be incurred if the Army decides to base the Terminal High Altitude Area Defense units at more than one site within the United States.

The second major limitation to DOD's cost estimates is that DOD does not plan to have the operation and support cost estimates for all the elements independently verified. DOD and GAO key principles for cost estimating state that independent verification of cost estimates is necessary to assure accuracy, completeness, and reliability. In typical weapon system development, cost estimates—including estimates for operation and support costs—are developed, independently validated, and reviewed by senior DOD leadership before a system is fielded. However, since MDA is exempt from traditional DOD weapon system development processes, there is no requirement for independent cost estimates, and DOD's Cost Analysis Improvement Group prepares independent cost estimates only at MDA's request. As of August 2008, MDA had requested only independent estimates of operation and support costs for two of the seven BMDS elements we reviewed. The Cost Analysis Improvement Group completed an estimate for Aegis ballistic missile defense in 2006 and is currently developing an estimate, including operation and support costs, for the European radar and interceptor site. Independently validated cost estimates are especially important to formulating budget submissions and DOD's 6-year spending plan, the FYDP, which is submitted to Congress, since, historically, cost estimates created by program offices are lower than those that are created independently.

Nevertheless, MDA and Cost Analysis Improvement Group officials have stated that there is no firm schedule or agreement to develop independent operation and support estimates for any of the other five BMDS elements we reviewed, including those that are already fielded, such as the forward-

based radar, or will soon be fielded, such as the Terminal High Altitude Area defense element. However, even though the Army Cost Review Board³⁰ will be reviewing the operation and support cost estimates for the Army's three elements, these reviews do not constitute an independently developed cost estimate. MDA officials have stated that their priority is for the Cost Analysis Improvement Group to develop independent cost estimates for the research, development, and procurement costs of BMDS blocks, and this effort will not include independently estimating operation and support costs. MDA officials stated that they intend to ask the Cost Analysis Improvement Group to begin working on independent operation and support cost estimates after the block estimates are completed. However, MDA officials also acknowledged that there is no requirement for independent validation of operation and support estimates and the Cost Analysis Improvement Group would not begin its work on operation and support cost estimates until at least late 2009. Without credible long-term operation and support cost estimates, DOD and the services face unknown financial obligations for supporting BMDS fielding plans which will hinder budget preparation and assessment of long-term affordability. Table 3 below shows whether the joint operation and support cost estimates have been completed, whether the cost estimates will be independently verified, and the status of the joint estimates.

³⁰The Army Cost Review Board is composed of senior executives from the Department of the Army. It reviews cost estimates for Army acquisition programs in order to recommend an Army cost position to the Army acquisition executive.

Table 3: Status of Joint Cost Estimates and Plans for Independent Verification of Operation and Support Cost Estimates

Element	Independent verification of the cost estimate by the Cost Analysis Improvement Group?	Joint operation and support cost estimate completed?	Status of joint operation and support cost estimate
Aegis Ballistic Missile Defense	Yes	Yes	MDA and the Navy agreed on the operation and support costs through a Memorandum of Agreement
Ground-based Midcourse Defense	No	No	In Process--Joint MDA/Army estimate has not been reviewed and approved by the Army Cost Review Board.
Terminal High Altitude Area Defense	No	No	In Process--Joint MDA/Army estimate has not been reviewed and approved by the Army Cost Review Board.
AN/TPY-2 (forward-based)	No	No	In Process--Joint MDA/Army estimate has not been reviewed and approved by the Army Cost Review Board.
Sea-based Radar	No	No joint estimate, but MDA and the Navy developed separate estimates	MDA and the Navy prepared separate estimates, met to discuss differences, and agreed on the results. The Navy and MDA plan to develop a joint cost estimate in 2009.
Upgraded Early Warning Radar	No	Yes	MDA and the Air Force jointly agree on cost estimates through the transition plan.
European Midcourse Radar	Yes, in process	No	The Air Force and MDA began to develop a joint estimate for the European radar in August 2008.

Source: GAO summary of DOD information.

BMDS Operation and Support Costs Are Not Transparent in DOD's Future Years Defense Program

The cost to operate and support the BMDS elements is not transparent in the FYDP and, as a result, DOD may have difficulty communicating to congressional decision-makers how much it will cost over time to support DOD's fielding plans. For example, the FYDP, DOD's 6-year spending plan, does not fully reflect BMDS operation and support costs that are expected to be incurred—and these are likely to be significant since operation and support costs are typically over 70 percent of a system's total lifetime costs. Key principles for estimating program costs note that credible cost estimates are the basis for establishing and defending spending plans. We and DOD have repeatedly recognized the need to link resources to capabilities to facilitate DOD's decision-making and congressional oversight. However, four factors hinder the visibility of BMDS operation and support costs in the FYDP.

