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House of Representatives

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## MISSILE DEFENSE

# Acquisition Processes Are Improving, but Further Actions Are Needed to Address Standing Issues

Statement of John D. Sawyer, Acting Director,  
Contracting and National Security Acquisitions

# GAO Highlights

Highlights of [GAO-22-105925](#), a testimony before the Subcommittee on Strategic Forces, Committee on Armed Services, House of Representatives

## Why GAO Did This Study

Since MDA was established in 2002, DOD has spent over \$174 billion to develop a network of sensors, interceptors, and command and control capabilities collectively called the Missile Defense System. GAO has previously reported on MDA's process to acquire assets and capabilities for this system.

This statement highlights key findings from GAO's work on missile defense acquisitions. Specifically, this testimony provides information on (1) changes to MDA's acquisition processes; (2) program and flight test cost estimates and reporting; and (3) MDA's implementation of GAO's prior recommendations relevant to missile defense acquisitions. This statement is primarily based on GAO reports issued since 2020 on MDA's requirements and cost estimating process. In addition, the statement draws upon GAO's body of work issued since 2010.

View [GAO-22-105925](#). For more information, contact John Sawyer at (202) 512-4841 or [SawyerJ@gao.gov](mailto:SawyerJ@gao.gov).

May 11, 2022

## MISSILE DEFENSE

### Acquisition Processes Are Improving, but Further Actions Are Needed to Address Standing Issues

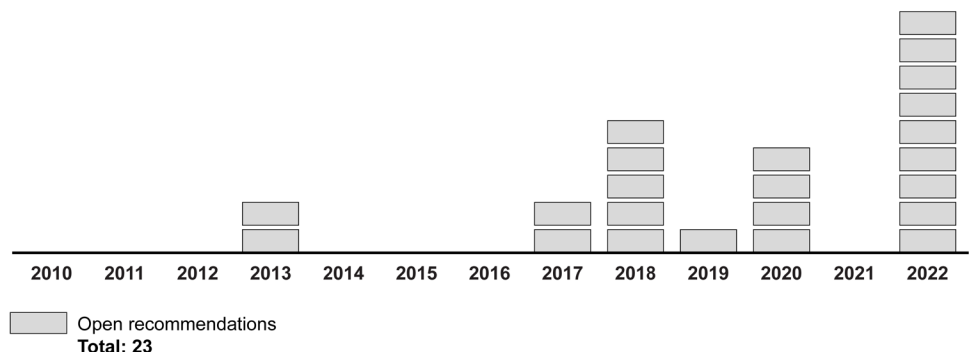
#### What GAO Found

The Missile Defense Agency (MDA) was established 20 years ago to develop a system to defend the U.S. and its allies against ballistic missile attacks. Since then, MDA has made progress developing and testing the Missile Defense System. MDA has taken steps to improve how it develops missile defense assets and capabilities, but problems with its acquisition policy and practices persist. For example:

- **Limited stakeholder input in requirements-setting.** In 2020, the Department of Defense (DOD) made changes to MDA's acquisition processes to more closely align with leading practices, such as working closely with stakeholders throughout program development. In November 2021, GAO found opportunities for DOD to better incorporate the warfighter's needs by establishing processes to better align MDA programs in early development with warfighter-approved requirements.
- **Problematic cost estimates and underreported costs.** In 2013 and 2017, GAO found shortfalls in MDA's cost estimates and reporting. In February 2022, GAO found that MDA continues to omit key costs from program life-cycle cost estimates and lingering accuracy issues with flight test cost estimates. These deficiencies limit decision-makers' insight into the financial commitments necessary for making funding and other determinations.

Since 2010, GAO has made 61 recommendations to improve missile defense acquisitions. While MDA has generally agreed with most of these recommendations, 23 still require additional actions (see figure). Addressing the open recommendations would help reduce acquisition risk. For example, early alignment of MDA programs to warfighter-approved requirements helps ensure delivery of needed capabilities while minimizing the risk of late-cycle design changes—which has proven to raise cost and create schedule delays—or delivering capabilities that do not fully meet warfighter's needs.

