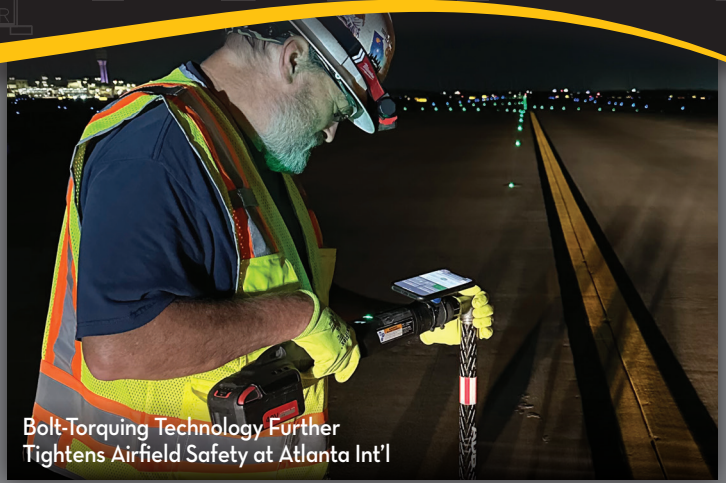


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Bolt-Torquing Technology Further Tightens Airfield Safety at Atlanta Int'l

## RUNWAY & RAMP

SPECIAL EDITION



### Taxiway Reconstruction Project Improves Safety at San Francisco Int'l

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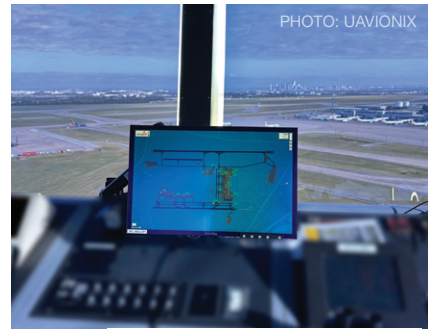
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# We're Listening

The airfield is a crucial element at any airport. While it doesn't typically receive the same public attention as a terminal, parking or even concessions, it's the single most important piece of a complex puzzle. After all, there is no airport without a runway.

When we first started publishing *Airport Improvement* in 2008, the plan was to include a runway story in every issue. At the time, we felt this would be adequate coverage. Why would the airfield deserve more attention? Other media (including airport publications) rarely seemed to cover runways, ramps and other airfield assets. For us, devoting a story in every issue to what was happening on the airfield seemed adequate, if not generous.

But within a year of our launch, we noticed that we had a glut of unpublished project nominations for fascinating airfield projects. Not only that, but a high percentage of our advertisers were consultants and suppliers that supported runways and other airfield projects. Our audience was asking for more.

So, we started including an additional runway story in every issue. But that wasn't enough, either. Our backlog of strong story

recommendations continued to grow, and more great ideas continued to flood in. We needed to do something to meet the demand of the airport industry. That's when we decided to devote an entire issue to all things airfield; and the *Runway & Ramp Special Edition* was born. Having a special edition didn't mean we would only cover the topic once a year in that issue. This was *in addition* to the airfield coverage in all of our other issues throughout the year.

It's been said that change and innovation come about from listening to what's being said. Thanks go out to all of you for speaking up. This special edition is the direct result of what you have been telling us. We'll continue to listen.



PAUL BOWERS, PUBLISHER

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## FACTS&FIGURES

**Project:** Taxiway Improvements

**Location:** San Francisco Int'l Airport, in CA

**Cost:** \$75 million

**Funding:** \$39 million in FAA Airport Improvement Program grants; \$36 million from capital program bonds

**Construction:** Jan. 2024–June 2024

**Key Components:** New non-intersecting taxiways; relocated fuel vault & lines

**Construction Manager/General Contractor:** Golden Gate Constructors

**Project Design & Construction Management:** AECOM

**Electrical Subcontractor:** Royal Electric

**Fuel Subcontractor:** McGuire and Hester

**Storm Drain Subcontractor:** Fontenoy Engineering

**Grooving:** ABSL Construction

**Markings & Striping:** Chrisp Co.

**Civil Design:** SFO Engineering (in-house)

**Electrical Design:** Lean Engineering

**Fuel Vault Design Subcontractor:** Burns & McDonnell

**Lighted Runway Closure Marker:** Sherwin Industries

**Key Benefits:** Enhanced safety; increased efficiency; reduced delays; compliance with FAA standards; improved airport operations

**Of Note:** No incursions or aircraft safety incidents during 6-month runway closure

# Taxiway Reconstruction Project Improves Safety at San Francisco Int'l

BY KRISTEN RINDFLEISCH



This June, San Francisco International Airport (SFO) completed a \$75 million taxiway reconstruction project, removing two heavily used taxiways and replacing them with two separate, non-intersecting taxiways. The updated layout improves safety and efficiency by providing pilots a better line of sight down the runway and brings the airfield up to current FAA standards. The project included full-depth taxiway construction; FAA fiber optic and runway status lighting; electrical and lighting infrastructure; relocating a fuel vault with associated valves and piping; storm drainage work; airfield signage and lighting as well as pavement marking.

The previous layout had an unconventional design with taxiways D and T intersecting with converging centerlines, which created potentially challenging conditions for planes exiting Runways 28L and 28R, SFO's predominant arrival runways. Due to non-standard geometry and the acute angles, aircraft exiting Runway 28R onto the high-speed Taxiway T had line of sight challenges when crossing Runway 28L, Taxiway D and Taxiway K. Realigning Taxiway T to cross Runway 28L perpendicularly and eliminating the need to cross taxiways D and K improved both safety and operational efficiency by allowing the taxiways to be used simultaneously.