First, for five of the seven elements we examined, MDA and the services have not yet agreed on which organization is responsible for funding operation and support costs after fiscal year 2013, as shown in Table 4 below.

Table 4: Agreement on Responsibility for Funding Operation and Support Costs after 2013

Element	Agreement on responsibility for funding operation and support costs after 2013?
Aegis Ballistic Missile Defense	Yes
Ground-based Midcourse Defense	No
Terminal High Altitude Area Defense	No
AN/TPY-2 (forward-based)	No
Sea-based X-Band Radar	No
Upgraded Early Warning Radar	Yes
European Midcourse Radar	No

Source: GAO summary of DOD information.

As a result, all of the BMDS operation and support costs will not be reflected in the FYDP for fiscal years 2010 through 2015, which is currently under development. For example, the Army and MDA are still negotiating memoranda of agreements for the Ground-based Midcourse Defense element, Terminal High Altitude Area Defense, and forward-based radar that are intended, in part, to specify which organization is to fund operation and support costs in which fiscal years. One Army official estimated that it could take up to 18 months for these agreements to be signed. Hence, the Army will not be including all the costs in its budget for fiscal years 2010 through 2015 other than what the Army has already agreed to fund, such as security for the first forward-based radar at Shariki, Japan and some base support costs at Ft. Greely, Alaska. Also, MDA has not yet reached agreement with the Navy and the Air Force on which organization will fund operation and support costs for the sea-based radar and the European radar, respectively. The extent to which the FYDP for fiscal years 2010 through 2015 will include all of the operation and support costs that might be incurred for these elements is unclear.

The second factor that hinders visibility of BMDS operation and support costs is that DOD's transition plan, which is intended to reflect the most current cost agreements between MDA and the services, has not been completed in time for the services to use as they prepare their budgets and spending plans. The 2006 transition plan was approved in September 2006

and was intended to support the development of the budget and spending plan for fiscal years 2008 through 2013, but the services were required to submit their budgets to DOD in August 2006, which allowed no time for the services to alter their budget submissions accordingly. Similarly, the 2007 transition plan was originally intended to influence development of the fiscal year 2008 budget, but it was not approved until February 2008—too late to support development of the fiscal year 2008 budget. In commenting on the 2007 transition plan, the Army stated that the plan was not the basis for the Army’s budget submission. Consequently, the transition plan has not been effective in assisting development of the services’ budget and FYDP spending plans.

The third factor that hinders transparency is that DOD does not clearly identify and aggregate BMDS operation and support costs in the FYDP. We previously reported that there is no FYDP structure to identify and aggregate ballistic missile defense operational costs. In 2006, we recommended that DOD develop a structure within the FYDP to identify all ballistic missile defense operational costs.³¹ However, as of August 2008, according to an official in the Office of the Under Secretary of Defense (Comptroller), DOD has not adjusted the FYDP structure to allow identification and aggregation of ballistic missile defense operation and support costs.

Fourth, as the services develop their spending plans, funding BMDS operation and support costs will compete with other service priorities. Service officials stated that BMDS operation and support costs will have to come out of their operation and maintenance budgets, which fund the training, supply, and equipment maintenance of military units, as well as the administrative and facilities infrastructure of military bases. Priorities within this fund are highly competitive and BMDS operation and support would have to compete against all other service operation and maintenance priorities. It is therefore unclear how much of the operation and support costs will ultimately be reflected in the services’ budget submissions and spending plans, and DOD faces a risk that operation and support for BMDS will be funded unevenly across elements.

³¹ [GAO-06-473](#).

DOD Has Not Required That Operation and Support Cost Estimates Be Developed

DOD has not yet clearly identified BMDS operation and support costs because the department has not required that these costs be developed, validated, and reviewed, and it has not specified when this should be done or identified who is responsible for doing so. Without such a requirement, DOD's operation and support cost estimates will continue to have limitations and will not be transparent in the FYDP. As a result, DOD will have difficulty preparing credible budget requests and estimating long-term costs, which are important in assessing affordability over time.