Unimplemented GAO Recommendations on Missile Defense Acquisitions by Year, 2010-2022



Source: GAO. | [GAO-22-105925](#)

Chairman Cooper, Ranking Member Lamborn, and Members of the Subcommittee:

Thank you for the opportunity to discuss our work assessing the Missile Defense Agency's (MDA) acquisition practices. The Department of Defense (DOD) has charged MDA with developing and fielding the Missile Defense System (MDS) to defend the United States, deployed troops, and allies against ballistic, cruise, and hypersonic missile attacks. The MDS architecture includes (1) space-based sensors as well as ground- and sea- based radars; (2) ground- and sea- based interceptor missiles; and (3) command and control, battle management, and communications systems to enable a coordinated response from the warfighter. Since MDA was established in 2002, the agency has spent over \$174 billion developing and fielding missile defense capabilities. The agency is requesting an additional \$9.6 billion for fiscal year 2023 to continue its efforts.

The National Defense Authorization Act for Fiscal Year 2002 and subsequent Acts have included provisions for us to prepare annual assessments of MDA's progress toward its acquisition goals and objectives. We have carried out those assessments since our first report in 2004.<sup>1</sup> We have also reported on other important areas within MDA, such as collaboration with the intelligence community, the contracting strategy for MDS elements, and the acquisition risks in developing and delivering targets to support flight testing.

GAO's body of work on MDA's acquisitions has shown that MDA has taken important steps to

- increase transparency in its documentation;
- improve its outreach to stakeholders, including the intelligence community and other DOD stakeholders; and
- reduce concurrency (broadly defined as the overlap between product development, testing, and production).

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<sup>1</sup>We were unable to assess MDA's progress in fiscal year 2002 because MDA did not establish cost, schedule, testing, and performance goals for that fiscal year. Our assessment of MDA's progress in meeting its acquisition goals for fiscal year 2021 (our 19<sup>th</sup> annual assessment) is underway and we anticipate issuing the report in June 2022.

However, MDA continuously struggles to meet its annual acquisition goals and has canceled a number of critical efforts due to cost and technical challenges—a trend the department indicated must not continue given the importance of these systems.

This testimony statement focuses on two of our recent reports: one evaluating changes to MDA’s acquisition flexibilities that we issued in November 2021, and another assessing MDA’s cost estimating and reporting that we issued in February 2022.<sup>2</sup> This statement will also highlight MDA’s progress implementing GAO’s recommendations relevant to missile defense that we have made over the past decade. More information on our objectives, scope, and methodology is available in the reports cited.

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

## **Background**

MDA is responsible for developing a number of systems that will be combined into an integrated system-of-systems known as the MDS. To remain responsive to rapidly evolving threats, MDA incrementally improves each system via multiple subparts—blocks, configurations, increments, or spirals. As required by law, each acquisition program has a baseline that MDA reports annually to Congress in the Missile Defense Accountability Report (referred to here as baseline reporting).<sup>3</sup> MDA conducts flight tests to verify that each system’s design is built correctly and to demonstrate that each system, alone or integrated, can successfully accomplish its mission in the hands of the warfighter under realistic conditions. MDA uses program life-cycle cost

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<sup>2</sup>See GAO, *Missile Defense: Recent Acquisition Policy Changes Balance Risk and Flexibility, but Actions Needed to Refine Requirements Process*, [GAO-22-563](#) (Washington, D.C.: Nov. 10, 2021); and *Missile Defense: Addressing Cost Estimating and Reporting Shortfalls Could Improve Insight Into Full Costs of Programs and Flight Tests*, [GAO-22-104344](#) (Washington, D.C.: Feb. 2, 2022).

