

Redesigning the Communications Center at Phoenix–Mesa Gateway Airport

Managing Information Overload

From airfield and landside operations to security, public safety, and emergency services, airports must grapple with hundreds of operational functions every day. But because of their size and complexity, airports can struggle to handle the disparate information and data from these various operations.

The Phoenix–Mesa Gateway Airport in Mesa, Arizona, experienced this challenge firsthand. As a reliever airport for the Phoenix Sky Harbor International Airport, Phoenix–Mesa must keep track of information for nearly 300,000 aircraft operations and 1.4 million passengers a year. To meet this challenge, the airport developed an innovative, digitally connected solution with the help of *ACRP Research Report 182: Guidance for Planning, Design, and Operations of Airport Communications Centers*.

An airport communications center (ACC) uses technology to integrate information collected from individual airport departments into a cohesive and comprehensive picture of daily operations. These centers

give airport managers the situational awareness they need to make day-to-day and long-term strategic decisions. However, building an ACC from scratch requires careful guidance throughout the planning and design stages.

Rethinking ACC Functionality with ACRP Guidance

Phoenix–Mesa’s first attempt at building an ACC did not go as smoothly as planned. According to Margi Evanson, Security Operations and Maintenance Director and Airport Security Coordinator, the airport’s “original design put too many functions in the [ACC] and inhibited our ability to truly carry out communication center tasks.” So, 12 months after opening its first ACC, Phoenix–Mesa leadership decided to redesign the communications center. This time, the airport turned to *ACRP Research Report 182* for guidance.

Because of her experience designing Phoenix–Mesa’s first ACC, Evanson volunteered to serve on the project panel that helped guide development of *ACRP*



Aerial view of Phoenix–Mesa Gateway Airport
(Source: Margi Evanson, Phoenix–Mesa Gateway Airport).

Research Report 182. The report describes the various functions of a communications center, provides an outline that airports can use to select the best model for their centers, and includes examples of successful ACCs at airports across the country. It also guides airports through the steps to formally plan, design, construct, activate, and maintain an ACC—once it becomes operational. In addition to providing reputable industry guidance to justify redesign decisions to airport executives, *ACRP Research Report 182* helped Phoenix–Mesa rethink the ACC’s functionality and define its purpose.

Improving the ACC's Physical Design

Phoenix–Mesa also relied on *ACRP Research Report 182's* design guidance to improve the ergonomics of the ACC. The original space featured a 40-inch clearance between an employee at a desk and a large-screen security monitor, which forced the employee to view the screen at an uncomfortable angle. This poor design ultimately led two employees to file neck-related injury claims. To remedy the ergonomic issues, the redesign team moved the operator seat 6 feet back and installed a full video wall.

Equipment issues were another challenge. “We could have up to four or five people working in a single workstation,” Evanson explains, and “all staff were required to use the same

chair, desk, and keyboard heights.” After reviewing *ACRP Research Report 182's* workstation design and seating guidance, Phoenix–Mesa purchased new adjustable office equipment. The airport also improved acoustics in the ACC and moved some functions out of the center to reduce noise levels. Finally, the airport installed dimmable lights to decrease the lighting level and to reduce employee eye strain.

Outcomes and Lessons Learned

The changes that Phoenix–Mesa made addressed the human factors in its ACC design and significantly improved the way airport employees interact with the physical systems around them. Since the redesign, no ACC staff have filed medical claims,

“We were able to go through and pick and choose out of the report what functionality we really envisioned for that area. ... People who work in [the ACC] now find it easier to do their job. They have better situational awareness, fewer interruptions, and they can work more efficiently.”

— Margi Evanson

and the airport has received far fewer employee complaints. A noticeable cultural shift has also occurred in the center. “The ACC redesign has definitely changed the tone of the room,” Evanson says. “It has always had access controls and [required] badges to get in, but it was a much more conversational area before. Whereas, now, you don't go in there if you don't need to, and if you do go in, you're whispering.”

These changes have minimized staff stress and ensure they can perform their duties efficiently and without distraction. With help from *ACRP Research Report 182*, Phoenix–Mesa has created an ACC that not only allows its staff to perform their jobs in an effective and well-organized space, but that also enhances their physical comfort and sense of purpose.



Redesigned ACC room at Phoenix–Mesa Gateway Airport with video wall (Source: Margi Evanson, Phoenix–Mesa Gateway Airport).

ACKNOWLEDGMENT OF SPONSORSHIP: This work was sponsored by the Federal Aviation Administration and was conducted in the Airport Cooperative Research Program, which is administered by the Transportation Research Board of the National Academies of Sciences, Engineering, and Medicine.

DISCLAIMER: The opinions and conclusions expressed or implied in ACRP publications are those of the research agencies. They are not necessarily those of the Transportation Research Board or the program sponsors.