NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

REPORT
PURSUANT TO
GOOD ACCOUNTING OBLIGATION IN GOVERNMENT ACT OF 2019
(P.L. 115-414)

As of February 28, 2021

Contents

NASA'S REQUIRED REPORTING UNDER THE GOOD ACCOUNTING OBLIGATION IN GOVERNMENT ACT (P.L. 115-414)

Background

In 2019, the President signed into law the "Good Accounting Obligation in Government Act" (the Act). The Act was envisioned to improve transparency into long-standing audit recommendations issued by the Government Accountability Office (GAO) and federal Office of Inspectors General (OIG). By requiring agency reporting on the lack of progress towards implementation, the Congress postulated that Federal agencies would be held more accountable and that the public can more readily assess agency funding requests in light of unfulfilled efficiency improvements that could potentially yield cost savings.

Section 2 of the Act imposes an affirmative requirement on Federal agencies to submit an annual report on publicly-issued GAO and OIG recommendations classified as "open" for more than one year from the date of the annual budget justification submission. Additionally, the Act also requires that agencies report on publicly-issued GAO recommendations which were determined to "closed but not implemented." For both categories of recommendations -- open, and closed but not implemented – Federal agencies are required to provide an explanation as to why final management action[1] has not yet been completed. Finally, the Act also requires agencies perform a reconciliation of discrepancies between recommendations reported by GAO and OIGs, and Federal agencies.

For purposes of NASA's FY2021 reporting under the Act, the following definitions are provided in order to enhance the utility and readability of this report:

- **Open:** Final management action is pending/in-progress (includes recommendations for which final management action has been completed, but auditor verification/validation is pending/in-progress)

- **Closed:** Final management action and corresponding auditor verification/validation completed

- **Closed/Not Implemented:** Recommendation has been closed, however final management action has been partially completed, not completed, or action(s) not recommended have been taken. (Applicable only to GAO recommendations).

[1] Final Management Action: The completion of all actions that the management of an establishment has concluded, in its management decision, are necessary with respect to the findings and recommendations included in an audit report; or, in the event that the management of an establishment concludes no action is necessary, final action occurs when a management decision has been made. Source: *Inspector General Act of 1978 (as amended).*

Summary

As of February 28, 2021, a combined total of 92 GAO and NASA OIG recommendations in 40 public reports were open for more than one year from the date of issuance. Of these 92 open recommendations, 41 recommendations were issued by GAO and 51 were issued by the NASA OIG (see Table 1).

The 41 GAO recommendations open more than one year were issued in 20 public reports during the period September 26, 2012 through December 19, 2019. While the 51 NASA OIG recommendations open more than one year were issued in 20 public reports during the period May 15, 2015 through November 14, 2019. Consequently, the effective reporting period covered by NASA's 2021 GAO-IG Act submission is September 26, 2012 through December 19, 2019.

For contextual purposes, during the period September 26, 2012 through December 19, 2019, GAO issued a total of 202 public and non-public reports containing 285 recommendations addressed to NASA. While the NASA OIG issued a total of 84 public and non-public reports containing 983 total recommendations addressed to NASA during the period May 15, 2015 through November 14, 2019.

Table 1

Open and Closed/Not Implemented Reports and Recommendations
As of February 28, 2021*

	Reports			Recommendations				
	Issued/Open			Issued/Open			Closed/Not Implemented	
Issuing Entity	Publicly Issued	Open > 1 Year	Pct.	Publicly Issued	Open > 1 Year	Pct.	Recs	Pct.
GAO	201	20	10%	208	41	20%	1	0%
OIG	69	20	29%	396	51	13%	n/a	n/a
Total	**270**	**40**	**15%**	**604**	**92**	**15%**	**1**	**0%**

* GAO Reports Issued: 9/26/2012 - 12/19/19
OIG Reports Issued: 5/15/2015 - 11/14/2019

GAO Public Reports and Recommendations

Open for More than One Year: As of February 28, 2021, a total of 41 GAO recommendations were open for more than one year from the date of issuance of the 20 corresponding public GAO reports. These 20 public reports and 41 corresponding recommendations were issued by GAO during the period September 26, 2012 through December 19, 2019 (see Table 2).

The 41 GAO public recommendations open for more than one year represent 20 percent of publicly issued GAO recommendations addressed to NASA during the period September 26, 2012 through December 19, 2019. Total (public and non-public) GAO reports and corresponding recommendations issued to NASA during the period September 26, 2012 through December 19, 2019 timeframe were 202 and 285, respectively. The 41 public GAO recommendations open for more than one year as of February 28, 2021, constitute 14 percent of the 285 combined (public and non-public) recommendations issued to NASA during the September 26, 2012 through December 19, 2019 timeframe.

Of the 41 public GAO recommendations open for more than one year as of February 29, 2021:

- 37 percent were open for more than one year but less than two years;
- 29 percent were open for more than two years but less than three years;
- 3 percent were open for more than three years but less than four years;
- 5 percent were open for more than four years but less than five years;
- 7 percent were open for more than five years but less than six years;
- 10 percent were open for more than six years but less than seven years;
- 2 percent were open for more than seven years but less than eight years; and,
- 7 percent were open for more than eight years but less than nine years.

Table 2

GAO Reports and Recommendations Open More than One Year
(As of 2/28/2021)

	Reports			Recommendations			
Type	Issued	Open >1 Year	Pct.	Issued	Open >1 Year	Pct.	Open > 1 Year (Pct. All Recs.)
Public	201	20	10%	208	41	20%	14%
Non-Public	1	0	0%	77	0	0%	0%
Total	**202**	**20**	**10%**	**285**	**41**	**14%**	**14%**

Implementation Status: Detailed implementation status with regard to the 41 GAO recommendations open for more than one year as of February 28, 2021, is provided in Appendix A of this report. NASA corrective actions have been completed with respect to 31 percent of these recommendations, while NASA corrective actions are in-progress with respect to 69 percent of these recommendations.

GAO Recommendation Closed but Not Implemented: Since the reporting date (November 30, 2019) of NASA's prior year submission under the GAO-IG Act, GAO has closed one recommendation labeled as "not implemented." This one "closed but not implemented" recommendation constitute zero percent of the 201 total recommendations addressed to NASA in 201 public GAO reports issued between the September 26, 2012 through December 19, 2019 timeframe. Details with respect to the GAO recommendation "closed but not implemented" during this reporting period are provided in Appendix B.

Reconciliation with GAO's Database of Open Recommendations: As of February 28, 2021, GAO's online database of recommendations reflected a total of 41 recommendations in 20 GAO public reports which were open for more than one year. These 41 recommendations in 20 reports coincide with the 41 recommendations in 20 GAO reports reflected in our reporting on GAO recommendations open for more than one year as reported above. As a result, there are no discrepancies requiring explanation between GAO reports and recommendations open for more than one year, as of February 28, 2021.

OIG Public Reports and Recommendations

Open for More than One Year: As of February 28, 2021, a total of 51 NASA OIG recommendations were open for more than one year from the date of issuance of the corresponding 20 publicly issued audit reports. These reports and recommendations were issued during the period May 15, 2015 through November 14, 2019 (see Table 3).

The 51 public NASA OIG recommendations open for more than one year represent 13 percent of the 396 recommendations issued in 69 NASA OIG public reports during the period May 15, 2015 through November 14, 2019. Furthermore, these 51 recommendations open for more than one year constitute five percent of the 983 total recommendations issued to NASA in 84 public and non-public OIG reports issued during the May 15, 2015 through November 14, 2019.

Table 3

OIG Reports and Recommendations Open More than One Year
(As of 2/28/2021)

	Reports			Recommendations			
Type	**Issued**	**Open >1 Year**	**Pct.**	**Issued**	**Open >1 Year**	**Pct.**	**Open >1 Year (Pct. of All Recs.)**
Public	69	20	29%	396	51	13%	5%
Non-Public	15	0	0%	587	3	1%	0%
Total	**84**	**20**	**29%**	**983**	**54**	**5%**	**5%**

Of the 51 NASA OIG recommendations open for more than one year as of February 28, 2021:

- 53 percent were open from between one and two years;
- 23 percent were open from between two and three years;
- 17 percent were open from between three and four years; and,
- 7 percent were open from between four and five years;

Implementation Status: Details on the implementation status of each of the 51 NASA OIG public recommendations open for more than one year as of February 28, 2021, are provided in Appendix C of this report. Of these 51 publicly issued NASA OIG recommendations, 59 percent are in the implementation phase with on-going NASA corrective actions still in-progress, while NASA corrective actions have been completed and are awaiting OIG closure decisions for 41 percent of these recommendations.

Reconciliation with NASA OIG Semi-Annual Report: In their September 30, 2020 Semi-Annual Report (SAR), the NASA OIG reported a total of 176 open recommendations in 41 public and non-public audit reports issued to NASA. Of the 41 reports reflected in the semi-annual report, six were not publicly released. Additionally, 14 reports and their corresponding 101 recommendations were open for less than one year as of the date of the OIG's September Semi-Annual Report. As a result, the net number of NASA OIG public reports and recommendations open for more than one year as of September 30, 2020 totaled 21 and 41, respectively (see Table 4).

During the period October 1, 2020 through February 28, 2021, 21 recommendations in three public NASA OIG audit reports were added to the inventory of recommendations open more than one year. Additionally, during this same timeframe a separate population of 11 NASA OIG recommendations issued in four reports were closed, based on responsive management action. Consequently, a total of 51 NASA OIG recommendations in 20 reports were open more than one year as of February 28, 2021.

Table 4

Reconciliation with OIG's September 30, 2020 Semi-Annual Report (As of 2/28/21)		
	Reports	**Recommendations**
Total Open Reports and Recommendations as of 9/30/20 [OIG Semi-Annual Report]	**41**	**176**
Minus: Non-Public Reports and Recommendations Included in OIG Semi- Annual Report	(6)	(34)
Minus: Public Reports and Recommendations Open Less than One Year	(14)	(101)
Net Public Reports and Recommendations Open More than One Year (as of 9/30/20)	**21**	**41**
Plus: Additional Public Reports and Recommendations Open More Than One Year (as of 10/1/20)	3	21
Minus: Public Reports and Recommendations Open More than One Year on 9/30/20 but Closed During 10/1/20 - 2/28/21	(4)	(11)
Total Public Reports and Recommendations Open More than One Year (as of 2/28/21)	**20**	**51**

Appendix A
GAO Recommendations Open More than One Year (Detail)

Actions Completed

1. **Report: Space Launch System - Resources Need to be Matched to Requirements to Decrease Risk and Support Long Term Affordability** (GAO-14-631; 7/23/2014)

   Recommendation: (4) To promote affordability, before finalizing acquisition plans for future capability variants, NASA should assess the full range of competition opportunities and provide to the Congress the agency's assessment of the extent to which development and production of future elements of the SLS could be competitively procured.

   Status: NASA Action Completed. NASA formalized documenting the process to develop and establish the NASA IT Strategic Plan.

   Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

   Target Completion Date: n/a

2. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

   Recommendation: (1) The Administrator should direct the Chief Information Officer to develop a fully documented IT strategic planning process, including methods by which the agency defines its IT needs and develops strategies, systems, and capabilities to meet those needs.

