



441 G St. N.W.
Washington, DC 20548

Comptroller General
of the United States

August 28, 2025

The Honorable Sean Duffy
Acting Administrator
National Aeronautics and Space Administration
300 E Street Northwest
Washington, DC 20546

Priority Open Recommendations: National Aeronautics and Space Administration

Dear Acting Administrator Duffy:

The purpose of this letter is to call your personal attention to two areas based on GAO's past work and three open priority recommendations, which are enclosed.¹ Additionally, there are 45 other GAO open recommendations that we will continue to work with your staff to address.

We are highlighting the following areas that warrant your timely and focused attention. Specifically:

Monitoring Program Costs and Execution. NASA needs to continue making progress on reducing acquisition risk and improving project cost and schedule performance for its most expensive and complex projects. We have been monitoring [NASA Acquisition Management](#) as a high-risk area since 1990. NASA has implemented efforts to improve the oversight and transparency of its major projects' costs and schedules, including the long-term costs of human space exploration programs. However, NASA continues to face challenges controlling cost growth and schedule delays for its category 1 projects, which are those that exceed \$2 billion in life-cycle costs. Category 1 projects have an outsized effect on NASA's portfolio if they experience cost and schedule growth. These include projects needed to conduct the Artemis missions that will return astronauts to the moon, build a sustainable lunar presence, and ultimately bring humans to Mars.

NASA also needs to improve transparency into Artemis mission and program costs. Specifically, NASA has not taken steps to create a life-cycle cost estimate for the Artemis III mission, as we recommended in December 2019.² This is important as NASA plans for this mission to return U.S. astronauts to the surface of the moon in 2027. A life-cycle cost estimate for this mission could provide transparency into the cost of the programs necessary to execute the mission. In September 2023, we reiterated the importance of our recommendation that NASA develop a life-cycle cost estimate for the Space Launch System (SLS) Block I rocket for missions beyond Artemis I. A life-cycle cost estimate for SLS Block I would provide Congress with insight into the

¹GAO considers a recommendation to be a priority if when implemented, it may significantly improve government operations, for example, by realizing large dollar savings; eliminating mismanagement, fraud, and abuse; or making progress toward addressing a high-risk or duplication issue.

²GAO, *NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing*, [GAO-20-68](#) (Washington, D.C.: Dec. 19, 2019).

program's affordability and facilitate investment decisions. Taking these actions will better position NASA as it plans to invest billions of dollars in the coming years in programs to support human spaceflight and exploration.

Using Federal Contracting Metrics. We found that the use of outcome-oriented performance metrics to manage procurement helps organizations determine whether they are achieving desired outcomes, such as reducing costs and improving performance.³ In July 2021, we recommended that NASA use a balanced set of performance metrics to manage the agency's procurement. Using such metrics to manage the agency's procurement organizations would position NASA to make more informed management decisions and potentially save millions of dollars.

Please see Enclosure 1 for additional details about the status and actions needed to fully implement the three open priority recommendations out of the 48 total recommendations that remain open.

We also provide in Enclosure 2 additional information on NASA's recommendation implementation rate and implemented, closed, and new priority recommendations since our June 2024 letter to Administrator Nelson; NASA information relevant to our audit of the consolidated financial statements of the U.S. government; and relevant management challenges from our high-risk list that apply to NASA. In response to legislation enacted in December 2022, this enclosure also includes information on any additional congressional oversight actions that can help agencies implement priority recommendations and address any underlying issues relating to such implementation.⁴

Copies of this letter are being sent to the appropriate congressional committees. The letter will also be available on the GAO website at [Priority Recommendations | U.S. GAO](#). We also plan to send a separate letter specifically focused on open recommendations and key issues related to information technology. This letter will be sent to your Chief Information Officer.

If you have any questions or would like to discuss any of the issues outlined in this letter, please do not hesitate to contact me or Timothy DiNapoli, Managing Director, Contracting and National Security Acquisitions, at dinapolit@gao.gov. Contact points for our offices of Congressional Relations and Public Affairs may be found on the last page of this letter. Our teams will continue

³GAO, *Federal Contracting: Senior Leaders Should Use Leading Companies' Key Practices to Improve Performance*, [GAO-21-491](#) (Washington, D.C.: July 27, 2021).

