U.S. GOVERNMENT ACCOUNTABILITY OFFICE

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

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The Honorable Sean Duffy
Secretary
United States Department of Transportation

The Honorable Howard Lutnick
Secretary
United States Department of Commerce

Aviation Meteorologists: Urgent Actions Needed to Address Staffing Concerns

The Department of Transportation's (DOT) Federal Aviation Administration (FAA) is responsible for ensuring the safety and efficiency of more than 45,000 flights per day in the National Airspace System (NAS).[1] Adverse weather that affects flying conditions creates demand for FAA decisions to facilitate the safe and efficient use of the NAS. To help FAA make these decisions, meteorologists from the National Weather Service (NWS), within the Department of Commerce's (Commerce) National Oceanic and Atmospheric Administration (NOAA), provide decision support services to FAA at the Air Traffic Control System Command Center (command center) and Air Route Traffic Control Centers (en route center) for any weather event that could have an impact on air traffic operations and safety of flight.[2]

A group of NWS meteorologists—known as a center weather service unit (CWSU)—work on site with air traffic controllers at each of FAA's 21 en route centers to provide routine decision support services 16 hours a day/7 days a week. A similar group of aviation meteorologists are on site at the command center, fulfilling this responsibility nationally. According to NOAA, the catalyst that placed meteorologists in each center was the 1977 crash of Southern Airways flight 242, which flew into a thunderstorm and crashed en route to Atlanta.[3] The ensuing investigation found that excessive water and hail had caused both of the aircraft's engines to fail. The

[1]Maintaining safety in air commerce is one of FAA's highest priorities by statute. *See* 49 U.S.C. §§ 40101, 40103.

[2]The Air Traffic Control System Command Center, located in Warrenton, VA, manages the flow of air traffic within the United States. This facility regulates air traffic when weather, equipment, runway closures, or other conditions place stress on the NAS. In these instances, traffic management specialists at the command center take action to modify traffic demands to keep traffic within system capacity. Air Route Traffic Control Centers are FAA facilities that control high-altitude flight outside the airport tower and terminal areas.

[3]On April 4, 1977, Southern Airways flight 242 crashed after losing thrust from both engines while traveling through severe thunderstorms, a determination made by the National Transportation Safety Board. Specifically, the loss of thrust was caused by ingestion of massive amounts of water and hail which, in combination with thrust lever movement, induced severe stalling in and major damage to the engine compressors. Of the 85 people aboard, 62 were killed, 22 were seriously injured, and one was slightly injured. Among other contributing factors were limitations in FAA's air traffic control system, which precluded the timely dissemination of real-time hazardous weather information to the flight crew on the intended flight route.

investigation also suggested that air traffic controllers needed a better way to receive timely weather information, which led to the creation of the CWSUs.[4]

FAA is statutorily required to make recommendations to the Secretary of Commerce on providing meteorological services necessary for the safe and efficient movement of aircraft in air commerce. In providing the meteorological services, the Secretary of Commerce must cooperate with FAA and give complete consideration to those recommendations.[5] FAA is also authorized to use certain funds to sustain its aviation weather reporting programs.[6]

In providing decision support services, NWS meteorologists at the FAA command center and en route centers analyze and interpret available meteorological data and provide specialized briefings and tailored weather forecasts to support the needs of FAA and users of the NAS.[7] Such users may include the airlines. At each supported FAA facility, briefings are scheduled (e.g., recorded pre-duty briefings) and unscheduled, and consist of current and expected weather conditions anticipated to impact air traffic operations.[8] Under a 2016 interagency agreement between FAA and NWS, NWS must staff 90 positions with full-time equivalent (FTE) government meteorologists to provide these services among the en route centers and the command center.[9] FAA must reimburse NWS for the associated costs of this staffing.[10] In February 2025, FAA and NWS amended their interagency agreement and established a staffing cap at 81 total FTEs and set the overall ceiling amount for reimbursements under the interagency agreement for fiscal year 2025.

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[4]National Transportation Safety Board, *Aircraft Accident Report: Southern Airways Inc., DC-9-31, N1335U, Report Number: NTSB-AAR-78-3*, (Washington, D.C.: Jan. 26, 1978).

[5]The Secretary of Commerce must also provide reports to FAA, persons engaged in civil aeronautics that are designated by FAA, and to other persons designated by the Secretary, in a way and with a frequency that best will result in safety in and facilitating air navigation. In addition, the Secretary is required to collect and distribute weather reports available from aircraft in flight. 49 U.S.C. § 44720.

[6]49 U.S.C. § 48105 provides this authority to FAA through fiscal year 2028 and limits the amount of available funding that FAA can use each fiscal year for this purpose.