<sup>3</sup>Pub. L. No. 112-81, § 231, as amended, codified at 10 U.S.C. § 225, requires the MDA Director to establish and maintain an acquisition baseline for each program entering engineering and manufacturing development, and production and deployment. This law details the specific content MDA must include in the acquisition baseline. MDA’s acquisition baselines include: (1) contract, (2) operational capacity, (3) resource (or cost), (4) schedule, (5) technical, and (6) test.

estimates and flight test cost estimates to identify the necessary investment and funding needs for programs as well as flight tests in its annual budget request.

MDA has been granted exceptional flexibilities to set requirements and manage the acquisition of the MDS to more quickly expedite the availability of MDS assets and capabilities. These flexibilities allow MDA to (1) diverge from DOD's traditional acquisition life-cycle and (2) defer the application of certain acquisition laws and policies designed to facilitate oversight and accountability until a mature capability is ready to be handed over to a military service for production and operation. DOD issued a directive in 2009 referred as the "MDA charter" establishing roles, responsibilities, and authorities for MDA and DOD components involved in the development of the MDS.<sup>4</sup>

In 2019, DOD determined that changes were needed to MDA's acquisition approach to, among other things, reduce risks and promote the transfer of systems to military services.<sup>5</sup>

Consequently, in March 2020, DOD issued a memorandum requiring, among other items, MDA obtain independent cost and technology risk assessments earlier in program development.<sup>6</sup> The memorandum also assigned the Under Secretary of Defense for Acquisition and Sustainment (USD (A&S)) the responsibility for deciding whether a program can proceed to certain points in the acquisition process—a responsibility previously assigned to the Director, MDA.

### **Opportunities Remain for DOD to Build On Recent Efforts to Balance Acquisition Flexibility and Risk**

In November 2021, we found that policy changes DOD implemented in 2020 have the potential to improve MDA's acquisition outcomes, as most of the changes aligned with actions we

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<sup>4</sup>DOD, *Missile Defense Agency (MDA)*, DOD Directive 5134.09 (Washington, D.C.: Sept. 17, 2009).

<sup>5</sup>MDA is required to transfer ownership (i.e., the acquisition and total obligation authority) of certain systems to the designated military service (e.g., Air Force, Army, Navy) when there has been a decision to enter into production. Once transferred, the designated military service becomes responsible for the ownership costs, and operating and sustaining the system over the duration of its life. Congress mandated that MDA transfer ownership of these systems by the time the President's fiscal year 2021 budget was submitted but later extended the deadline to October 1, 2023. See the National Defense Authorization Act for Fiscal Year 2018, Pub. L. No. 115-91, § 1676(b) (2017), as amended by John S. McCain National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232, § 1679 (2018), the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021, Pub. L. No. 116-283, § 1643 (2020), and the National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81, § 1663 (2021). See also 10 U.S.C. § 4172(e)(8).

<sup>6</sup>Deputy Secretary of Defense, *Directive-type Memorandum (DTM) 20-002 – "Missile Defense System Policies and Governance"* (Mar. 13, 2020).

previously recommended and were consistent with our identified acquisition best practices.<sup>7</sup> For example, MDA must now obtain independent cost estimates before starting product development, and obtain USD(A&S) approval of its acquisition strategies before starting technology development. Our prior work has shown that knowledge-based acquisition practices such as those DOD implemented take time to complete but are intended to identify issues that could later derail a program.<sup>8</sup>

However, we also found that DOD continues to rely on MDA to decide operational-level capability requirements during early program development, rather than relying on the warfighter to make those decisions. These requirements decisions help inform key development decisions that are made during program development, such as selecting weapon system concepts to pursue and awarding contracts for their development. Our prior work on missile defense acquisitions has shown that leveraging the warfighter's expertise—attained through decades of experience operating missile defense systems—can help MDA establish a sound business case for its new efforts. It can also help increase the likelihood that the capabilities MDA pursues are needed, affordable, effective, and delivered as quickly as feasible.<sup>9</sup>

The policy changes implemented by DOD in 2020 provided the warfighter with increased responsibility for missile defense requirements-setting but, as figure 1 shows, MDA continues to retain some responsibility for determining operational-level capability requirements.<sup>10</sup> As we found in November 2021, the absence of continuity in warfighter-approved requirements guiding MDA and its programs through early development creates the potential for later challenges that could result in significant program disruptions.

