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Report to Congressional Requesters

August 2023

NATIONAL TRANSPORTATION SAFETY BOARD

Additional Actions Needed to Improve Management and Operations

Accessible Version

GAO-23-105853

GAO Highlights

Highlights of GAO-23-105853, a report to congressional requesters

August 2023

NATIONAL TRANSPORTATION SAFETY BOARD

Additional Actions Needed to Improve Management and Operations

Why GAO Did This Study

NTSB plays a vital role in advancing transportation safety by investigating and reporting on the probable cause of accidents and issuing safety recommendations. Despite growth and technological advancement in the transportation sector, NTSB's staffing levels have remained about the same for the past 20 years, according to NTSB. Congress has expressed concerns about the timeliness of NTSB's accident investigation reports, the quality of its accident investigation data, and whether the agency has sufficient staff to conduct its work.

GAO was asked to review NTSB's management and operations. This report evaluates, among other things, NTSB's (1) performance planning efforts; (2) efforts to improve its use of data in decision-making; and (3) recent workforce planning activities to identify skill gaps in its workforce.

GAO analyzed NTSB reports, plans, procedures, and other documents related to the agency's management and operations; compared NTSB's efforts with relevant laws and guidance; reviewed NTSB investigation and contracting data; and interviewed agency officials.

What GAO Recommends

GAO is making six recommendations, including that NTSB ensure its future performance planning documents meet all statutory requirements; finalize a system that enables the agency to more effectively analyze and use labor cost data; and conduct a skill gap assessment. NTSB did not take a position on the recommendations but identified actions to address them.

View GAO-23-105853. For more information, contact Heather Krause at (202) 512-2834 or krauseh@gao.gov.

What GAO Found

The National Transportation Safety Board's (NTSB) most recent strategic plan, annual performance plan, and annual performance report fully met 14 of the 25 statutory content requirements that GAO analyzed specified in federal laws on agency performance planning. For example, NTSB's strategic plan described the agency's mission and identified external factors that could affect achievement of the agency's goals. Other requirements that NTSB did not satisfy are fundamental tools in federal performance management. For example, within its strategic plan, NTSB established strategic goals targeting organizational efficiency, process improvements, and preparedness for emerging technologies. However, none of these strategic goals directly link to NTSB's mission of improving transportation safety, as required. Without mission-focused strategic goals, it will be difficult for NTSB to determine how the agency's actions connect to the broader outcomes it hopes to achieve. By fully meeting this and all other statutory content requirements for performance planning documents, NTSB can better ensure accountability to Congress and the public.

Summary of Extent to Which the National Transportation Safety Board (NTSB) Met 25 Statutory Content Requirements for Its Performance Planning Documents

Performance planning document	Summary of extent to which NTSB met content requirements
Strategic plan	met, met, partially met, partially met, not met, not met, not met
Annual performance plan	met, met, met, met, met, met, met, met, partially met, partially met, partially met, not met
Annual performance report	met, met, met, met, partially met, not met

Legend: Each dot represents one statutory requirement that GAO assessed. ● = Met; ◐ = Partially met; ○ = Not met

Source: GAO analysis of NTSB information. | GAO-23-105853

NTSB has improved its use of investigation data to inform decisions, but it has made limited progress in doing so for labor cost data (i.e., data on staff time spent on individual investigations and other activities). NTSB has previously taken steps to improve the usability of its labor cost data but, despite years of effort, continues to be unable to use these data for resource allocation and other decision-making. NTSB officials said that they recently improved NTSB's labor cost data system, and that they expect to receive approval to fully implement the updated system later this year. Until then, NTSB is limited in its ability to use labor cost data to make more informed decisions, in alignment with federal guidance that directs agencies to leverage data in carrying out their missions.

NTSB has recently taken steps to determine whether its workforce has the skills needed to carry out the agency's mission. However, these efforts do not provide comprehensive information on the skills staff need, how many staff have those skills, and where skill gaps exist. In 2022, NTSB issued a survey and held listening sessions with staff to identify training needs, but these efforts did not include all mission-critical staff, as leading practices recommend, nor did they identify the range of skills needed. Moreover, NTSB officials indicated that they do not have a consolidated inventory of current staff skills. As a result of these

shortcomings, NTSB is hampered in its ability to identify skill gaps across the agency, including in all mission-critical occupations, and to implement strategies to address its most pressing needs.

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Abbreviations

AODR	Authorizing Official Designated Representative
CIO	Chief Information Officer
CISO	Chief Information Security Officer
CSIRC	Computer Security Incident Response Capability
Evidence Act	Foundations for Evidence-Based Policymaking Act of 2018
FISMA 2002	Federal Information Security Management Act of 2002
FISMA 2014	Federal Information Security Modernization Act of 2014
IT	information technology
GPRA	Government Performance and Results Act of 1993
GPRAMA	GPRA Modernization Act of 2010
NIST	National Institute of Standards and Technology
NTSB	National Transportation Safety Board
OMB	Office of Management and Budget
OPM	Office of Personnel Management
SAFTI	System for Analysis of Federal Transportation Investigations
SORN	system of records notice

SP	special publication

U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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August 17, 2023

The Honorable Sam Graves
Chairman
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Garret Graves
Chairman
Subcommittee on Aviation
Committee on Transportation and Infrastructure
House of Representatives

The National Transportation Safety Board (NTSB) plays a vital role in advancing transportation safety by investigating and determining the probable cause of selected accidents, issuing safety recommendations, and advocating for safety improvements. According to NTSB, the agency has conducted investigations of more than 153,000 aviation accidents and thousands of surface transportation accidents. From those investigations, NTSB has issued more than 15,300 safety recommendations. The agency's staffing levels, according to NTSB, have remained about the same as they were 20 years ago, with about 400 employees. Yet the transportation sector has experienced tremendous growth and technological advancement, straining NTSB's ability to keep pace.

Congress is currently considering NTSB's reauthorization, which will set agency priorities for the coming years. Further, Congress has expressed concerns about NTSB's operations, including the timeliness of its accident investigation reports, the quality of its accident investigation data, and whether NTSB has sufficient staff to conduct its work. According to NTSB, the average length of time for NTSB to complete an investigation increased from 18.7 months in 2016 to 21.6 months in 2020. Given its critical safety mission, it is important that NTSB provide timely results and effectively use its limited resources, including its fiscal year 2023 appropriation of about $129 million.

You asked us to review NTSB's management and operations.[1] This report evaluates the extent to which (1) NTSB's performance planning efforts meet federal requirements; (2) NTSB's efforts to improve its ability to use data for decision-making align with federal requirements and guidance; (3) NTSB's recent workforce planning efforts follow selected leading practices for identifying staff skill gaps; and (4) NTSB has established policies and procedures to ensure the security of its information systems and data.

To determine the extent to which NTSB's performance planning efforts meet federal requirements, we reviewed NTSB's strategic plan for fiscal years 2022 through 2026, its fiscal year 2023 annual performance plan (issued in November 2022), and its fiscal year 2022 annual performance report (issued in November 2022). These performance planning documents were the most recent at the time we performed this audit work. We also interviewed agency officials about NTSB's performance planning efforts. We then assessed the extent to which these efforts met federal requirements for performance planning found in the Government Performance and Results Act (GPRA) of 1993 as updated by the GPRA Modernization Act (GPRAMA) of 2010,[2] and in Office of Management and Budget (OMB) guidance.[3]

To evaluate NTSB's efforts to improve its ability to use data for decision-making, we reviewed NTSB documents that address how it uses data to inform management decisions. We also reviewed NTSB documents that describe its goals and efforts related to gathering data for agency decision-making. In addition, we interviewed NTSB officials on these topics. We then assessed the extent to which NTSB's efforts aligned with federal guidance and requirements regarding data use, including GAO's *Standards for Internal Control in the Federal Government*, the

[1]We have previously conducted reviews of NTSB's management and operations, which resulted in multiple recommendations to improve NTSB's operations. NTSB has implemented all of our recommendations to date. See, for example, GAO, *National Transportation Safety Board: Management and Operational Improvements Found, but Strategy Needed to Utilize Cost Accounting System*, GAO-13-611 (Washington, D.C.: July 24, 2013).

[2]Pub. L. No. 103-62, 107 Stat. 285; Pub. L. No. 111-352, 124 Stat. 3866 (2011).

[3]OMB, *Preparation, Submission, and Execution of the Budget*, Circular No. A-11 (Washington, D.C.: Aug. 15, 2022). As part of this Circular, OMB provides guidance for implementing GPRA, GPRAMA, and other related federal management laws and initiatives. See Part 6, *The Federal Performance Framework for Improving Program and Service Delivery*.

Foundations for Evidence-Based Policymaking Act of 2018 (Evidence Act),[4] the *Federal Data Strategy*, and the *Federal Data Strategy Data Governance Playbook*.[5] This guidance includes leading practices for agencies to better use data to deliver on their mission, serve the public, and steward resources.[6]

As part of our work evaluating NTSB's use of data for decision-making, we also reviewed NTSB investigation data to develop summary statistics for fiscal years 2017 through 2021, such as the percentage of investigations that were for aviation accidents. NTSB officials provided these data, which they retrieved from the agency's System for Analysis of Federal Transportation Investigations (SAFTI) database. We reviewed documentation on SAFTI and interviewed NTSB officials regarding the investigation data. We determined the data were sufficiently reliable to provide a high-level description of NTSB's investigations.

To evaluate the extent to which NTSB's recent workforce planning efforts follow selected leading practices for identifying staff skill gaps, we reviewed NTSB's documentation on its current actions related to workforce planning, including efforts to identify and fill skill gaps. We also interviewed NTSB officials to discuss the agency's workforce planning efforts. We reviewed key principles and leading practices for workforce

[4]Pub. L. No. 115-435, 132 Stat. 5529.