The previous site was identified as a potential hot spot through the FAA Runway Incursion Mitigation program in 2015, and SFO began planning the fix in 2016.

Taxiway T, one of the busiest at SFO, was last overlaid in 2006, while Taxiway D was reconstructed in the early 1990s. The recently completed project presented an opportunity not only to enhance the airfield's geometry but also to reconstruct and rehabilitate a high-traffic area.

Changing the geometry of taxiways D and T required significant construction, including extensive excavation, drainage work, paving, striping, markings, lighting and signage. Additionally, the closure of Runway 10R-28L was necessary to reconfigure the runway entrance lights, taxiway lead-in lights, signs and other electrical systems.

The \$75 million taxiway reconstruction project was funded through \$39 million in FAA Airport Improvement Program grants with the remaining \$36 million covered by SFO's capital program bond funding.

## Assembling the Team

Airport leaders determined a construction manager/general contractor project delivery would fit the project best and selected Golden Gate Constructors, a joint venture between Graniterock and DeSilva Gates Construction that has been doing airfield improvement projects at SFO for the last 10 years. AECOM, which has been supporting SFO airfield projects for the past 13 years, was hired for project management support.

Golden Gate worked to efficiently schedule the project with detailed coordination and input from key project stakeholders including airfield operations, FAA air traffic control, FAA tech ops, airline representatives, subcontractors, vendors and other entities. "There's some coordination work that takes place almost on a daily basis to ensure that there are no safety impacts or any challenges," notes Daniel Lee, airfield program manager with the SFO Design and Construction Team. "We wanted to correct those things at a moment's notice."

AECOM worked as an extension to the airport project management team, providing inspections, support and quality assurance testing to ensure specifications were met. The firm also acted as the primary point of contact between stakeholders, contractors and airport management, while managing logistics and ensuring that construction proceeded according to plan and remained on schedule. "AECOM'S role is fundamentally to provide the day-to-day professional services that keep the project moving forward," comments AECOM Project Manager Mark Summers. "Our role develops and changes as the projects move from planning into design, and then through construction."



DANIEL LEE



MARK SUMMERS

## Planning and Re-Planning

Replacing two taxiways is no small feat at an airport with more than 50 million passengers in 2023. The original plan included more of the project to be built during night work closures, which would have significantly extended the project duration because working in limited windows would have taken almost twice as long to complete. To streamline the process and reduce the overall impact of the project, the team revised the phasing strategy to schedule continuous work until the end of May; suspend work during the high passenger volume months of June, July and August; and then resume in September for the final 30-day phase.

Construction started on Jan. 18, 2024. After the project began, however, project stakeholders suggested working straight through the summer months for an earlier overall completion. So the project team collaborated with key stakeholders to make that possible. "We were all focused on delivering the job on time," says Quinn Hennig-Hance, senior project manager for Golden Gate Constructors.

"Most of the stakeholders, both on the airport side with the airlines, tenants, service contractors and vendors, as well as the construction teams were understanding of the impact of this project and to the operation of the airport and really supportive of our efforts to bring it in ahead of schedule and complete it successfully."



QUINN HENNIG-HANCE

Near the end of Phase One, SFO asked for an accelerated timeline for Phase Two, which was planned to take 30 days. Golden Gate Constructors fulfilled that request and completed the work on June 21, which was 10 days ahead of schedule. The company expedited construction by shifting to a 24/7 schedule, adding work on Sundays. It also doubled its onsite crews and made sure extra standby equipment and materials were readily available to minimize downtime and avoid delays. This early completion enabled the airport to increase its arrival rate, which benefited all stakeholders.

When planning the temporary closure of Runway 28L to allow construction, the SFO team carefully assessed the anticipated impact on operations, as it would dramatically reduce the rate of arrival. Personnel met with airlines to adjust the flight schedules, ensuring they aligned with the reduced capacity. Closing one of the two primary runways used for landings would limit operations, but the airlines cooperated by making voluntary schedule reductions. Even with these adjustments, the SFO team expected disruptions and forecasted delays averaging 30 to 60 minutes for about a third of flights. Actual delays closely matched that estimate during the six months Runway 28L was closed.

In addition to delays, the SFO team monitored the cancellation rate, which had previously spiked to more than 100 cancellations per day during a similar runway construction closure at the airport in 2017. However, in this instance, the cancellation rate at SFO remained below 1% throughout the runway closure. Airport and project leaders attribute this success to the proactive schedule reductions.



PHOTO: AECOM

Crews pour the bottom slab for the new fuel vault, which is buried 15 feet deep.

### Project Impact

Beyond separating and realigning the two taxiways, engineers also had to relocate all associated underground infrastructure, including storm drainage, airfield lighting and signage, and FAA fiber optic and runway status lighting.

This project realigned 850 feet of Taxiway D and 1,050 feet of Taxiway T. “The amount of pavement that we worked on for these taxiways was the equivalent of 15 football fields,” says Tiffany Ip, civil engineer with the SFO Design and Construction Team. There were more than 1,400 truck deliveries for the asphalt alone. Crews also laid more than 11 miles of electrical cabling and used more than 700 gallons of paint for taxiway and runway markings.



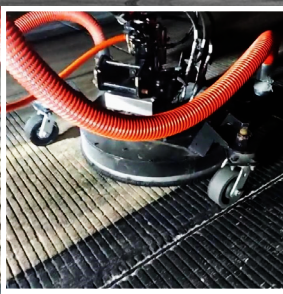
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Another major infrastructure change—and the key factor driving the schedule of Phase One—was relocating one of the airport’s main-line fuel vaults because the new Taxiway D alignment conflicted with the existing vault’s footprint. Initially, the project was designed without relocating the fuel vault and the new Taxiway D segment, but after feedback from airline stakeholders and air traffic controllers, the redesign was completed in 2023 to include this critical task.