As mentioned earlier in this report, DOD's Missile Defense Executive Board is developing a draft proposal for the overall management of BMDS, which is intended to include an approach for managing and funding operation and support; however, the draft proposal is not well defined. The draft proposal suggests funding operation and support costs from a defense-wide account which, in theory, would allow these costs to be clearly identified and would alleviate the pressure on the services' budgets to fund operation and support for BMDS. However, this proposal as drafted to date does not fully address the operation and support cost limitations identified in this report. Specifically, the draft proposal to date is not well defined, and the explicit process detailing how it would work has not been developed. Among other things, the draft proposal does not specify how MDA and the services will jointly determine the amount of operation and support funding that is needed; when and how operation and support cost estimates are to be developed, validated, and reviewed; or who should be responsible for doing so. Also, the draft proposal does not include a requirement for senior level review of cost estimates where the cost drivers and differences between the program estimates and independent estimates could be reviewed and explained. In typical weapon system programs, the program office estimate and the independent estimate are reviewed by senior DOD leaders³² and differences explained. Finally, it is not clear when the draft proposal will be approved or implemented. As a result, there is little likelihood that the upcoming DOD spending plan for fiscal years 2010 through 2015 will contain significant improvements in the visibility of BMDS operation and support costs.

³²The Defense Acquisition Board is the senior advisory body to the Under Secretary of Defense for Acquisition, Technology, and Logistics for critical acquisition decisions. It conducts reviews of major acquisition programs at program milestones.

Conclusions

Although DOD has taken some initial steps to plan for support of BMDS elements, without a clearly defined process for long-term support planning, DOD is not poised to effectively manage the transition of BMDS support responsibilities from MDA to the services or to plan for their support over the long term. This will become increasingly important in years to come as more elements are fielded and operation and support costs begin to increase. Further, if the lead service is not actively involved early enough to influence support planning, the services may have little time to prepare to assume responsibility for the elements and could risk being unable to provide support for an element in the short term, particularly for new elements that did not originate in a service, such as the adjunct sensor. At the same time, DOD may face difficulties determining how the overall BMDS and individual elements will be sustained over the long term. MDA is not required to follow all of DOD's traditional life-cycle management processes for weapon system programs. However, unless DOD takes action—either via the Missile Defense Executive Board's draft proposal or by some other means—to establish when support planning that covers the element's expected life and involves the services is to be completed, to specify who is responsible for life-cycle management and specify what this entails, and to establish accountability for ensuring these steps are completed, Congress will lack assurance that key decisions have been made that involve the services for which organization is responsible for providing support and how that support will be provided over the long term. Further, as Congress considers requests to fund operation and support for BMDS elements, in the face of many competing priorities, decision-makers may lack confidence that DOD has plans in place to assure the overall long-term supportability of this complex and costly system.

As one of DOD's largest weapon system investments, BMDS could easily incur billions of dollars in operation and support costs over time. Operation and support typically comprises over 70 percent of a weapon system's total cost over its life. It is therefore critical that DOD and congressional decision-makers have complete, credible, and transparent cost information with which to evaluate budget requests in the near term and to evaluate whether fielding plans are affordable over the long term as an increasing number of BMDS elements are fielded. Given the program's limited transparency to date, Congress is already limited in its ability to evaluate the near- and long-term budget implications of decisions already made to develop and field BMDS elements. Until DOD develops accurate, realistic, and transparent cost estimates according to key principles, including independent verification, its estimates will continue to lack the credibility necessary for building budget submissions and spending plans.

Also, since MDA and the services have, in general, not reached agreement on who will pay for operation and support after 2013, and since BMDS will compete with other service priorities, there is a risk that operation and support funding for BMDS elements will vary from element to element. Until DOD requires that credible estimates be developed and until DOD specifies how BMDS operation and support funds will be prioritized, allocated, and distributed, the department risks being unable to clearly identify and align operation and support cost with fielding plans or to assure that funds are available for the operation and support of the missile defense elements over the long term. Further, the department will continue to lack internal controls to manage and oversee a significant number of federal dollars. Moreover, DOD and the services face unknown financial obligations to support BMDS elements over the long term. Finally, decision-makers inside and outside DOD will not have a sound basis with which to make difficult funding tradeoffs among competing priorities both across BMDS elements and across the department.