[7]*See* FAA, *Aeronautical Information Manual* (Washington, D.C.: April 20, 2023); NWS Instruction 10-803, Support to Air Traffic Control Facilities (June 20, 2019).

[8]For example, the recorded pre-duty weather briefings provided by CWSUs include current and forecasted weather for the next 12 hours of en route winds, convection, icing, turbulence, low ceiling, and visibility. Upon request, NWS meteorologists also assist FAA in providing en route aircraft with timely and pertinent weather data tailored to a specific altitude and route using the most current available information, in accordance with an FAA Joint Order series. *See* NWS Instruction 10-803, Support to Air Traffic Control Facilities (June 20, 2019).

[9]FTE (full-time equivalent) refers to the total number of regular straight-time hours (i.e., not including overtime or holiday hours worked by employees divided by the number of compensable hours applicable to each fiscal year. Annual leave, sick leave, and compensatory time off and other approved leave categories are considered to be "hours worked" for purposes of defining FTE employment.

[10]The interagency agreement states that NWS provides decision support services to the en route centers and national command center for weather events that have potential impacts on air traffic operations. The purpose of the interagency agreement is for FAA to reimburse NWS for the costs of providing these services to these centers, as well as certain other facilities and air traffic control towers within the NAS. This reimbursement is subject to availability of annual appropriations for FAA. *See* Interagency Agreement Between the Federal Aviation Administration and the National Oceanic and Atmospheric Administration National Weather Service for Decision Support Services for Air Traffic Management (Mar. 25, 2016).

The NAS is currently under tremendous strain as air traffic controller shortages and periodic equipment failures in aging air traffic control systems have been leading to delayed and canceled flights. We and others have reported on these challenges, and we currently have ongoing work in these areas.[11] Severe weather can exacerbate such strains on the NAS as FAA reports that weather is the leading cause of cancellations and delays.[12] Multiple stressors on the NAS can lead to compounded adverse conditions for passengers. For example, the widespread delays and cancellations Southwest Airlines experienced in December 2022 began with weather problems that were compounded by carrier system failures.[13]

The purpose of this report is to inform you and Congress about another stressor on the NAS—concerns about aviation meteorologist staffing levels—which we identified in our ongoing work on aviation operational preparedness.[14] These meteorologists work directly with air traffic controllers in the command center and en route centers, providing face-to-face briefings as necessary, and helping them safely direct flights to avoid severe weather. We recognize that determining the appropriate weather forecasting resources to effectively support the safe and efficient operation of the NAS may take time to examine in depth. However, given the urgency of the issues, and that the interagency agreement is scheduled to expire in September 2025, we are sharing this information with you now. More details about the scope and methodology used in this review are included at the end of this report.

Current Staffing Levels of Aviation Meteorologists May Present Risks to Safety and Efficiency of the National Airspace System

NWS meteorologists are assigned to all en route centers as part of the CWSUs as well as the command center, according to FAA's Aeronautical Information Manual, which is the official guide to basic flight information and air traffic control procedures.[15] Under the 2016 interagency agreement, FAA and NWS set the number of meteorologists at three meteorologists and one meteorologist in charge at each of the 21 en route centers and five meteorologists and one meteorologist in charge at the command center. Meteorologists must provide decision support services 16 hours per day/7 days a week at their respective center.

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[11]GAO, *Air Traffic Control: FAA Actions Are Urgently Needed to Modernize Aging Systems*, GAO-24-107001 (Washington, D.C.: Sept. 23, 2024) and *Air Traffic Control Modernization: Program Management Improvements Could Help FAA Address NextGen Delays and Challenges*, GAO-24-105254 (Washington, D.C.: Nov. 9, 2023); National Academy of Sciences, *The Air Traffic Controller Workforce Imperative: Staffing Models and Their Implementation to Ensure Safe and Efficient Airspace Operations* (Washington, D.C.: June 18, 2025).

[12]*FAQ: Weather Delay*, Federal Aviation Administration, accessed March 5, 2025. https://www.faa.gov/nextgen/programs/weather/faq.

[13]On February 9, 2023, the Chief Operating Officer of Southwest Airlines testified before the Senate Committee on Commerce, Science, and Transportation that the December 2022 Southwest operational disruptions began with a weather event that cascaded into multiple challenges that overwhelmed their crew scheduling processes and technology.

[14]We are conducting the ongoing work under the FAA Reauthorization Act of 2024, which includes a provision for GAO to examine air carriers' planning and preparation for changing weather and other events related to changing conditions and natural hazards. *See* FAA Reauthorization Act of 2024, Pub. L. No. 118-63, § 515, 138 Stat. 1025, 1197 (2024). As part of the review, we are examining how FAA and NWS prepare for and respond to changing conditions, such as severe weather events.