[5]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 10, 2014). Pub. L. No. 115-435, 132 Stat. 5529. OMB's *Federal Data Strategy*, issued in 2019, includes principles on how the federal government can use data to deliver on its mission to better serve the public. See OMB, *Memorandum for the Heads of Executive Departments and Agencies: Federal Data Strategy – A Framework for Consistency*, M-19-18 (Washington, D.C.: June 4, 2019). See also *Federal Data Strategy Data Governance Playbook* (July 2020).

[6]While NTSB is within the scope of the statutory definitions of agencies required to follow GPRA/GPRAMA, the Federal Information Security Modernization Act (FISMA), and title II of the Foundations for Evidence-Based Policy Making Act of 2018 (also referred to as the OPEN Government Data Act), it is not within the scope of the statutory definitions of agencies required to follow title I of the Foundations for Evidence-Based Policy Making Act of 2018 (Evidence Act), or the Office of Personnel Management's (OPM) skill gap regulation. GPRA, Pub. L. No. 103-62, §§ 3, 4(b), 107 Stat. 285, 286, 288; GPRAMA, Pub. L. No. 111-352, §§ 2, 3, 123 Stat. 3866, 3867, 3870 (2011); FISMA 2002, Pub. L. No. 107-347, § 301(b)(1), 116 Stat. 2946, 2947; OPEN Government Data Act, Pub. L. No. 115-435, 132 Stat. 5534; Evidence Act, Pub. L. No. 115-435, § 101(a)(2), 132 Stat. 5529, 5530; OPM skill gap regulation, 5 C.F.R. §§ 250.204(a)(3), 250.201.

planning identified in our prior work.[7] We focused our analysis of NTSB's workforce planning efforts on the leading practice of identifying the gap between the skills that agency staff currently possess and those skills needed to address the agency's mission.[8] We also reviewed regulations from the Office of Personnel Management (OPM) on skill gap assessments.[9] Although NTSB is not required to follow these specific OPM regulations, they provide leading practices to ensure that agency staff have the necessary skills to achieve the agency's mission.[10]

To evaluate NTSB's information security policies and procedures, we reviewed relevant documentation and interviewed knowledgeable officials to corroborate these policies and procedures. We compared NTSB's policies and procedures with selected requirements and leading practices on information security, including those outlined in the Federal Information Security Modernization Act of 2014 (FISMA 2014) and in OMB and National Institute of Standards and Technology (NIST) guidance.[11] In selecting the requirements and leading practices for our assessment, we focused on those requirements and leading practices related to the development of policies and procedures that address the key elements of an effective information security program outlined in

[7]In our prior work, we identified five key principles for workforce planning: (1) involving top management and employees, (2) identifying critical skill needs, (3) developing workforce strategies to fill the skill gaps, (4) building the capability needed to support workforce strategies, and (5) evaluating and revising those strategies. In a separate report, we described four components of effective training and development. One of the components—planning/front-end analysis of training—included practices for identifying skill needs and skill gaps. See GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, GAO-04-39 (Washington, D.C.: Dec. 11, 2003), and *Human Capital: A Guide for Assessing Strategic Training and Development Efforts in the Federal Government*, GAO-04-546G (Washington, D.C.: Mar. 1, 2004).

[8]In this report, we use the word "skills" to refer to both skills and competencies. In our prior work, we have defined competencies to be observable, measurable sets of critical skills, knowledge, abilities, behaviors, and other characteristics an individual needs to successfully perform work roles or occupational functions.

[9]5 C.F.R. § 250.204.

[10]5 C.F.R. §§ 250.204(a)(3), 250.201.

[11]The Federal Information Security Modernization Act of 2014 (Pub. L. No. 113-283, 128 Stat. 3073) largely superseded the Federal Information Security Management Act of 2002 (FISMA 2002), enacted as Title III, E-Government Act of 2002 (Pub. L. No. 107-347, 116 Stat. 2899, 2946). OMB, *Managing Information as a Strategic Resource*, Circular No. A-130 (Washington, D.C.: July 28, 2016). NIST, *Risk Management Framework for Information Systems and Organizations: A System Life Cycle Approach for Security and Privacy,* Special Publication (SP) 800-37, Revision 2 (December 2018). NIST, *Security and Privacy Controls for Information Systems and Organizations*, SP 800-53, Rev. 5 (September 2020).

FISMA 2014, including those identified by OMB and NIST as essential activities for managing agency security risks. For our assessment, we gave a rating of "Addressed" if NTSB's actions addressed all portions of the key practice; "Partially addressed" if NTSB's actions addressed some, but not all, portions of the key practice; and "Not addressed" if NTSB's actions did not address any portion of the key practice. We also interviewed NTSB officials regarding any gaps we identified in its policies and procedures.

We conducted this performance audit from March 2022 to August 2023 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

NTSB—as an independent establishment of the United States Government—has a mission to make transportation safer by conducting independent accident investigations and advocating for safety improvements.[12] Under federal statute, NTSB's responsibility to investigate accidents varies by transportation mode. NTSB is required, for example, to investigate all civil aviation accidents, and all railroad and pipeline accidents that result in fatalities.[13] For highway crashes, NTSB may initiate an investigation at its discretion. In determining whether to investigate an accident, NTSB officials told us that officials consider four questions: (1) Are there national safety issues, as opposed to site-specific

[12]NTSB's mission also includes deciding pilots' and mariners' certification appeals; serving as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration and U.S. Coast Guard; and adjudicating appeals of civil penalty actions taken by the Federal Aviation Administration.

[13]49 U.S.C. §§ 1131(a)(1)(A), 1131(a)(1)(C). NTSB does not investigate all such rail or pipeline accidents as required by federal statute, due to, for example, limited agency resources or limited safety benefits of an investigation, according to officials. NTSB is required to annually report a list of accidents from the prior calendar year that it was required to investigate but did not, and to explain why it did not do so. From fiscal years 2017 through 2021, NTSB reported 8,958 such accidents, and our analysis shows that 99 percent were classified as "railroad" accidents. "Railroad" accidents, per NTSB's data, include accidents involving passenger trains, railroad trespasser fatalities, and freight accidents.

issues? (2) Does the crash involve emerging technologies or safety issues, or are they on the NTSB's Most Wanted List of Transportation Safety Improvements?[14] (3) Is there a potential for safety recommendations, and would NTSB involvement have the potential to effect change? (4) Does NTSB have the resources (i.e., staff availability and capacity)?

NTSB investigators analyze information obtained from the scene of the accident, as well as from other sources, and staff then prepare an accident investigation report. Once finalized, this report may include safety recommendations that address issues uncovered during investigations and specify actions to help prevent similar accidents from occurring in the future. These recommendations are addressed to the organizations best able to take corrective action, such as the U.S. Department of Transportation and its modal administrations, some of which also conduct or participate in accident investigations; other federal and state agencies; manufacturers; and operators. According to NTSB, NTSB does not have the authority to require implementation of its recommendations but encourages actions to address them, such as through publication of the Most Wanted List of Transportation Safety Improvements. NTSB also conducts safety research studies and offers information and other assistance to family members and survivors for any accident it investigates.

NTSB has four offices that investigate accidents by transportation mode, referred to as "modal offices." The largest modal office is the Office of Aviation Safety; the offices of Highway Safety, Marine Safety, and Railroad, Pipeline and Hazardous Materials have significantly fewer staff (see table 1). NTSB employs staff in a number of occupations, including investigators, engineers, and technical writers. NTSB operations are further supported by other staff offices, such as the Office of Human Capital Management and Training, which oversees agency recruitment, retention, and training efforts and is led by a Chief Human Capital

[14]Issued biennially as part of NTSB's advocacy efforts, NTSB's Most Wanted List of Transportation Safety Improvements highlights the safety recommendations that NTSB believes have the potential to make the greatest impact to save lives and improve transportation safety. The list is intended to help raise awareness of these recommendations and encourage action to further improve safety across all modes of transportation.

Officer.[15] Further support for NTSB operations come from several contracts, including for computer, general consulting, and other services. In fiscal year 2022, NTSB obligated approximately $11.6 million in contract awards.[16]

Table 1: Information on National Transportation Safety Board (NTSB) Modal Offices

NTSB office	Number of staff (fiscal year 2022)	Key investigative priorities and policies, according to NTSB's 2021 Annual Report to Congress
Office of Aviation Safety	119	Investigate all air carrier, commuter, and air taxi accidents and certain serious incidents; fatal and nonfatal general aviation accidents and serious incidents; unmanned aircraft systems and public aircraft accidents and serious incidents; and commercial space launch/reentry accidents. Participate in the investigation of aircraft accidents that occur in foreign countries involving U.S. carriers, U.S.-manufactured or U.S.-designed equipment, or U.S.-registered aircraft.
Office of Highway Safety	30	Investigate crashes that have significant safety implications nationwide, highlight national safety issues, involve the loss of numerous lives, or generate high interest because of emerging technologies or their circumstances.
Office of Marine Safety	21	Investigate and determine the probable cause of major marine casualties on or under U.S. territorial waters, major marine casualties involving U.S.-flagged vessels worldwide, and accidents involving both U.S. public (federal) and nonpublic vessels in the same casualty.
Office of Railroad, Pipeline and Hazardous Materials	32	Investigate accidents involving railroads, pipelines, and hazardous materials. The office also evaluates the associated emergency response to these accidents.

Source: GAO analysis of NTSB information. | GAO-23-105853

NTSB modal offices use various criteria in selecting which accidents to investigate, such as the number of fatalities, safety issues of interest, and media coverage. NTSB also implements different types of investigations based on agency operational policies and procedures. For example, officials may opt for a "field investigation," in which agency staff travel to gather evidence from the accident site or other potential locations, or a "desk investigation," in which agency staff do not travel to the initial accident scene. From fiscal years 2017 through 2021, NTSB conducted

[15]In December 2022, NTSB closed its Training Center in Ashburn, Virginia. This center provided core training for NTSB investigators and others from the transportation community to improve their accident investigation practices. Since closing the Training Center, NTSB moved about 90 percent of its training courses to a virtual platform.