Recommendations for Executive Action

We recommend that the Secretary of Defense take the following six actions:

To improve planning to support BMDS elements, including planning for the transition of support responsibilities from MDA to the services, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics, establish a standard process for long-term support planning that adheres to key principles for life-cycle management, including:

- establishing timelines for planning that must be completed before each element is fielded, such as naming a lead service, involving services in support and transition planning, and deciding when support responsibilities will be transitioned to the services;
- requiring active lead service participation in developing long-term support plans and designating what support planning should be completed before elements are fielded; and
- specifying which organization is responsible for life-cycle management and identifying steps for oversight to identify who is accountable for ensuring these actions are accomplished.

To increase transparency and improve fiscal stewardship of DOD resources for BMDS, we recommend that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics,

to establish a requirement to estimate BMDS operation and support costs including:

- detailing when credible estimates are to be developed, updated, and reviewed; specifying criteria for prioritizing, allocating, and distributing funds; and clearly identifying who is responsible for oversight of this process;
- requiring periodic independent validation of operation and support costs for each BMDS element; and
- using the independently validated estimates to support preparation of complete and credible budget submissions and DOD's spending plan and to assess the long-term affordability of the integrated system and individual elements for informing key trade-off decisions.

Agency Comments and Our Evaluation

In written comments on a draft of this report, DOD concurred with one and partially concurred with five recommended actions. The department's comments are reprinted in their entirety in appendix II. DOD also provided technical comments, which we have incorporated as appropriate.

DOD partially concurred with our three recommendations to improve long-term support planning for BMDS elements. First, DOD partially concurred with our recommendation that the Under Secretary of Defense for Acquisition, Technology, and Logistics (USD (AT&L)) establish timelines for planning that must be completed before each element is fielded, such as naming a lead service, involving services in support and transition planning, and deciding when support responsibilities will be transitioned to the services. In its comments, DOD stated that the new BMDS life-cycle management process provides for service participation in annual MDA planning and programming. DOD further stated that through this process, timelines for transition of BMDS elements from MDA to the services after initial fielding will be executable within reasonable periods of time following initial fielding. DOD also stated that tailored negotiations between MDA and the services would be better than establishing uniform timelines and the Missile Defense Executive Board would step in if issues cannot be resolved in a timely fashion. However, USD (AT&L) officials told us that, as of September 15, 2008, the proposed BMDS life-cycle management process is a proposal and has not yet been implemented. Moreover, the draft proposal does not specify the role or timing for service involvement in developing support plans for elements. Regarding DOD's preference not to establish uniform timelines, we believe that key steps in completing support planning can be condition-based rather than calendar-based. For example, we point out in our report that MDA's own

sustainment directive specifies what criteria, including support planning, should be completed before an element moves to a subsequent development phase. Also, while the Missile Defense Executive Board may step in to resolve issues, the Board is a new organization and it is not clear what criteria the Board would use to determine whether intervention is needed, specifically in the absence of specific guidance outlining how the process should work. Our recommendation would provide some needed structure and specificity that the draft proposal currently lacks; unless DOD takes action to implement this recommendation, transition of support responsibilities may continue in an ad hoc manner, and DOD may not be able to take advantage of lessons learned from one transition effort to the next.

Second, DOD partially agreed with our recommendation that USD (AT&L) require active lead service participation in developing long-term support plans and designate what support planning should be completed before elements are fielded. DOD agreed that it is better to put long-term support plans into effect before BMDS elements are fielded, but said that fielding of an element should not be delayed because of incomplete support planning. DOD stated that once a lead service is designated, the element enters into the transition phase, memoranda of agreement are established, and an assessment is made by the department to determine when the element transfer is appropriate. As stated in our report, however, DOD has not documented that establishing memoranda of agreement is the preferred method of negotiating transition of responsibilities from MDA to the services. DOD also stated that by initiating its proposed life-cycle management process, the department intends to ensure that the services are active participants in long-term support planning. However, we point out in our report that several elements were fielded before support plans were completed and some, like the forward-based radar, still do not have a support plan more than 2 years after fielding. Also, we point out that DOD's draft proposal for life-cycle management lacks important details such as when support plans are to be completed, and how MDA and the services should negotiate transition of responsibility for providing support. Further it is not clear when this draft proposal might be approved and implemented. Therefore, without specifying active service participation in developing long-term support plans and when these should be completed, DOD is likely to face continued difficulty in transitioning support responsibilities from MDA to the services and uncertainty will persist regarding how elements will be supported over the long term.

