NIWC Atlantic Team Develops Next-Generation Mobile ATC Towers

Medium mobile Air Traffic Control (ATC) towers are being developed by members of Naval Information Warfare Center (NIWC) Atlantic's ATC Special Programs team. The smaller, trailer-sized, mobile towers are designed for rapid deployment during emergencies due to inclement weather, equipment failure or other disruptions. Despite its smaller size compared to traditional towers, these new mobile assets can provide the ATC systems necessary to keep an airfield up and operational.
By Kris Patterson, NIWC Atlantic Public Affairs Office, Nov. 6, 2024

CHARLESTON, S.C. – Members of Naval Information Warfare Center (NIWC) Atlantic's Air Traffic Control (ATC) Engineering Division are engaged in developing a new generation of mobile ATC towers designed for rapid deployment.

The team's medium mobile ATC tower – a smaller, trailer-sized facility – can be quickly deployed to any airfield that requires emergency ATC support due to weather, equipment

failure or other disruptions.

“This tower is a visual facility that can be pulled onto an airfield, ensuring operations continue seamlessly even if the main facility is compromised,” said Jim Spivey, an electrical engineer with NIWC Atlantic’s ATC Special Programs team. “In other words, it’s a mobile asset that can provide the air traffic control systems necessary to keep an airfield up and operational.

Despite its smaller size compared to a traditional tower, it continues to offer air traffic controllers the capabilities they need to manage air traffic safely.

The new medium mobile tower is small enough to fit on a C-17 Globemaster III military aircraft, which allows for swift transport, and once delivered, the system can be up and operational within days, providing a crucial backup during emergencies.

The medium is particularly designed for smaller airfields such as executive airports and adjunct airfields like those on the West Coast used for firefighting efforts, highlighting their role in disaster response.

The idea for the medium mobile tower was born out of the partnership between the ATC Special Programs team and the Federal Aviation Administration (FAA).

The FAA created the Mobile Asset Sustainment Program (MASP), whose mission is to provide support, restore and maintain any ATC facility in the United States.

When the MASP team found out the NIWC Atlantic ATC Special Programs team was working on mobile ATC systems and towers for the Air Force, they asked the team for help.

“These mobile assets were created specifically to go out and support a brick-and-mortar air traffic control tower that has

been damaged or is getting a refurb," said Clayton Fronk, lead for the ATC Special Programs team.

Now that the country is in hurricane season, the need for easily transportable mobile towers can be particularly critical.

"Currently, we are still integrating the electronics in the medium mobile towers, but three large mobile towers were previously delivered to the FAA. They've been staged and positioned at FAA Mobile Asset Deployment Centers (MADCs) around the country, so that if a hurricane or tornado or other natural disaster takes out an airfield's tower, the FAA is quickly able to respond and get a mobile tower moved to that location for backup," Fronk said.

By enhancing this critical asset, the ATC Special Program team is able to support a broader spectrum of ATC needs worldwide. The military shares many airfields with the FAA and having these mobile assets available means that disruptions in air traffic control, whether civilian or military, can be mitigated, maintaining safety and operational continuity.

"A lot of the military sites in CONUS [stateside] are using our shared assets with civilian sectors," Fronk said. "They do a lot of testing, evaluation and training at sites and locations, and the military uses shared civilian airspace, so if a tower was damaged or destroyed and the FAA moved this in, it would directly affect the military aircraft in the air at those locations."

One of NIWC Atlantic's larger mobile ATC towers was recently deployed to Homestead Air Reserve Base, Homestead, Florida, where it was used to manage air traffic while permanent facilities were under reconstruction.

In 2020, the ATC Special Programs team built and installed transportable ATC facilities to address an existing flight safety risk at an air base in Southwest Asia.

This installation occurred during the heart of the pandemic and was completed primarily by NIWC Atlantic civilian personnel.

NIWC Atlantic's involvement with mobile ATC towers traces back to the early 2000s when the command, then known as Space and Naval Warfare Systems Center (SPAWARSYSCEN),provided mobile ATC systems for the Navy. The command expanded its services to provide ATC systems for the Marine Corps and Air Force during combat operations in Iraq and Afghanistan.

As the ATC Special Programs team's work evolved and the FAA learned that the team was providing mobile and transportable assets for the Air Force, the team's expertise in this area became particularly relevant for the FAA, who sought to modernize its aging mobile tower fleet, Fronk said.

"The FAA's mobile fleet is decades old, and the systems we're building and integrating are kind of a next-generation, new capability system to replace the old antiquated towers that they have," Fronk said.

Delivered by the ATC Special Programs team, these new capabilities demonstrate the importance of the team's contributions to national safety and operational readiness. Fronk and Spivey both noted the feeling of immense pride they share for their team.

"We have outstanding young engineers at NIWC Atlantic, such as Beka Deason and Mike Thompson, integrating the electronics in the medium mobile towers," Spivey said. "They understand the importance of the work and you always know they're going to step up."

"We've got a great team that's very dedicated and very humble about the work that they do," said Fronk, echoing Spivey's sentiment. "They're a group that is going to do whatever it takes to help others out. I have a great working relationship

with the team, and I'm proud every day that the team does everything they do, both for the civilian sector as well as for the warfighter."

To learn more about the mobile ATC towers, you can hear Spivey and Fronk's interview on Episode 22 of NIWC Atlantic's podcast "Technically Speaking" at Technically Speaking Podcast – NIWC Atlantic (navy.mil).

About NIWC Atlantic

As a part of Naval Information Warfare Systems Command, formerly known as SPAWAR, NIWC Atlantic provides systems engineering and acquisition to deliver information warfare capabilities to the naval, joint and national warfighter through the acquisition, development, integration, production, test, deployment, and sustainment of interoperable command, control, communications, computer, intelligence, surveillance, and reconnaissance, cyber and information technology capabilities.