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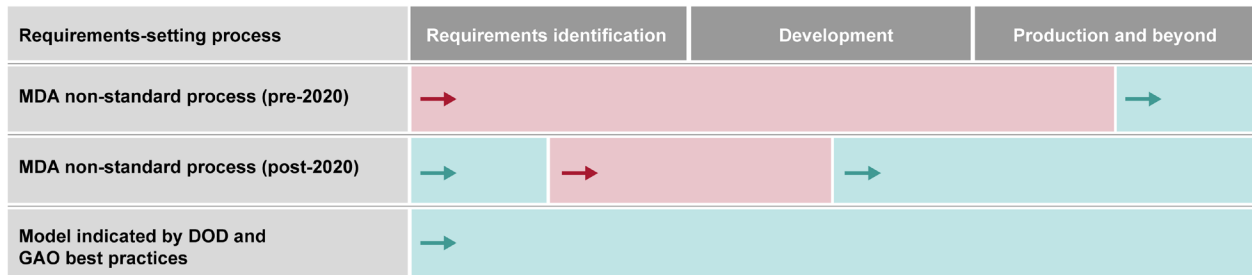
<sup>7</sup>[GAO-22-563](#).

<sup>8</sup>See GAO, *Weapon Systems Annual Assessment: Updated Program Oversight Approach Needed*, [GAO-21-222](#) (Washington, D.C.: June 8, 2021); [GAO-17-381](#); *Missile Defense: Mixed Progress in Achieving Acquisition Goals and Improving Accountability*, [GAO-14-351](#) (Washington, D.C.: Apr. 1, 2014); and *Missile Defense: Opportunity to Refocus on Strengthening Acquisition Management*, [GAO-13-432](#) (Washington, D.C.: Apr. 26, 2013).

<sup>9</sup>For examples, see GAO, *Missile Defense: Further Collaboration with the Intelligence Community Would Help MDA Keep Pace with Emerging Threats*, [GAO-20-177](#) (Washington, D.C.: Dec. 11, 2019); and [GAO-17-381](#).

<sup>10</sup>See [GAO-22-563](#) for further information on the policy changes DOD implemented in 2020 that provided the warfighter with increased requirements-setting responsibility. For example, MDA must now produce a Top Level Requirements Document that is coordinated with combatant commands and lead military service at the start of the product development phase for MDS programs.

**Figure 1: MDA and Warfighter Responsibilities for Determining Operational-Level Capability Requirements**



█ Warfighter responsibility  
█ Developer (MDA) responsibility

**DOD** = Department of Defense  
**MDA** = Missile Defense Agency

Source: GAO analysis of DOD information. | GAO-22-105925

Note: In this figure, requirements identification includes materiel solution analysis and development includes technology development and product development. DOD’s standard process has acquisition phases and decision points that are similar to but not the same as MDA’s acquisition process.

As a result, in November 2021, we made three recommendations for DOD to establish processes and products to ensure MDA’s programs are aligned with warfighter requirements, as indicated by DOD’s and GAO’s identified best practices. DOD did not agree with our recommendations, citing, among other things, the need for MDA to retain the flexibility to develop capabilities based on existing technologies rather than warfighter requirements. In our report, we pointed to the early collaboration that occurred between MDA and the warfighter on developing a top-level requirements document for the Next Generation Interceptor. This example serves as a proof-of-concept that DOD can retain MDA’s design flexibility while also anchoring MDS programs to warfighter requirements. As such, we maintain that DOD should implement our recommendations or find ways to ensure continuity in warfighter-approved requirements throughout program development.