[16]We analyzed data from the Federal Procurement Data System as of October 2022. We adjusted obligations for inflation based on the fiscal year 2021 gross domestic product price index.

more than 8,300 investigations, 96 percent of which were for aviation accidents.

NTSB's Performance Planning Did Not Meet All Federal Requirements

Federal agencies, including NTSB, are subject to statutory requirements regarding performance planning as outlined in GPRAMA.[17] These requirements are part of a framework for agencies to communicate progress in achieving their missions, including using and analyzing goals and measures to improve outcomes.[18] GPRAMA requires agencies to produce certain documents that outline their performance planning efforts. GPRAMA also specifies the content required to be included in these documents. For example, agencies are to produce

- a 4-year strategic plan, which describes the agency's long-term strategic goals;
- an annual performance plan, which describes annual goals and targets toward the long-term goals in the strategic plan; and
- an annual performance report, which describes progress toward the accomplishment of long-term goals in the strategic plan.

By requiring agencies to, for example, set long-term strategic goals, measure progress in achieving those long-term goals, and report publicly on progress, the content within the performance planning documents required under GPRAMA can help hold federal agencies accountable for achieving results.

According to our analysis, NTSB fully satisfied some (14 of 25) of the statutory content requirements in the performance planning documents we reviewed.[19] For example, NTSB's strategic plan described the agency's mission and identified external factors that could affect

[17]Pub. L. No. 111-352, 124 Stat. 3866 (2011).

[18]OMB provides agencies with guidance on how to incorporate these and other requirements into their performance planning documents. OMB, *Preparation, Submission, and Execution of the Budget*.

[19]NTSB, *Strategic Plan Fiscal Year 2022-2026* (Washington, D.C.); *Fiscal Year 2023 Annual Strategic Performance Plan* (Washington, D.C.: Nov. 2, 2022); and *Fiscal Year 2022 Annual Strategic Performance Report* (Washington, D.C.: Nov. 4, 2022).

achievement of the agency's goals and objectives. The annual performance plan included a description of challenges facing management in achieving annual performance goals. And NTSB's annual performance report described planned actions for unmet goals. However, NTSB did not fully meet 11 statutory requirements for strategic plans, annual performance plans, and annual performance reports. In some cases, NTSB conducted the planning activities GPRAMA requires, but did not include a description of these activities in its performance planning documents.[20] In other cases, NTSB's efforts fell short of meeting the content requirements. See table 2 for a summary of the extent to which NTSB met the statutory content requirements, and appendix I for further details.

Table 2: Extent to Which the National Transportation Safety Board (NTSB) Met Statutory Content Requirements for Its Performance Planning Documents

Strategic plan (fiscal years 2022–2026)	Content requirement	Extent to which NTSB met requirement
Strategic plan (fiscal years 2022–2026)	Mission statement	Met
Strategic plan (fiscal years 2022–2026)	Strategic goals and objectives	Partially met
Strategic plan (fiscal years 2022–2026)	Description of the strategies and resources required to achieve the agency's goals and objectives	Partially met
Strategic plan (fiscal years 2022–2026)	Description of how the agency's goals and objectives incorporate input from congressional consultations	Not met
Strategic plan (fiscal years 2022–2026)	Description of how the agency's performance goals relate to the strategic goals and objectives[a]	Not met
Strategic plan (fiscal years 2022–2026)	Identification of external factors that could significantly affect the achievement of the agency's goals and objectives	Met
Strategic plan (fiscal years 2022–2026)	Program evaluations used to establish or review the agency's strategic goals and objectives, and a schedule of future program evaluations	Not met
Annual performance plan (fiscal year 2023)	Annual performance goals	Partially met
Annual performance plan (fiscal year 2023)	Description of how the agency's performance goals contribute to its strategic goals	Met

[20]For example, agency strategic plans are required to include descriptions of how the agency's strategic goals and objectives incorporate input from congressional consultations. NTSB officials told us that they do obtain input from Congress in developing the strategic plan. NTSB told us that the agency also posts a draft of its strategic plan in the *Federal Register* for stakeholder feedback. However, information on this consultation process is not included in NTSB's strategic plan, as required.

Strategic plan (fiscal years 2022–2026)	Content requirement	Extent to which NTSB met requirement
Annual performance plan (fiscal year 2023)	Description of the strategies and resources required to achieve the agency's performance goals	Partially met
Annual performance plan (fiscal year 2023)	Clearly defined milestones	Met
Annual performance plan (fiscal year 2023)	Identification of the organizations, program activities, regulations, policies, and other activities that contribute to each performance goal, both within and outside of the agency	Met
Annual performance plan (fiscal year 2023)	Identification of goal leaders	Met
Annual performance plan (fiscal year 2023)	Balanced set of performance indicators	Not met
Annual performance plan (fiscal year 2023)	Basis for comparing results	Met
Annual performance plan (fiscal year 2023)	Description of how the agency will ensure data accuracy and reliability	Met
Annual performance plan (fiscal year 2023)	Description of major management challenges	Met
Annual performance plan (fiscal year 2023)	Expected level of performance in current and next fiscal years	Partially met
Annual performance plan (fiscal year 2023)	Content that addresses each program activity in the budget	Met
Annual performance report (fiscal year 2022)	Review of performance from the 5 preceding years	Partially met
Annual performance report (fiscal year 2022)	Evaluation of current plan to performance achieved	Met
Annual performance report (fiscal year 2022)	Planned actions for unmet goals	Met
Annual performance report (fiscal year 2022)	Review of the performance goals relative to the agency's strategic human capital management	Met
Annual performance report (fiscal year 2022)	Description of how the agency ensures data accuracy and reliability	Met
Annual performance report (fiscal year 2022)	Summary of program evaluation findings	Not met

Source: GAO analysis of NTSB information. | GAO-23-105853

Note: For our analysis, we compared the requirements in the Government Performance and Results Act (GPRA) of 1993 and the GPRA Modernization Act (GPRAMA) of 2010 with NTSB performance planning documents.

[a]NTSB uses the term "annual performance metrics" in place of "annual performance goals."

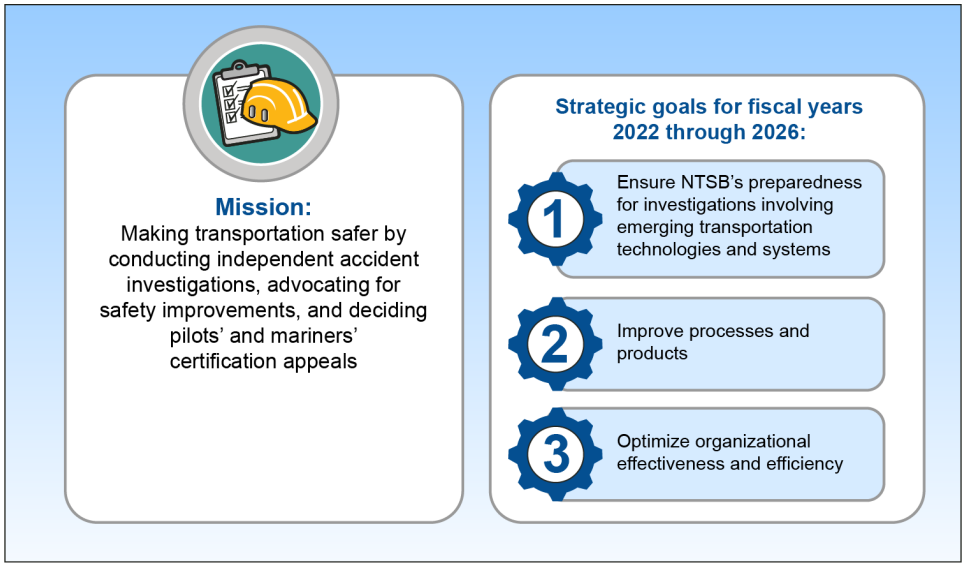
Some of the content requirements that NTSB did not meet are fundamental tools in federal performance management. These include the establishment of strategic goals and annual performance goals, which define expected levels of performance (i.e., goals) to achieve an agency's mission, along with a balanced set of related performance indicators, which collect related data to assess progress towards those goals.

Strategic goals. GPRAMA and OMB guidance require that an agency's strategic plan include general goals and objectives (also known as

strategic goals and objectives).[21] Strategic goals should communicate agency efforts to address national problems, needs, challenges, and opportunities on behalf of the American people. They should reflect the broad, long-term outcomes the agency aspires to achieve by implementing its mission. Such goals should also cover the major functions and operations of the agency. Further, the goals should be outcome-oriented, meaning they can be used to gauge the effect an agency's actions have on achieving the agency's mission.

NTSB's current strategic goals do not meet the intent of GPRAMA and OMB requirements to connect the agency's actions to the broader outcomes it hopes to achieve through its mission. These goals and NTSB's mission statement are shown in figure 1.

Figure 1: The National Transportation Safety Board's (NTSB) Mission and Strategic Goals for Fiscal Years 2022–2026



Source: National Transportation Safety Board, *Strategic Plan Fiscal Year 2022-2026* (Washington, D.C.). | GAO-23-105853

NTSB's first strategic goal reflects the major operational function of NTSB—performing accident investigations—and acknowledges that the technological environment in which NTSB operates is changing. However, the strategic goal does not reflect the broad, long-term outcomes the agency aspires to achieve by implementing its mission. Moreover, achieving this strategic goal—for example, by training

[21]Pub. L. No. 111-352, § 2, 124 Stat. 3866 (2011) (codified as amended at 5 U.S.C. 306(a)(2)). OMB, *Preparation, Submission, and Execution of the Budget*.

investigators on emerging transportation technologies—would not provide NTSB with information on the effectiveness of its investigations in improving transportation safety.