   Status: NASA Action Completed. NASA formalized documenting the process to develop and establish the NASA IT Strategic Plan.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

3. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

   Recommendation: (2) The Administrator should direct the Chief Information Officer to update the IT strategic plan for 2018 to 2021 and develop associated implementation plans to ensure it fully describes strategies the agency will use to achieve the desired results and descriptions of interdependencies within and across programs.

   Status: NASA Action Completed. NASA OCIO completed program plans for each of the six NASA IT programs. The program plans address Recommendation #2 by providing implementation plans that describe the business outcomes, strategies, major actions, and performance measures to achieve the desired outcomes of each program. These detailed IT implementation plans are more dynamic than the four-year NASA IT Strategic Plan and can be adjusted to accommodate tactical, technological, and operational changes. The program plans include descriptions of interdependencies within and across programs and linkage to the NASA IT Strategic Plan.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

4. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

   Recommendation: (4) The Administrator should direct the Chief Information Officer to institute an effective IT governance structure by completing planned improvement efforts and finalizing charters to fully establish IT governance boards, clearly defining roles and responsibilities for selecting and overseeing IT investments, and ensuring that the governance boards operate as intended.

   Status: NASA Action Completed. NASA OCIO has established the governing board charters for its program boards. The Agency Information Technology Council (ITC) and CIO Leadership Team (CLT) conducts annual reviews of their governing board operations.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

5. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

   Recommendation: (5) The Administrator should direct the Chief Information Officer to update policies and procedures for selecting investments to provide a structured process, including thresholds and criteria needed for, among other things, evaluating investment risks as part of governance board decision making, and outline a process for reselecting investments.

   Status: NASA Action Completed. NASA has provided guidance in the annual release of the NASA PPBE21 Strategic Planning Guidance (SPG). The SPG guidance includes the following, which address the audit findings: (1) Guidance on how to document and report the Agency's IT investment information; (2) additional guidance and requirements, for IT investment assessment, governance board consideration and fiscal planning; and (3) guidance and requirements surrounding the ITC review and approval of the Agency's IT portfolio investments as part of the PPBE IT Portfolio data collection process.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

6. **Report: NASA Information Technology: Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

   Recommendation: (9) The Administrator should direct the Chief Information Officer to establish an agency-wide approach to managing cybersecurity risk that includes an information security program plan that fully reflects the agency's IT security functions and services and agency-wide privacy controls for protecting information.

   Status: NASA Action Completed. In November 2018, the agency published the information security program plan, incorporating updates to NASA's approach to implementing information security program requirements related to the NIST SP 800-53 Revision 4 program management control family. NASA also reported that the agency had developed the plan in consultation with and concurrence from the Office of Management and Budget and that the plan reflected the current state of NASA's security and privacy functions, services, and agency common controls for protecting

information. Our review of the plan confirmed that the agency had addressed the weaknesses associated with this recommendation. Specifically, the plan described the majority of the security functions and services that are to be carried out by the Office of the Chief Information Officer's Cybersecurity and Privacy Division to address the relevant federal statutory and regulatory requirements, including managing the IT security program to correct known vulnerabilities, reduce barriers to cross-center collaboration, and provide cost-effective IT security services in support of NASA's information systems and Office of Federal CIO initiatives. The plan also identified the agency-wide privacy controls derived from standards promulgated pursuant to federal law and guidance that, according to the agency, were an integral part of its security program.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

7. **Report: Freedom of Information Act: Agencies Are Implementing Requirements but Additional Actions Are Needed** (GAO-18-365; 6/25/2018)

   Recommendation: (14) The Administrator of NASA should provide agency records of final opinions online.

   Status: NASA Action Completed. In July 2020, the Office of Communications provided GAO with additional evidence that explains that NASA is required to provide final options, reports, and other research findings online, via P.L. 111-314 and NASA's FOIA regulations. NASA has posted such reports and research findings on its website and will post final opinions, if issued. GAO review of corrective actions for closure is pending.

   Office of Primary Responsibility: Office of the Communications

   Target Completion Date: n/a

8. **Report: Information Technology: Agencies Need to Involve Chief Information Officers in Reviewing Billions of Dollars in Acquisitions** (GAO-18-42; 1/10/2018)

   Recommendation: (32) The Administrator of NASA should ensure that IT acquisition plans or strategies are reviewed and approved according to OMB guidance.

   Status: NASA Action. Completed. In November 2020, the OCIO provided additional evidence in support of closing this recommendation, however, GAO responded that would be selecting 3 new additional IT acquisitions for us to provide the form 1707 approval and documentation of the approval of the procurement in the system that is detailed in the Procurement Information Circular (PIC 18-01H). GAO review of corrective actions for closure is pending.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

9. **Report: NASA Commercial Crew Program - Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

   Recommendation: (2) The NASA Administrator should develop and maintain a contingency plan for ensuring a presence on the ISS until a Commercial Crew Program contractor is certified.

Status: NASA Action Completed. On 11/10/19, NASA certified the SpaceX Falcon/Dragon crew transportation system for operational missions to the ISS. In addition, NASA provided GAO supporting evidence of the official contractual document demonstrating successful satisfaction of the Agency Flight Readiness Review where the certification was granted. GAO review of corrective actions for closure is pending.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: n/a

10. **Report: NASA Commercial Crew Program: Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

Recommendation: (3) The NASA Administrator should direct the Chief Safety and Mission Assurance, the NASA Associate Administrator for Human Exploration and Operations, the Commercial Crew Program Manager and the Commercial Crew Program Contracting Officer to collectively determine and document before the agency certification review, how the agency will determine its risk tolerance level with respect to loss of crew.

Status: NASA Action Completed. NASA believes it has met the intent of this recommendation and indicated such in its 9/27/18 Statement of Actions in response to GAO's final report. The requirement to limit risk to loss of crew was documented in HEOMD CCTS Certification Requirements for NASA LEO Missions (HEOMD-CSD-10001), and the Agency's risk tolerance level was documented in the Decision Memorandum for the Administrator, "Agency's Safety Goals and Thresholds for the Crew Transportation Missions to the International Space Station (ISS)," dated May 17, 2011. The CCP will document the commercial system's ability to meet requirements through design and operational mitigations in its Human Rating Certification Package which will be finalized at the Agency certification reviews. If a commercial system cannot meet the requirement (or any other requirements), the program will request a waiver from NASA Headquarters as part of the Human Rating Certification process to ensure transparency and to continue emphasis of safety performance under its contracts. GAO review of corrective actions for closure is pending.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: n/a

11. **Report: Cybersecurity Workforce: Agencies Need to Accurately Categorize Positions to Effectively Identify Critical Staffing Needs** (GAO-19-144; 3/12/2019)

Recommendation: (23) Complete the identification and coding of vacant positions performing IT, cybersecurity or cyber-related functions.

Status: NASA Action Completed. During the recently completed workforce planning cycle NASA has identified 52 vacant cybersecurity positions, outlining organization title, grade, position number, series, etc. GAO review of corrective actions for closure is pending.

Office of Primary Responsibility: Office of the Chief Human Capital Officer

Target Completion Date: n/a

12. **Report: Data Center Optimization: Additional Agency Actions Needed to Meet OMB Goals (**GAO-19-241; 4/11/2019)

    Recommendation: (28) The Administrator of the National Aeronautics and Space Administration (NASA) should take action to meet the data center optimization metric targets established under DCOI by OMB.

    Status: NASA Action Completed. In February 2020, GAO informed the OCIO as follows: "The GAO-19-241 recs focused on agencies meeting their DCOI (closures, cost savings, and/or optimization metrics) targets. Given OMB's delay in issuing the new guidance and establishing FY 2019 targets, we expect to hold the recs open to evaluate FY 2020 implementation. Basically, given the short timeframe for OMB & agencies to establish and meet FY 2019 targets, we felt that we needed to evaluate sustained implementation of the recommendation." GAO's disposition of the recommendation is pending.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: n/a

13. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs (**GAO-19-377; 6/19/2019)

    Recommendation: (1) Ensure that the NASA Associate Administrator for the Human Exploration and Operations direct the SLS program to calculate its development cost growth using a baseline that is appropriately adjusted for scope and costs NASA has determined are not associated with the first flight and determine if the development cost growth has increases by 30% or more.

    Status: NASA Action Completed. Rebaselining decision memos have been approved and the Congressional notification has been completed. ESD provided GAO with supporting documentation through the GAO 103737 engagement on August 26, 2020. GAO's disposition of the recommendation is pending.

    Office of Primary Responsibility: Human Exploration and Operations Directorate

    Target Completion Date: n/a

14. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

    Recommendation: (5) Ensure that the NASA Associate Administrator for Human Exploration and Operations directs the Advanced Exploration Systems division to define and determine a schedule for synchronization reviews, including the role of the proposed Lunar Exploration Control Board, to help ensure that requirements between mission and program levels are reconciled.

    Status: NASA Action Completed. GAO's disposition of the recommendation is pending.

    Office of Primary Responsibility: Human Exploration and Operations Directorate

    Target Completion Date: n/a

Actions In-Progress

15. **Report: Enterprise Architecture Value Needs to be Measured and Reported** (GAO-12-791; 9/26/2012)

    Recommendation: (1) Fully establish an approach for measuring enterprise architecture outcomes, including a documented methodology and metrics that are measurable, meaningful, repeatable, consistent, actionable, and aligned with the agency's enterprise architecture's strategic goals and intended purpose.

    Status: In-Progress. The OCIO recently met with GAO and is gathering information to submit for closure. Anticipate sending a Request for Closure (RFC) by 12/31/2020.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 12/31/2021

16. **Report: Enterprise Architecture Value Needs to be Measured and Reported** (GAO-12-791; 9/26/2012)

    Recommendation: (2) Periodically measure and report enterprise architecture outcomes and benefits to top agency officials (i.e., executives with authority to commit resources or make changes to the program) and to OMB.

    Status: In-Progress. The OCIO is planning to meet with GAO soon to propose closing this older recommendation and offer to have a new audit processed once MAPP is complete.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 12/31/2021

17. **Report: Earned Value Management Implementation Across Major Spaceflight Projects Is Uneven** (GAO-13-22; 11/19/2012)

    Recommendation: (4) To improve the reliability of project EVM data, NPR 7120.5 should be modified to require projects to implement a formal surveillance program that: a) Ensures anomalies in contractor-delivered monthly earned value management reports are identified and explained, and report periodically to the mission directorate's leadership on relevant trends in the number of unexplained anomalies; b) Ensures consistent use of WBSs for both the EVM report and the schedule; c) Ensures that lower level EVM data reconcile to project level EVM data using the same WBS structure; and d) Improves underlying schedules so that they are properly sequenced using predecessor and successor dependencies and are free of constraints to the extent practicable so that the EVM baseline is reliable.