The former underground vault was approximately 16 by 16 feet and buried 16 feet deep. It housed three large remotely controlled valves connected to the main 24-inch fuel line that supplies fuel to the gates at the terminals. To create space needed to reconfigure the taxiways, crews had to demolish the existing vault and construct a new one 150 feet to the west. “When we were talking about relocating this vault in the planning stages, it was important to communicate to the stakeholders what exactly this scope was,” Hennig-Hance explains. “It’s not like you pick it up and move it. This is a large, cast-in-place concrete structure.” After demolishing the old fuel vault, crews built a new concrete structure that measures roughly 20 by 20 feet and is buried 15 feet deep. This work, critical for the first phase, was sequenced to be completed during the wetter winter months in early 2024 and was accomplished without disrupting aircraft fueling operations at any terminal.

Airport operations teams appreciate that the project was initiated and is now complete, Lee notes. “They know how difficult the project was and how challenging it was for everyone,” he comments. “The fact that all stakeholders were invested in the project really shows how the airport partners have a culture where we really work well with one another.”

### Green Measures

Although there were not many opportunities for sustainable materials or practices during the taxiway project, SFO took advantage of those that were available. In the pavement design, engineers specified a recycled concrete aggregate base material instead of a crushed aggregate base, which is virgin rock obtained directly from a quarry.

The material used to backfill trenches and excavated areas also has environmental virtues. “We used a material called native slurry backfill, where we reused existing material and treated it with cement as opposed to importing engineered fill from the outside. That, in turn, reduced the amount of trucking as well,” Ip notes.

### Challenges and Solutions

One of the largest challenges in the taxiway project was simply its location. “This is one of the highest traffic operations areas, basically in the middle of our airfield,” Lee notes.




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FAA and airfield lighting required new duct bank infrastructure.



It required closing taxiways A and B, the two main arterial taxiways that encircle the terminals. In addition, Runway 28L was closed for landings and takeoffs and instead used as a detour taxiway to navigate aircraft around the work area. "All aircraft arriving or departing SFO need to travel along these two ring taxiways," Summers explains. "Therefore, phasing the works to maintain the functional circulation of aircraft was key in allowing construction to progress but also to ensure aircraft could still navigate around the work area when taxiing to and from the terminals."

Moving aircraft around the work area required thorough planning taxiing well as cooperation from SFO, airlines, pilots and as air traffic controllers. "Strong coordination was key to our success, as it ensured there were no safety operational risks," Lee remarks. "We had no safety incidents throughout the entire six-month period."

Another hurdle for the project was the impact on passenger operations when Runway



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28L was closed. Beginning construction in January and working to finish before the busy summer season subjected contractors to unpredictable weather conditions.

Temperatures were mild from January through March, but heavy rain in February delayed some aspects of the fuel vault construction. Fortunately, the construction manager/general contractor project delivery facilitated a collaborative response. “No matter what the impacts were, we were always looking for opportunities to recover on that schedule and deliver on time,” Hennig-Hance recalls.

Relocating the vault was a big undertaking that involved major fuel lines from more than 20 years ago. “The vault’s relocation was meticulously planned, phased and coordinated with stakeholders to ensure that its relocation went smoothly with negligible impact to aircraft fueling,” Summers says. The teams had approximately three months to complete this work, as it was an enabling project for taxiway construction.

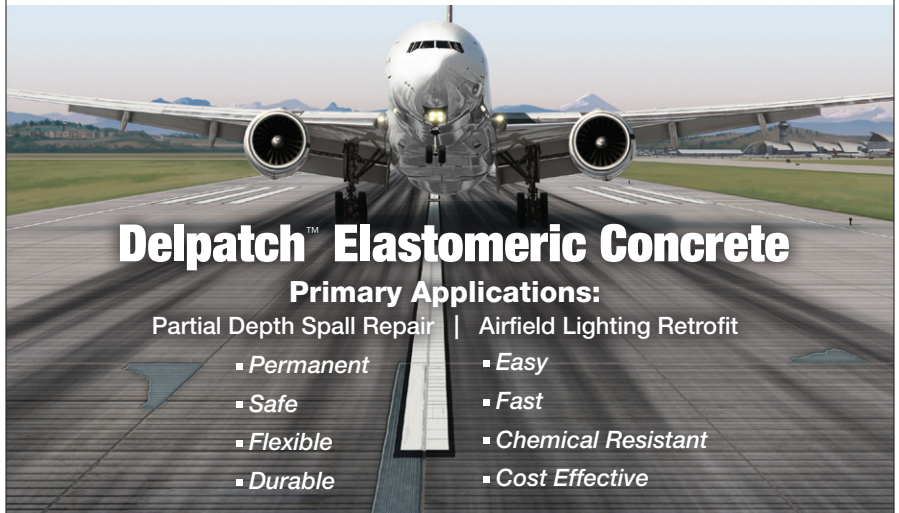
Additionally, the scope and magnitude to clean the newly installed fuel system was broader than many on the project team had expected. As a result, the teams had to adjust plans and implement a recirculation flushing system. This required extensive coordination with the airline fuel consortium, quality representatives, subcontractors and vendors. The team quickly realized that ongoing and proactive coordination was essential. They conducted town hall meetings and daily check-ins with air traffic control and key airlines to help address issues promptly. “When you have this culture of inclusivity, these stakeholders become a part of the project team and are more inclined to help and support,” Hennig-Hance comments. “There’s more buy-in and understanding of the project.”