The other two strategic goals focus on internal processes and organizational effectiveness and efficiency, such as improving the agency's use of data and strengthening human capital management. Improving the agency's operations is an important undertaking, and it indirectly relates to NTSB's major function of performing accident investigations. However, like the first strategic goal, these two goals do not communicate how NTSB intends to improve transportation safety, nor can the agency use them to gauge the effectiveness of its actions in furthering its mission.

Annual performance goals and related indicators. Annual performance goals are the major means of gauging progress—using performance indicators—toward accomplishment of the longer-term general or strategic goals in the strategic plan. Most performance goals should be expressed in an objective, quantifiable, and measurable form, according to GPRAMA. NTSB established annual performance goals for fiscal year 2023, along with related indicators. However, the majority of these goals are not quantifiable or measurable, and therefore do not fully meet GPRAMA requirements. Most of NTSB's performance goals relate to completing a task or creating a process and cannot help gauge progress over time, such as progress toward NTSB's goal of establishing a repeatable capital planning process. Further, GPRAMA requires agencies to develop performance indicators to measure the extent to which the agencies are achieving annual performance goals. Performance indicators with numerical targets or other measurable values facilitate future assessments of whether overall goals and objectives were achieved because comparisons can be easily made between projected performance and actual results. Because most of NTSB's annual performance goals are not quantifiable, however, the related performance indicators do not measure progress in achieving the goals.

NTSB officials told us that the agency's reliance on non-quantifiable performance goals is a result of limitations with some of its data systems, which has made analysis challenging. NTSB officials recognize that these limitations constrain the agency's ability to reliably measure the extent to which its actions contribute to achieving its performance goals. To address these limitations, NTSB is taking steps to improve its data systems and analysis to support performance planning and other agency efforts.

According to our review of NTSB documentation, however, NTSB already has access to quantifiable data that could be suitable for gauging progress toward its goals and the effectiveness of its actions in furthering its mission. For example:

- NTSB maintains a database with the implementation status of all of its safety recommendations. With this information, NTSB could track the number of recommendations that have been implemented or that remain unaddressed over a period of time. These data may provide insight into the effectiveness of NTSB's efforts to advocate for transportation safety improvements, a key part of its mission.
- NTSB collects data on investigation timelines, which can show the length of time it takes to conduct investigations and issue reports. These data could help NTSB gauge the effectiveness of agency processes.

Without mission-focused strategic goals and quantifiable means to assess progress toward those goals, NTSB is missing an opportunity to channel its efforts and resources in a manner that most effectively and efficiently achieves greater transportation safety. Similarly, without addressing other requirements for its strategic plan, annual performance plan, and annual performance report, NTSB is limited in its ability to gauge and report on its progress. Moreover, NTSB is not fulfilling the intention of GPRA and GPRAMA to ensure accountability to the public for results and cost-effectiveness.

NTSB Has Followed Federal Guidance to Improve Its Use of Data, but Has Not Completed Its Efforts Related to Data on Labor Costs

NTSB Has Taken Steps to Improve Its Ability to Manage and Use Investigation Data

NTSB has taken steps to improve its ability to manage and use investigation data. NTSB officials said these steps—making organizational changes and establishing a system to manage

investigation data—have enabled the agency to make better-informed decisions on how to use its limited resources.

Organizational changes to improve ability to manage and use data. NTSB has made organizational changes to improve workflow consistency and use of data across the agency. These changes include appointing a Chief Data Scientist, restructuring the Office of the Managing Director, and placing the modal offices under the Deputy Managing Director for Investigations.

In fiscal year 2018, NTSB filled the role of Chief Data Scientist. In 2019, according to NTSB, the agency designated this person NTSB's Chief Data Officer, a position required by the Evidence Act.[22] Documentation we reviewed showed that the Chief Data Scientist supports the agency's efforts to better use data for strategic decision-making and to develop advanced data science capabilities. Additionally, the Chief Data Scientist led the formation of the NTSB Data Governance Body, a working group that leads the agency's implementation of the *Federal Data Strategy* and that OMB guidance directs agencies to establish.[23]

Further, NTSB officials told us that they restructured the organization, placing the Chief Data Scientist in the Office of the Managing Director in October 2021.[24] According to NTSB officials, this organizational change has given both the Managing Director and Chief Data Scientist a better understanding of how NTSB manages and uses data. Additionally, the Chief Data Scientist developed the agency's ability to analyze safety issues across all NTSB investigations and created data analysis and visualization tools to improve agency processes. In April 2023, NTSB officials told us the agency was in the process of hiring a Chief Data

[22]Evidence Act, § 202(e), 132 Stat. at 5541 (codified as amended at 44 U.S.C. § 3520).

[23]The role of the agency data governance body is to manage agency data assets and coordinate implementation of the *Federal Data Strategy.* The data governance body assesses data maturity, risks, and capabilities to recommend related data investment priorities. See OMB, *Memorandum for Heads of Executive Departments and Agencies: Phase 1 Implementation of the Foundations for Evidence-Based Policymaking Act of 2018: Learning Agendas, Personnel, and Planning Guidance*, M-19-23 (Washington, D.C.: July 10, 2019); and OMB, *Memorandum for the Heads of Executive Departments and Agencies: Federal Data Strategy – A Framework for Consistency*.

[24]The Office of the Managing Director leads NTSB's day-to-day operations. The Managing Director is responsible for the overall leadership, direction, and performance of the agency, as well as for internal communications and organizational efficiency.

Officer. Once hired, the Chief Data Officer will report directly to the Managing Director and will lead NTSB's data program.

In 2020, in another organizational restructure, NTSB placed the four modal offices that lead accident investigations under the Deputy Managing Director for Investigations.[25] According to NTSB officials, this organizational change allowed the Deputy Managing Director for Investigations to better standardize processes among the modal offices. For example, all NTSB investigations must now follow the steps outlined in NTSB's Accident Investigation Manual, which, according to NTSB officials, is consistently updated and provides consistency across the modal offices.

System to manage and use investigation data. Legislation enacted in 2018 mandated that NTSB establish and maintain a multimodal accident database, to improve the quality of accident data NTSB makes available to the public and to help the agency better use the data to allocate resources.[26] In response to the mandate, NTSB developed the System for Analysis of Federal Transportation Investigations (SAFTI) in fiscal year 2019.

NTSB officials told us that the agency uses SAFTI as a database to house investigation data and as a case management system to monitor investigation workflow. According to NTSB officials, the data cover aspects of individual investigations, such as the weather at the time of the accident; time, place, and date of the accident; type of investigation NTSB launched; and the investigation's status in NTSB's workflow. As a case management system, SAFTI allows agency leadership and staff to monitor the progress of an investigation through the workflow and track the timeline to completion, according to NTSB officials.

The data SAFTI provides can support high-level decision-making to enable more efficient use of resources, according to NTSB officials. They said that SAFTI has expanded the ability to analyze investigation time frames, and to track information on the status of accident investigations and on staff workload. NTSB can use such information to inform management decisions. For example, according to agency officials, an

[25]The Deputy Managing Director for Investigations is responsible for the management of investigations in all modes, including ensuring the consistency, quality, and timeliness of investigative processes and products.

[26]National Transportation Safety Board Reauthorization Act of 2018, Pub. L. No. 115-254, div. C, § 1108, 132 Stat. 3429, 3433.

NTSB analysis of SAFTI data showed that the workflow stage that involves reviewing draft reports had generally been taking longer than anticipated. In response, NTSB leadership created a plan to reduce the time frame for this stage, which they expect will ultimately shorten the overall timeline for publishing reports across modal offices without sacrificing the quality of the product.

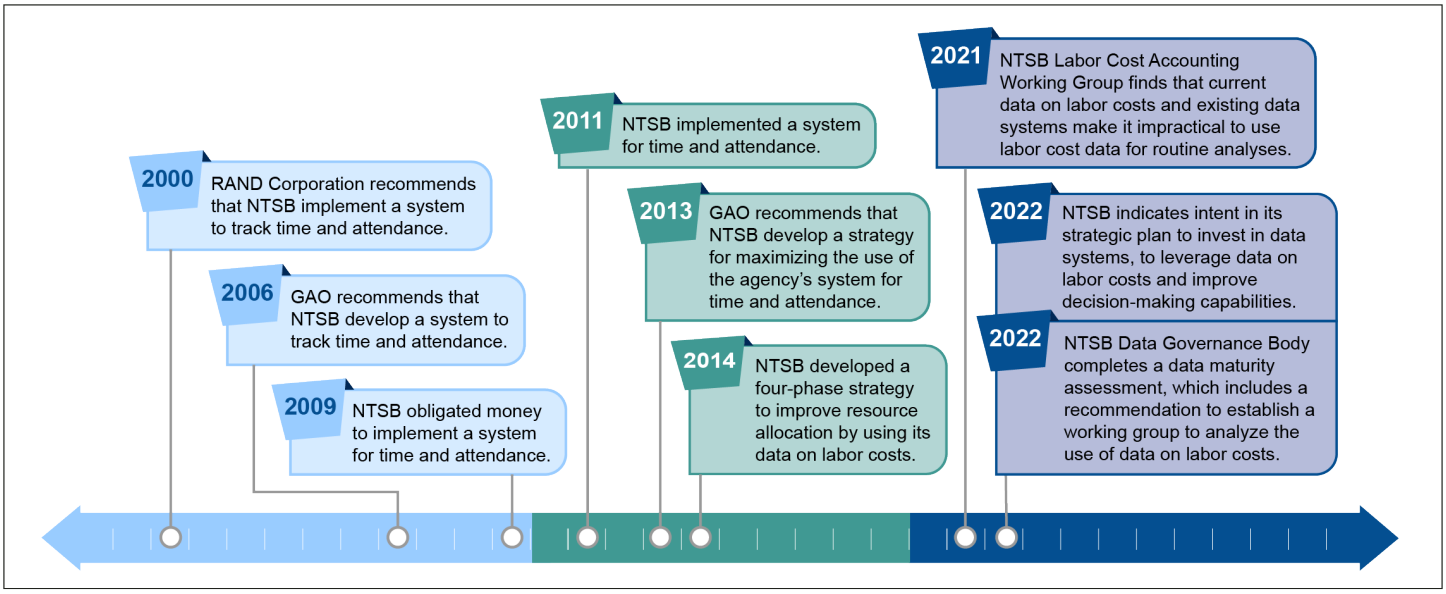
NTSB Has Made Limited Progress in Using Data on Labor Costs to Inform Decisions