    Status: In-Progress. In December 2018, the Agency Program Management Council (APMC) approved a Corrective Action Plan (CAP) to Enhance EVM Implementation, which includes steps to put into operation formal EVMS surveillance. In February 2019, the EVM Steering Committee approved additional funding to execute the CAP initiative and begin implementation of formal EVMS surveillance. Partial funding was received and four EVM subject matter experts were hired to implement EVMS surveillance. Accomplishments include: 1) Developed an annual EVMS Surveillance Plan to include both in-house work scope and contracts; 2) All applicable contracts have

EVM surveillance "flow down" to DCMA; 3) Developed and implemented an approach to conduct EVM surveillance on in-house projects that requires projects to report EVM data anomalies to Mission Directorates and OCFO/SID and corrective action plans for resolution of any material issues. 4) Developed and implemented an approach to conduct EVM surveillance using NASA resources at the Applied Physics Laboratory (APL), Jet Propulsion Laboratory (JPL) and Southwest Research Institute (SwRI) where DCMA does not have an existing presence, and NASA is the cognizant federal agency for certification and ongoing surveillance. Next steps include: Improve EVM Assessments at the project level to include in-house work scope; 2) Continue roll-out of in-house EVMS surveillance; and 3) Revise NPR 712.05F to include the requirement for EVMS surveillance for projects with EVM requirement. For additional details on the NASA CAP Enhanced EVM initiative, go to NASA.gov at https://www.nasa.gov/sites/default/files/atoms/files/nasa_high_risk_corrective_action_plan_2018.pdf for more information.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: 9/30/2021

18. **Report: Information Technology: Additional OMB and Agency Actions Are Needed to Achieve Portfolio Savings** (GAO-14-65; 11/6/2013)

Recommendation: (1) Reflect 100 percent of information technology investments in the agency's enterprise architecture. (Report #35)

Status: In-Progress. The OCIO recently met with GAO and is gathering information to submit for closure. Anticipate sending RFC by 12/31/2021

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 12/31/2021.

19. **Report: NASA Actions Need to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs** (GAO-14-385; 5/8/2014)

Recommendation: (1) Establish a separate cost and schedule baseline for work required to support the SLS Block I EM-2 and report this information to the Congress through NASA's annual budget submission. If NASA decides to fly the SLS Block I beyond EM-2, 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.

Status: In-Progress. Over the past year, ESD has continued to make progress in addressing and implementing GAO recommendations. NASA does not intend to establish a separate cost and schedule baseline for work required to support EM-2 (now Artemis II) outside of the Orion Artemis II Agency Baseline Commitment (ABC) update. However, the Agency will establish ABCs including JCL analysis for ESD future major development efforts over $250M which will include SLS Block 1B EUS, Orion Docking System, and EGS ML-2 by September 2021, and ABCs for future qualifying developments will be established as appropriate. NASA continues to evaluate changes to its procedural requirements to better enable the necessary insight into program affordability and efficient monitoring of total program costs and execution for multi-year, multi-cadence type programs. The Agency recognizes the importance of transparency of costs and the need to lower ESD costs to be sustainable. NASA is focusing its sustainability approach on the transition of ESD production

contracts to commercial-based fixed-price activities with the potential for future competition. This and an Agency-led effort to update requirements for reporting status of multi-build programs will culminate in a change in Agency policy in this area. ESD has the data to track annual costs and report cost variances to operating plans which can be traced from year-to-year and will comply with Agency policy updates. ESD will continue to work with GAO to enhance the ability to report and trace program performance.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 9/30/2021

20. **Report: NASA Actions Need to Improve Transparency and Assess Long-Term Affordability of Human Exploration Programs** (GAO-14-385; 5/8/2014)

Recommendation: (2) Because NASA intends to use increased capabilities of the SLS, Orion and GSDO efforts well into the future and has chosen to estimate costs associated with achieving capabilities, establish separate cost and schedule baselines for each additional capability that encompass all life cycle costs, to include operations and sustainment. When NASA cannot fully specify costs due to lack of well-defined missions or flight manifests, forecast a cost estimate range – including life cycle costs – having minimum and maximum boundaries. These baselines or ranges should be reported to Congress annually via the agency's budget submission.

Status: In-Progress. NASA will establish ABCs including JCL analysis for ESD future major development efforts over $250M which will include SLS Block 1B EUS and associated capabilities, Orion Docking System, and EGS ML-2 by September 2021, and ABCs for future qualifying developments will be established as appropriate. ESD has the data to track annual costs and report cost variances to operating plans which can be traced from year-to-year and will comply with Agency policy updates. ESD will continue to work with GAO to enhance the ability to report and trace program performance.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 9/30/2021

21. **Report: Space Launch System - Resources Need to be Matched to Requirements to Decrease Risk and Support Long Term Affordability** (GAO-14-631; 7/23/2014)

Recommendation: (2) To provide decisionmakers with an informed basis for making investment decisions regarding the SLS program, NASA should identify a range of possible missions for each future SLS variant that includes cost and schedule estimates and plans for how those possible missions would fit within NASA's funding profile.

Status: In-Progress. NASA will establish ABCs including JCL analysis for ESD future major development efforts over $250M. NASA continues to evaluate changes to its procedural requirements to better enable the necessary insight into program affordability and efficient monitoring of total program costs and execution for multi-year, multi-cadence type programs. The Agency recognizes the importance of transparency of costs and the need to lower ESD costs to be sustainable. NASA is focusing its sustainability approach on the transition of ESD production contracts to commercial-based fixed-price activities with the potential for future competition. This and an Agency-led effort to update requirements for reporting status of multi-build programs will culminate

in a change in Agency policy in this area. ESD has the data to track annual costs and report cost variances to operating plans which can be traced from year-to-year and will comply with Agency policy updates. ESD will continue to work with GAO to enhance the ability to report and trace program performance.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 9/30/2021

22. **Report: Space Launch System - Resources Need to be Matched to Requirements to Decrease Risk and Support Long Term Affordability (**GAO-14-631; 7/23/2014)

Recommendation: (3) To allow for a continued assessment of progress and affordability, NASA should structure each future increment of SLS capability with a total cost exceeding the $250 million threshold for designation as a major project as a separate development project within the SLS program.

Status: In-Progress. NASA will establish ABCs including JCL analysis for ESD future major development efforts over $250M which will include SLS Block 1B EUS and associated capabilities by September 2021.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 9/30/2021

23. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services** (GAO-15-431; 5/21/2015)

Recommendation: (1) Ensure a complete inventory of mobile devices and associated services is established. Report recommendation #28

Status: In-Progress. The OCIO is working with the SME to gather updated evidence from all Centers in order to submit a complete, comprehensive RFC package.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 4/30/2021

24. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services** (GAO-15-431; 5/21/2015)

Recommendation: (2) A reliable inventory of mobile service contracts is developed and maintained. Report recommendation #29

Status: In-Progress. The OCIO is working with the SME to gather updated evidence from all Centers in order to submit a complete, comprehensive RFC package.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 4/30/2021

25. **Report: Telecommunications: Agencies Need Better Controls to Achieve Significant Savings on Mobile Devices and Services** (GAO-15-431; 5/21/2015)

    Recommendation: (3) Procedures to monitor and control spending are established Agency-wide. Specifically, ensure that: procedures include assessing devices for zero, under, and over usage; personnel with authority and responsibility for performing the procedures are identified; and the specific steps to be taken to perform the process are documented. Report recommendation #30.

    Status: In-Progress. The OCIO is working with the SME to gather updated evidence from all Centers in order to submit a complete, comprehensive RFC package.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 4/30/2021

26. **Report: Orion Multi-Purpose Crew Vehicle - Action Needed to Improve Viability into Cost Schedule, and Capacity to Resolve Technical Challenges** (GAO-16-620; 7/27/2016)

    Recommendation: (1) To provide the Congress and NASA a reliable estimate of program cost and schedule that are useful to support management and stakeholder decisions, GAO recommends the NASA Administrator direct the Orion program to perform an updated JCL analysis including updating cost and schedule estimates in adherence with cost and schedule estimating best practices.

    Status: In Progress. The Orion Program will perform a JCL analysis and update their cost/schedule for Artemis II (their ABC) at Key Decision Point-D, following updated NASA policy and in line with best practices. The analysis will be complete by the end of the third quarter of FY2022.

    Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

    Target Completion Date: 8/30/2022

27. **Report: Federal Chief Information Officers - Opportunities Exist to Improve Roles and Address Challenges to Authority** (GAO-16-686; 9/15/2016)

    Recommendation: (1) Define the Senior Agency Information Security Officer (SAISO) role in agency policy of contractor oversight system security for information systems that are operated by contractors on the Agency's behalf.

    Status: In-Progress. The OCIO has drafted the policy to define the SAISO role and is in the NASA Online Directive Information Systems (NODIS) review process and publish cycle.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 6/30/2021

28. **Report: NASA Information Technology - Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

    Recommendation: (6) The Administrator should direct the Chief Information Officer to address weaknesses in oversight practices and ensure routine oversight of all investments by taking action to

document criteria for escalating investments among governance boards and establish procedures for tracking corrective actions for underperforming investments.

Status: In-Progress. NASA developed and delivered a draft IT Investment Handbook during FY20 to encompass Capital Planning and Investment Controls (CPIC) focused on the IT Investment Fund. Before creating the initial baselined (signed) version of the document, NASA is piloting the process in FY21 for its IT modernization fund (called IT Investment Fund, or ITIF). NASA will incorporate lessons learned and feedback upon conclusion of the pilot, with the goal of baselining the IT Investment Handbook version 1.0 in late summer 2021.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 11/29/2021

29. **Report: NASA Information Technology - Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

    Recommendation: (7) The Administrator should sure that the Chief Information Officer fully defines policies and procedures for developing the portfolio criteria, creating the portfolio, and evaluating the portfolio.

    Status: In-Progress. The OCIO has submitted further evidence in support of closure to GAO.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 6/30/2021

30. **Report: NASA Information Technology - Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

    Recommendation: (8) The Administrator should direct the Chief Information Officer to establish an agency-wide approach to managing cybersecurity risk that includes a cybersecurity strategy that, among other things, makes explicit the agency's risk tolerance, accepted risk assessment methodologies, a process for consistently evaluating risk across the organization, response strategies and approaches for monitoring risk over time, and priorities for risk management investments.

    Status: In-Progress. Following recent OMB and CISA guidance and direction, OCIO is now developing a plan to complete an Agency Cybersecurity Risk Management Strategy. As part of this effort, OCIO will engage stakeholders from across the Agency to ensure perspectives from multiple organizational functions and levels are represented in the Agency's risk management strategy, and that it will contain the Agency's risk tolerance, accepted risk assessment methodologies, a process for consistently evaluating risk across the organization, response strategies and approaches for monitoring risk over time, and priorities for risk management investments.

    Office of Primary Responsibility: Office of the Chief Information Officer

    Target Completion Date: 8/31/2021

31. **Report: NASA Information Technology - Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

Recommendation: (10) The Administrator should direct the Chief Information Officer to establish an agency-wide approach to managing cybersecurity risk that includes policies and procedures with well-defined roles and responsibilities that are integrated and reflect NASA's current security practices and operating environment.