DOD has ongoing efforts to update missile defense policies that provide the department with opportunities to improve upon and fine-tune the policy changes it made in 2020. For example, DOD officials said that the department is in the process of updating the MDA charter to implement the policy changes from 2020, and is considering other policy changes. DOD indicated in its response to our November 2021 report that MDA would recommend an edit to the MDA charter so that analyses of alternatives would be conducted for all major MDS programs using warfighter-provided initial requirements. This change would effectively implement one of our recommendations. Also, the Joint Chiefs of Staff are establishing a

process for annually producing a list of prioritized integrated air and missile defense requirements that is validated by the Joint Requirements Oversight Council. These changes could potentially address another of our November 2021 recommendations. We will continue to monitor and await the results of these efforts.

### **MDA's Cost Estimates and Reporting Have Improved, but Shortfalls Persist**

For many years, we have reported that the program and flight test cost estimates MDA uses to support its \$7 billion to \$10 billion annual budget requests are incomplete and inaccurate and that MDA has underreported the costs of both.<sup>11</sup> MDA has taken various actions to improve these cost estimates, such as revising its *Cost Estimating and Analysis Handbook* to generally comport with GAO's cost estimating best practices and releasing a new flight test cost model to better and more accurately capture costs. In addition, MDA attempted to improve its program baseline reporting by adding a list of significant changes, and Congress mandated that MDA provide semiannual reports on flight test costs.<sup>12</sup> While these efforts are steps in the right direction, we reported in February 2022 on issues that persist with MDA's cost estimates and reporting for programs and flight tests.

MDA's program cost estimates still do not account for all life-cycle costs; specifically, the military services' operations and sustainment costs. MDA and the military services have prepared joint cost estimates for some programs, but not all applicable programs have one as required by policy.<sup>13</sup> Further, some of the joint cost estimates are outdated, and none of them have been independently verified by DOD's office of Cost Analysis and Program Evaluation (CAPE).<sup>14</sup> Moreover, these joint cost estimates are not a part of MDA's program life-cycle cost estimates or baseline reporting. Thus, decision makers and others lack critical information on costs that

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<sup>11</sup>GAO, *Missile Defense: Actions Needed to Improve Transparency and Accountability*, [GAO-11-372](#) (Washington, D.C.: Mar. 24, 2011); [GAO-13-432](#); *Missile Defense: Cost Estimating Practices Have Improved, and Continued Evaluation Will Determine Effectiveness*, [GAO-15-210R](#), (Washington, D.C.: Dec. 12, 2014); and [GAO-17-381](#).

<sup>12</sup>Pub. L. No. 114-328, § 1695 (2016) and Pub. L. No. 116-92, § 1702(b)(9) (2019) required MDA to report from March 2017 through December 2021 on the outcome and costs for all flight tests planned to occur during each 180-day notification period.

<sup>13</sup>MDA Directive 5010.19, *Ballistic Missile Defense System Capability Transition and Transfer Policy* (May 2014).

<sup>14</sup>MDA Directive 5010.19.



can represent up to 70 percent of a program’s cost over its entire life-cycle. Specifically, this cost information is needed by:

- (1) Congress and DOD to adjust priorities and funding as needed, and to cancel a program in the event costs become untenable;
- (2) the military services to prepare for the financial commitments that will be levied on them when transfers of ownership occur; and
- (3) DOD’s CAPE to prepare independent cost estimates now required by DOD policy.<sup>15</sup>

In 2013, we made it a priority recommendation that MDA account for these costs and in February 2022 further identified a practical action it could take to do so.<sup>16</sup> Specifically, we advised MDA to include a citation to the joint cost estimate or other source for these costs in its program cost estimates and baseline reporting. We also recommended that MDA ensure applicable programs have a joint cost estimate and that these estimates are independently verified by DOD CAPE.<sup>17</sup> DOD concurred with these recommendations and MDA intends to implement them.