Despite multiple past efforts, NTSB's use of labor cost data to inform decisions continues to be limited. According to federal guidance, more effective use of data can lead to agencies better delivering on their mission, serving the public, and stewarding limited resources.[27] NTSB collects data on the amount of time staff spend on individual investigations and other efforts—which it refers to as labor cost data—through its time and attendance system. NTSB has made some use of these labor cost data; for example, NTSB officials told us that NTSB has used the data to budget for the cost of projects and to compare the cost of different types of investigations (e.g., "field" or "desk" investigations). But the agency still does not have the capability to fully use its labor cost data to effectively manage investigation resources.

NTSB has taken steps to improve the usability of its labor cost data over the last few years, addressing issues such as lack of integration between the labor cost system and NTSB's other data systems. Some of these steps were in response to recommendations we made, as shown in figure 2. For example, NTSB developed a system to manage data on labor costs in 2011 and a strategy for maximizing the use of that system in 2014.

[27]*Federal Data Strategy, Data Governance Playbook* (July 2020).

Figure 2: Timeline of Actions to Improve the Use of Labor Cost Data at the National Transportation Safety Board (NTSB), 2000–2022



Source: GAO analysis of RAND, GAO, and National Transportation Safety Board information. | GAO-23-105853

Note: Time and attendance data include the number of hours reported per pay period by each employee and are allocated to specific accounting codes for each project or investigation worked. These data become labor cost data that can be used for analysis.

In 2021, finding that the data system still lacked the functionality needed to be a useful tool, NTSB formed a Labor Cost Accounting Working Group to examine the agency's use of labor cost data in managing investigations. Using the *Federal Government Data Maturity Model* as a framework, the working group identified needed improvements in systems and technology, data management, data governance, and data culture, according to the group's internal report.[28] Further, the working group found that NTSB did not have the capability to easily use labor cost data—due to the need to manually query and retrieve the data—to allocate resources, measure mission effectiveness in relation to level of effort, or make other informed management decisions. The working group recommended that NTSB develop new software and interface design options for collecting time and attendance information. Additionally, NTSB's Data Governance Body conducted an assessment in 2022 that

[28]National Technical Information Service, *Federal Government Data Maturity Model* (Alexandria, VA).

identified the need for NTSB to address its current capabilities related to labor cost data.

In response to these findings, NTSB officials told us in April 2023 that the agency had established a process to improve its access to labor cost data, and that tests had shown the data could be combined with other agency data, such as investigation data. Officials stated that integrating labor cost data into NTSB's data platform would require approval from OMB, which they anticipated receiving by the end of fiscal year 2023.[29]

The *Federal Data Strategy* guides agencies in their efforts to fully leverage data in carrying out their missions and to establish consistent and integrated data infrastructure and data practices. In addition, GAO's *Standards for Internal Control in the Federal Government* states that agencies should use quality information to achieve their objectives.[30] Moreover, we have previously reported that labor cost data can directly link the cost of agency activities with an agency's budget, and can guide resource allocation and other management decisions based on those costs.[31]

NTSB has made some improvements, but despite years of efforts, it has not fully implemented a data system that would facilitate regular analyses of data on labor costs. By finalizing the implementation of such a system, NTSB would be in a position to make more informed management decisions and to better allocate personnel resources. According to NTSB's most recent budget request, the cost of salaries and benefits for NTSB staff conducting investigations and other related work in fiscal year 2023 accounts for more than two-thirds of the agency's budget, making efficient and informed use of these resources essential.

[29]The Privacy Act of 1974, as amended, requires agencies to issue system of records notices (SORN) to notify the public when they establish or make significant changes to a system of records. SORNs are to identify, among other things, the types of data collected, the types of individuals about whom information is collected, the intended "routine" uses of the data, and procedures that individuals can use to review and correct personal information. Agencies are also to provide advance notice to OMB and specified congressional committees. Pub. L. No. 93-579, § 3, 88 Stat. 1896, 1899 (codified as amended at 5 U.S.C. § 552a). A system of records is a collection of information about an individual under control of an agency from which information is retrieved by the name of an individual or other identifier. 5 U.S.C. § 552a(a)(4), (5).

[30]See GAO-14-704G.

[31]See GAO-13-611.

NTSB's Recent Workforce Planning Efforts Have Not Assessed Skill Gaps for All Mission-Critical Staff

Ensuring its workforce has appropriate skills is fundamental to NTSB's ability to achieve its mission, according to NTSB's current strategic plan. NTSB relies on a staff of highly skilled individuals with technical expertise in such diverse areas as mechanical engineering, chemistry, and psychology to conduct accident investigations and identify safety improvements. As the technology related to transportation becomes increasingly complex—such as that for drones and automated vehicles—NTSB faces the challenge of ensuring its employees have the skills needed to keep pace. Recognizing this challenge, NTSB has established a strategic goal aimed at ensuring its preparedness for investigations involving emerging transportation technologies and systems, and has undertaken efforts to determine how these advances will affect the skills its employees need. However, we found that NTSB's recent workforce planning efforts did not follow selected leading practices for identifying skill gaps.

We have previously reported that ensuring an agency's workforce has the critical skills needed to accomplish its mission is a fundamental aspect of strategic workforce planning.[32] In our prior work, we identified several key principles and leading practices related to skill gaps, including determining the critical skills an agency needs now and in the future and assessing the extent to which the workforce possesses those skills.[33] Agencies may use a range of approaches to identify skills the agency needs—such as surveys or staff interviews—and, according to OPM, these approaches should cover mission-critical occupations identified by the agency.[34] Likewise, as we discussed in our prior work, agencies may use various approaches to assess the extent to which employees

[32]GAO-04-39 and GAO-04-546G.

[33]In this report, we use the word "skills" to refer to both skills and competencies. In our prior work, we have defined competencies to be observable, measurable sets of critical skills, knowledge, abilities, behaviors, and other characteristics an individual needs to successfully perform work roles or occupational functions.

[34]Although NTSB is not required to follow these specific OPM regulations, they provide leading practices to ensure that agency staff have the necessary skills to achieve the agency's mission. 5 C.F.R. § 250.204(a)(3), 250.201.

possess these needed skills, such as developing an organization-wide, consolidated inventory of the relevant skills the workforce possesses or conducting employee surveys.[35] We have previously reported that accurately assessing skill gaps is an important precursor to identifying the most appropriate gap remediation strategies.[36]

NTSB has previously taken actions to identify skill gaps in its workforce that have generally been consistent with leading practices. For example, NTSB's fiscal year 2011 through 2016 human capital plan describes how the agency identified skill gaps at that time. Among other things, NTSB defined the skills needed for key occupations including accident investigators, psychologists, and engineers, and surveyed these employees regarding their proficiency levels in these skills. Selected offices within NTSB also completed a skill needs assessment survey, which provided a means for NTSB to identify gaps.

In contrast, however, NTSB's recent efforts to determine the skills its workforce needs, and the extent to which staff have those skills, did not follow leading practices.

Efforts to identify needed skills. In 2022, NTSB surveyed staff to obtain their views on transportation challenges that will affect how NTSB carries out its mission, and on the training investigators need to be successful in their positions given these challenges. NTSB then held listening sessions with a subset of survey respondents to obtain additional insight into investigators' training needs. While these efforts covered most mission-critical staff, they did not include staff in the technical writer/editor occupation, which NTSB also identified as mission-critical. Moreover, these efforts focused on identifying training needs involving emerging transportation technologies and systems for investigators, rather than on identifying the range of skills investigators need to effectively fulfill their roles.

Efforts to assess current employee skills. NTSB officials indicated the agency does not have a consolidated inventory of current staff skills, as recommended by our leading practices. NTSB officials told us that they collect such data elements as staff education, occupational series, and tenure with the agency. In addition, according to NTSB officials, office

[35]GAO-04-546G.

[36]GAO, *FAA Workforce: Better Assessing Employees' Skill Gaps Could Help FAA Prepare for Changes in Technology*, GAO-21-310 (Washington, D.C.: May 13, 2021); GAO-04-39; and GAO-04-546G.

directors and supervisors are familiar with the current skills of their staff. However, NTSB officials we met with acknowledged the need to document staff skills, such that this information can be shared across the agency.

Surveys and listening sessions can provide valuable information about an agency's workforce. However, without complete information on the skills that are necessary for mission-critical occupations, as well as on the skills that staff currently have, NTSB is hampered in its ability to identify skill gaps across the agency. Identifying skill gaps would help NTSB ensure that its training and hiring efforts target the most pressing needs, and that employees in mission-critical occupations have the skills needed to carry out the agency's mission.

NTSB Has Established Policies and Procedures That Address Most Selected Information Security and Risk Management Key Practices, but Gaps Remain

NTSB has policies and procedures that address most of the selected key practices we identified for establishing information security programs and managing cybersecurity risks. However, we found that NTSB has not fully addressed one key practice—developing and maintaining security awareness and training policy and procedures. While NTSB has developed and maintained this policy, it does not have formal, documented procedures that fully facilitate the implementation of its policy and associated controls. Without such procedures, NTSB is not well positioned to ensure agency personnel understand security risks associated with their activities and their responsibilities in complying with guidance designed to reduce these risks to adequately protect its information systems and data.