Status: In-Progress. The OCIO is working with outside consultants to map-out current policy processes to identify bottlenecks, gaps, and inefficiencies, and is working to overcome those issues. It engaged policy subject matter experts at the Nuclear Regulatory Agency, U.S. Air Force, and Department of Energy to benchmark those organizations' IT security policies, gain lessons-learned, and determine the best path forward for NASA. It is currently undertaking a rewrite of one of its key cybersecurity policies to better define the roles and responsibilities of information security officers and to ensure that all necessary functional roles are included, where appropriate. OCIO is using the Cybersecurity Risk Framework to guide the new format. Additionally, a Cybersecurity Integration Team, an effort consisting of key stakeholder offices from across NASA, is examining a number of policies used to implement cybersecurity across NASA projects. The team has identified gaps, and plans to propose solutions such as specific language to enhance definitions for roles and responsibilities and a framework through which all NASA organizations can ensure the appropriate functional considerations (e.g. budget, acquisition, risk management, etc.) are included in key cybersecurity policies from across the Agency, including those policies not written by OCIO. This will ensure that cybersecurity is considered in both policy and practice throughout all phases of a project's lifecycle.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 11/30/2021

32. **Report: NASA Commercial Crew Program - Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

Recommendation: (2) The NASA Administrator should develop and maintain a contingency plan for ensuring a presence on the ISS until a Commercial Crew Program contractor is certified.

Status: In-Progress. Lessons learned are being documented and collected by the program following the SpaceX Certification Review. This action was extended because of the decision to refly the Orbital Flight Test (OFT), which will push out Boeing's certification review.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 5/31/2021

33. **Report: Federal Chief Information Officers Critical Actions Needed to Address Shortcomings and Challenges in Implementing Responsibilities** (GAO-18-93; 8/2/2018)

Recommendation: (1) The Administrator of the National Aeronautics Space Administration should ensure that the department's IT management policies address the role of the CIO for key responsibilities in the 6 areas GAO identified.

Status: In-Progress. In February 2020, the OCIO submitted an RFC. In November 2020, the GAO informed the OCIO that only 4 areas out of 23 CIO responsibility gaps were met, 6 were partially met, and 13 were not met. The OCIO is currently working to provide updated information in support of closure.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 1/31/2022

34. **Report: Cybersecurity Workforce: Agencies Need to Accurately Categorize Positions to Effectively Identify Critical Staffing Needs** (GAO-19-144; 3/12/2019)

    Recommendation: (24) Take steps to review the assignment of the "000" code to any positions in the 2210 IT management occupation series, assign the appropriate NICE framework work role codes and assess the accuracy of the position descriptions.

    Status: In-Progress. NASA reviewed records of over 3300 employees. In addition to coding updates that have been incorporated in the normal course of business since the NICE coding update was issued, NASA effected just over 200 PD updates and personnel actions (effective 9/26/2020). NASA's NICE data is currently up to date in FPPS and EHRI.

    Office of Primary Responsibility: Office of the Chief Human Capital Officer

    Target Completion Date: 3/31/2021

35. **Report: Scientific Integrity Policies: Additional Actions Could Strengthen Integrity of Federal Research** (GAO-19-265; 4/4/2019)

    Recommendation: (1) The Administrator of NASA should develop documented procedures for identifying and addressing alleged violations of its scientific integrity policy.

    Status: In-Progress. The OCS has worked with the NASA Center Chief Scientists to develop a training course for NASA staff (scientists and engineers) on scientific integrity and misconduct. The course has been reviewed both internal to NASA by senior scientists and officials (including the Chief Scientist and his Deputy), and externally (by HHS and university faculty engaged in workplace/scientific ethics). In total ~40 people have taken the course and had provided feedback. That feedback has also been taken into in account and the course revised. The NASA science integrity course makes clear to NASA staff the definitions of scientific integrity, misconduct, and means of reporting – through the Center Chief Scientists (or their designees). The respective Chief Scientists are well aware of their roles and responsibilities vis-a-vis scientific integrity issues through their involvement in the course and the Agency Science Council presentations. The NASA course is expected to be fully deployed by the end of the 2020 calendar year.

    Office of Primary Responsibility: Office of the Chief Scientist

    Target Completion Date: 3/31/2021

36. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs** (GAO-19-377; 6/19/2019)

    Recommendation: (2) Ensure that the NASA Administrator for Human Exploration and Operations direct the Orion program to update its cost estimate to reflect its committed EM-2 baseline date of April 2023.

Status: In-Progress. The Orion Program will perform a JCL analysis and update their cost/schedule for Artemis II (their ABC) at Key Decision Point-D, following updated NASA policy and in line with best practices. The analysis will be complete by the end of the third quarter of FY2021.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 7/30/2021

37. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs** (GAO-19-377; 6/19/2019)

Recommendation: (3) The NASA Associate Administrator for Human Exploration and Operations direct the EGS program to demonstrate design maturity by completing 3D product modeling of the basic and functional design of the second Mobile Launcher prior to construction start.

Status: In-Progress. ML2 Contract was awarded on June 25, 2019, to Bechtel National, Inc. The contract requires the contractor to develop, maintain, and deliver to the Government all 3-D models for the overall integrated ML-2, standalone, and integrated subsystems designs, as well as any engineering required for construction and testing activities and that the contractor must develop design models using an integrated, multi-tiered, top-down approach. NASA requested closure of this recommendation in July 2019 after awarding the ML-2 contract. GAO's recommendations database indicates "It is too soon to assess the design maturity prior to construction start and we will provide updated information on actions NASA has taken at that time." NASA will continue to keep GAO informed on ML-2 progress through GAO's annual audits of the program.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 9/30/2021

38. **Report: NASA Human Space Exploration: Persistent Delays and Cost Growth Reinforce Concerns Over Management of Programs** (GAO-19-377; 6/19/2019)

Recommendation: (4) Ensure that the AA/HEOMD direct the SLS and Orion programs to reevaluate their strategies for incentivizing contractors and determine whether they could more effectively incentivize contractors to achieve the outcomes intended as part of ongoing and planned contract negotiations.

Status: In-Progress. NASA continues to evaluate acquisition strategies and contract approaches to identify efficiencies, cost reduction initiatives, and implementation of lessons learned. The Orion program has awarded a long-term contract for production of the Orion spacecraft that incorporates new strategies intended to reduce contract costs. The SLS program is in the process of negotiating long term production contracts for required hardware that incorporate new strategies intended to reduce contract costs. Major contract procurement actions for SLS Program are ongoing in FY21, and NASA will provide GAO with contract data when negotiations are completed.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 12/31/2021

39. **Report: Cybersecurity: Agencies Need to Fully Establish Risk Management Programs and Address Challenges** (GAO-19-384; 7/25/2019)

Recommendation: (1) Update the agency's policies to address an organization-wide risk assessment and the use of risk assessments to inform plan of action and milestones (POA&M) prioritization.

Status: In-Progress. Cybersecurity Integration Team (CIT) is examining a number of policies used to implement cybersecurity across NASA projects. It has identified gaps, and plans to propose solutions such as specific language to enhance definitions for roles and responsibilities and a framework through which all NASA organizations can ensure the appropriate functional considerations (e.g. budget, acquisition, risk management, etc.) are included in key cybersecurity policies from across the Agency, including those policies not written by OCIO. This will ensure that cybersecurity is considered in both policy and practice throughout all phases of a project's lifecycle. Final management actions are nearing completion and are expected to be concluded by the target completion date.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 9/30/2021

40. **Report: Cybersecurity: Agencies Need to Fully Establish Risk Management Programs and Address Challenges** (GAO-19-384; 7/25/2019)

Recommendation: (2) Establish a process for conducting an organization-wide cybersecurity risk assessment. Recommendation #47 in the GAO final report.

Status: In-Progress. NASA is taking steps to manage enterprise cybersecurity risk by implementing the Department of Homeland Security's Continuous Diagnostics and Mitigation (CDM) tools. Deployed across all networks, these tools give NASA the ability to monitor system-level risk information and aggregate this data from systems and components into an agency-wide dashboard and scorecard. Additionally, NASA deployed its Risk Information Security Compliance System (RISCS) to centralize the reporting on assessments and authorization status of all agency systems, including POA&Ms. Risk and vulnerability information is consolidated in RISCS for Information System Owners and Authorizing Officials to monitor. This enables system risk to be identified, monitored, and managed both at the system level and reported across the organization for senior management review at the enterprise. Moving forward, NASA is continuing to enhance its risk management strategy through stakeholder engagement across the system, business/mission and executive levels of the organization, making use of findings from the CIT, and capabilities made possible through CDM. Final management actions are nearing completion and are expected to be finalized in late 2021.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 9/30/2021

41. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

Recommendation: (1) Ensure that the NASA Associate Administrator for Human Exploration and Operations directs the Advanced Exploration Systems division to define and determine a schedule for synchronization reviews, including the role of the proposed Lunar Exploration Control Board, to help ensure that requirements between mission and program levels are reconciled.

Status: In-Progress. The AES Control Board charter is under final review and expected to be baselined in March 2021. The Exploration Mission Analysis Cycle (EMAC), which is the cross-program analysis forum to assure mission requirements and program capabilities are aligned for the Artemis missions, is already in place, with Artemis III's EMAC 3.1 kickoff having occurred on March 4, 2021, and the plan for the subsequent EMACs already laid out. The AES integration system review which will include baselining integration products including the AES Implementation Plan is planned for August 2021.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 9/30/2021

42. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

Recommendation: (2) Ensure that the NASA Associate Administrator for Human Exploration and Operations directs the Gateway program to conduct a joint cost and schedule and confidence level at the program level for the Artemis III mission.

Status: In-Progress. Gateway updated the Program's approach for cost and schedule commitments, that it will be at the Gateway initial capability level and will be informed by joint cost and schedule confidence level analyses, in January 2021. This approach was endorsed by the Agency's Program/Project Management Board and approved by the NASA AA. In accordance, Gateway will perform a Joint Cost and Schedule Confidence level assessment for the Gateway Initial Capability (PPE/HALO) prior to KDP-1.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 11/30/2021

43. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

Recommendation: (3) Ensure that the NASA Associate for Human Exploration and Operations directs the Gateway program to update its overall schedule for 2024 and add a KDP II before system integration.

Status: In-Progress. The process to prepare for KDP-0 includes the conduction and review by the SRB of the Program Schedule Risk Assessment which will form the initial schedule estimate for Gateway Initial Capability established at KDP-0. A formal Agency Baseline Commitment for the Gateway Initial Capability key schedule milestone will be made at KDP-1.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 10/31/2021

44. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

Recommendation: (4) Ensure that the NASA Associate Administrator for Human Exploration and Operations creates a life-cycle cost estimate fir the Artemis III mission.

Status: In-Progress. HLS will establish their Agency Baseline Commitment at an Agency KDP, currently no later than 8 months after the exercise of Option A and the corresponding contractor data availability. Gateway will establish their initial capability Agency Baseline Commitment at KDP-1. Exploration Systems Development contracts that include support for Artemis III are either on contract or on letter contracts/undefinitized contract actions. NASA anticipates that all ESD contracts will be finalized by end of CY 2021.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 11/30/2021

45. **Report: NASA Lunar Programs: Opportunities Exist to Strengthen Analyses and Plans for Moon Landing** (GAO-20-68; 12/19/2019)

Recommendation: (6) Ensure that the Office of Chief Engineer determine under what conditions it is appropriate to complete an analysis of alternatives, particularly when there are multiple pathways - including architectures or programs -that NASA could pursue in the future , and document the justification for not completing an analysis.