[15]Federal Aviation Administration, *Aeronautical Information Manual* (Washington, D.C.: April 20, 2023).

Through a 2025 amendment to the interagency agreement between FAA and NWS, FAA set the overall ceiling amount for reimbursements under the interagency agreement and established a staffing cap at 81 FTEs for fiscal year 2025. This amendment also states NWS will not reduce CWSU services under the interagency agreement.[16] Prior to the amendment, FAA had informed NWS in July 2024 that its goal was to reduce meteorology staffing to 71 by the end of fiscal year 2024. On August 23, 2024, NWS urged FAA to reconsider this decision. NWS stated that the proposed staffing reductions to 71 on-site meteorologists posed a serious risk to the safety of the NAS and could lead to significant economic consequences including increased flight delays and cancellations, and potential safety incidents. NWS also informed FAA that it could no longer maintain the current service levels outlined in the 2016 interagency agreement with the available meteorologists and outlined a number of other constraints and impacts on the well-being of staff.

FAA and NWS ultimately agreed to a cap of 81 FTEs for fiscal year 2025. According to FAA officials, this amended staffing cap was based on the historical average annual FTEs from 2019-2024 of about 81, which is short of the 90 FTE positions originally outlined in the 2016 interagency agreement.[17]

FAA officials said that filling 90 FTE positions has not been achieved since the agreement's inception. They stated that the trend of lower meteorologist levels is the result of natural attrition and that organizations often have fewer people onboard than their allowable FTEs.[18] FAA officials said that they consider this staffing arrangement sufficient to meet operational requirements and they consider the amendment to cap meteorologists at 81 FTEs a responsible balance between resource planning and service continuity. The officials stated that they will continue to monitor performance to ensure mission alignment.

NWS officials told us that they agreed to cap the FTEs at 81 at FAA's request, but that they communicated their concerns to FAA at that time about the potential negative effects on NWS meteorologists. NWS officials said that meteorologists have had to work overtime, forgo leave, or cover two or more areas of responsibility at a time to continue to meet the interagency agreement requirements to provide support services 16 hours a day/7 days a week. Similarly, an association representing meteorologists told us that capping FTEs at 81 put a strain on the remaining meteorologists. FAA officials told us that they disagree with the NWS assessment that 81 FTEs would have negative effects on the NWS meteorologists. Those officials stated that 81 FTEs represent approximately the historical staffing average and that NWS has consistently filled requirements at that FTE average.

[16]As previously mentioned, FAA reimburses NWS for the costs of providing decision support services, including providing weather information, to the command center, en route centers, as well as certain other facilities and air traffic control towers within the NAS under a 2016 interagency agreement. This reimbursement is subject to availability of annual appropriations for FAA.

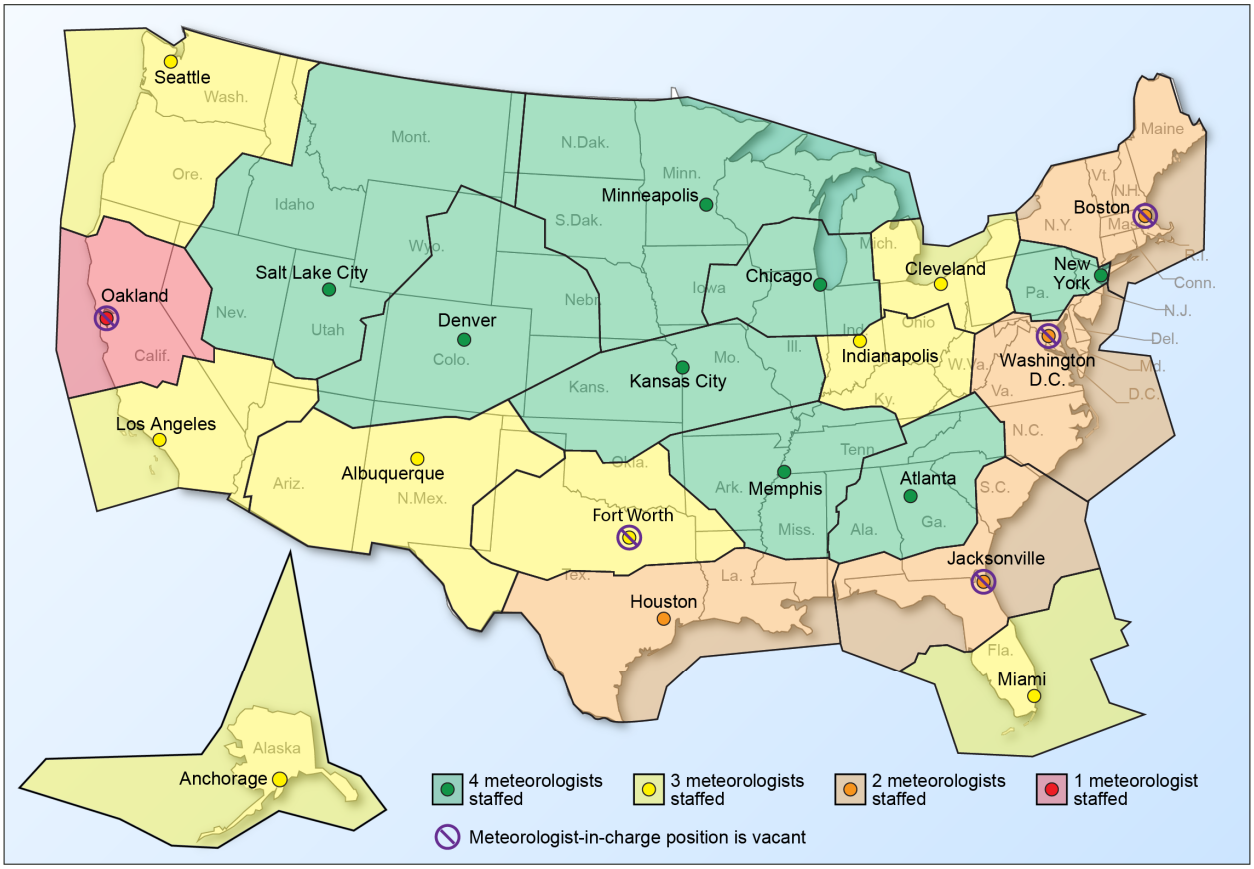
[17]For this management report, we did not independently review the original data sets NWS provided FAA in response to their April 2024 request. We relied on information from officials from FAA and NWS on the reasons for previous staffing decisions.