Yet another challenge involved coordinating the tie-in of electrical and communication infrastructure for the fuel vaults, which affected one terminal’s electrical panel. Weeks of meetings were dedicated to planning this operation, including testing battery backups and developing contingency plans. This coordination proved to be successful, as the tie-in was completed without unplanned impacts.

Although the project included challenges, the work inherently created opportunities



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for additional improvements. “The project is a triple-win for the airport,” Summers comments. “It not only addressed the incursion and safety concerns created by the relic geometry but also gave us an opportunity to rehabilitate high-use taxiways in the heart of the airfield that are otherwise hard to access during normal airport operational conditions; plus, the bonus of improving operational efficiency allowing aircraft to exit the runways and arrive at their assigned gates faster than before.”

Realigning taxiways D and T shifted their intersection with Runway 10R-28L and required changes to the lighting infrastructure at these intersections. Instead of creating a patchwork of conduit trenches to remove the old lighting and install new, a 4-inch overlay was applied to the entire affected area, ensuring a uniform and high-quality surface for aircraft, Summers explains.

**A Learning Experience**

Lee emphasizes the importance of comprehensive planning and coordination with all stakeholders. The team held monthly town hall meetings with 70+ attendees and coordinated closely with airlines, the SFO ground service group and air traffic control. Extensive communication throughout the project provided stakeholders with regular updates on progress and challenges. “Effective communication is very important,” Lee says.

The project team also prioritized safety, with extensive risk management evaluations and training for construction crews. “We put in project safety meetings as well as field safety check-ins to

make sure that everyone is performing and looking out for one another,” Lee adds.

To enhance coordination, the SFO team co-located with project designers, management support teams, Golden Gate Constructors and AECOM. Working from the same office facilitated communication and collaboration, fostering a strong culture of engagement and teamwork.

AECOM, Golden Gate Constructors and SFO spent the latter part of 2023 planning and phasing the project. “The early engagement on the contractor through a progressive CMGC [construction manager/general contractor] contract meant that they were engaged and could provide early input in the design, constructability and phasing of the project,” Summers explains. “This was key to balancing construction efficiency with minimizing operational impact.”

Hennig-Hance underscores the importance of partnering with airport operations and airline representatives to minimize disruptions. During the taxiway project, detailed meetings were held regularly to discuss the timing of gate impacts, in an effort to find the most optimal schedule. “We try to be respectful of their business and do what we can to streamline our operations—to reduce the impact on those stakeholders, who we consider our partners on these projects,” Hennig-Hance comments. Early challenges, such as staffing issues during the winter months, required close collaboration with airside operations to adjust schedules and find practical solutions. Golden Gate Constructors also partnered with the engineering team to troubleshoot issues while maintaining high quality and achieving project objectives, says Hennig-Hance.

The key takeaway for Mario DaRosa, project manager with Golden Gate Constructors, was the importance of engaging all stakeholders early in the project and keeping the lines of communication



MARIO DaROSA

open. “Engage all stakeholders very early on,” he advises. “Have open and honest communication about what the schedule is going to look like, and then try to really understand impact to the overall airfield operations, what your project is going to be, and try to seek opportunities to minimize that impact to those folks.” Ensuring that materials and resources are lined up in advance is also crucial to avoid delays and keep the project on track, he says. The taxiway project, which ran 24 hours a day, six days a week for six months, required constant problem-solving and stakeholder engagement to ensure smooth progress.



Lee says it's critical to engage the right resources and understand how to shut down a runway, construct taxiways and manage associated tasks. Early planning and coordination are key because airlines may have specific requirements and differing opinions during the process. That's why he worked to align everyone's focus on the shared goal of improving taxiway alignment. "If everyone has bought in, then it's less about what difficulties they may have during the six months of construction and more about what the end results will look like," Lee explains. Getting that perspective is what truly matters, he emphasizes.

### Coming Up at SFO

Many of the capital projects SFO put on hold during the COVID-19 pandemic are now being reactivated as passenger traffic has resumed to previous levels. The final phase of the Harvey Milk Terminal 1 has been completed, a \$2.5 billion project that started in 2016. In July, work began on the Terminal 3 West modernization project to update the airport's oldest terminal, built in 1979. This \$2.6 billion modernization will take approximately four and a half years to complete.

Around \$3 billion of infrastructure upgrades are also underway. They include improvements to electrical infrastructure, enhancements to the water treatment facility and upgrades to the



*This new fuel vault replaces a previous vault that conflicted with realigning Taxiway D.*

central plant responsible for heating and cooling. These projects aim to increase efficiency and support the goal of achieving "Triple Zero"—zero carbon emissions, zero waste going to landfills and zero net energy consumption.

Finally, a shoreline protection program to safeguard critical infrastructure is currently in the permitting process. This program is designed to secure eight miles of water lines along the airport border against sea level rise, ensuring that all the ongoing work is resilient to climate change. ✈️

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# FAA Deploys ADS-B Technology to Improve Surface Awareness on Airfields

BY JODI RICHARDS

## FACTS&FIGURES

**Program:** Surface Awareness Initiative

**Sponsor/Funding:** FAA

**Key Objective:** Improve airfield safety; reduce runway incursions

**Technology:** Automatic Dependent Surveillance-Broadcast (ADS-B)

**How it Works:** Aircraft & airport vehicles with ADS-B transponders send data about their locations to traffic controllers & are depicted as icons on airport maps that depict runways, taxiways, hold ramps, etc. in real time.