Status: In-Progress. NASA is taking steps to manage enterprise cybersecurity risk by implementing the Department of Homeland Security's Continuous Diagnostics and Mitigation (CDM) tools. Deployed across all networks, these tools give NASA the ability to monitor system-level risk information and aggregate this data from systems and components into an agency-wide dashboard and scorecard. Additionally, NASA deployed its Risk Information Security Compliance System (RISCS) to centralize the reporting on assessments and authorization status of all agency systems, including POA&Ms. Risk and vulnerability information is consolidated in RISCS for Information System Owners and Authorizing Officials to monitor. This enables system risk to be identified, monitored, and managed both at the system level and reported across the organization for senior management review at the enterprise. Moving forward, NASA is continuing to enhance its risk management strategy through stakeholder engagement across the system, business/mission and executive levels of the organization, making use of findings from the CIT, and capabilities made possible through CDM. Final management actions are nearing completion and are expected to be finalized in late 2021.

Office of Primary Responsibility: Office of the Chief Engineer

Target Completion Date: 9/30/2021

Non-Concurrences

46. **Report: NASA Information Technology - Urgent Action Needed to Address Significant Management and Cybersecurity Weaknesses** (GAO-18-337; 5/22/2018)

Recommendation: (3) The Administrator should direct the Chief Information Officer address, in conjunction with the Chief Human Capital Officer, gaps in IT workforce planning by fully implementing the eight key IT workforce planning activities noted in this report.

Status: Non-Concur. NASA is conducting a comprehensive, Agency-wide assessment that is designed to ensure that NASA resources are optimally structured to achieve the NASA mission. The first piece of this assessment is the Mission Support Future Architecture Program which aims at re-

aligning mission support functions from a decentralized model to an enterprise model. The OCIO is in the beginning phases of this realignment with estimated completion in FY22. Additionally, the 2018 Strategic Workforce Planning (SWP) project directed the creation of an Agency Workforce Master Plan that: a) Estimates workforce needs five plus years into the future and defines the size and composition of the NASA workforce needed to meet future mission requirements; b) Includes civil service, contractors, and other workforce segments; c) Includes both mission direct and mission support workforce; and e) Considers external changes, program lifecycle evolution (e.g., future of ISS, Gateway etc.), current Agency demographics, and other environmental or internally-driven factors (e.g. MAP) that impact the workforce. The data collection phase of the SWP project has been completed and the Agency is currently analyzing the data to glean insights and make recommendations.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

47. **Report: Cybersecurity Workforce - Agencies Need to Improve Baseline Assessments and Procedures for Coding Positions** (GAO-18-466; 6/14/2018)

Recommendation: (1) The Administrator of the National Aeronautics and Space Administration should evaluate the level of preparedness for cybersecurity personnel not currently holding professional certifications to take certification exams and report this information to Congress.

Status: Non-Concur. NASA non-concurred with GAO's recommendation, citing the fact that there is currently no federal or Agency requirement for employees in cybersecurity positions to hold and/or maintain a professional certification. Without this requirement, there is no plan to assess readiness of cybersecurity personnel to take certification exams. NASA provided the initial assessment to Congress in December 2016 and does not plan to repeat the assessment at this time.

Office of Primary Responsibility: Office of the Chief Human Capital Officer

Target Completion Date: n/a

48. **Report: NASA Commercial Crew Program - Plan Needed to Ensure Uninterrupted Access to the International Space Station** (GAO-18-476; 7/11/2018)

Recommendation: (1) The NASA Administrator for Human Exploration and Operations should direct the Commercial Crew Program to include the results of its schedule risk analysis in its mandatory quarterly reports to Congress.

Status: Non-Concur. NASA non-concurred with GAO's recommendation. NASA provides quarterly Congressional reports in accordance with the Explanatory Statement accompanying the Fiscal Year 2015 Consolidated and Further Continuing Appropriations Act (P.L. 113-235) which includes a NASA qualitative statement regarding milestone schedules. However, NASA is assessing its schedule process and frequency for releasing flight test and post-certification mission dates to provide the latest schedules as timely as practicable.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: n/a

Appendix B
OIG Recommendations Open More Than One Year (Detail)

Actions Completed

1. **Report: NASA's Management of Crew Transportation to the International Space Station** (IG-20-005; 11/14/2019)

   Recommendation: (5) Continue to ensure the purchase of future commercial space services complies with government contracting regulations.

   Status: NASA Action Completed. Supporting documentation was submitted to the OIG on October 15, 2020. OIG disposition is pending.

   Office of Primary Responsibility: Human Exploration and Operations Directorate

   Target Completion Date: n/a

Appendix C
OIG Recommendations Open More Than One Year (Detail)

Actions Completed

1. **Report: NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2014** (IG-15-015; 5/15/2015)

   Recommendation: (5) Include cost-type contract payments in the Agency's recapture audit efforts. If NASA determines this proposal is not cost-effective, the CFO should document its justification for excluding these payments, including demonstrating that costs associated with recovering the funds are projected to be greater than the amount recovered.

   Status: NASA Action Completed. Corrective Actions were completed on 2/1/2021. OIG review/consideration of the adequacy of corrective actions for closure will occur in conjunction with the OIG's FY21 IPIA Audit scheduled for completion in the May 2021 time frame.

   Office of Primary Responsibility: Office of the Chief Financial Officer

   Target Completion Date: n/a

2. **Report: NASA's Response to Orbital's October 2014 Launch Failure: Impacts on Commercial Resupply of the International Space Station** (IG-15-023; 9/17/2015)

   Recommendation: (7) Consider whether contract provisions relating to the boards should be revised to more closely align with NASA Mishap Investigation Board procedures (NASA Procedural Requirement 8621.1B, Chapter 4).

   Status: NASA Action Completed. Corrective Actions were completed on 1/25/2021. All three Cargo Resupply Services 2 (CRS2) providers have had their contracts modified to implement NPR 8621.1 Rev. D

   Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

   Target Completion Date: n/a

3. **Report: NASA's Management of Spare Parts for its Flight Projects** (IG-18-001; 10/5/2017)

   Recommendation: (3) Develop a standardized cataloging process for OSCAR to ensure NASA program and project officials can effectively identify and reserve compatible flight inventory.

   Status: NASA Action Completed. Corrective Actions were completed on 12/17/2020. OIG review of actions taken in support of closure is underway.

   Office of Primary Responsibility: Office of Strategic Infrastructure

   Target Completion Date: n/a

4. **Report: NASA's Management of Spare Parts for its Flight Projects** (IG-18-001; 10/5/2017)

Recommendation: (5) Work with Center logistics officials to develop alternative approaches to ensure Centers can meet the requirement to conduct complete reviews of spare parts inventories every 5 years.

Status: NASA Action Completed. Corrective Actions were completed on 12/17/2020. OIG review of actions taken in support of closure is underway.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: n/a

5. **Report: NASA's Management of the Goddard Institute for Space Studies** (IG-18-015; 4/5/2018)

   Recommendation: (4) Hire a senior administrator to serve as a Deputy Chief of GISS for Administration to manage the Institute's grants, cooperative agreements, personnel, and procurement actions.

   Status: NASA Action Completed. Corrective Actions were completed on 4/27/2020.

   Office of Primary Responsibility: Goddard Space Flight Center

   Target Completion Date: n/a

6. **Report: Audit of Commercial Resupply Services to the International Space Station** (IG-18-016; 4/26/2018)

   Recommendation: (5) The Associate Administrator for Human Exploration and Operations Mission Directorate ensure the ISS Program: decides by January 2020 whether to compete task orders beyond the minimum guarantee of six for each contractor through the existing contract or through the On-Ramp clause.

   Status: NASA Action Completed. Corrective Actions were completed on 1/15/2021. HEOMD Associate Administrator and ISS Program Manager met to discuss the plan for additional CRS2 missions and agreed to compete among the existing CRS2 contractors for CY23 missions. Subsequently, a Request For Task Order Proposal (RFTOP) was issued to the CRS2 contractors, and CY23 missions have been awarded. OIG review of actions taken in support of closure is underway.

   Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

   Target Completion Date: n/a

7. **Report: Audit of NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2017** (IG-18-017; 5/14/2018)

   Recommendation: (3) Develop a process for tracking overpayments identified and subsequently recovered through reductions in future billings on existing contracts such as contract credits.

   Status: NASA Action Completed. Corrective Actions were completed on 2/2/2021. OIG review/consideration of the adequacy of corrective actions for closure will occur in conjunction with the OIG's FY21 IPIA Audit scheduled for completion in the May 2021 time frame.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: n/a

8. **Report: Audit of NASA's Information Technology Supply Chain Risk Management Efforts** (IG-18-019; 5/24/2018)

   Recommendation: (2) Ensure NASA's assessed and cleared listing (ACL) is updated weekly and that it contains a selection of cleared IT and communications products and services sufficient to meet Agency needs.

   Status: NASA Action Completed. Corrective Actions were completed on 12/22/2020. The OCIO currently performs a review and update of the ACL weekly. Additionally, OCIO implemented additional capabilities through the Risk Information Security and Compliance System (RISCS) that will further automate the ACL.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

9. **Report: Audit of NASA's Information Technology Supply Chain Risk Management Efforts** (IG-18-019; 5/24/2018)

   Recommendation: (7) Direct all NASA Centers, Mission Directorates, and Program/Project Offices to review and strengthen their current supply chain risk management efforts to ensure only assessed and cleared IT and communications products and services enter the Agency's supply chain.

   Status: NASA Action Completed. Corrective actions were completed on 12/22/2020. NPD 2800.1, "Managing Information Technology" was updated to version "E" December 19, 2019 with an expiration date of December 9, 2024, in order to strengthen current SCRM efforts. NASA developed supply chain controls and processes in the NASA Risk Information Security and Compliance Systems (RISCS) to enable the NASA community to document, assess, and track SCRM activities.

   Office of Primary Responsibility: Office of the Chief Information Officer

   Target Completion Date: n/a

10. **Report: Audit of NASA's Security Operations Center** (IG-18-020; 5/23/2018)

    Recommendation: (1) The Agency CIO develop a charter and set of authorities signed by the NASA constituent executives (including the NASA Administrator) that addresses the SOC's organizational placement, purpose, authority, and responsibilities.

    Status: NASA Action Completed. The OCIO has completed a Charter for the Security Operations Center (SOC) that defines the scope, responsibilities, authorities, reporting requirements, organizational placement, oversight and general operating guidance for the NASA Security Operations Center (SOC). Per the Federal Information Security Modernization Act (FISMA), the head of each Agency shall delegate to the Agency CIO the authority to ensure compliance with the requirements imposed on the Agency under FISMA. Further, the CIO shall designate a Senior Agency Information Security Officer (SAISO), who shall carry out the CIO's responsibilities under FISMA, such as developing and maintaining an Agency-wide information security program and

ensuring that all personnel are held accountable for complying with this Agency-wide information security program. The "A-Suite" is in agreement with the OCIO's approach to this Charter for the SOC. OIG review of actions taken in support of closure is underway

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

11. **Report: Audit of NASA's Security Operations Center** (IG-18-020; 5/23/2018)

Recommendation: (2) The Agency CIO, in conjunction with the SAISO, establish Operational Level Agreements with NASA Centers, Mission Directorates, the Communications Services Office, the End User Services Office, the Agency Applications Office, and Web Services Office to clearly define incident response roles and responsibilities, ensure data storage and sharing needs are addressed, and opportunities to leverage economies of scale are identified and acted upon in support of Agency cybersecurity goals. The agreements should include (but not be limited to) the following issues: a) responsibilities of signing parties; b) data visibility, sharing, storage, and logging requirements; c) change management plan; d) communications plan; e) an explanation detailing the technology deployments necessary to support the agreement; and f) service levels expected detailing the service benefit to both parties in line with Agency goals.

