



**U.S. SENATE COMMITTEE ON
COMMERCE, SCIENCE & TRANSPORTATION**
Senator Maria Cantwell, Chair

U.S. Senator Maria Cantwell

**U.S. Senate Committee on Commerce, Science, and Transportation
Hearing: “The Federal Aviation Administration’s NOTAM System Failure and its
Impacts on a Resilient National Airspace”**

Witness: Billy Nolen, Acting Administrator, Federal Aviation Administration

February 15, 2023

Opening Statement

[VIDEO]

Sen. Cantwell: The Committee will come to order, I appreciate all my colleagues being here this morning.

For the United States to be the leader in aviation, we must set the gold standard for aviation safety.

We know there is work to do. There have been a number of recent incidents that highlight the importance of making safety the top priority. Last week we saw how technology issues can impact airlines and the traveling public.

Today, we welcome acting FAA Administrator Billy Nolen to the Committee to help understand what went wrong with the NOTAM system and what actions the FAA is taking to make sure this never happens again.

How do we make sure the agency has the necessary resources to modernize its IT infrastructure and how do we ensure a safe, efficient, and reliable network. How do we ensure our global competitive edge?

Mr. Nolen understands these challenges.

On January 11th, Mr. Nolen ordered the first ground stop since 9/11. And this was a significant event, more than 1,300 flights were canceled and more than 9,500 were delayed.

Prior to leading the FAA, Mr. Nolen served as the head of the FAA’s Office of Aviation Safety with over 1 million registered aircraft, over 1 million active pilots, and over 50,000 flights every day. The Aviation Safety Office has a very big job.

As an experienced airline pilot, Mr. Nolen understands the importance of the NOTAM system. These notices provide real time safety information, flight operations, and without access to this information, safe aircraft operations really are not possible.

This hearing, like last week's, which I believe still shows the investment in technology that needs to be made, Southwest could have updated their system and didn't and a critical event happened.

Now we want to make sure a critical event like [what] happened with our NOTAM system also doesn't happen. And how do we keep our economy moving forward?

These incidents are concerning. They impact Americans' confidence in our aviation system and our aviation infrastructure is critical to American safety and security.

So we need to accelerate building a National Airspace System for the 21st century, something this committee is going to work on as it relates to the FAA reauthorization bill. And the 2023 authorization bill will give us many opportunities to talk not just about this issue, but other issues. But our appropriator colleagues also have to do their job.

Over the last several years Congress has met or exceeded the administration's budget request for the FAA facilities and NOTAM. But Mr. Nolen will talk today about additional funds, why Congress needs to paint a clear picture about the needs of our Airspace System for the future.

To be sure, the FAA must have redundancies, and not a single point where a failure can happen in a key system like we just saw. And we have to have a responsibility to ensure that every taxpayer [dollar] is provided a maximum value on return.

Therefore, we must see clearly the obstacles ahead and a path to make sure that we have this most modernized system.

Today's discussion on NOTAM and national airspace are really part of a bigger picture. I'm sure there will be other issues that come up today as events of the last several weeks have pointed out the roles of FAA in our airspace system working with DOD and others.

So we look forward to the questions and opportunities to have you before the committee to address these important timely questions.

[...]

[VIDEO]

Sen. Cantwell: We have a barrier problem here. We need more women in aviation. And fewer than 10% of the licensed pilots are women about 5% of airline pilots, 3.6% of airline captains. So I just want to say how proud I am that the two naval aviators that flew over the Super Bowl were from Whidbey Island and Whidbey Island Air station. But I do think that [the] changing is in the right direction. And we need to do more to encourage more women in aviation.

Q&A Round 1

[VIDEO]

Sen. Cantwell: Let's drill down on the NOTAM system. One of the issues from my understanding and you are saying that this involved an individual deleting the wrong set of files, we have a backup redundant system, why couldn't we just go to that system?

Acting Administrator Nolen: Thank you, Madam Chair for the question.

So we do have a backup system. A part of how the system works is that as you do updates to the system, as you delete, outdated NOTAMS, it synchronizes across both the primary backup and the other two backups. So part of that synchronization once we realize it once the...

Sen. Cantwell: So the structure of the architecture is not favorable to true redundancy?

Acting Administrator Nolen: Which is one of the reasons we're in the middle of this whole modernization effort.

Sen. Cantwell: So you're agreeing with me, is that right?

Acting Administrator Nolen: Yes, ma'am. I'm agreeing with you that we have a 30 year old system... Let me just say to the point 80% of the users are already on our newer system, which is the Federal NOTAM system.

We still have some critical users on the U.S. NOTAM system, which is 30 year old. Primarily, you have DOD, you have the Alaska Aviation in Alaska, and our international users are still on that system. But again, we're working to be off of that system by FY25.

Sen. Cantwell: So I think the NTSB is you know, the authorization bill, we wanted to make progress on this, and so they're [NTSB] basically saying that we aren't making progress on this. What is your response to how we're going to not [wait] until 2025?

I get that you're saying now "I'm going to back up on the human factor." Really, is what you're saying I'm going to back up on the human factor and make sure that this never happens? Because one individual being on the spot, but really, it's the architecture of the system that doesn't give us true redundancy. So is there a way to solve that before we go two years into the modernization?

Acting Administrator Nolen: Yeah, we will continue on this journey of modernization. I've asked and I've directed our team to look at what is our ability to accelerate that timeline. Can we pull it into...

Sen. Cantwell: I'm asking you what you can do about the existing system today to give you true redundancy. You're trying to give me human factor redundancy and another individual, but when in reality, I'm pointing out that the architecture of the system isn't true redundancy. Because if the deletion impacted both systems, yes, then you don't really have redundancy, you don't have a separate reboot. Our electricity goes off on

our house, we go to the generator, if you have one, right? So in this case, the backup didn't work either because it was affected by the same deletion.