In February 2022, we also found that while the accuracy of MDA’s flight test cost estimates is improving, lingering accuracy issues mean that MDA’s average annual funding request of \$1.3 billion for flight testing may still be under- or over-stated. For example, MDA’s flight test cost estimates continue to use estimating methodologies that can misrepresent costs, contain mistakes, and are not updated with actual costs.<sup>18</sup> We believe that MDA needs more time to refine its new flight test cost model and associated processes, and recommended that MDA

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<sup>15</sup>Pub. L. No. 115-91, § 1676(b) (2017), as amended by Pub. L. No. 115-232, § 1679 (2018), Pub. L. No. 116-283, § 1643 (2020), and 10 U.S.C. § 2366(e)(8). DTM-20-002.

<sup>16</sup>We identified two recommendations from [GAO-13-432](#) as “priority” because they are important to helping save the federal government money, aiding in congressional decision-making, and improving government programs, among other things. The Comptroller General of the United States provides an annual report on priority recommendations to encourage action. The most recent annual report is: *Priority Open Recommendations: Department of Defense*, [GAO-21-522PR](#) (Washington, D.C.: Aug. 2, 2021). Also, see [GAO-22-104344](#).

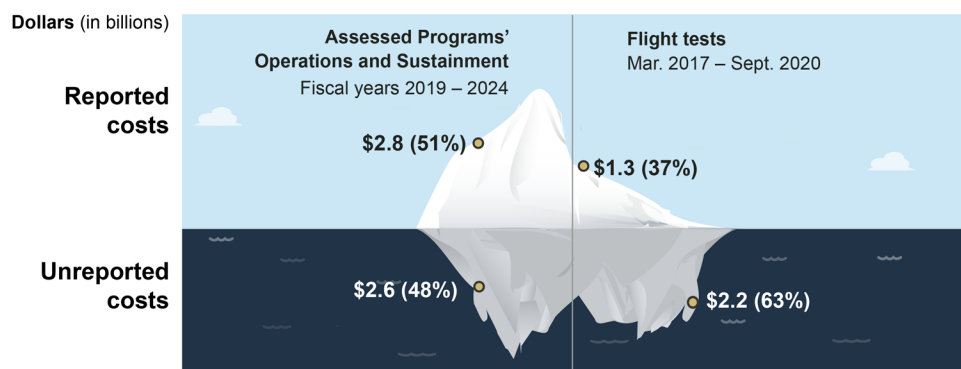
<sup>17</sup>[GAO-22-104344](#).

<sup>18</sup>[GAO-22-104344](#).

update its *Cost Estimating and Analysis Handbook* to require actual costs to be regularly incorporated into its estimates, which it has since done.<sup>19</sup>

Regarding MDA’s reporting on program and flight test costs, MDA has significantly underreported the costs of both.<sup>20</sup> In February 2022, we found, as shown in figure 2, that MDA underreported its program operations and sustainment costs by nearly 50 percent and flight test costs by more than 60 percent over the identified timeframes.

**Figure 2: Example of Missile Defense Agency’s Unreported Program and Flight Test Costs**



Source: GAO analysis of Missile Defense Agency data. | GAO-22-105925

Note: Assessed programs include: Aegis Ashore Poland; Aegis Ballistic Missile Defense Standard Missile-3 Block II; Aegis Weapon System Spiral 5.1; Army Navy/Transportable Radar Surveillance and Control Model-2 Configuration 4; Command, Control, Battle Management, and Communications Spiral 8.2-5; Ground-based Midcourse Defense Enhanced Homeland Defense; and Terminal High Altitude Area Defense II. The flight test information shown is based on our analysis of MDA’s mandated reports to Congress between March 2017 and September 2020 as compared to the agency’s total funding request for flight test between fiscal years 2017 and 2020.