FISMA requires agencies to develop, document, and implement an agency-wide information security program to provide risk-based protections for the information and information systems that support the

operations and assets of the agency.[37] FISMA also requires agencies to comply with OMB guidance and NIST best practices for information security. OMB guidance and NIST publications provide a foundation for establishing agency information security programs and managing cybersecurity risks. Specifically, they establish minimum requirements for federal information security programs, assign federal agency responsibilities for the security of information and information systems, provide guidelines for and require agencies to use the Risk Management Framework, and establish mandatory controls for federal information systems.[38]

Based on OMB and NIST requirements, we identified eight key practices that provide a foundation for establishing information security programs and managing cybersecurity risks. In selecting the key practices for our assessment, we focused on requirements and leading practices related to the development of policies and procedures that address the key elements of an effective information security program outlined in FISMA 2014, including those identified by OMB and NIST as essential activities for managing agency security risks. We assessed NTSB's policies and procedures and found that, overall, NTSB has fully addressed seven of the eight selected information security and risk management key practices, as shown in table 3.

[37]The Federal Information Security Modernization Act of 2014 (FISMA 2014), Pub. L. No. 113-283, 128 Stat. 3073, largely superseded the Federal Information Security Management Act of 2002 (FISMA 2002), enacted as Title III, E-Government Act of 2002, Pub. L. No. 107-347, 116 Stat. 2899, 2946. As used in this report, FISMA refers to the new requirements in FISMA 2014, and to other relevant FISMA 2002 requirements that were unchanged by FISMA 2014 and continue in full force and effect.

[38]OMB, *Managing Information as a Strategic Resource*. NIST, *Risk Management Framework for Information Systems and Organizations*. NIST, *Security and Privacy Controls for Information Systems and Organizations*.

Table 3: Extent to Which the National Transportation Safety Board's (NTSB) Policies and Procedures Address Selected Key Practices for Establishing Agency Information Security Programs and Managing Cybersecurity Risks

Key practice	Description	Assessment rating
Information security program plan	Provides an overview of the requirements for the agency's information security program, including the identification of individuals who have been assigned key roles associated with security risk management,[a] and common controls that are available for inheritance by organizational systems.[b] The plan should be reviewed and updated based on organization-defined frequency.	Addressed
Risk management process	Guides agencies to make risk-based decisions through a risk management strategy and risk assessment policy and procedures. The strategy should include a determination of cybersecurity risk tolerance.[c] The policy should ensure risk assessments are conducted and results updated on an ongoing basis, while the related procedures should facilitate the implementation of the policy and associated controls. The process should be reviewed and updated based on organization-defined frequency.	Addressed
Security planning policy	Addresses the development of system security plans, which provide an overview of the security requirements of the system and describe controls in place or planned for meeting those requirements. The policy should be reviewed and updated based on organization-defined frequency.	Addressed
Remediation policy	Addresses the development of plans of action and milestones for information systems that are reviewed and updated at organization-defined frequency.	Addressed
Continuous monitoring strategy	Addresses continuous monitoring requirements at the organization, identifies the minimum monitoring frequency for implementing controls across the organization, and describes how ongoing assessments are to be conducted.	Addressed
Incident response and reporting policy	Ensures security incidents are detected, reported and responded to within an organization. The related procedures should facilitate the implementation of the policy and associated incident response controls. The policy and procedures should be reviewed and updated based on organization-defined frequency.	Addressed
Contingency planning	Ensures the development of contingency plans to achieve continuity of operations for information systems that support the operations and assets of the agency. The related procedures should facilitate the implementation of contingency planning policy and associated contingency planning controls. The policy and procedures should be reviewed and updated based on organization-defined frequency.	Addressed
Security awareness and training policy	Ensures training is provided to personnel that support the operations and assets of the agency, including contractors, and specialized training is provided to personnel with significant information security responsibilities. Associated procedures should facilitate the implementation of the security awareness and training policy and associated awareness and training controls. The policy should be reviewed and updated based on organization-defined frequency.	Partially addressed

Source: GAO analysis of NTSB information. | GAO-23-105853

Note: This analysis is based on Office of Management and Budget (OMB) and National Institute of Standards and Technology (NIST) guidance related to the development of policies and procedures that address the key elements of an effective information security program, including those identified by OMB and NIST as essential activities for managing agency security risks. OMB, *Managing Information as a Strategic Resource*, Circular No. A-130 (July 2016). NIST, *Risk Management Framework for Information Systems and Organizations: A System Life Cycle Approach for Security and Privacy*, SP 800-37, Rev. 2 (December 2018). NIST, *Security and Privacy Controls for Information Systems and Organizations*, SP 800-53, Rev. 5 (September 2020).

[a]According to NIST, key security roles that should be involved in an organization's risk management process include the Senior Accountable Official for Risk Management or Risk Executive, Chief

Information Officer, Authorizing Official or Authorizing Official Designated Representative, and the Senior Agency Information Security Officer/Chief Information Security Officer.

[b]According to NIST, security control inheritance is when an information system or application uses one or more security controls that is developed, implemented, assessed, authorized, and monitored by another organizational information system.

[c]Risk tolerance is the degree of risk or uncertainty that is acceptable to an organization.

Information security program plan. NTSB has established policies and plans that include requirements for its information security program. Specifically, its information technology (IT) security policy identifies, among others, the Chief Information Officer (CIO) and the Chief Information Security Officer (CISO) as individuals with key roles associated with security risk management. The CIO is responsible for establishing and maintaining IT security policies and serves as the Authorizing Official for its systems. The CISO is responsible for developing guidance and ensuring the implementation of IT security policies and procedures. Also, NTSB documents common controls in its system security plans. Each document is current and has been reviewed by appropriate officials.

Risk management process. NTSB has established policies and other documentation that address key risk management practices. For example, NTSB defined its risk tolerance in terms of how integral a system or application is to carrying out the mission of NTSB and a system's information sensitivity. Also, NTSB developed a risk management policy that outlines the agency's development, implementation, and maintenance of its risk management and assessment program. For example, the policy describes responsibilities for key individuals involved in the risk assessment process, such as the CIO and CISO. The CIO is responsible for ensuring compliance with the policy, and the CISO is responsible for activities related to monitoring compliance with the policy, coordinating the required risk assessments of major systems, and providing guidance on the risk assessment's scope and methodology for those responsible for conducting risk assessments. In addition, its policy requires (1) risk assessments to be used to determine compliance with system, application, and data security requirements; (2) an annual self-assessment of all major systems; and (3) coordination for an independent third-party risk assessment of all major systems at least once every 3 years or when significant and major changes have been made to the system(s). Each document is current and has been reviewed by appropriate officials.

Security planning policy. NTSB has developed security policies that describe its overall framework for implementing its IT security program. The policies apply to all of NTSB's IT systems and to data owned or in its

custody, as well as to outside organizations that are granted access to its IT resources. The policies also include a specific list of responsibilities for key individuals involved in developing and implementing agency security planning policy, such as the CIO and CISO. In addition, the security policies require the development of system security plans for each of NTSB's systems. These plans are to provide an overview of the system's security requirements and describe the controls in place for meeting those requirements. Each document is current and has been reviewed by appropriate officials.

Remediation policy. NTSB has established policies that address the development of plans of action and milestones for information systems. The policies state that system plans of actions and milestones are to be developed, maintained, and reviewed for consistency with NTSB's risk management strategy and risk response actions. For example, remedial actions for all IT systems are to be evaluated to correct any deficiencies noted during assessments of security controls. These assessments are conducted through continuous monitoring activities and other audits. Each document is current and has been reviewed by appropriate officials.

Continuous monitoring strategy. NTSB has created multiple policies and leverages third-party contracts to address key elements that should be included in its organization-wide continuous monitoring strategy. For example, NTSB developed a security assessment and authorization policy, which includes its core policy for continuous monitoring requirements and for determining the effectiveness of ongoing security controls. The policy defines specific controls that must be assessed annually and requires all of the controls to be assessed at least every 3 years until the systems reach the disposal stage of their life cycles.[39]

Incident response and reporting policy. NTSB developed an incident response policy that is designed to ensure security incidents are detected, reported, and responded to. NTSB's incident response policy directed the creation of a Computer Security Incident Response Capability (CSIRC) to respond to incidents related to computer security, including theft, misuse of data, intrusions, hostile probes, and malicious software. The CSIRC includes NTSB's Computer Services Division, the CIO, the Authorizing Official Designated Representative (AODR), the CISO, and the system security officer. These individuals are responsible

[39]NIST guidance provides a catalog of security and privacy controls for information systems and organizations to protect organizational operations and assets. NIST, *Security and Privacy Controls for Information Systems and Organizations*.

for publishing and maintaining policy guidelines for handling system security incidents, implementing the CSIRC, and ensuring reports are prepared and submitted to the appropriate personnel within established timelines.

In addition, NTSB's incident response policy includes a set of procedures that provide instructions on how to meet the incident handling requirements and lists external reporting requirements. These procedures state that activities that may indicate a security incident are to be reported immediately. The CIO, AODR, and CISO review the initial report with the appropriate system security owner and security officers to (1) investigate and determine whether a potential incident has occurred, (2) take actions to secure systems and halt the incident, and (3) determine whether escalation to the Chair of NTSB's Board, Office of the Inspector General, or any appropriate external official is warranted. The policy is current and has been reviewed by appropriate officials.