Third, DOD partially agreed with our recommendation that USD (AT&L) specify which organization is responsible for life-cycle management and

identify steps for oversight to identify who is accountable for ensuring these actions are accomplished. DOD stated that USD (AT&L) is responsible for initiating lead service designations and expects that the proposed life-cycle management process will ensure service involvement. DOD further stated that the Missile Defense Executive Board is chartered for providing oversight. However, we point out in our report that MDA and the services disagree over which organization will be responsible for performing life-cycle management responsibilities, such as providing and planning for support over the long term. Further, even though the Missile Defense Executive Board may provide some oversight, the proposed management process developed by this Board does not specify the role or timing for service involvement in developing support plans for elements, or that support plans are to cover the elements' expected life and be completed before fielding, or how MDA and the services should negotiate transition of responsibility for providing support of BMDS elements. Our prior work has shown that establishing clear roles and responsibilities can improve outcomes by identifying who is accountable for various activities. Therefore, without specifically designating life-cycle management responsibilities and specifying what these responsibilities entail, DOD may continue to face challenges in its ability to transition responsibility for providing support from MDA to the services and will be limited in its ability to improve long-term support planning for future BMDS elements.

DOD concurred with one and partially concurred with two of our recommendations to establish a requirement to estimate BMDS operation and support costs. DOD agreed with our recommendation that USD (AT&L) require periodic independent validation of operation and support costs for each BMDS element. In its comments, DOD stated that periodic independent estimates of operation and support costs for BMDS elements are desirable. DOD also stated that the current arrangement between its Cost Analysis Improvement Group and MDA provides for independent cost estimates based on the MDA Director's priorities and that additional direction from the Under Secretary on the timing and frequency of independent cost estimates could facilitate planning for and executing these estimates. Although DOD agreed with this recommendation, its response did not indicate when it would implement the recommendation. Since independent verification of cost estimates is necessary to assure accuracy, completeness, and reliability, we encourage DOD to implement this recommendation as soon as possible. Without credible long-term operation and support cost estimates, DOD and the services face unknown financial obligations for supporting BMDS fielding plans, which will hinder assessing long-term affordability.

DOD partially agreed with our recommendation that the Secretary of Defense direct USD (AT&L) to detail when credible estimates are to be developed, updated, and reviewed; specify criteria for prioritizing, allocating, and distributing funds; and clearly identify who is responsible for oversight of this process. In its comments, DOD stated that it does not require specific direction from the Under Secretary at this time. However, we reported that DOD has not clearly identified operation and support costs because the department has not required that these costs be developed, validated, and reviewed. Therefore, we continue to believe that, in the absence of a clear requirement for estimating long-term operation and support costs, direction from senior DOD leadership is needed. DOD also stated in its comments that it remains confident its proposed BMDS life-cycle management process and the efforts of the Missile Defense Executive Board will be successful in ensuring that decision-makers have complete, credible, and transparent cost information before the services assume and/or fund any responsibilities transitioned to them. However, as we reported, the BMDS draft proposal for the life-cycle management process is not well defined and does not specify when and how operation and support cost estimates are to be developed, validated, and reviewed or who should be responsible for doing so. Also, we reported that it is not clear when the draft proposal will be approved or implemented and DOD's comments did not provide us with a schedule or time frame for taking action. Without taking specific action on this recommendation, it is not clear who will be responsible for ensuring credible operation and support estimates are developed or how these funds will be managed. Further, decision-makers inside and outside DOD will not have a sound basis with which to make difficult funding tradeoffs among competing priorities both across BMDS elements and across the department.

Finally, DOD partially agreed with our recommendation that the Secretary of Defense direct USD (AT&L) to use independently validated operation and support cost estimates to support preparation of complete and credible budget submissions and DOD's spending plan and to assess the long-term affordability of the integrated system and individual elements for informing key trade-off decisions. In its comments, DOD agreed that, whenever possible, independent cost estimates should be used to support its planning, programming, and budgeting decisions, but stated that the department does not believe that specific direction from the Under Secretary is needed. We reported that BMDS operation and support costs are not transparent in DOD's spending plan, the Future Years Defense Program, and that DOD has not yet completed operation and support cost estimates for several BMDS elements. Although DOD agreed that

independent cost estimates should be used to support planning, programming, and budgeting decisions, its draft proposal for the life-cycle management process does not address this issue. Without specific direction to use independently validated cost estimates to prepare budget submissions and spending plans, there is little assurance that DOD's future spending plans will contain significant improvements in the credibility of BMDS operation and support costs.