[18]Stakeholders we contacted pointed to other reasons—other than natural attrition—that staffing has remained below 90 since 2019. For example, associations representing meteorologists and air traffic controllers told us that they believe recruiting meteorologists had been difficult due to a lack of confidence that the positions would continue to be funded due to the expiring interagency agreement. Similarly, NWS officials told us that FAA has been exploring options to reduce funding for the CWSU program for the last 2 years.

In 2025, meteorologist staffing levels have fallen below the number that NWS urgently warned could cause safety and efficiency consequences. According to NWS, as of June 2025, the meteorologist staff is now down to 69 active meteorologists, which is putting a significant strain on these meteorologists.[19] NWS officials told us that recent staffing levels have been affected by the federal hiring freeze and by the deferred resignation and voluntary early retirement/voluntary separation incentive payment programs that were offered in 2025. Similarly, the association representing meteorologists told us that these events exacerbated a meteorologist staffing problem that already existed.

Although the 2025 amendment specified that total staffing for NWS meteorologists at en route centers and the command center is capped at 81 FTEs, the amendment did not specify how these meteorologists are distributed among those centers. Figure 1 below displays the distribution of meteorologists at CWSUs as of June 2025, excluding the four positions located at the command center. As shown in figure 1, eight of the 21 CWSUs are fully staffed with four meteorologists, as outlined in the 2016 interagency agreement, while five of the CWSUs are staffed with one or two meteorologists.

Figure 1: National Weather Service (NWS) Meteorologists Staffed at the 21 Central Weather Service Units (CWSUs) as of June 2025



Sources: GAO analysis of National Weather Service information; Map Resources (base map). | GAO-25-108597

Notes: Under a 2016 interagency agreement, the National Weather Service (NWS) must staff three meteorologists and one meteorologist-in-charge at each of the 21 en route centers, and the Federal Aviation Administration must reimburse NWS for the associated personnel costs, subject to the availability of annual appropriations. While a 2025 amendment to the agreement specified

[19]On August 19, 2025, Commerce officials told us that they have recently hired two CWSU meteorologists.

that total staffing for CWSUs at en route centers and the command center is capped at 81 full-time equivalents, the amendment did not specify how these meteorologists are distributed among those centers.

Hawaii does not have a CWSU as all aviation weather functions are handled by the NWS Honolulu Forecast Office.

According to NWS officials, five CWSUs (see fig. 1) were missing a meteorologist-in-charge as of June 2025, which has had effects including the loss of daily operations management, handling administrative duties (e.g., tracking training requirements and reporting monthly metrics), and the capability of filling in for employee work breaks.[20] NWS officials said supervisory duties are assigned to someone in a remote location for CWSUs without a meteorologist-in-charge.