⁴James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Pub. L. No. 117-263, § 7211(a)(2), 136 Stat. 2395, 3668 (2022).

to coordinate with your staff on addressing these priority recommendations and the remaining 45 open recommendations. I appreciate NASA's continued commitment and thank you for your personal attention to these important issues.

Sincerely,

//SIGNED//

Gene L. Dodaro
Comptroller General
of the United States

Enclosures – 2

cc: Ms. Vanessa Wyche, Acting Associate Administrator, NASA

Ms. Lori Glaze, Acting Associate Administrator for Exploration Systems Development, NASA

Mr. Jeffrey Seaton, Chief Information Officer, NASA

Ms. Karla Smith Jackson, Senior Procurement Executive, Deputy Chief Acquisition Office, and Assistant Administrator for Procurement, NASA

Enclosure 1

Priority Open Recommendations to NASA

Monitoring Program Costs and Execution

NASA: Actions Needed to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs. [GAO-14-385](#). Washington, D.C.: May 8, 2014.

Year Recommendation Made: 2014

Recommendation: To provide the Congress with the necessary insight into program affordability, ensure its ability to effectively monitor total program costs and execution, and facilitate investment decisions, the NASA Administrator should direct the Human Exploration and Operations Mission Directorate to establish a separate cost and schedule baseline for work required to support the Space Launch System (SLS) Block I Exploration Mission-2 (EM-2) and report this information to the Congress through NASA's annual budget submission.⁵ If NASA decides to fly the SLS Block I beyond EM-2, NASA should establish separate life-cycle cost and schedule baseline estimates for those efforts, to include funding for operations and sustainment, and report this information annually to Congress via the agency's budget submission.

Actions Needed: NASA partially agreed with this recommendation. Officials stated that NASA defined and documented life-cycle costs for SLS to a first demonstrated capability, consistent with cost estimating best practices and NASA project and program management policy. In an August 2021 update to its program and project management policy, NASA changed the requirements for programs with an unspecified end point, like SLS. Specifically, NASA requires programs like SLS to establish a cost estimate for the initial capability and generate a 5-year operational cost estimate, with annual updates.

In spring 2022, the SLS program generated the first 5-year operational cost estimate, in accordance with policy. However, in September 2023, we found that the 5-year operational cost estimate did not track costs by Artemis mission, nor by recurring SLS production items, so it was a poor measure of cost performance over time.⁶ In spring 2024, NASA produced an annual update, and in July 2025, officials reiterated that the estimate included costs for Artemis II, among other things.

To fully implement this recommendation, NASA needs to provide additional detail in its cost estimates and take steps to provide this information to Congress. For example, NASA should identify the costs associated with the SLS Block 1, such as by Artemis II or III mission or production item and provide that to Congress. Taking these actions would provide Congress with insight into the program's affordability and facilitate investment decisions.

High-Risk Area: [NASA Acquisition Management](#)

Director: William Russell, Contracting and National Security Acquisitions

⁵EM-2 was renamed Artemis II when NASA renamed its efforts to return to the moon and eventually travel to Mars.

⁶GAO, *Space Launch System: Cost Transparency Needed to Monitor Program Affordability*, [GAO-23-105609](#) (Washington, D.C.: Sept. 7, 2023).

Contact Information: russellw@gao.gov

NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing. [GAO-20-68](#). Washington, D.C.: December 19, 2019.

Year Recommendation Made: 2020

Recommendation: The NASA Administrator should ensure that the NASA Associate Administrator for Human Exploration and Operations creates a life-cycle cost estimate for the Artemis III mission.

Actions Needed: NASA agreed with the recommendation. Officials stated that NASA would provide a preliminary cost estimate for the Artemis III mission by the end of calendar year 2020. However, NASA has not yet created this cost estimate. The officials stated that the agency would establish cost and schedule commitments for projects but not the overall mission. For example, in December 2023, NASA established cost and schedule commitments for the human landing system that will be used for the Artemis III mission.