We are sending copies of this report to the Secretary of Defense; the Director, Missile Defense Agency; Chairman, Joint Chiefs of Staff; and the Chiefs of Staff and Secretaries of the Army, Navy, and Air Force. We will make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions, please call me at (404) 679-1816. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Staff members who made key contributions to this report are listed in appendix III.



John H. Pendleton
Director,
Defense Capabilities and Management

Appendix I: Scope and Methodology

To determine the extent to which the Department of Defense (DOD) has (1) planned for the support of Ballistic Missile Defense System (BMDS) elements over the long term and (2) identified the long-term operation and support costs for the BMDS elements it plans to field, we conducted various analyses, reviewed key documentation, and interviewed relevant DOD officials. During this review, we focused on the seven BMDS elements that are already fielded or planned for fielding over fiscal years 2008 through 2015. Since all the BMDS elements are in various stages of development and transition to a military service, we selected a nongeneralizable sample to provide illustrative examples of issues related to both objectives. The illustrative sampling strategy identifies examples to gain deeper insight, demonstrate consequences, and provide practical, significant information about the BMDS elements under a variety of conditions, such as identifying at least one element that is intended to transition to each of the services, some elements that are already fielded, and some elements that will be fielded by 2015. As a result, we selected seven BMDS elements: Aegis Ballistic Missile Defense, Ground-based Midcourse Defense, Terminal High Altitude Area Defense, AN/TPY-2 (forward-based radar), Sea-based X-band Radar, Upgraded Early Warning Radar, and European Midcourse Radar.

To assess the extent to which DOD has developed plans for how to support BMDS elements over the long term, we compared the planning that had been done with key principles embodied in DOD and Missile Defense Agency (MDA) policies and guidance¹ for life-cycle management² to determine what aspects may be missing or have limited service involvement that could hinder transition of responsibility for support of BMDS elements from MDA to the services and hinder the ability to provide long-term support. To do so, we obtained and assessed relevant documents such as BMDS element support plans, MDA support documents, DOD guidance for MDA and the Missile Defense Executive

¹DOD Directive 5000.1, *The Defense Acquisition System* (May 12, 2003); DOD Instruction 5000.2, *Operation of the Defense Acquisition System* (May 12, 2003); Office of the Secretary of Defense, *Designing and Assessing Supportability in DOD Weapon Systems* (Oct. 24, 2003); DOD's *Defense Acquisition Guidebook* (December 20, 2004); MDA's *Integrated Program Policy* (July 18, 2005) and associated *Ballistic Missile Defense Integrated Program Policy Implementation Guide* (June 2, 2005); and MDA Directive 5010.09, *Ballistic Missile Defense System Sustainment* (Apr. 13, 2006).

²Total life-cycle management is the management of all activities associated with the acquisition, development, production, fielding, sustainment, and disposal of a DOD weapon or system across its life cycle. In this engagement, we focused on the planning for fielding and sustainment over the expected life of the elements.

Board, and MDA documents explaining program status and plans such as the 2007 BMDS Transition and Transfer Plan signed February 4, 2008. We also discussed the extent of support planning, the level of service involvement in support and transition planning, and whether the assignment of life-cycle management responsibilities was clearly designated with MDA and relevant officials from the Army, Navy, and Air Force. Further, using DOD briefings, memorandums, and discussions with DOD officials, we compared the draft Missile Defense Executive Board draft proposal for BMDS management with the shortfalls in support planning we identified to determine the extent to which the draft proposal may address those shortfalls. Finally, we discussed the results of our comparisons with officials from the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics; Missile Defense Agency; Air Force Headquarters Strategic Plans and Policy Directorate; U.S. Air Force Space Command; U.S. Army Headquarters and Space and Missile Defense Command; and the Office of Naval Operations Theater Air and Missile Defense Branch.