Status: NASA Action Completed. The OCIO has finalized the Operational Level Agreements and Service Level Agreements the following: (1) CSI-SOC-CP Operational Level Agreement between CyberSecurity Infrastructure (CSI)and the NASA Security Operations Center (SOC), services of the Office of Cybersecurity Services (OCSS), and the Communications Program (CP) for operation and support of network infrastructure services and requested assistance for security incident response; (2) CSI-SOC Operational Level Agreement between the CyberSecurity Infrastructure (CSI), and the NASA Security Operations Center (SOC), services of the Office of Cybersecurity Services (OCSS), for the operations, maintenance and system management of the CSI-maintained infrastructure, applications, and tools used by NASA SOC Operations for data collection, analysis, reporting, incident response, and investigation; (3) CSI-ARC Equipment Support agreement between the AMES Research Center (ARC) and the CyberSecurity Infrastructure (CSI) team and covers on-site infrastructure support in the event of a component failure to ensure appropriate response time are met and service restoration times are minimized when services become unavailable; (4) CSI-MSFC Archival Site; (5) EUSO-SOC Operational Support Agreement between the NASA Security Operations Center (SOC), a service of the Office of CyberSecurity Services (OCSS), and the End User Services Program Office (EUSO) to define the partnerships in the areas of Electronic Mail Services, System Administration, and Incident Response; and, (6) OCSS-SLA-006 SOC Services official Service Level Agreement (SLA) between the 'service provider,' NASA's Security Operations Center (SOC), and the Office of CyberSecurity Services (OCSS), supporting the Cybersecurity & Privacy Division (CSPD). NASA SOC agrees to deliver the services defined in Section 3 and will meet the service level targets, measurements, and responsibilities defined within this agreement. The OCSS, in combination with the CSPD, will provide financial support to NASA SOC in acquiring the necessary resources and tools needed to execute service level elements and targets, and will ensure that the services offered represent the best interest of our NASA end users.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

12. **Report:** Audit of NASA's Security Operations Center (IG-18-020; 5/23/2018)

Recommendation: (6) The Agency CIO identify and reduce unnecessary duplication of the incident monitoring, detection, and response capabilities, including toolsets and competencies available Agency-wide to enhance the capabilities and resources of the SOC and realize efficiencies in the management of these capabilities.

Status: NASA Action Completed. Corrective Actions were completed on 8/4/2020. The OCIO has identified the requirements for cyber incident monitoring, detection and response services across the Agency. Based on these requirements, the OCIO assessed duplication of services and provided recommendations to the Agency CIO.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: n/a

13. **Report: Audit of NASA's Management and Utilization of the International Space Station** (IG-18-021; 7/30/2018)

Recommendation: (4) Complete all end of mission critical systems and open work related to nominal and contingency deorbit operations.

Status: NASA Action Complete. Corrective Actions were completed on 1/19/2021. The ISS Program has developed SSP 51066 "ISS Deorbit Strategy and Contingency Action Plan" in cooperation with our International Partners to document the proposed ISS nominal and contingency deorbit strategy. This document outlines the remaining open work necessary to accomplish the desired nominal deorbit footprint. As the ISS configuration continues to evolve with the addition of new NASA hardware, commercial modules, commercial vehicles, and Russian modules, SSP 51066 and associated open work items will evolve along with it.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: n/a

14. **Report: Audit of NASA's Management and Utilization of the International Space Station** (IG-18-021;7/30/2018)

Recommendation: (5) Develop options for obtaining supplemental emergency deorbit propellant support from U.S. commercial vehicles.

Status: NASA Action Complete. Corrective Actions were completed on 1/19/2021. NASA, in cooperation with Northrup Grumman, performed a successful Cygnus DTO in late 2018 demonstrating the vehicle's capability to provide re-boost to ISS from the Node 1 nadir port. NASA has completed CDR for Cygnus re-boosts, and a CR is currently in work for Cygnus vehicle to being providing regular delta-V (dV) capability to ISS starting in 2022. U.S. commercial vehicles providing dV to ISS reduces the need to use propellant from FGB and SM, helping keep ISS propellant tanks full during the upcoming Solar Cycle peak and in the event of any contingency scenarios that might cause premature ISS deorbit.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: n/a

15. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

    Recommendation: (4) To improve the management of Columbia and Challenger artifacts, the OIG recommends the Kennedy Space Center Director: Ensure agreements are signed, appropriately updated, and include all necessary loan terms, including a security plan developed by the borrower and reviewed by the Center's Office of Protective Services prior to property transfer.

    Status: NASA Actions Completed. Corrective Actions were completed on 1/10/2021. KSC's, Spaceport and Integration Services Directorate has the primary responsibility, ensures appropriate inventory management of the Columbia and Challenger debris to include appropriate loans actions. Kennedy NASA Procedural Requirements 8621.1B, which governs the management of Columbia and Challenger debris, will be updated in accordance with NASA Procedural Requirements (NPR) 4200.1H, NASA Equipment Management Procedural Requirements and NPR 4300.1C, NASA Personal Property Disposal Procedural Requirements.

    Office of Primary Responsibility: Office of Communications

    Target Completion Date: 6/30/2021

16. **Report: NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2018** (IG-19-020; 6/3/2019)

    Recommendation: (1) Revise existing policies and procedures for reporting overpayments identified and recaptured from sources outside of the payment recapture audit by documenting the processes developed to gather, track, and report improper payments recaptured through credits on future billings and sustained questioned direct costs from post-award audits.

    Status: NASA Action Completed. Corrective Actions were completed 2/2/2021. NASA revised the existing Payment Recapture Audit Program Administration Guidance manual to include instructions on how to report improper payments as it relates to future billing credits. The updated procedures where provided to OIG as PBC 26 entitled: Recapture: Updated policies and procedures that include process for identifying overpayments from future billing credits addressing IG-19-020, Recommendation 1. OIG review of actions taken in support of closure is underway.

    Office of Primary Responsibility: Office of the Chief Financial Officer

    Target Completion Date: n/a

17. **Report: NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2018** (IG-19-020; 6/3/2019)

    Recommendation: (2) Provide training to those organizations or individuals responsible for reporting overpayments from future billing credits and sustained questioned direct costs from post-award audits to ensure they are aware of NASA's reporting requirements and their responsibility for tracking the information and communicating it to OCFO, including specific details of the information to be reported and the format it should be reported.

    Status: NASA Action Completed. Corrective Actions were completed on 2/2/2021. NASA extended its review of Overpayments Outside the Recapture Audit by creating a new AP report to analyze contract credits. NASA provided training to those organizations or individuals responsible

for reporting overpayments from future billing credits utilizing the new AP report. Training slides were provided to OIG as PBC item 25 entitled: Recapture: Training slides for New Recapture Process- Overpayments from future billing credits addressing IG-19-020, Recommendation 2. OIG review of actions taken in support of closure is underway.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: n/a

18. **Report: NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2018** (IG-19-020; 6/3/2019)

Recommendation: (3) Enhance the annual payment recapture training provided to the Centers with a focus on what constitutes an improper payment and how to improve the accuracy of their reporting. Potential topics include, but are not limited to: a. definition of an improper payment; b. sufficiency of explanations for transactions excluded from reporting; c. types of overpayments experienced by each of the Centers and whether the Centers consider the transactions reportable as improper payments; and, d. specific transactions that appear often in the system query (e.g., reestablishing receivables for debt previously written off) and how they should be treated.

Status: NASA Action Completed. Corrective Actions were completed on 1/30/2020. NASA enhanced the FY19 Recapture Audit training to include all of the OIG recommendations.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: n/a

19. **Report: NASA's Security Management Practices** (IG-20-001; 10/21/2019)

Recommendation: (2) Standardize and streamline the facility security assessment process across the Agency to increase efficiency and inform decision making.

Status: In-Progress. The administrative update to NPR 1620.2A has been completed and posted to NODIS. However, due to the Mission Support Council (MSC) decision of August 2, 2019 (Physical Security Carve-out) which caused a strategic pause in all Office of Protective Services (OPS) Mission Support Future Architecture Program (MAP) efforts until its rescission by MSC Decision on November 6, 2019 (Approval of OPS MAP Implementation Approach), our office's presentation to the MSC of Key Decision Point C (KDP-C) is now scheduled to occur May 13, 2020. Due to the cause-and-effect elements brought about by the pause in OPS MAP programmatic execution, the formal update to NPR 1620.2A is now anticipated to be out for review by late 4th Quarter of CY2020 or early 1st Quarter of CY2021. This delays the NODIS review process and NASA now anticipates approval of the NPR update by March 31, 2021.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 3/31/2021

20. **Report: Review of NASA's Fiscal Year 2019 Digital Accountability and Transparency Act Submission** (IG-20-004; 11/7/2019)

Recommendation: (2) Incorporate a procedure into the existing Verification and Validation process to verify that procurement data is entered into FPDS-NG within three business days after contract award.

Status: NASA Actions Complete. Corrective Actions were completed on 11/23/2020. OIG review of actions taken in support of closure is underway.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: n/a

21. **Report: NASA's Management of Crew Transportation to the International Space Station** (IG-20-005; 11/14/2019)

    Recommendation: (5) Continue to ensure the purchase of future commercial space services complies with government contracting regulations.

    Status: NASA Action Completed. Corrective Actions were completed on 10/15/2020. All Commercial Crew Program contract modifications issued in FY20 were provided as supporting documentation. Additionally, all of the FY20 contract modifications complied with government contracting regulations.

    Office of Primary Responsibility: Human Exploration and Operations Directorate

    Target Completion Date: n/a

Actions In-Progress

22. **Report: Audit of the Spaceport Command and Control System** (IG-16-015; 3/28/2016)

    Recommendation: (1) The OIG recommends that the Associate Administrator for Human Exploration and Operations commission an independent assessment to evaluate the status of the SCCS software development effort and determine the necessary steps to reduce the risk of further cost, schedule, and performance issues, including consideration of acquiring commercial command and control software to replace some or all of the system currently under development.

    Status: In-Progress. NASA agreed to conduct an independent assessment of the command and control system once all the software for Artemis I was successfully delivered.

    Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

    Target Completion Date: 1/31/2022

23. **Report: NASA's Earth Science Mission Portfolio** (IG-17-003; 11/2/2016)

    Recommendation: (1) Update the Architecture Plan every 5 years to align with the release of Earth Science Decadal Surveys and mid-term Surveys and account for portfolio changes.