**Data Transmission:** Satellite connections; 5G networks; cloud technology


**Initial Deployments:** Austin-Bergstrom Int'l; Dallas Love Field; Indianapolis Int'l; Nashville Int'l

**FAA-Designated Vendors:** Indra; uAvionix; Saab

**Products:** AeroBOSS (Indra); FlightLine (uAvionix)

**Installation:** 90 days or less

**Key Benefits:** Enhancing airfield safety; improving situational awareness for controllers; reducing risk of runway incursions; improving traffic flow

 Continuing its commitment to safety and ongoing improvement, FAA issued a Safety Call to Action in February 2023 for a critical look at the U.S. aerospace system structure, culture, process, systems and integration of safety efforts. As part of its Surface Safety Portfolio, FAA is promoting three programs:

- The Surface Awareness Initiative to improve controller situational awareness and reduce runway incursions;
- Approach Runway Verification to improve the functionality of STARS, FAA's terminal automation system; and
- The Runway Incursion Device, a capability used by air traffic controllers to provide additional situational awareness of occupied and closed runways.

An FAA statement notes that these initiatives are a “small part of a much larger and integrated effort and philosophy.”

This April, FAA announced that Austin-Bergstrom International (AUS), Indianapolis International (IND), Nashville International

(BNA) and Dallas Love Field (DAL) would be the first airports to receive new airfield surveillance systems under its Surface Awareness Initiative. The new technology is designed to reduce the risk of runway incursions by improving air traffic controllers' situational awareness. According to FAA personnel, the rollout of this situational awareness tool at the first four airports has been collaborative and swift—90 days or less.

The equipment being provided uses Automatic Dependent Surveillance-Broadcast (ADS-B) as a primary source of data to display surface traffic to controllers at airports that do not have a surface surveillance tool. Vehicles and aircraft equipped with ADS-B transponders appear as icons on an airport map that depicts runways, taxiways, hold ramps and other areas in real time.

## Managing Growth at AUS

Chris Rankin, airside operations manager at AUS, reports that the Texas airport has experienced explosive growth in the last three years—about 27% since the COVID-19





PHOTO: UAVIONIX

pandemic. In fact, it was recently reclassified as a large hub airport. This growth led to more flights and increased air traffic control demands. “[Controllers] have always done a great job managing it, but as we look forward, situational awareness becomes more imperative,” Rankin explains. “It’s reassuring to know that extra bit of the situational awareness component is there.”

The 90-day deployment at AUS involved close collaboration among the FAA, AUS air traffic control and UAvionix, one of three FAA-designated vendors for its situational awareness program. ADS-B transponders, already equipped on nearly all aircraft in the U.S. since 2020, were installed on surface vehicles so Air Traffic Control can track ground and air movement in real time. “They also get alerts if there are conflicts—such as a runway crossing,” Rankin notes.

FlightLine, the uAvionix ADS-B system, provides controllers with real-time depictions of aircraft and vehicles on airfield pavement. The city is currently working to procure uAvionix VTU-20 ADS-B transponders for all airside operations and airfield maintenance vehicles and tractors; so far, one FAA tech ops vehicle has been equipped.

As a part of its scope for FAA’s Surface Awareness Initiative, uAvionix and its small business partner Capital Sciences deploy and manage the turnkey installation, provide training, sustainment and upgrade services for each airport. The uAvionix FlightLine system for the program is adapted from its FlightLine Surveillance

Data Service Provider platform, a private, validated, dual-frequency ADS-B network.

Rankin describes the deployment at AUS as a great and collaborative experience that included site visits, installation, testing and tower deployment. “I was very impressed with the expediency and urgency with which everybody worked together to make this happen within a very tight timeline,” he shares.

While uAvionix performed the installation, the airport’s Information Technology and Maintenance teams were involved in placing antennas strategically, ensuring reliable power supplies and coordinating installation work. “It was nothing that wouldn’t be experienced with other projects, but to get it done quickly, people need to be ready to pivot and provide that support to the contractor,” says Rankin.

To complement the new ADS-B ground surveillance system and further improve safety and efficiency, AUS is launching a virtual ramp control program in September. The integrated command center provides an all-encompassing view around the terminal with radio communications to manage apron traffic. “This adds another key component to our ability to manage the rapid growth we’re experiencing and ties in nicely with SAI [the Surface Awareness Initiative],” Rankin comments. “We’re excited to have these two programs working lockstep together.”

## Digital Eyes at DAL

Officials at Dallas Love Field (DAL) similarly appreciate the importance of leveraging policies, procedures, technology and tools to enhance situational awareness and increase operational efficiency. “We need to use all the possible resources to meet the objective of improved situational awareness and to have zero runway incursions,” says Javier Centeno, superintendent of Airport Operations at DAL.

“So we were very grateful to be one of the first airports nationwide to receive the system by the FAA.”



JAVIER CENTENO

This June, the Texas airport installed AeroBOSS, an FAA-designated product from Indra that uses ADS-B surveillance technology to receive data on aircraft position and satellite connections and a 5G network to transmit and report surface movements to air traffic controllers.

The new capabilities improve real-time monitoring and communication, aiding in better decision-making and emergency response, notes Arnold Watkins, airport superintendent. Prior to FAA’s enhanced attention on surface awareness, DAL already deployed AeroBOSS for vehicle GPS tracking.



ARNOLD WATKINS

While the existing airport equipment needed some upgrades to support the new technology, Centeno reports that most of the installations occurred outside of the airport operations area, so work went smoothly. Having infrastructure already in place was key to what he considers a seamless deployment.

Centeno also shares that this initiative highlights the importance of DAL investing in infrastructure to support future technological advancements. “Don’t hesitate to invest in infrastructure,” he recommends. “Consider technologies that allow for expansion and integration with other systems because there are things you can build on as new technology becomes available when you’ve already got a foundation in place.”