To assess whether DOD has identified the long-term operation and support costs for the BMDS elements it plans to field, we evaluated how MDA and the services developed cost estimates and then compared the method by which those estimates were prepared with key principles compiled from DOD and GAO sources³ that describe how to develop accurate and reliable cost estimates to determine their completeness and the extent to which DOD took steps to assess the confidence in the estimates. We then discussed the results of our comparison and the status of the operation and support cost estimates with officials from the Office of the Deputy Assistant Secretary of the Army for Cost and Economics; the Naval Center for Cost Analysis; Air Force Space Command; the Missile Defense Agency; the Office of the Secretary of Defense Program, Analysis, and Evaluation and its Cost Analysis Improvement Group, and the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. In addition, we assessed key documents such as the 2007 Transition and Transfer Plan and the Aegis memorandum of agreement to determine the extent to which MDA and the services have or have not agreed to fund operation and support costs for BMDS elements after 2013 and confirmed

³We used the following DOD and GAO sources for compiling the cost criteria: DOD, Office of the Secretary of Defense Cost Analysis Improvement Group, *Operating and Support Cost Estimating Guide*, May 1992 and October 2007; and GAO, *Cost Assessment Guide: Best Practices for Estimating and Managing Program Costs, Exposure Draft*, [GAO-07-1134SP](#) (Washington, D.C.: July 2007).

our understanding with MDA and service officials. Furthermore, to follow-up on our previous recommendation,⁴ we interviewed an official in the Office of the Under Secretary of Defense (Comptroller) to determine whether DOD had taken any action on our recommendation to develop a structure in the FYDP to identify all ballistic missile defense operational costs. Finally, using DOD briefings and other documents, we compared the Missile Defense Executive Board draft proposal for BMDS management with the shortfalls in estimating and funding operation and support costs we identified to determine the extent to which the draft proposal may address those shortfalls. We discussed our findings with officials from the Office of the Under Secretary of Defense for Acquisitions, Technology, and Logistics and the Missile Defense Agency.

Other organizations we visited to gain an understanding of their roles in support planning and cost estimating included the Joint Staff, U.S. Strategic Command and its Joint Functional Component Command for Integrated Missile Defense, and U.S. Northern Command.

We conducted this performance audit from August 2007 through September 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

⁴In our prior report, we recommended to the Secretary of Defense to develop a structure within the FYDP to identify all ballistic missile defense operational costs. See GAO, *Defense Management: Actions Needed to Improve Operational Planning and Visibility of Costs for Ballistic Missile Defense*, [GAO-06-473](#) (Washington, D.C.: May 31, 2006).

Appendix II: Comments from the Department of Defense



**ACQUISITION
TECHNOLOGY
AND LOGISTICS**

**OFFICE OF THE UNDER SECRETARY OF DEFENSE
3000 DEFENSE PENTAGON
WASHINGTON, DC 20301-3000**

Mr. John H. Pendleton
Director, Defense Capabilities and Management
U. S. Government Accountability Office
441 G Street, N.W.
Washington, DC 20548

Dear Mr. Pendleton:

This is the Department of Defense (DoD) response to the GAO Draft Report, GAO-08-1068, "MISSILE DEFENSE: Actions Needed to Improve Planning and Cost Estimates for Long-Term Support of Ballistic Missile Defense," dated August 15, 2008 (GAO Code 351080).

The DoD concurs with one of the six draft report recommendations and partially concurs with five. The rationales for our positions are included in the enclosure.

We appreciate the opportunity to comment on the draft report. My point of contact for this effort is Mr. Greg Hulcher, (703) 695-2680, greg.hulcher@osd.mil.

Sincerely,

A handwritten signature in black ink, appearing to read "D. G. Ahern".

David G. Ahern
Director
Portfolio Systems Acquisition

Enclosure:
As stated



**GAO DRAFT REPORT – DATED AUGUST 15, 2008
GAO CODE 351080/GAO-08-1068**

**“MISSILE DEFENSE: Actions Needed to Improve Planning and Cost
Estimates for Long-Term Support of Ballistic Missile Defense”**

**DEPARTMENT OF DEFENSE
COMMENTS TO THE RECOMMENDATIONS**

RECOMMENDATION 1: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to establish timelines for planning that must be completed before each element is fielded, such as naming a lead Service, involving Services in support and transition planning, and deciding when support responsibilities will be transitioned to the Services.

PROPOSED RESPONSE: Partially Concur. Considerable progress has been made with regards to planning for long-term support of Ballistic Missile Defense System (BMDS) capabilities. Continued improvement will be derived from the new BMDS Life Cycle Management Process, as discussed with GAO representatives. The process provides for Service participation in annual Missile Defense Agency (MDA) planning and programming. With the experience and involvement generated by this process and related activity, timelines for transition and transfer of BMDS elements to the Services will be substantive and executable within reasonable periods of time following initial fielding. Rather than establish uniform timelines, the Department believes the better approach is to rely on tailored negotiations between MDA and the Services conducted under oversight from the Missile Defense Executive Board (MDEB), particular to each BMDS element. The MDEB will step in when issues such as the allocation of support responsibilities cannot be resolved in a timely fashion.