In February 2025, NASA told us that the agency has implemented a range of management and reporting tools to ensure transparency and accountability at the mission level for all stakeholders but that imposing a flight-by-flight cost assessment as a benchmark on individual Artemis missions could potentially hinder the success, innovation, and long-term sustainability of space missions.

To fully implement this recommendation, NASA needs to develop a life-cycle cost estimate for the Artemis III lunar landing mission as a whole. Project cost commitments do not necessarily include the scope of work required for the Artemis III mission. For example, the Space Launch System baseline commitment included a cost estimate only for the Artemis I mission. As a result, there is no comprehensive Artemis III life-cycle cost estimate. Without an overall cost estimate for the Artemis III mission, decision makers have limited cost information to inform decisions on the overall lunar investment.

High-Risk Area: [NASA Acquisition Management](#)

Director: William Russell, Contracting and National Security Acquisitions

Contact Information: russellw@gao.gov

Using Federal Contracting Metrics

Federal Contracting: Senior Leaders Should Use Leading Companies' Key Practices to Improve Performance. [GAO-21-491](#). Washington, D.C.: July 27, 2021.

Year Recommendation Made: 2021

Recommendation: The NASA Administrator should ensure the NASA Senior Procurement Executive uses a balanced set of performance metrics to manage the agency's procurement organizations, including outcome-oriented metrics to measure (a) cost savings/avoidance, (b) timeliness of deliveries, (c) quality of deliverables, and (d) end-user satisfaction.

Action Needed: NASA agreed with the recommendation. In February 2022, the NASA Senior Procurement Executive shared plans to implement metrics in the future to measure (a) cost savings/avoidance, (b) timeliness of deliveries, and (c) quality of deliverables. In February 2023, NASA reported it developed an E-Business Systems Office within the Office of Procurement (OP) that is responsible for defining and managing data and creating a Procurement Dashboard, metrics, and analytical data tools, among other things. In May 2023, NASA provided evidence that it was using an outcome-oriented metric to measure end-user satisfaction, using among other sources of data, a quarterly procurement assessment of the OP by each of the NASA centers.

NASA's OP also provided an update on its efforts to collect data to measure cost savings/avoidance. In October 2024, the OP provided evidence that it began tracking cost savings/avoidance by calculating the differences between independent government cost estimates and the contract value by contract type and NASA centers. For the timeliness of deliveries and the quality of deliverable metrics, OP also showed it was using the Procurement Dashboard to assist in tracking and analyzing data from the Contractor Performance Reporting System. In December 2024, the OP provided additional documentation of the performance metrics that it collects, in which it tracks contractor's performance ratings, include quality of deliverables and schedule of deliveries.

To fully implement this recommendation, NASA will need to provide evidence that it has implemented all the performance metrics to manage the agency's procurement organizations. Using a balanced set of performance metrics, including both process- and outcome-oriented measures can help federal agencies identify improvement opportunities, set priorities, and allocate resources.

Potential Financial Benefit if Implemented: \$100 million or more annually.

Managing Director: Timothy J. DiNapoli, Contracting and National Security Acquisitions

Contact information: DiNapoliT@gao.gov

Enclosure 2

Key Information About the Status of GAO Recommendations and Improving Agency Operations

NASA's Recommendation Implementation Rate

In November 2024, we reported that, on a government-wide basis, 70 percent of our recommendations made 4 years ago were implemented.⁷ As of August 2025, NASA's recommendation implementation rate was 72 percent. NASA had 48 open recommendations.

Implemented, Closed, and New Priority Recommendations

Our June 2024 letter to Administrator Nelson identified five priority recommendations.⁸ Since then, NASA implemented two recommendations, and we did not add any new priority recommendations.