Contingency planning. NTSB has developed a contingency planning policy and contingency planning procedures for its information systems that support the operations and assets of the agency. The purpose of NTSB's contingency planning policy is to ensure mission-critical functions continue to operate during an extended emergency period. The policy also includes responsibilities for key individuals involved in contingency planning, such as the CIO, CISO, and system owner. These individuals are responsible for coordinating an annual test of these plans and verifying that recovery procedures are successfully implemented. In addition, NTSB's contingency and disaster recovery plan for its general support system includes procedures for recovering system capabilities in the event of a disaster. Each document is current and has been reviewed by appropriate officials.

Security awareness and training policy. NTSB has developed a security policy, which includes supplemental guidance that addresses its security awareness and training policy. However, it has not yet developed documented procedures that facilitate the implementation of the policy and the associated security awareness and training controls.

NTSB's policy provides a general overview of its purpose and scope, and includes key roles and responsibilities. For example, the CIO, CISO, and AODR are responsible for ensuring that all personnel are informed of NTSB's security policies and their individual responsibility to complete security awareness training. The policy requires that security awareness training be completed within 7 working days of an employee or contractor

start date, and annually thereafter. The policy also requires the development and implementation of specialized training for individuals holding positions that have specific information security responsibilities. The policy is current and has been reviewed by appropriate officials.

However, NTSB's policy does not include details of specific responsibilities or procedures to be followed in order to implement the policy itself and associated controls. Nor were these details included in any other document we reviewed that was intended to outline NTSB security awareness and training policy and procedures. According to NTSB's CISO, the agency created procedures to help validate whether staff have completed training. Further, NTSB told us that all newly hired staff are required to and have successfully completed mandatory security awareness training during the onboarding process. Additionally, NTSB noted that all existing agency staff have successfully completed mandatory annual security awareness training. However, the CISO told us that NTSB does not have formal, documented procedures that fully implement the agency's security awareness and training policy because he implements the policy. The CISO said NTSB intends to create these procedures, but NTSB did not provide a time frame for their completion.

Providing security awareness and training to agency personnel is critical to securing information systems and data. Without procedures that describe how its security awareness and training policy and associated controls are to be implemented, NTSB is not well positioned to ensure agency personnel understand the security risks associated with their activities. Further, employees may not be aware of their responsibilities in complying with policies and procedures designed to reduce these risks and adequately protect NTSB's information systems and data.

Conclusions

Despite being a relatively small agency, both in terms of staff levels and budgetary resources, NTSB plays a vital role by investigating accidents and issuing recommendations to improve transportation safety. As transportation-related technologies advance and NTSB's resources remain relatively constant, it is increasingly important that NTSB operate in an effective and efficient manner. NTSB has taken a number of steps to improve its performance planning, data-driven decision-making, workforce planning, and information security. However, additional efforts in these areas are critical to NTSB's ability to carry out its mission. Addressing challenges in each of these areas is particularly important as

Congress considers NTSB's reauthorization, which will set the agency's priorities for the coming years.

Recommendations for Executive Action

We are making the following six recommendations to NTSB:

The Chair of the Board should ensure the agency's future strategic plans include content that fully meets all statutory requirements. (Recommendation 1)

The Chair of the Board should ensure the agency's future annual performance plans include content that fully meets all statutory requirements. (Recommendation 2)

The Chair of the Board should ensure the agency's future annual performance reports include content that fully meets all statutory requirements. (Recommendation 3)

The Chair of the Board should finalize implementation of a system that enables the agency to more effectively analyze labor cost data to inform decision-making. (Recommendation 4)

The Chair of the Board should conduct assessments to determine the skills its mission-critical occupations need and the extent to which staff have those skills. (Recommendation 5)

The Chair of the Board should establish security awareness and training procedures to facilitate the implementation of NTSB's security awareness and training policy and the associated controls. (Recommendation 6)

Agency Comments and Our Evaluation

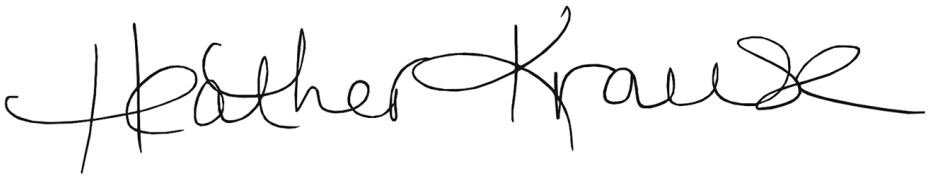
We provided a draft of this product to NTSB for review and comment. In its comments, reproduced in appendix II, NTSB did not take a position on our recommendations but stated that our report reinforces areas that the NTSB leadership team has been actively targeting for improvement. NTSB also identified several actions it is planning to take that are consistent with our recommendations. Additionally, NTSB stated that its current strategic goals directly link to improvements in transportation safety. As we note in our report, while the current strategic goals reflect

major agency functions, they do not clearly connect the agency's actions to the broader outcomes it hopes to achieve through its mission. NTSB also provided technical comments, which we incorporated as appropriate.

NTSB in its technical comments noted that for future strategic plans, the agency plans to re-examine and better connect its goals to specific outcomes, emphasizing NTSB's mission to enhance transportation safety. Doing so could provide an opportunity to develop more mission-focused strategic goals and quantifiable means to assess progress toward those goals, which is important in helping NTSB operate efficiently and effectively.

We are sending copies of this report to the appropriate congressional committees, the Chair of the National Transportation Safety Board, and other interested parties. In addition, the report is available at no charge on the GAO website at https://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-2834 or krauseh@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix III.



Heather Krause
Director, Physical Infrastructure

Appendix I: Additional Information on National Transportation Safety Board Performance Planning Documents

To examine the National Transportation Safety Board's (NTSB) performance planning efforts, we reviewed relevant federal requirements for performance planning, particularly those included in the Government Performance and Results Act (GPRA) of 1993 as updated by the GPRA Modernization Act (GPRAMA) of 2010,[1] and Office of Management and Budget (OMB) guidance.[2] We also reviewed three of NTSB's performance planning documents: its strategic plan for fiscal years 2022 through 2026, the fiscal year 2023 annual performance plan (issued in November 2022), and the fiscal year 2022 annual performance report (issued in November 2022). We then compared these three performance planning documents with the relevant requirements to determine the extent to which NTSB met the requirements. We gave a rating of "Met" if the document satisfied all portions of the requirement. We gave a rating of "Partially met" if the document satisfied some, but not all, portions of the requirement. We gave a rating of "Not met" if the document did not satisfy any portion of the requirement. See table 4, table 5, and table 6 for the results of our assessment.

[1]Pub. L. No. 103-62, 107 Stat. 285 (1993); Pub. L. No. 111-352, 124 Stat. 3866 (2011).

[2]Office of Management and Budget, *Preparation, Submission, and Execution of the Budget*, Circular No. A-11 (Aug. 15, 2022).

Table 4: Extent to Which the National Transportation Safety Board (NTSB) Met Statutory Content Requirements for Its Fiscal Year 2022–2026 Strategic Plan

Content requirement	Extent to which NTSB met requirement	Explanation of evaluation
Mission statement	Met	The strategic plan meets this requirement. NTSB's mission statement is: "Making transportation safer by conducting independent accident investigations, advocating for safety improvements, and deciding pilots' and mariners' certification appeals."
Strategic goals and objectives	Partially met	The strategic plan lists strategic goals, but these goals are not outcome-oriented and do not provide NTSB with the information needed to measure the effect its major program function (i.e., accident investigations) has on the agency's mission.
Description of the strategies and resources required to achieve the agency's goals and objectives	Partially met	The strategic plan describes strategies but does not describe the financial, technological, or human resources (e.g., additional staff or budget amounts) needed to achieve the agency's goals and objectives.
Description of how the agency's goals and objectives incorporate input from congressional consultations	Not met	The strategic plan does not describe how the agency consulted with Congress in developing its goals and objectives.
Description of how the agency's performance goals relate to the strategic goals and objectives[a]	Not met	The strategic plan does not include performance goals.
Identification of external factors that could significantly affect the achievement of the agency's goals and objectives	Met	The strategic plan meets this requirement. The strategic plan identifies challenges like recruiting and retaining staff and budgetary constraints.
Program evaluations used to establish or review the agency's strategic goals and objectives, and a schedule of future program evaluations[b]	Not met	The strategic plan does not include a schedule or plan to review strategic goals or conduct program evaluations.

Source: GAO analysis of NTSB information. | GAO-23-105853

Note: For our analysis, we compared the requirements in the Government Performance and Results Act (GPRA) of 1993 and the GPRA Modernization Act (GPRAMA) of 2010 with NTSB performance planning documents.

[a]NTSB uses the term "annual performance metrics" in place of "annual performance goals."

[b]A "program evaluation" is an assessment using systematic data collection and analysis of one or more programs, policies, and organizations intended to assess their effectiveness and efficiency. Among other things, program evaluations may be used to ascertain whether program activities have resulted in the desired benefits for program participants or the general public. Program evaluations differ from performance measurement, which is the systematic, ongoing monitoring and reporting of program accomplishments, particularly progress toward preestablished goals or standards. For more information, see GAO, *Program Evaluation: Key Terms and Concepts*, GAO-21-404SP (Washington, D.C.: Mar. 22, 2021); and *Designing Evaluations: 2012 Revision*, GAO-12-208G (Washington, D.C.: Jan. 31, 2012).