MDA’s underreporting of program costs continues to impede decision makers’ insight into the total cost of a system and the cost performance of the programs that comprise it. In February 2022, we found that MDA continues to adjust program baselines in such a way that progress over time is no longer traceable, which is the same issue we found in 2013 that we made a

<sup>19</sup>[GAO-22-104344](#).

<sup>20</sup>For program costs, the National Defense Authorization Act for Fiscal Year 2012, Pub. L. No. 112-81, § 231 (2011), as amended, codified at 10 U.S.C. § 225, requires the MDA Director to establish and maintain an acquisition baseline for each program, which includes cost (such as the life-cycle cost estimate and unit cost). For flight test costs, the National Defense Authorization Act for Fiscal Year 2017, Pub. L. No. 114-328, § 1695 (2016) and the National Defense Authorization Act for Fiscal Year 2020, Pub. L. No. 116-92, § 1702(b)(9) (2019), required MDA to report from March 2017 through December 2021 on the outcome and costs for all flight tests planned to occur during each 180-day notification period. The National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81, § 1673 (2021), further detailed this reporting and extended it for five years.

priority recommendation for MDA to address. We also found that MDA foregoes recurrent comparisons to the original program baseline needed to understand how the program's cost have evolved since its starting point and shifts costs across and outside of program baselines, thereby obscuring or omitting billions of dollars.<sup>21</sup>

Decision makers need clear program baselines that capture all costs and clearly track progress from the program's starting point. This informs prioritization decisions, funding determinations, and considerations of whether to continue a program or cancel it to pursue a more affordable option. We suggested practical actions to address these issues, and MDA recently informed us that it is taking some preliminary steps in this regard. We also made two recommendations. However, DOD did not concur with our recommendations for MDA to include recurrent comparisons against each program's original baseline and to track total system costs, stating that the department believes MDA's baseline reporting is sufficient.<sup>22</sup> We maintain that our recommendations are appropriate and that implementing them will provide additional insight necessary for informed decision-making.

MDA has also underreported flight test costs to date—accounting for less than 40 percent of the testing funding it received for fiscal years 2017 through 2020—due to methodological issues.<sup>23</sup> For example, in February 2022, we found that MDA used varying methodologies for including or excluding flight tests from a report to Congress, some of which were problematic. Specifically, MDA generally did not use the test plan that aligned with its budget request, which means some costly and important tests were entirely omitted from a report. This mandated reporting requirement ended in December 2021.<sup>24</sup> However, we suggested that Congress consider reinstating this reporting requirement and clarifying some of the methodological aspects necessary to obtain more complete insight into flight test costs, which it has since done in the National Defense Authorization Act for Fiscal Year 2022.<sup>25</sup>

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<sup>21</sup>[GAO-22-104344](#) and [GAO-13-4342](#).

<sup>22</sup>[GAO-22-104344](#).

<sup>23</sup>[GAO-22-104344](#).