“Before June 27, air traffic controllers had to rely solely on visual observations to understand ground activities,” he adds. “Now we’re using this technology (ADS-B) to improve overall safety, and systems like this will increase situational awareness, which is a huge win for the aviation system.”

Watkins and Centeno agree that the ADS-B technology will positively impact on airfield operations at DAL. “It’s digital eyes on the ground now, which allows for real-time notification and communication back to the tower,” Watkins remarks.

Centeno reports that ADS-B technology helps controllers avoid potential incursions and improves traffic flow. “We are always looking for opportunities to be more efficient and effective,” he says.

### IND Invests in Supplemental Tech

At Indianapolis International Airport (IND), airfield visibility is challenged by the size of the nearly 2,800 acres of airfield, the location of the 348-foot control tower and inclement weather conditions. And sometimes the issues compound one another. Keith Berlen, senior director of Operations and Public Safety, notes that the air traffic control tower is 1.8 miles from IND’s crosswind runway—a difficult distance to see from even on a clear day. “About 20 days a year, the tower will actually be up in the clouds,



KEITH BERLEN

and it makes it more challenging for [air traffic controllers] to operate the airport,” he says.

Like AUS, the Indiana airport installed FlightLine from uAvionix. Berlen reports that IND’s installation went fairly quickly, and the airport facilitated the contractor’s work to ensure it went smoothly. “We understand the importance of having this system operational,” he says. “ADS-B is a great enhancement for the overall safety of the airport.”

Working with IND, uAvionix identified hosting sites with good sight lines to the runway, and then used existing information technology infrastructure to install the technology. Multiple passive receivers are installed at the airport, collecting data in the cloud, explains Cyriel Kronenburg, vice president at uAvionix. The technology is scalable and depicts all airfield traffic on a display in the control tower.

“We did a lot of runs with our vehicle transponders to make sure every

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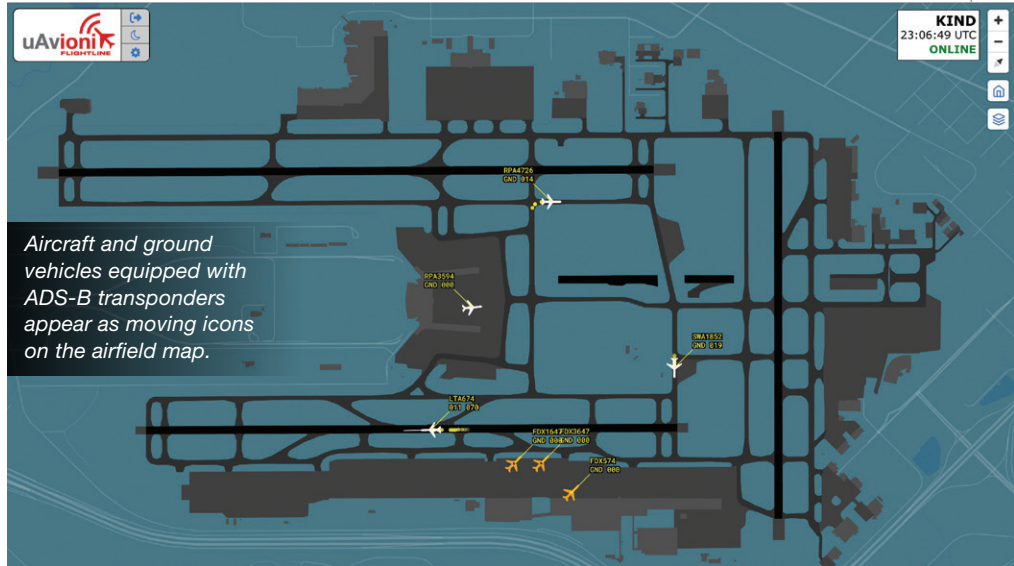
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corner of the airport was captured,” says Kronenburg. “We installed all of our receiving capabilities on airport property at IND, which made it really easy.” He credits the IND Airport Authority’s customer-focused approach for the speed in which the deployment was executed.

Airport leadership is fully onboard with the technology, says Berlen, even investing \$235,000 in transponders for vehicles operating on the airfield. “It gives the tower a more complete picture of the activity on the airfield,” he notes. “This is a sizeable investment that the airport authority is undertaking because we think it’s the right thing to do and it contributes to the overall safety of the airport.”

Kronenburg credits IND and AUS for making airport staff available to help uAvionix personnel complete site surveys and design work, so the project team could get the new systems connected within a 90-day timeframe.



Other airports are slated to receive ADS-B technology through FAA’s Surface Awareness Initiative by the end of 2025. Kronenburg reports that uAvionix will be providing systems at six airports in

Florida: Tampa International, Jacksonville International, Daytona Beach International, Orlando Sanford International, Palm Beach International and Miami Executive. ✈️



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# Des Moines Int'l Uses Portable Boarding Ramp to Accommodate Growth and Increase Accessibility

BY KRISTIN V. SHAW

## FACTS&FIGURES

**Project:** Portable, Stair-Free Boarding Bridge

**Location:** Des Moines Int'l Airport, in IA

**Cost:** \$185,000

**Funding:** Airport

**Timeline:** Design began in 2022; unit delivered March 2024

**Bridge Manufacturer:** Aviramp

**Model:** Continental

**Features:** Enclosed passageway for protection from inclement weather; z-shaped switchback with gradual 8-degree slope; remote control operation by 1 worker; hydraulic drive system powered by solar-powered electric motor

**Infrastructure Civil Design:** Foth Infrastructure & Environment

**Key Benefits:** Enhancing accessibility & passenger comfort; preserving dignity & independence for guests who use wheelchairs or walkers; convenience for travelers with strollers & suitcases; faster boarding/deplaning than mobile boarding stairs

 When Des Moines International Airport (DSM) started planning and designing its new terminal about a decade ago, the project team realized that several existing gates would have to be decommissioned to accommodate the new terminal's footprint.