So you don't have to answer all of it right here, but I need an answer on this issue of redundancy to the system. Because while we want to modernize, and we want to have the right resources, and we got a pretty good offer from our colleagues to drill down with us on the appropriation side to make sure that we have a clear understanding.

And I really do think this has been an issue in the past. I really do think that appropriators need to understand the technology needs of the FAA and support them. But what can we do now to make sure this doesn't happen again?

Acting Administrator Nolen: Well, thank you. There's several things that we've done.

Number one, we have instituted a one hour synchronization delay between the primary database and the backup database that gives us time to make sure that we have no issues there.

Secondly, we've increased the level of oversight to ensure the more than one person is available when work or updates are being done on the live database, along with up-leveling our level of oversight within the command center to ensure that we've got leadership present.

So those of course are more in the area of administrative controls but the work continues to get off of the U.S. NOTAM system and on to the Federal NOTAM system.

Sen. Cantwell: I'm going to come back at you and ask that you work with contractors to find out how to get us true redundancy in the short term in a backup database that is truly independent and could operate at the same instance if this happened again.

So in my sense of this near miss with Southwest Airlines and a cargo carrier, was Southwest in a position earlier than their slot. Is that what happened?

Acting Administrator Nolen: Well, what happened in Texas and in Austin is something we would not expect to happen during a low visibility operation where Southwest was cleared for takeoff and FedEx was cleared for approach in close proximity to each other. That investigation is underway by the National Transportation Safety Board and the FAA. So we're looking at every aspect of it. We will certainly provide updates, but it is not something we expect it to have taken place...

Sen. Cantwell: I'm asking if you have an answer today about why this occurred.

Acting Administrator Nolen: No, ma'am. That investigation is still ongoing, but we'll certainly provide an update.

Sen. Cantwell: Thank you.

Q&A Round 2

[VIDEO]

Sen. Cantwell: So my intention is to ask a follow up question and if anybody else shows up, we'll give them an opportunity to ask a question. If they don't, we're going to close out the hearing and move on.

Mr. Nolen, I found a very concerning that the same day we had this NOTAM system issue so did Canada. I just feel like this can't be a coincidence that we have no incidents. And then on the same day, the same system, has a problem in two different countries. Do you know about the Canadian outage and what is your make of this situation?

Acting Administrator Nolen: Yes ma'am, I do know about the Canadian outage. We have talked with our counterparts at Nav Canada. Absolutely, there was no connection between what they experienced, based on everything they told us, and what we experienced.

That being said, one of the very first things I directed our investigation teams to do to look at this from both a human error, but also from a cyber. We also have Department of Homeland Security working with us to look at what is our level of cyber resilience there. So again, the investigation is ongoing. Everything we have to date showed no sign of this being cyber related, but the investigation still continues there.

Sen. Cantwell: And so what was the outage in Canada?

Acting Administrator Nolen: There was, in my understanding from them, there's was a database, but they have a different system, different architecture, it was not related to our system in any way, shape, or form.

Sen. Cantwell: I'm sure it wasn't related to our system, but I still find it ironic that the two biggest systems in the world are out at the same time. And there's been no problems with these NOTAM systems and all of a sudden, on the same day, there was a problem. I just I think we'll look forward to more data and information from you on that.

Back to the question, though, on redundancy, I don't think we have true redundancy here. So I want to see a plan from the FAA that examines the fact that the backup systems are still subject to the same kind of, if you want to call it human error, of deletion of files.

You're building a system to try to firewall that from not happening again. But it could be a different problem, and we still have a backup system that would be affected. So until we get the true modernization system, I would like you to go back and see what level of redundancy, that you really have a truly separate system that would not be impacted by this.

Acting Administrator Nolen: We appreciate the concern and that is indeed one of the first paths I directed as well, which is this overarching look by our IT team working with MITRE is to do exactly what you're asking.

Sen. Cantwell: And so what did you come up with? Since you went down this road sooner than I did what did you come up with?

NOLEN: That that is still ongoing. They've still got a bit to do, because, you know, as I said, we've got thousands of systems, and we asked for them is to once that work is done, we'll certainly be happy to provide an update to the committee.

Sen. Cantwell: You mean, we have contractors with too much stuff and they can't get things done? Is that what you're saying?

Acting Administrator Nolen: No, ma'am.

Sen. Cantwell: Okay. So why can't they give us an analysis of the system and keeping a duplicate system?

Acting Administrator Nolen: That's the body of work that's ongoing is not just the NOTAM system. But I think what you're asking for is looking across all of our critical system that that underpin our national airspace and the levels of redundancy there. That's the work that we have our IT and MITRE.

Sen. Cantwell: No, I'm asking just now about the NOTAM system. I want to get an answer within a week about the NOTAM system having a separate backup, a totally separate backup that could be used.

You're saying what happened here is somebody infected the file, and basically ended up deleting something that then caused the outage to the system. So the question is, you're now trying to put human redundancy there so that this won't happen again. But if the same system is a network, including the backup servers and other places, and whatever action somebody mistakenly takes on files, still affects the whole system.

What would be important to understand is, can the FAA set up a true redundant server system that would allow for that file corruption that happened not to happen across the entire system? And that's what we need to know the answer to.

So I do see that a few colleagues have arrived, which means we have some questions to answer.

Closing Remarks

[\[AUDIO\]](#) [\[VIDEO\]](#)

Sen. Cantwell: Administrator Nolen, thank you for your participation. The hearing record will remain open for four weeks until March 15th, 2023. Any Senators that would like to submit questions for the record should do so two weeks from now by March 1st, 2023. And we ask the witnesses to respond by March 15th, 2023. So with that our hearing is concluded.