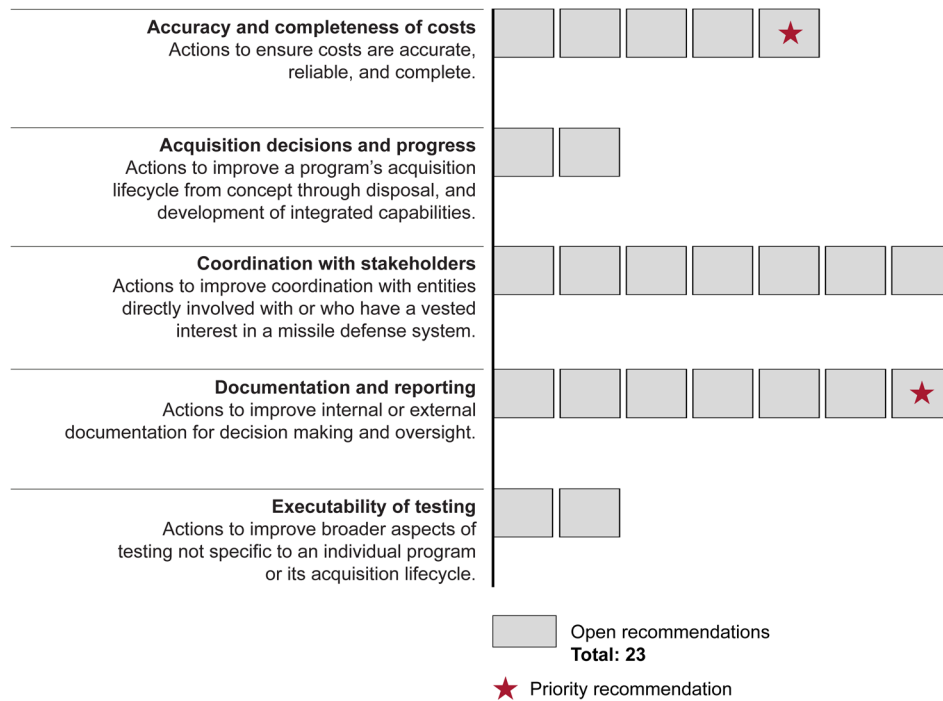
<sup>24</sup>Pub. L. No. 116-92, § 1702(b)(9) (2019).

<sup>25</sup>[GAO-22-104344](#) and Pub. L. 117-81, § 1673 (2021).

## Addressing GAO Recommendations Would Reduce Acquisition Risk

Since 2010, we have made 61 recommendations intended to improve MDA’s acquisition practices and increase transparency. Of these, 23 remain open. As shown in figure 3, MDA has more work to do in five general areas.

**Figure 3: Implementation Status of GAO Recommendations Made Since 2010 on Missile Defense Acquisitions**



Source: GAO. | GAO-22-105925

Addressing these recommendations would reduce acquisition risks in the MDA program. For example, ensuring that MDS programs, in the early stages of development, maintain their linkage to warfighter-approved requirements could reduce the risk of costly, time-consuming design changes to meet warfighter needs. In addition, addressing completeness, accuracy, and transparency issues with its program and flight test cost estimates and reporting—used to support MDA’s budget request—would provide congressional, DOD, and other stakeholders the information needed for better informed decision-making.

In conclusion, over the years, Congress, DOD, and MDA have explored ways to improve MDA’s acquisition outcomes. Recent actions include (1) updating MDA’s charter to incorporate changes to the acquisition process; (2) mandating flight test costs reporting requirements; and

(3) assessing ways to ensure testing is executed as scheduled. In addition, rapidly evolving threats and budget pressures have lent additional importance to quickly acquiring demonstrated capabilities to the warfighter within budgeted costs. While progress has been made on this front, we continue to report on the same kinds of problems today that we did in the past. To more effectively meet its acquisition goals, there is a new urgency for DOD and MDA to improve stakeholder input and transparency in cost estimates and reporting. Doing so can help ensure that the warfighters get the systems and equipment they need, and that stakeholders get the information they need to support program and funding decisions.

Chairman Cooper, Ranking Member Lamborn, and Members of the Subcommittee, this completes my prepared statement. I would be pleased to respond to any questions that you may have at this time.

### **GAO Contact and Staff Acknowledgments**

If you or your staff have any questions about this testimony, please contact John D. Sawyer, Acting Director, Contracting and National Security Acquisitions, at (202) 512-4841 or [SawyerJ@gao.gov](mailto:SawyerJ@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. GAO staff who made key contributions to this testimony are James Madar (Assistant Director), Steven Stern (Analyst in Charge), Matthew Ambrose, Pete Anderson, Dennis Antonio, Jasmina Clyburn, Jim Cora, Helena Johnson, Michael Moran, Miranda Riemer, Brian Tittle, and Alyssa Weir.

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