"As we started narrowing down how we were going to continue our current operations while also building this new facility next door, we found out that we were going to lose several of our parking positions," recalls Operations Director Clint Torp.

Ultimately, DSM would sacrifice two boarding ramps with four parking spaces to make way for its new terminal.

Fortunately, the solution soon became clear: The airport needed to expand its off-terminal parking and use a moveable boarding bridge to load and unload passengers at multiple locations. But the DSM team didn't want just any old passenger bridge. It wanted to provide better access for all passengers, including those with mobility challenges.

That's when Aviramp joined the conversation.

## Overcoming an Overnight Parking Deficit

The airport's new 300,000-square-foot terminal will replace the old terminal, which was built in 1948. When the \$445 million facility opens in 2027, it will include 18 aircraft gates and additional remote parking positions to accommodate future growth. Last year, DSM shattered its previous



CLINT TORP

record for annual passenger traffic thanks to an impressive post-COVID recovery.

Now thriving, the Iowa airport is ready to expand. So the project team had to figure out how to effectively serve a growing number of aircraft and passengers while the terminal was hampered during construction.

“Prior to the start of the terminal project, we had 12 physical jet bridges with 20 parking spaces around the terminal,” Torp says. “We had some dual-service gates that served two different spots, which added a complexity of its own. But now, we have 13 dedicated spots, period.”

That prompted the project team to assess the available infrastructure and evaluate its options. Operations personnel determined that the airport could convert a vehicle parking lot just south of the terminal into additional apron space for overnight aircraft parking. Ultimately, that yielded five additional spaces—four for narrow-body aircraft and one for regional airliners.

“As we’re working through that, we start to discuss contingency operations and how we would potentially deal with a constrained terminal facility and the potential for diversions on top of any other irregular events,” Torp says.

Torp and his team knew that two of DSM’s major constraints would be overnight parking and adjusting its passenger handling processes accordingly. “What are we going to do if we have a diversion come in, or if we need to deplane passengers at one of those remote spots?” Torp wondered. The airport had an existing set of mobile boarding stairs, but it wouldn’t be acceptable for passengers who can’t traverse stairs.

Project planners determined that the airport needed to procure additional equipment and modify the fence line to add remote positions for boarding and deplaning. Between engaging Aviramp in 2022 and awarding it the bid in 2023, DSM project personnel homed in on one of the company’s ramps that can be moved between remote parking positions to board and deplane passengers from narrow body aircraft.

## Ramping Up

Lee Burrows, Aviramp’s installation, parts and customer service manager, says one of the reasons DSM chose the company’s Continental model for narrow body aircraft is because one person can operate it via full remote control. In addition, the ramp’s hydraulic drive system can be powered by a solar-powered electric motor.

The ramp can also be outfitted with a small diesel motor, but DSM preferred the more environmentally friendly solar option.

Ramp components are designed and manufactured at Aviramp’s facility in the Midlands, U.K., and then loaded into 40-foot-high shipping containers like giant Erector sets. A contracted team in Iowa received the shipment and assembled the pieces.

“We train the local team on how to use the ramp safely,” Burrows emphasizes. “Once that’s completed, we sign off the ISO certification. Essentially, we do the whole thing from start to finish.”



LEE BURROWS

Torp says his team likes the electric drive with solar array, and the fully enclosed tunnel that shields passengers from inclement weather.

“Being up north, we get everything from rain to snow, ice, sleet and all that good stuff,” he says. “We also appreciate that the operation of the unit appeared to be simple enough for our airline partners to be able to utilize without significant training. That was definitely a selling point. All in all, we got exactly what we were looking for.”

Foth Infrastructure and Environment, which led design, construction administration and observation for the project, helped DSM determine how to incorporate the Continental Aviramp into its airfield layout. The project team added the portable ramp after the remote parking design was already finished, and Foth determined how it would fit, how to store it between flights and where to anchor the tie-downs.

“Being a mid-construction change, we double-checked the parking locations to make sure the realignment of the Aviramp was minimized,” says Andrew Gettler, a Foth project manager who has been working with DSM for 10 years. “In two of the positions there is not enough room to move up and back; based on the layout we had to implement, one of the



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positions is turned sideways. As a result, the ramp had to be stored externally on the other positions.”

The halo—a safety guideline that is painted on the pavement—indicates the area where no equipment is permitted whether an aircraft is there or not. Clearly delineating that space is critical, because otherwise, a stored ramp could potentially be in the way. And that could be akin to finding a shopping cart in a grocery store parking space when you’re about to pull in, but with much more serious consequences than a dented bumper.

“At the remote parking apron, there are four aircraft positions. With the space available, one of them had to be turned slightly. Because of that, the area outside of those two halos was limited,” Gettler explains. “Basically, we set it up so the Aviramp could be parked on the other two positions while waiting for the next deplanement.”

**Mobility Matters**

According to the International Air Transport Association (IATA), about 64 million people in the United States have a disability that affects their mobility when traveling. That’s one in five.

“To the extent possible, airline and other stakeholders should strive to ensure that passengers with disabilities maintain their independence and dignity,” says an article on IATA’s website. “This is accomplished through adequate airport infrastructure, appropriate training, timely and customer-oriented services, as well as making use of technological solutions that can be leveraged to provide passengers with disabilities with choice and freedom to travel on their own terms.”