RECOMMENDATION 2: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to require active lead Services participation in developing long-term support plans and designating what support planning should be completed before elements are fielded.

PROPOSED RESPONSE: Partially Concur. By initiating the BMDS Life Cycle Management Process, the Department intends to ensure that the Services are active participants in annual long-term support planning and budgeting. The current Transition and Transfer plan, directs that once a lead Service is designated, the element enters into transition phase, memorandum of agreements are established and an assessment is made by the Department to determine when the element transfer is appropriate. While the Department agrees with GAO’s view that it is better to put long-term support plans into

effect before BMDS elements/components are fielded, decisions to deploy BMDS capabilities under the spiral development approach must take into account considerations, such as the immediacy of the threat, the warfighter's needs, and the near-term military utility of the element/component. Therefore, it may be unwise to slow or delay fielding of BMDS capabilities until every step is taken to complete operation and support planning.

RECOMMENDATION 3: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology and Logistics to specify which organization is responsible for life-cycle management and identifying steps for oversight to identify who is accountable for ensuring these actions are accomplished.

PROPOSED RESPONSE: Partially Concur. USD(AT&L) is responsible for initialing Lead Service designations for Deputy Secretary of Defense approval. The Department expects that the BMDS Life Cycle Management Process will ensure Service involvement early in BMDS element development and life cycle management planning and budgeting. The MDEB will assess determinations concerning timing transfer of responsibilities to the Services for operations and sustainment. As for providing needed oversight within the Department, the MDEB is already chartered to carry out this responsibility.

RECOMMENDATION 4: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics to detail when credible estimates are to be developed, updated, and reviewed; specifying criteria for prioritizing, allocating, and distributing funds; and clearly identifying who is responsible for oversight of this process.

PROPOSED RESPONSE: Partially Concur. The Department does not require specific direction from the Under Secretary at this point in time. GAO found in its review that much progress has been made to develop joint estimates of operation and support costs but more needs to be done. The Department agrees and remains confident that its improved BMDS Life Cycle Management Process and the efforts of the MDEB will be successful in ensuring that decision makers have complete, credible, and transparent cost information before the Services must assume and/or fund any responsibilities transitioned to them.

RECOMMENDATION 5: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics to require periodic independent validation of operation and support costs for each BMDS element.

PROPOSED RESPONSE: Concur. The Department agrees with GAO that periodic independent estimates of operation and support costs for BMDS elements/components are desirable. The current arrangement between the Cost Analysis Improvement Group

and MDA provided for independent cost estimates based on the MDA Director's priorities. Additional direction from the Under Secretary on the timing and frequency of independent cost estimates could facilitate planning for and executing these estimates.

RECOMMENDATION 6: The GAO recommends that the Secretary of Defense direct the Under Secretary of Defense for Acquisition, Technology, and Logistics to use the independently validated estimates to support preparation of complete and credible budget submissions and DoD's spending plan and to assess the long-term affordability of the integrated system and individual elements for informing key trade-off decisions.

PROPOSED RESPONSE: Partially Concur. The Department agrees that, whenever possible, independent cost estimates should be used to support its planning, programming, and budgeting decisions, but the Department does not believe that specific direction from the Under Secretary is needed here.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

John H. Pendleton, (404) 679-1816, pendletonj@gao.gov

Acknowledgments

In addition to the individual named above, Gwendolyn R. Jaffe and Marie A. Mak, Assistant Directors; Brenda M. Waterfield; Whitney E. Havens; Pat L Bohan; Pamela N. Harris; Kasea Hamar; Nicolaas C. Cornelisse; and Susan C. Ditto made key contributions to this report.

Related GAO Products

Ballistic Missile Defense: Actions Needed to Improve the Process for Identifying and Addressing Combatant Command Priorities. [GAO-08-740](#). Washington, D.C.: July 31, 2008.

Defense Acquisitions: Progress Made in Fielding Missile Defense, but Program Is Short of Meeting Goals. [GAO-08-448](#). Washington, D.C.: March 14, 2008.

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Missile Defense: Cost Increases Call for Analysis of How Many New Patriot Missiles to Buy. [GAO-NSIAD-00-153](#). Washington, D.C.: June 29, 2000.

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