In addition, NWS officials said that its services to the command center are also reflecting strain from operating with fewer aviation meteorologists; there are currently four meteorologists staffed out of the six meteorologists designated for the command center.[21] Because of the fewer number of aviation meteorologists at the command center, NWS officials told us that meteorologists have sometimes had their workloads doubled as they monitor the daily forecast and work on forecasts for the next day simultaneously. According to the officials, this risks a degradation of the forecast because the meteorologists are working on different tasks simultaneously and their situational awareness is disrupted.

NWS officials told us that they have taken several mitigation actions to continue providing services at CSWUs with fewer meteorologists. One of these actions includes providing backup services from other CWSUs remotely to a CWSU that has staffing vacancies. However, an NWS Instruction states that having a CWSU provide decision support services for another CWSU where a NWS meteorologist is absent during normal hours of operations should be rare and reserved for emergency situations.[22] Other actions NWS officials described include detailing meteorologists from other NWS offices to CWSUs, placing aviation meteorologists from the command center on temporary duty at CWSUs, and using meteorologists from the local weather forecast office to fill in-person shifts at CWSUs. FAA officials told us that NWS is keeping them informed of these mitigation strategies and that there are no safety or preparedness concerns.

However, NWS officials said that meteorologists are taking “heroic measures” to meet the agency’s needs. The association representing meteorologists said the narrow staffing margins

[20]Duties of the meteorologist-in-charge include ensuring the NWS meets the center's weather support requirements, assigning duties for staff meteorologists and establishing time and attendance procedures in accordance with interagency and collective bargaining agreements, serving as liaison between local FAA facilities and NWS offices, and performing quality control and verification of products and services delivered to the FAA.

[21]The command center has one meteorologist vacancy, and one meteorologist is on military leave, as of June 2025 according to NWS. Under the 2016 interagency agreement, FAA must reimburse NWS, subject to the availability of annual appropriations, for staffing the command center with five meteorologists and one meteorologist in charge, as part of the 90 total staffed meteorologists. In addition, NWS must provide decision support services 16 hours per day/seven days per week at the command center, with the ability to surge as needed up to 24 hours per day/seven days per week as coordinated with FAA, under the interagency agreement.

[22]The NWS Instruction further states that these “backup services” will be provided by an adjacent en route center designated in the Instruction, or as arranged with another CWSU. In the absence of an NWS meteorologist at the FAA Command Center, the Aviation Weather Center will provide backup services. *See* NWS Instruction 10-803, Support to Air Traffic Control Facilities (June 20, 2019). The Statement of Work supporting the 2016 interagency agreement between FAA and NOAA/NWS has nearly identical provisions. FAA considers this provision an essential component of operational resilience and expects adherence to the agreed backup protocols as part of routine service delivery, according to FAA officials.

have meteorologists stretched unsustainably thin and have created a very stressful working environment.

Stakeholders from the four major airlines (for about 76 percent of domestic flights in 2024) and three associations representing airlines, air traffic controllers, and meteorologists expressed concerns about the current meteorologist staffing levels and the mitigation strategies being used, such as providing remote support.[23] Specifically:

- **Absence of local expertise when services are provided by back-up meteorologists.** Four of the stakeholders emphasized that local expertise is critical to efficient CWSU functioning. One association representing air traffic controllers told us that this local expertise is critical because the meteorologists provide real-time information directly to traffic managers, such as how a particular storm may move in the next hour. In addition, an association representing meteorologists told us that one of the positive features of the current structure of meteorologists embedded with the CWSUs, is that a meteorologist can sit down beside an air traffic controller to provide advice while the controller is working to keep the aircraft safe. For example, if a plane is flying through a thunderstorm and it encounters trouble, the controller, with the up-to-date advice of the CWSU meteorologist, can direct the plane out of danger quickly.

  In addition, the association representing meteorologists said that aviation meteorology is different than other types of meteorology that focus on the effects of weather on the surface for miles (horizontally) such as tropical storms, severe weather, or other types of weather. The association said that aviation meteorologists monitor the weather on the surface as well as vertically through the atmosphere, which can further complicate the forecast. Further, weather movement is asymmetrical as one part of a storm line may move faster than others.

  This association also told us that meteorologists filling in at other CWSUs that are short-staffed do the best that they can, but they may be unfamiliar with weather patterns or other constraints local to that area. For example, in Florida, a lot of airspace is reserved for military operations and meteorologists from other centers may not be aware of this. As weather patterns are different all over the country, it can take months to years for new meteorologists at a CWSU to develop expertise in their areas, according to the association.

  The association representing air traffic controllers told us that the absence of local expertise can affect the granularity of the forecasts. One major airline told us they notice a decline in the granularity of products and services when receiving information from a back-up meteorologist.