Table 5: Extent to Which the National Transportation Safety Board (NTSB) Met Statutory Content Requirements for Its Fiscal Year 2023 Annual Performance Plan

Content requirement	Extent to which NTSB met requirement	Explanation of evaluation
Annual performance goals	Partially met	The annual performance plan lists annual performance goals, but the majority of these goals are not quantifiable or measurable.
Description of how the agency's performance goals contribute to its strategic goals	Met	The annual performance plan meets this requirement. The annual performance plan includes a table that demonstrates a relationship between NTSB's strategic goals and objectives and its annual performance goals.
Description of the strategies and resources required to achieve the agency's performance goals	Partially met	The annual performance plan identifies strategies for achieving NTSB's goals and objectives but does not identify the financial, technological, or human resources (e.g., additional staff or budget amounts) needed to achieve the goals and objectives.
Clearly defined milestones	Met	The annual performance plan meets this requirement. For each annual performance goal, the annual performance plan includes dates by which certain activities should be achieved.
Identification of the organizations, program activities, regulations, policies, and other activities that contribute to each performance goal, both within and outside of the agency	Met	The annual performance plan meets this requirement. The annual performance plan identifies several program activities, policies, and regulations that contribute to performance goals.
Identification of goal leaders	Met	The annual performance plan meets this requirement. For each annual performance goal, the annual performance plan lists the NTSB office responsible for achieving each annual performance goal.
Balanced set of performance indicators	Not met	The annual performance plan does not include quantitative performance measures that would allow the agency to measure progress toward achieving annual performance goals.
Basis for comparing results	Met	The annual performance plan meets this requirement. The annual performance plan identifies multiple means by which NTSB can compare program results to performance goals, such as standards, milestones, and data validation and verification procedures.
Description of how the agency will ensure data accuracy and reliability	Met	The annual performance plan meets this requirement. The annual performance plan notes that data for determining performance outcomes will be reviewed, verified, and finalized by the Managing Director.
Description of major management challenges	Met	The annual performance plan meets this requirement. The annual performance plan identifies challenges like recruiting and retaining staff, and ensuring staff understand new transportation technologies.
Expected level of performance in current and next fiscal years	Partially met	The annual performance plan identifies target levels of performance for the current fiscal year, but not for the next fiscal year.

Content requirement	Extent to which NTSB met requirement	Explanation of evaluation
Content that addresses each program activity in the budget	Met	Although not listed in the annual performance plan, NTSB does make this information available in its Performance and Accountability Report and in its most recent budget request.

Source: GAO analysis of NTSB information. | GAO-23-105853

Note: For our analysis, we compared the requirements in the Government Performance and Results Act (GPRA) of 1993 and the GPRA Modernization Act (GPRAMA) of 2010 with NTSB performance planning documents.

Table 6: Extent to Which the National Transportation Safety Board (NTSB) Met Statutory Content Requirements for Its Fiscal Year 2022 Annual Performance Report

Content requirement	Extent to which NTSB met requirement	Explanation of evaluation
Review of performance from the 5 preceding years	Partially met	The annual performance report includes a review of performance for the preceding 2 years.
Evaluation of current plan to performance achieved	Met	The annual performance report meets this requirement. The annual performance report describes which annual performance goals were exceeded, met, not met, or reassessed.
Planned actions for unmet goals	Met	The annual performance report meets this requirement. The annual performance report describes two annual performance goals that would be analyzed and reassessed.
Review of the performance goals relative to the agency's strategic human capital management	Met	The annual performance report meets this requirement. The annual performance report describes the performance goals relative to human capital management efforts, such as promoting employee engagement and encouraging staff development.
Description of how the agency ensures data accuracy and reliability	Met	The annual performance report meets this requirement. The annual performance report notes that data are reviewed by the Office of the Managing Director each quarter. Data are also reviewed and verified by the Office of Strategic Initiatives and then finalized with the Managing Director.
Summary of program evaluation findings[a]	Not met	The annual performance report does not state whether NTSB conducted program evaluations as part of its fiscal year 2022 Performance Report.

Source: GAO analysis of NTSB information. | GAO-23-105853

Note: For our analysis, we compared the requirements in the Government Performance and Results Act (GPRA) of 1993 and the GPRA Modernization Act (GPRAMA) of 2010 with NTSB performance planning documents.

[a]A "program evaluation" is an assessment using systematic data collection and analysis of one or more programs, policies, and organizations intended to assess their effectiveness and efficiency. Among other things, program evaluations may be used to ascertain whether program activities have resulted in the desired benefits for program participants or the general public. Program evaluations differ from performance measurement, which is the systematic, ongoing monitoring and reporting of program accomplishments, particularly progress toward preestablished goals or standards. For more information, see GAO, *Program Evaluation: Key Terms and Concepts*, GAO-21-404SP (Washington, D.C.: Mar. 22, 2021); and *Designing Evaluations: 2012 Revision*, GAO-12-208G (Washington, D.C.: Jan. 31, 2012).

Appendix II: Comments from the National Transportation Safety Board

National Transportation Safety Board

Office of the Chair

Washington, DC 20594

July 21, 2023

The Honorable Gene Dodaro
United States Comptroller General
441 G St., NW
Washington, DC 20548

Dear Comptroller General Dodaro:

Thank you for the opportunity to review the findings and recommendations in the July 2023 draft GAO report "National Transportation Safety Board (NTSB): Additional Actions Needed to Improve Management and Operations." The draft report reinforces areas that the NTSB leadership team has been actively targeting for improvement and increased funding under my leadership over the past 2 years. In fact, since August of 2021, when I became Chair, the NTSB has hired the agency's first Chief Human Capital Officer and satisfactorily closed GAO's recommendations to increase transparency of the Most Wanted List. We have initiated an agency-level data program aimed at institutionalizing the NTSB's ability to use data for mission and operational decision-making. That use of data has allowed us to increase staffing for maximum effect, to reduce the time it takes to hire and on-board new staff, and to significantly reduce the number of investigative reports over 2 years old (from a high of 442 in February 2022 to near zero by the end of the fiscal year). We are also in the process of hiring an SES-level Chief Data Officer who will support efforts to measure and improve mission effectiveness and efficiency, consistent with GAO's recommendations.

We are making significant progress in meeting mandates and goals with extremely limited resources. Under my leadership, achieving the mission of the agency remains our top priority, and, as a result, our strategic and performance planning are focused on sustaining mission readiness. Part of mission readiness is our commitment to continuously modernizing our information technology (IT) systems to keep pace with advances in technology and to strengthen our cybersecurity efforts and data analysis capabilities. Based on our appropriations level, the NTSB must actively balance IT investment relative to other mission work. As a small agency, the NTSB's modest funding has not been sufficient to cover the people, programs, and IT systems needed to efficiently enable the mission while also meeting government-wide mandates, several of which GAO has noted in its findings. For example, fixed costs for network systems security, strategic planning operations, human capital management planning, and many more government-wide mandates are the same for NTSB as they are for larger agencies, although our appropriations up to this point have not reflected this reality. In fact, the NTSB is only able to spend

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about half of what its government peers do on IT systems and infrastructure as a percentage of operational costs, a consequence of the agency's budget constraints.[1] We are acutely aware (and in agreement with GAO) that IT systems can be strategically deployed to improve mission performance and productivity. To that end, the agency has requested additional funding so we can invest more robustly in our data program, which would allow us to fully implement GAO's recommendations and to meet public expectations for performance management.

The NTSB's strategic planning is focused on building a firm foundation in our mission expertise (goal 1), mission management (goal 2), and mission resources (goal 3). These goals exist within the context of mounting mission-complexity, government-wide requirements, and IT needs. As a result, the NTSB strongly asserts that all three of the agency's current goals directly link to improvements in transportation safety. These objectives are consistent with those noted by GAO in their draft report: mission-focused strategic goals and quantifiable means to verify long-term progress toward those goals. However, to do so concurrently with other mission and IT modernization work, the NTSB will need additional funding.

First, mission expertise includes ensuring the NTSB staff are prepared for investigations involving emerging transportation technologies. Without such preparation, staff would not be able to provide timely production of reports and safety recommendations. Such timeliness is necessary to directly influence transportation regulations in emerging segments such as advanced air mobility, commercial space operations, and autonomous vehicles. While one accident is too many, delays in recommendations can mean that additional accidents occur. In this way, for example, such expertise enhances transportation safety.

Second, mission management also relates to the quality and timeliness of the agency's mission work, thereby enhancing transportation safety. The agency is committed to improving the use of data for our investigations and recommendations, and we are moving in that direction. However, to do so, the agency must first improve our data governance systems, including actions to remain compliant with Federal regulations. In addition to the agency's strategic plan goals, objectives, and target measures, the NTSB measures and tracks operational outcomes for conducting our mission, such as investigation report timelines, hiring timelines, and safety recommendation implementation status. The agency is focused on continuing to move in this direction.

[1] According to research, the NTSB spends about half of what its government peers spend on average for IT systems and infrastructure as a percentage of operational costs. "IT Key Metrics Data 2023: Industry Measures - Executive Summary," published December 8, 2022, Gartner publications.

Third, mission resources are a focus on human capital and the ability of the agency to improve transportation safety through the integrated actions of our people: investigators, transportation safety experts, and support staff. As GAO notes, salaries and benefits make up more than two-thirds of the agency's budget.

As a former Congressional staffer, I know how important GAO's perspective is. I am grateful for the staff time, and the perspectives and analyses contained in GAO's draft. They stand as important benchmarks for the NTSB as we strive to achieve our shared goals of efficient and accountable governance.

Sincerely,

Jennifer Homendy

Jennifer Homendy
Chair

Accessible Text for Appendix II: Comments from the National Transportation Safety Board

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Sincerely,

Jennifer Homendy
Chair

Appendix III: GAO Contact and Staff Acknowledgments

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Staff Acknowledgments

In addition to the contact named above, Heather Halliwell (Assistant Director), Daniel Paepke (Analyst in Charge), Aubrey Anderson, Marisol Cruz Cain, Elena Epps, Lorraine Ettaro, Geoffrey Hamilton, Alma Laris, Benjamin Licht, Steven Lozano, Lee McCracken, Andrew Nguyen, Malika Rice, Shaunyce Thurman, Laurel Voloder, and Tatiana Winger made key contributions to this report.

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