    Status: In-Progress. The current Implementation Plan is based on the 2007 Decadal Survey. In 2016, when the action was issued by the OIG, NASA management did not know the scope and

content of the 2017 Decadal. The 2017 Decadal was released January 2018. The 700-page DS contains significant NASA-focused recommendations. Upon release of the 2017 Decadal Survey, Earth Science Division (ESD) estimated ~18 months to develop a complete strategic approach to address the recommendations followed by the Implementation Plan development. NASA is currently about 2/3 of the way through the process of developing has developed the strategic approaches for the implementation of the Decadal recommendations including the Designated Observables, the incubator program, the Earth Venture Continuity, Earth Systems Explorer Program and other program recommendations. The Architecture Implementation Plan development will begin in the 1st QFY2021, with an expected completion of the 2nd Quarter FY2022. For the 2007 DS, it took the better part of 18 months to develop the strategy and another year to develop the Architecture Plan, released in 2010. While NASA is working to remain on a similar schedule, it is important to note that the previous decadal was more straightforward since it recommended specific missions, which are now part of the existing ESD Program of record. The 2017 Decadal, instead of specifying missions, recommends "observables." NASA is currently at the end of the study phase for 4 of the 5 observables, which will result in candidate observing systems or specific missions. The conclusions and results of these studies are absolutely necessary for NASA to develop the updates for the Implementation Plan. NASA does not anticipate being able to conclude an update/ or development of the implementation plan until late FY2022.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 11/31/2021

24. **Report: NASA's Management of Electromagnetic Spectrum** (IG-17-012; 3/9/2017)

Recommendation: (2) The Associate Administrator for Human Exploration and Operations should ensure the incorporation of the "Spectrum Guidance for NASA Small Satellite Missions" into formal NASA electromagnetic spectrum policies NPD 2570.5E, "NASA Electromagnetic Spectrum Management - Revalidated 9/13/16," and NPR 2570.1C, "NASA Radio Frequency Electromagnetic Spectrum Management Manual."

Status: In-Process. Guidance language has been incorporated into the draft updates to NPD 2570.5 and NPR 2570.1. The guidance will be formalized during the full review/update cycles of the documents and anticipated to be completed by Dec. 2022.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 12/31/2022

25. **Report: NASA's Plans for Human Exploration beyond Low Earth Orbit** (IG-17-017; 4/13/2017)

Recommendation: (4) Include cost as a factor in NASA's Journey to Mars feasibility studies when assessing various potential missions and systems.

Status: In-Process. Human Exploration and Operations Mission Directorate (HEOMD) Systems Engineering and Integration (SE&I) accounts for cost as a factor in its architectural studies. A document that HEOMD SE&I is creating is the SCOPE- HEO-007. In 2021, we are performing the Artemis Base Camp study where we will take the manifest in the SCOPE and look at various performance measurements such as cost. Due to the refinement of the HEOMD organization and responsibilities, the Architecture Definition Document (ADD) is no longer planned to be produced. Therefore, NASA anticipates closing this recommendation with the baselining of the SCOPE.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 9/30/2021

26. **Report: Construction of Test Stands 4693 and 4697 at Marshall Space Flight Center** (IG-17-021; 5/17/2017)

    Recommendation: (1) Perform a comprehensive review of Program-funded construction projects to ensure adequate analysis, including all life cycle costs, is completed prior to project initiation.

    Status: In-Progress. A new protocol was established during the Facilities and Real Estate Division's Business Service Assessment and it will go into NPR 8820 update after MAP is completed. In the interim - SPG guidance clearly requires that a life cycle cost analysis is completed prior to project initiation.

    Office of Primary Responsibility: Office of Strategic Infrastructure

    Target Completion Date: 7/31/2021

27. **Report: Construction of Test Stands 4693 and 4697 at Marshall Space Flight Center** (IG-17-021; 5/17/2017)

    Recommendation: (2) Develop additional construction project guidance for establishing unallocated construction reserves for program-direct construction facility projects to better account for significant expected risks.

    Status: In-Progress. A new protocol was established during the Facilities and Real Estate Division's Business Service Assessment and it will go into NPR 8820 update after OSI MAP is completed. In this revision to NPR 8820, NASA would strengthen the use of the Project Definition Rating Index (PDRI) and the allotment of contingency reserve informed by PDRI. NASA recognizes the criticality of Recommendation 2 and has already implemented interim solutions, including incorporation of PDRI into the Construction of Facilities Project Monthly Reporting, and has conducted internal “re-fresher” courses on use of the PDRI.

    Office of Primary Responsibility: Office of Strategic Infrastructure

    Target Completion Date: 7/31/2021

28. **Report: Construction of Test Stands 4693 and 4697 at Marshall Space Flight Center** (IG-17-021; 5/17/2017)

    Recommendation: (3) Ensure facility needs, such as construction of new facilities and/or modification of existing facilities, are appropriately included in program planning and scheduling and that testing requirements are adequately understood prior to committing the Agency to construction or modification of test facilities.

    Status: In-Progress. Efforts to develop language intended to strengthen the Project Definition ratings Index (PDRI) requirements is being developed and will be incorporated into on-going revisions to NPR 8820 "Facility Project Requirements."

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 7/31/2021

29. **Report: NASA's Management of the Goddard Institute for Space Studies** (IG-18-015; 4/5/2018)

    Recommendation: (8) To the extent practicable, implement the GAO's best practices for establishing partnerships, including the formalization of agreements that outline the roles and responsibilities of each agency in the performance and application of climate research performed at GISS.

    Status: In-Progress. NASA continues to work toward implementation of this recommendation. Related corrective actions are in-progress.

    Office of Primary Responsibility: Science Mission Directorate

    Target Completion Date: 6/30/2021

30. **Report: Audit of NASA's Compliance with the Improper Payments Information Act for Fiscal Year 2017** (IG-18-017; 5/14/2018)

    Recommendation: (1) Implement a procedure to use information regarding known improper payments, including the latest available data used for payment recapture reporting, when performing the annual risk assessment.

    Status: In-Progress. The Quality Assurance Division in the Office of the Chief Financial Officer addressed this recommendation by ensuring information obtained from the annual Recapture Audit- Other Sources Data Call, was reviewed for relevancy and accuracy, prior to incorporating into the PIIA risk assessment. This will be the practice going forward and we will continue to consider the timeliness of both assessments to ensure the data is captured and reported timely. As a result, amounts reported for FY2020 Recapture Audit- Other Sources Data Call were incorporated in totality and the results have been reported accordingly.

    Office of Primary Responsibility: Office of the Chief Financial Officer

    Target Completion Date: 5/31/2021

31. **Report: Audit of NASA's Management and Utilization of the International Space Station** (IG-18-021; 7/30/2018)

    Recommendation: (3) Ensure there is a contingency plan for each exploration-enabling technology demonstration not scheduled to be fully tested by 2024, such as: a. Identification of alternate testing platforms, b. Impact to technical risk of exploration systems, and c. Impact to the technology demonstration schedule.

    Status: In-Progress. One option for meeting the intent of the recommendation is to extend the life of the ISS beyond 2024, which would enable completion of each required technology demonstration. Another option is for NASA to seek to continue technology demonstrations on a commercial platform in LEO. If suitable commercial platforms are also not available, NASA would expand technology demonstrations on the ground, though this will likely lack the fidelity provided by LEO and may not meet the "fully tested" requirement provided in the recommendation.

Office of Primary Responsibility: Human Exploration and Operations Mission Directorate

Target Completion Date: 4/30/2021

32. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (1) To improve the management of NASA's efforts to retrieve lost historic personal property, the OIG recommends the NASA General Counsel develop a process to more effectively identify, validate ownership of, and coordinate within NASA and/or with other agencies on recovery of historic property.

Status: In-Progress. Planned corrective actions are in-progress. Stakeholders (OGC, OSI and Office of Communications are working towards finalization and publication of a NASA Procedural Requirements (NPR) that will address the process and procedure for identifying and recovering historic property.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 6/1/2021

33. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (2) To improve NASA's identification and management of heritage assets, the OIG recommends that the Assistant Administrator for Strategic Infrastructure, in coordination with the Associate Administrator for Communications: Develop comprehensive procedures for identifying and managing heritage assets, including defining roles and responsibilities for the different NASA entities responsible for evaluating what historic items would most effectively be maintained by the Agency and considered as heritage assets.

Status: In-Progress. The Office of Communications and the Office of Strategic Infrastructure are coordinating on planned actions intended to implement the recommendation.

Office of Primary Responsibility: Office of Communications

Target Completion Date: 6/30/2021

34. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (3) To improve NASA's identification and management of heritage assets, the OIG recommends that the Assistant Administrator for Strategic Infrastructure, in coordination with the Associate Administrator for Communications: Evaluate and justify the existing list of NASA and contractor held heritage assets to determine whether NASA is the most effective owner and what property the Agency will retain because of its historical value.

Status: In-Progress. The Office of Communications and the Office of Strategic Infrastructure are coordinating on planned actions intended to implement the recommendation.

Office of Primary Responsibility: Office of Communications

Target Completion Date: 6/30/2021

35. **Report: Audit of NASA's Historic Property** (IG-19-002; 10/22/2018)

Recommendation: (5) To improve the use of funds generated from National Historic Preservation Act (NHPA) leases, the OIG recommends the Assistant Administrator for Strategic Infrastructure: Ensure NASA policy and procedures for using the proceeds from facilities leased under NHPA authority appropriately aligns with Agency goals to minimize excess facilities.

Status: In-Progress. OSI is crafting the policy to update and outline NASA's established criteria for entering into NHPA leases. Based on this revision, the OIG determined that the intent of their recommendation has been achieved. OSI is working towards closure by October 31, 2021 for the approval and publication of a revised NPR 8800.15.

Office of Primary Responsibility: Office of Strategic Infrastructure

Target Completion Date: 10/31/2021

36. **Report: NASA's Engineering and Technical Service Contracts** (IG-19-014; 3/26/2019)

Recommendation: (1) Develop an Agency-wide standardized set of metrics for contracts that can be collected, tracked, and analyzed over time to identify efficiencies resulting from a change in contract structure.

Status: In-Progress. The Office of Procurement Dashboard with metrics for the enterprise is presently under development. The development effort is taking longer than originally anticipated due to limited resources. OP anticipates the initial phase of the new site to roll out in late Jan 2021.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 12/9/2021

37. **Report: NASA's Engineering and Technical Service Contracts** (IG-19-014; 3/26/2019)

Recommendation: (2) Require Center Procurement Offices to formally collect, track, and report data to the Headquarters Office of Procurement on these metrics at least annually.

Status: In-Progress. Metric collection has also been impacted by the Office of Procurement Dashboard deployment delays. Anticipate an initial testing phase with collection to fully begin in March 2021.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 12/9/2021

38. **Report: NASA's Engineering and Technical Service Contracts** (IG-19-014; 3/26/2019)

Recommendation: (3) NASA's Assistant Administrator for Procurement: Develop a community of practice to analyze what contract structure changes lead to the greatest efficiencies and to share these lessons learned with the Agency's procurement community.

Status: In-Progress. OP anticipates being able to utilize an existing capability group to serve as the community of practice (CoP) as described for this recommendation (rather than stand up a new CoP) and request closure as scheduled.

Office of Primary Responsibility: Office of Procurement

Target Completion Date: 9/15/2021

39. Report: NASA's Heliophysics Portfolio (IG-19-018; 5/7/2019)

Recommendation: (2) To improve NASA's management of its heliophysics portfolio, we recommended the Associate Administrator for Science Mission Directorate direct the HPD Director to: complete implementation of 2015 NSWAP tasks in accordance with SWORM subcommittee deadlines.