- **Lack of access to specialized local weather systems and information for back-up meteorologists.** When meteorologists provide remote support, they do not have access to all the same equipment and information that are present in the local offices, according to two associations representing meteorologists and air traffic controllers. For example, Integrated Terminal Weather System computers in the local offices are configured for specific en route centers. CWSUs performing remote backup operations for another en route center

[23]Seven of the 13 stakeholders we contacted raised the concerns we describe. Four smaller air and cargo airlines and one association representing pilots told us that at this time, they had not encountered a direct problem regarding CWSU meteorologist staffing concerns. One cargo airline did not respond to our request for information on CWSU staffing level concerns.

(airspace) would be unable to see the output from these computers.[24] As a result, according to the association representing meteorologists, the back-up CWSU meteorologists would be unable to see system alerts on local wind shifts and gust fronts, which could cause problems with NAS operations.

- **Safety concerns due to overworked meteorologists.** The association representing meteorologists told us that they have concerns about safety. According to NWS officials and the association representing meteorologists, meteorologists in the CSWUs and at the command center are suffering from burnout, fatigue, and low morale as they are working overtime to maintain operations and are avoiding taking leave. For example, the association said that one meteorologist had to reschedule medical procedures because of working overtime shifts to cover for vacant positions. The association said that meteorologists may not be as alert when they are overworked, and that rest is extremely important for all positions associated with FAA's work to prevent mistakes. Further, if a meteorologist from one CSWU is also providing backup for another CWSU, that meteorologist is now monitoring two areas, which in the association's opinion is a responsibility too large given the level of attention that each area needs.

- **Potential inefficiency during weather events.** Representatives from one major airline were concerned that if FAA must rely on a generalized forecast instead of in-person contact with a meteorologist, FAA may have a less proactive strategy for weather events. This could lead to traffic managers either overreacting or underreacting to a weather event and inefficiencies in NAS operations. Similarly, the association representing air traffic controllers said that degraded weather services could lead to more conservative decision-making at the traffic management centers and more traffic management initiatives that result in inefficiencies and delays.[25]

- **Potential conflicts of interest when FAA requests backup from airline meteorologists.** Two airlines told us that their individual weather teams have been asked to provide support—for example, briefing other NAS stakeholders on the weather—when FAA lacks meteorologist staff support. Three airlines and the association that represents air traffic controllers told us that there are potential conflicts of interest with this practice because airlines compete with one another in managing their operations. For example, the association representing air traffic controllers said that using airline meteorologists is inappropriate, because while they are professionals, airlines can get more planes into contracted windows if the forecast given by the in-house meteorologists is more favorable, making this arrangement problematic.

Maintaining safety in air commerce is one of FAA's highest priorities by statute and NWS provides decision support services to help FAA meet this objective. In addition, *Standards for Internal Control in the Federal Government* state that management should identify and respond to risks related to achieving defined objectives. These standards also state that management

[24]FAA's Integrated Terminal Weather System provides improved integration of weather data into timely, accurate aviation information. This system integrates terminal weather data to automatically provide current weather information and predictions in easily understood graphic and textual forms, including windshear, storm cell, and lightning information.

[25]Traffic management initiatives are techniques that FAA uses to manage demand capacity in the NAS (e.g., ground delay programs, reroutes, and altitude adjustments).

should design specific actions to respond to risks and document the identification and response to risks on both a periodic and ongoing basis.

As of July 2025, FAA officials stated they are analyzing the current staffing model and identifying potential risk mitigations to address staffing and other challenges in the context of existing and future agreements. However, FAA has not yet identified, and thus has not developed, specific actions it could take to more immediately address the potential risks to the safety and efficiency of the NAS posed by current meteorologist staffing levels and the range of related concerns that stakeholders identified.

In July 2025, NWS officials told us that they are continuing to take action to mitigate the effects of staffing shortages. NWS officials said that they have advertised reassignment opportunity notices that include CWSU positions. Officials said they anticipate having more meteorologists onboarded by the end of the fiscal year. NWS officials also said they have recently been granted an exception to the federal hiring freeze and plan to include additional CWSU positions in a future vacancy announcement. However, these actions may not result in the level of services FAA and users of the NAS need.

FAA officials said that recruitment, retention and staffing within the NWS are internal workforce matters under the authority of the Department of Commerce, and that FAA has no authority or mechanisms to provide direct assistance. As such, FAA said it relies on NWS to fulfill its staffing obligations under the interagency agreement and to manage its personnel resources accordingly. However, a reduced level of services increases risk to safety and efficiency in an already-stressed NAS.