Implemented recommendations:

- NASA took steps to identify a range of missions for future SLS variants, as we recommended in July 2014. For example, in May 2022, NASA provided a draft document which aligns the SLS variants by mission through Artemis IX. NASA also plans to demonstrate the SLS Block 1B initial capability on the Artemis IV mission and the SLS Block 2 initial capability on the Artemis IX mission. In December 2023, NASA established new baseline for the Space Launch System (SLS) Block 1B capability upgrade. As of February 2025, according to project documentation, the agency plans to establish a cost and schedule baseline for the SLS Block 2 capability upgrade no earlier than mid-to-late 2027. As a result of these actions, NASA has a better understanding of how the upcoming SLS variants will support upcoming Artemis missions.
- In response to our September 2022 recommendation, NASA took steps to fully define and document the role of the senior agency official for privacy, or other designated privacy official, in reviewing and approving system categorizations, overseeing privacy control assessments, and reviewing authorization packages for information systems with personally identifiable information (PII). As of May 2025, NASA had provided evidence to show that it had addressed this recommendation. In particular, updated NASA policies and procedures specify that key privacy officials, such as the Chief Privacy Officer and Agency Privacy Managers, are responsible for reviewing system categorizations, and involved in reviews of control assessments and authorization packages for systems that include PII. By taking these steps, NASA has greater assurance that privacy protections are applied to systems with PII.

Financial Statement Audit

As the auditor of the consolidated financial statements of the U.S. government, I have noticed that NASA had one material weakness in its internal control over financial reporting for fiscal

⁷GAO, *Performance and Accountability Report, Fiscal Year 2024*, [GAO-25-900570](#) (Washington, D.C.: Nov. 15, 2024)

⁸GAO, *Priority Open Recommendations: National Aeronautics and Space Administration*, [GAO-24-107387](#) (Washington, D.C.: June 17, 2024).

year 2024 related to monitoring of controls. This weakness, as well as related auditor recommendations, is an important issue and I encourage you to address it.

High-Risk List

In February 2025, we issued our biennial update to our High-Risk List.⁹ This list identifies government operations with greater vulnerabilities to fraud, waste, abuse, and mismanagement. It also identifies the need for transformation to address economy, efficiency, or effectiveness challenges. One of our high-risk areas—NASA Acquisition Management—directly centers on NASA.

Several other government-wide, high-risk areas also have direct implications for NASA and its operations. These include [improving management of IT acquisitions and operations](#), [improving strategic human capital management](#) and [personnel security clearance process](#), [managing federal real property](#), and [ensuring the cybersecurity of the nation](#).

In addition to NASA's high-risk area, we urge your continued attention to the other government-wide, high-risk issues as they relate to NASA. Progress on high-risk issues has been possible through the concerted actions and efforts of Congress, the Office of Management and Budget (OMB), and the leadership and staff in agencies, including within NASA. In March 2022, we issued a report on key practices to successfully address high-risk areas, which can be a helpful resource as your agency continues to make progress to address high-risk issues.¹⁰

Congress's Role on GAO Recommendations

We also recognize the key role Congress plays in providing oversight and maintaining focus on our recommendations to ensure they are implemented and produce their desired results. Legislation enacted in December 2022 includes a provision for GAO to identify any additional congressional oversight actions that can help agencies implement priority recommendations and address any underlying issues relating to such implementation.¹¹

Congress can use various strategies to address our recommendations, such as incorporating them into legislation. Congress can also use its budget, appropriations, and oversight processes to incentivize executive branch agencies to act on our recommendations and monitor their progress. For example, Congress can hold hearings focused on NASA's progress in implementing GAO's priority recommendations, withhold funds when appropriate, or take other actions to provide incentives for agencies to act. Moreover, Congress can follow up during the appropriations process and request periodic updates.

Congress also plays a key role in addressing any underlying issues related to the implementation of these recommendations. For example, Congress can pass legislation

⁹GAO, *High-Risk Series: Heightened Attention Could Save Billions More and Improve Government Efficiency and Effectiveness*, [GAO-25-107743](#) (Washington, D.C.: Feb. 25, 2025).

¹⁰GAO, *High-Risk Series: Key Practices to Successfully Address High-Risk Areas and Remove Them from the List*, [GAO-22-105184](#) (Washington, D.C.: Mar. 3, 2022).

¹¹James M. Inhofe National Defense Authorization Act for Fiscal Year 2023, Pub. L. No. 117-263, § 7211(a)(2), 136 Stat. 2395, 3668 (2022); H.R. Rep. No. 117-389 (2022) (accompanying Legislative Branch Appropriations Act, H.R. 8237, 117th Cong. (2022)).

providing an agency explicit authority to implement a recommendation or requiring an agency to take certain actions to implement a recommendation.

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