Status: In-Progress. The implementation of the 2015 NSWAP tasks are completed. In March of 2019, the 2015 NSWAP was superseded by the 2019 National Space Weather Strategy and Action Plan (NSW-SAP). Implementation of the NSW-SAP is on track to be completed as directed by the SWORM. NASA is actively engaged in many of the objectives of the NSW-SAP and fulfilling its role as defined by the plan.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 5/31/2021

40. Report: NASA's Heliophysics Portfolio (IG-19-018; 5/7/2019)

Recommendation: (3) To improve NASA's management of its heliophysics portfolio, we recommended the Associate Administrator for Science Mission Directorate direct the HPD Director to: reassess HPD's capabilities and resources and update the 2014 Roadmap for implementing 2013 Decadal recommendations with expected completion dates based on the Division's updated budget and priorities over the next 5 years.

Status: In-Progress. HPD is continually assessing capabilities and resources to enable the recommendations from the 2013 Decadal. HPD received the Decadal Survey Midterm Assessment in January 2020. That report identified a few outstanding project recommendations for NASA to close out from the 2013 Decadal Survey, and then also included recommendations for on-going programmatics and preparation for the next Decadal Survey. HPD is taking steps to complete the recommendations, including issuing community solicitations for instrument and PI-led contributions. To preserve the strategic link between the 2013 and the next Decadal Survey, HPD is planning to include roadmap discussions in the upcoming "Heliophysics 2050 Workshop." This workshop is supported by HPD with the overarching goal to receive community input for the future direction of Heliophysics science, missions, R&A and technology to help the community prepare for the next Decadal Survey). The workshop was originally planned for August 2020; however, with the COVID-19 situation, that workshop has been delayed to May 2021. The workshop report will include a summary of the roadmap discussions.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 12/31/2021

41. **Report: NASA's Heliophysics Portfolio** (IG-19-018; 5/7/2019)

Recommendation: (4) To improve NASA's management of its heliophysics portfolio, we recommended the Associate Administrator for Science Mission Directorate direct the HPD Director to: establish a formal mechanism to increase collaboration with DOD and the commercial space industry regarding heliophysics research and space weather modeling and forecasting efforts.

Status: In-Progress. The Heliophysics Division is engaged with the DoD and commercial sector on several space weather relevant fronts: DoD - For the DoD collaborative efforts include: a tri-agency discussion with the USSF and NOAA/NESDIS to identify common solutions to improve space weather predictions and advance understanding; exploration of a potential partnership with US Air Force on the NASA Geospace Dynamics Constellation mission that would advance the DoD space weather capabilities; collaboration on several National Space Weather Strategy and Action Plan objectives with the DoD are ongoing that include release of Los Alamos National Laboratory geosynchronous satellites and Geophysical Statistics Project data, prioritizing space weather research, establishing a research-to-operations transition framework; agreement to establish a quad-agency MOU to codify the research-to-operations transition framework roles and process of DoD, NASA, NOAA, and NSF. Commercial Sector - The Heliophysics Division has several space weather collaborative efforts with the commercial sector including: a space weather small business innovative research (SBIR) activity that currently includes 12 small business efforts; multiple competed research and CubeSat investigations lead by the commercial sector; the recently established Space Weather Council, a FACA subcommittee, with 25% membership from the commercial sector.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 5/30/2021

42. **Report: Management of NASA's Europa Mission** (IG-19-019; 5/29/2019)

Recommendation: (7) Consider requesting the NRC (now the National Academies of Sciences, Engineering, and Medicine) reexamine the Lander's priority under authority in the NASA Authorization Act of 2008.

Status: In-Progress. On September 30, 2020, the first meeting of the Planetary Science and Astrobiology Decadal Survey 2023-2032 Steering Group was held – formally kicking off the deliberations for creation of the next decadal survey. To support this effort, a call for white papers was issued prior to the commencement of the study; a process which ensures the scientific community is engaged to help determine important scientific questions and overall goals for the next decade as well as the tools and mission concepts necessary for achieving those goals. All planetary science and astrobiology subject areas are applicable for the white papers, including study of Europa and a potential lander mission. The white papers are then assessed and synthesized by the discipline panels of the National Academies and translated into panel reports that may influence the final decadal survey.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 12/31/2021

43. **Report: Management of NASA's Europa Mission** (IG-19-019; 5/29/2019)

Recommendation: (9) The OIG also recommends the Associate Administrator for Science Mission Directorate in coordination with the Office of the General Counsel: Reassess the process of isolating key project personnel from instrument selection to balance their additional insight in integration and cost estimation while maintaining fairness in the announcement and mitigating conflicts of interest risks.

Status: In-Progress. The reassessment was deferred until CY2020. Implementation in 2020 was deferred due to the need to focus on mission critical activities.

Office of Primary Responsibility: Science Mission Directorate

Target Completion Date: 12/31/2021

44. **Report: Cybersecurity Management and Oversight at the Jet Propulsion Laboratory** (IG-19-022; 6/18/2019)

Recommendation: (8) Establish a formal, documented threat-hunting process that includes roles and responsibilities, standard processes for conducting a hunt, and metrics to track success.

Status: In-Progress. NASA OCIO Cybersecurity and Privacy Division does not have a schedule for implementing a threat hunting capability for NASA at this time. OCIO CSPD regularly evaluates and prioritizes resources for securing NASA's systems and data based on Federal guidance and best practice. OCIO CSPD will implement an Agency threat hunting capability once Federal requirements are published, and the new investment is approved and funded.

Office of Primary Responsibility: Office of the Chief Information Officer

Target Completion Date: 9/30/2021

45. **Report: NASA's Security Management Practices** (IG-20-001; 10/21/2019)

Recommendation: (3) Research federal arrest authority (as directed in the Protective Services BSA Decision Memorandum) in conjunction with the Office of the General Counsel, formulate a unified response, and implement a consistent policy across the Agency.

Status: In-Progress. While all Center security forces now have consistent FAA training, Protective Services continues to work with OGC toward ensuring consistent implementation across NASA. On August 25, 2020, the Headquarters OGC issued a request to the Center Chief Counsels to work with their Center leadership on the issue of retroceding jurisdiction. This is in support of the upcoming requirement for OPS to show progress on the issue and to formally report to the Mission Support Council (MSC) during the upcoming Key Decision Point (KDP) Phase D, currently scheduled for March 23, 2021. A copy of this request is attached. The Center Chief Counsels were directed to work with their individual Center leadership and evaluate the feasibility to retrocede jurisdiction so that each Center would uniformly have "concurrent jurisdiction." Per OGC, if the Agency retrocedes legislative jurisdiction for all federal exclusive areas under its control, preferably to a consistent legislative jurisdiction for all facilities (i.e., concurrent), then this will facilitate a common understanding of the authority of contractor security personnel, standardize training and implement security policies to reduce costs, and ensure NASA can rely on state/local law enforcement resources for support. NASA already has existing legal authority in the Space Act. The Center Chief Counsels are to meet with their Center leadership to gauge where they are in this process and provide OGC with concurrence for retroceding jurisdiction or reasons why it is not feasible by September 25, 2020.

As this is but the first step in the conversation, OPS anticipates that the issue of jurisdiction is still several iterations away from obtaining resolution. While much progress has been made in addressing the OIG management recommendation, this last component is not anticipated to be fully adjudicated until September 30, 2021.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 9/30/2021

46. Report: NASA's Security Management Practices (IG-20-001; 10/21/2019)

Recommendation: (4) Evaluate Agency-wide jurisdictions to determine if it is feasible for all Centers to be under the same jurisdiction or at least to determine if individual Centers should have all of their property under the same type of jurisdiction.

Status: In-Progress. While Marshall Space Flight Center (MSFC) and Armstrong Flight Research Center (AFRC) are located on U.S. military installations and must follow the prescribed Department of Defense (DoD) jurisdiction, OPS is working in collaboration with OGC to assess the feasibility of changing proprietary and exclusive authorities to concurrent jurisdiction at all applicable Centers.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 6/30/2021

47. Report: NASA's Security Management Practices (IG-20-001; 10/21/2019)

Recommendation: (5) Coordinate with the Office of the General Counsel to standardize the carrying of firearms by NASA civil servants in an Agency-wide policy while also addressing the appropriate situations when NASA contractors may carry their government-issued weapons off NASA property

Status: In-Progress. The NASA Office of Protective Services (OPS) has coordinated with the NASA Office of General Counsel (OGC) and obtained their legal opinion that helped pave the way for NASA to officially pursue an administrative modification to the Space Act which will allow NASA security officers to carry firearms in their official duty off-Center while protecting NASA personnel and/or property. In order to change federal policy that would be enacted Agency-wide, NASA, as part of the annual call for legislative proposals in 2018, 2019, and 2020, submitted statutory language containing administrative corrections (amendments) to §20133 and §20134 of Title 51, United States Code to permit use of NASA's specialized and purpose-trained contractor security force to provide limited, off-Center security to NASA property and safety to NASA personnel. While Title 51, National and Commercial Space Program, permits civil servants to be armed off-Center, this is not a viable option, as there are an insufficient number of trained civil servants available for such exigencies and the numbers of such trained civil servants are not expected to significantly increase in the future.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 2/28/2022

48. Report: NASA's Security Management Practices (IG-20-001; 10/21/2019)

Recommendation: (8) Develop procedures that require Center protective services officials to be a stakeholder in the planning process to meet protective services requirements for existing and new tenants.

Status: In-Progress. Although OPS is now operating within an enterprise organizational structure, the response that was developed to MSC-2019-08-002 has changed our operational approach to the OIG management recommendation. Where OPS originally planned to autonomously empower the Center Chiefs of Protective Services as key operational and budgetary stakeholders with final signature authority for all new and existing tenant and activity agreements involving protective services requirements via a Space Act agreement, this has now moved to a collaborative approach with Center leadership.

Office of Primary Responsibility: Office of Protective Services

Target Completion Date: 1/31/2022

49. **Report: Review of NASA's Fiscal Year 2019 Digital Accountability and Transparency Act Submission** (IG-20-004; 11/7/2019)

Recommendation: (5) Incorporate the results of this audit—as detailed in this report and specifically identified according to data elements in Appendixes B and C—when executing the Agency's Data Quality Plan and determining high risk control areas in FY 2020.

Status: In-Progress. NASA is on-track to complete planned corrective actions by the target completion date.

Office of Primary Responsibility: Office of the Chief Financial Officer

Target Completion Date: 9/30/2021

50. **Report: NASA's Management of Crew Transportation to the International Space Station** (IG-20-005; 11/14/2019)

Recommendation: (1) Revise current schedules and establish realistic timetables for the remaining reviews and flights occurring before final certification and missions to the ISS.

Status: In-Progress. In November 2020, NASA updated the OFT-2 and CFT mission dates. The dates will be undergoing continuous review and potential revision until the missions.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 12/30/2021

51. **Report: NASA's Management of Crew Transportation to the International Space Station** (IG-20-005; 11/14/2019)

Recommendation: (2) Correct identified safety-critical technical issues before the crewed test flights, including parachute and propulsion systems including launch abort systems testing to ensure sufficient safety margins exist.

Status: In-Progress. Completed the Demo-2 Certification for Flight Readiness (CoFR) signifying that all technical issues had been satisfactorily closed prior to the mission. CoFR statements signed May 21, 2020.

Office of Primary Responsibility: Human Exploration and Operations Directorate

Target Completion Date: 7/31/2021