FAA and NWS officials told us that as of July 2025, they are developing a new interagency agreement for fiscal year 2026 and beyond, which could contain structural changes in the way CWSUs are staffed and maintained. FAA officials said that in April 2024, NWS provided proposed staffing configurations for revised CWSU support models, which included 64 meteorologists, combining strategically placed field support with centralized capability to enhance efficiency, digital coordination, redundancy, and scalability. FAA officials said the agency is still analyzing this model but said that FAA leadership supports it. NWS officials said that they provided a range of operating models that provide a blend of in-person and remote decision support and include centralized remote weather support (the FTEs range from 62 to 71 meteorologists). NWS said that they provided these options because of the stated assumption that FAA wanted to move away from full-time in-person support. However, NWS officials told us that the options they provided still include a number of risks:

- reducing or eliminating the in-person meteorological decision support from heavily affected areas (traffic and/or weather) could pose a risk to aviation safety,
- delivering services from a centralized location is a largely untested concept, and
- focusing on providing in-person services to centers with the highest air traffic and with the largest weather events may not always align with the shifts in demand for meteorological support when air traffic is rerouted to avoid weather hazards.

NWS officials told us that they remain open to exploring different operating models, including a more centralized one if several operational issues are resolved, such as providing fail-proof ways for a centralized NWS service to be able to contact FAA traffic management units and vice versa. However, the NWS officials said they recognized that a centralized model is out of step

with feedback they have heard from FAA managers at the en route centers who value the in-person support and rely on it for operational decision-making. An association representing airlines emphasized the need for meteorologist services to support safe and efficient operations regardless of how FAA determines it will provide the weather information. One airline said that staffing levels should correlate with the flight volume and complexity of the weather at the CWSU.

This is not the first time FAA and NWS are discussing potential changes to the structure and staffing of the CWSUs. In 2008, we reported on the status of then-ongoing negotiations, and the steps that both agencies could take during those negotiations to ensure the quality of future weather products and services.[26]

FAA officials told us that any changes to the interagency service model or staffing will only take place after FAA has coordinated with stakeholders and holds a formal Safety Risk Management Panel on those changes.[27] FAA officials said that they intend to engage NWS leadership to ensure that any future transition is risk-managed, coordinated, and consistent with the safety and operational requirements of the NAS. NWS officials told us that the two sides are meeting to strategize a way to prevent a break in service when the existing interagency agreement ends on September 30, 2025. NWS officials said that FAA has initiated an internal approval process to extend the existing agreement for up to 2 years while both parties negotiate potential changes to the structure.

While FAA and NWS are engaged in a number of activities—including hiring more meteorologists and negotiating a future staffing agreement—it is unclear whether these activities will produce the desired results for addressing risks to the safety and efficiency of the NAS when meteorologist staffing levels change. In the nearer term, identifying and taking urgent action, in close consultation with NWS, to address risks caused by current meteorologist staffing levels could help FAA ensure the safety and efficiency of the NAS.

Conclusions

The potential compounding effects of current aviation meteorology staffing levels—along with other issues surrounding air traffic controller shortages and periodic system failures in the air traffic control centers—on the safety and efficiency of the NAS is concerning. FAA has ultimate responsibility for the safety and efficiency of the NAS and has broad authority to regulate and oversee the use of that airspace to ensure this responsibility is met.

According to officials from FAA and NWS, they are considering alternative meteorologist staffing models. However, FAA has not fully identified the risks of having fewer meteorologists—down to 69 active meteorologists as of June 2025—for the current operational capabilities of the command center and en route centers. The agency has, in turn, not developed specific actions that could be taken more immediately to address any such risks, and the concerns that aviation stakeholders have raised. Not having identified and addressed the risks of the current staffing

[26]GAO, *Aviation Weather: FAA Is Reevaluating Services at Key Centers; Both FAA and the National Weather Service Need to Better Ensure Product Quality*, GAO-08-258 (Washington, D.C.: Jan. 11, 2008).

[27]According to FAA, a Safety Risk Management Panel is a meeting of a diverse group of safety review panel members, subject matter experts, observers, and facilitators from the various organizations affected by a NAS change or existing safety issue. They objectively identify potential hazards and effects associated with a NAS change or existing safety issue and provide findings and recommendations to decision-makers, which are captured in a Safety Risk Management document.

levels is concerning given the potential safety effects if aviation meteorologists are overworked and the quality of their services to air traffic controllers is diminished. This analysis can also inform FAA and NWS efforts to develop a new interagency agreement and consider structural changes to the current model of staffing for aviation meteorologists.

Recommendation for Executive Action

We are making the following recommendation to FAA:

The Administrator of FAA, in close consultation with NWS, should fully identify potential risks to the safety and efficiency of the NAS caused by current meteorologist staffing levels and take urgent action to address them. (Recommendation 1)

Scope and Methodology

As part of our ongoing work to examine aviation operational preparedness, we reviewed FAA and NWS documentation related to staffing. These documents include forecasting products delivered by meteorologists stationed in CWSUs, the 2016 interagency agreement between FAA and NWS, and selected amendments to that interagency agreement. We also compared NWS and FAA actions related to the meteorologist staffing vacancies against selected standards in *Standards for Internal Control in the Federal Government*.[28] In addition, we reviewed relevant statutes and interviewed FAA officials; nine passenger and cargo airlines based on criteria such as size, participation in FAA National System Reviews, and experience with weather-related flight disruptions; and representatives—who were authorized to speak for their organizations—from four associations representing meteorologists, air traffic controllers, airlines, and pilots, to get a range of perspectives. We interviewed NWS officials about how they prepare for and respond to changing conditions, such as severe weather events. We specifically interviewed NWS officials about how their meteorologists assist FAA in preparing for and responding to weather events. We analyzed interviews with all stakeholders to identify common themes. We interviewed NWS and FAA officials for information about staffing practices at the CWSUs and command center, and how, if at all, these practices affect FAA's ability to prepare for and respond to changing weather conditions.

We conducted this work from June 2025 to August 2025, 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.

Agency Comments and Our Evaluation

We provided a draft of this report to DOT and Commerce for review and comment. In its comments, reproduced in the enclosure, DOT concurred with our recommendation. DOT also provided technical comments which we incorporated, as appropriate. Commerce did not provide official comments, but provided technical comments which we incorporated, as appropriate.

[28]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: September 2014), Principles 9 and 10.

In its comments, DOT stated that FAA is collaborating with NWS to develop a new service delivery model for fiscal year 2026 and beyond. DOT stated that FAA anticipates the model will contain changes to the way CWSUs are staffed and maintained, and that it will likely include 64 meteorologists in new, strategically placed field support locations throughout the NAS. In addition, DOT stated that this approach includes multiple benefits, and that discussions between FAA and NWS leadership are ongoing to develop a more efficient service model that delivers on performance and reduces risk while using fewer resources.

Using fewer resources while reducing risk is a positive goal for fiscal year 2026 and beyond, but it likely will take time before a new model can be implemented and for meteorologists to be hired and trained within new areas of responsibility. As such, we believe that it is critical for FAA to fully identify the risks of current staffing levels in the current CWSU model and take urgent action to address them now. FAA is ultimately responsible for ensuring the safety and efficiency of the NAS and has broad authority to do so. Using that authority in the nearer term to address concerns related to the fewer meteorologists present in the CWSUs is important while the new service delivery model is under development.

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

If you or your staff have any questions about this report, please contact me at collinsd@gao.gov.

//SIGNED//

Derrick Collins
Director, Physical Infrastructure

Enclosure

U.S. Department of Transportation
Office of the Secretary of Transportation

Assistant Secretary
for Administration

1200 New Jersey Avenue, SE
Washington, DC 20590

August 15, 2025

Derek Collins
Director, Physical Infrastructure Issues
U.S. Government Accountability Office (GAO)
441 G Street NW
Washington, DC 20548

Dear Mr. Collins:

Federal Aviation Administration (FAA) is committed to providing the safest, most efficient aerospace system in the world. Aviation safety is FAA's highest priority, and the Department of Commerce's National Weather Service (NWS) provides decision support services and meteorologists to assist FAA in meeting this objective. FAA has collaborated with NWS to ensure the appropriate level of meteorologist staffing within the National Airspace System (NAS). Pursuant to a 2016 interagency agreement, and a subsequent 2025 amendment, FAA and NWS agreed to cap meteorologist positions at 81 full-time equivalents to provide decision support services 16 hours per day/7 days per week at their respective locations.

Upon review of GAO's draft report, FAA concurs with the recommendation to identify, in consultation with NWS, potential risks to the safety and efficiency of the NAS caused by current meteorologist staffing levels and take urgent action to address them.

FAA is collaborating with NWS to develop a new service delivery model for Fiscal Year 2026 and beyond. FAA anticipates that the model will contain changes in the way Center Weather Service Units are staffed and maintained. Due to factors including advances in technology that create efficiencies in meteorology, this new service delivery model will likely include 64 meteorologists in new, strategically placed field support locations throughout the NAS. The benefit of this more streamlined approach includes centralized capability to enhance efficiency, digital coordination, scalability, and redundancy. Discussions between FAA and NWS leadership are ongoing to develop a more efficient service model that delivers on performance and reduces risk while using fewer resources.

We appreciate the opportunity to review the GAO draft report. DOT will provide a detailed response to the recommendation within 180 days of the final GAO report issuance. Please contact Gary Middleton, Director of Audit Relations and Program Improvement, at gary.middleton@dot.gov with any questions or to obtain additional details.

Sincerely,

Anne Byrd

Dr. Anne Byrd
Assistant Secretary for Administration