The new Aviramp at DSM helps make that possible. Burrows explains that the Continental has an eight-degree slope, which allows passengers to board and disembark more quickly than they would using a traditional set of stairs. Basically, it’s a three-part switchback shaped like the letter Z. The ease it provides is crucial for passenger using wheelchairs or walkers, and is also appealing to solo parents and caregivers managing strollers and suitcases.

“The alternate solution was a simpler stair, but the ramp makes it easier for the general public,” Gettler says. “It’s not as difficult to get up and down.”

Using a ramp can also benefit airlines, Burrows adds. Budget airlines can get people on and off planes more quickly, which is a key performance metric. And an Aviramp costs less than a bulky Ambulift, which boards and deplanes travelers in what amounts to a metal box on a scissor lift, he adds.

**Seamlessly Moving Toward Completion**

Personnel at DSM are leveraging the moveable ramp during terminal construction, and it’s also on standby for additional duty use going forward.

“It’s already working seamlessly,” Torp reports. “With two years to go in the terminal project, the beauty of it is that the pads



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will still be there after the construction is finished.”

Coordination among the airport, Aviramp and Foth was critical to success, and all worked together to come up with viable solutions to real challenges, he adds.

“There are a lot of very complex moving parts, and then there’s operational implementation, training and everything that went into making this move along smoothly,” Torp relates. “Thinking through that process as early as possible and planning for all the possible various scenarios that you might run into is worth encapsulating into your planning efforts. More planning is better than more work.” 

Remote parking positions and a portable boarding ramp are helping the airport manage traffic.



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# Bolt-Torquing Technology Further Tightens Airfield Safety at Atlanta Int'l

BY KRISTEN RINDFLEISCH



PHOTO: BROOKS BERRY HAYNIE & ASSOCIATES

## FACTS&FIGURES

**Project:** Airfield Bolt-Torquing System

**Location:** Hartsfield-Jackson Atlanta Int'l Airport, in GA

**Cost:** \$770,000 for initial equipment & setup plus \$15,000/year subscription

**Implementation:** Jan. 2020–Oct. 2020

**System:** ALIS (Airside Location-based Inspection & Service), by ADB SAFEGATE


**Main Components:** System, case, dedicated mobile device, compatible torque wrenches

**Torque Wrench Manufacturer:** Ingersoll Rand

**Procurement & Implementation:** Brooks Berry Haynie & Associates

**Ongoing Bolt Inspection & Torquing Services:** Brooks Berry Haynie & Associates

**Key Benefits:** Increased torquing accuracy; improved efficiency & reduced costs; enhanced safety & accountability; real-time data access

 Turning a wrench has gone digital for airfield crews at Hartsfield-Jackson Atlanta International Airport (ATL), at least when it comes to maintaining the lights along runways, taxiways and other critical pavement. For the past three years, they have been using a computerized bolt-torquing system that saves time and money while also making the airfield safer.

Meticulous maintenance is crucial for smooth operations at the world's busiest airport, right down to the single turn of an individual bolt. In all, crews maintain 12,000 airfield light fixtures, which equates to a whopping 72,000 bolts. Previously, ATL relied on paper logs for documenting the location and corresponding torque value of each bolt, which made it virtually impossible to view historical data and analyze trends over time.

That all changed in 2021, when the airport invested in a new high-tech system from ADB SAFEGATE. The ALIS (Airside Location-based Inspection and Service) system digitally records and visualizes maintenance work using a dedicated mobile device connected to compatible torque wrenches used to tighten or loosen bolts on airfield lighting. The modern asset management tool streamlines work for crews by documenting all bolt torque values in its location-based program.

The Atlanta Department of Aviation awarded Brooks Berry Haynie and Associates an Airside On-Call contract to procure and implement the ALIS system at ATL. The firm also completes all routine bolt inspection and torquing under a contract to supplement and assist ATL's Maintenance Department with electrical airfield work.



## Increased Accuracy, Reduced Costs

Before the airport switched to the ALIS system, crews conducted bolt torquing inspections every 60 days, which cost ATL nearly \$1 million per year. With the new equipment, the same work occurs in recurring 120-day cycles and an annual cost of closer to \$250,000 to \$300,000.

The airport was able to reduce its torquing frequency after evaluating three years of maintenance data. “If you want to extend that bolt torquing cycle, you have to demonstrate that the torque is remaining consistent, and this gives you the ability to be able to do that pretty efficiently,” comments Norma Click, ATL director of Airside/Landside, Planning and Development. “So, from that, we can show we don’t need to do bolt torquing as often, because the torque itself is stabilized.”



NORMA CLICK

ATL’s computerized method also improves accuracy, as every aspect of the process is now measurable, eliminating inconsistencies and the need for manual logging, she adds.

Leveraging ADB SAFEGATE’s bolt-torquing technology has helped the airport minimize inconsistencies that arise from human factors, varying tools and changing weather conditions. Click notes that crewmembers working in the same elements now have an added level of efficiency and safety because the equipment indicates precisely where they need to focus.

The ALIS system and corresponding equipment also enhance accountability by recording the identity of who torques each bolt. The teams appreciate this added transparency, says Click.

## Implementation and Training

To add the ALIS system, an airport provides ADB SAFEGATE with its geographical information system data, including fixture details, GPS locations and other asset information. Data is typically loaded into the new system within a day. Then, ADB SAFEGATE provides onsite training at the

airport. “We go out with the crew that’s going to do torquing and make sure they know how to use the equipment,” says Byron Rosengarten, the company’s director of Aftermarket Sales and Service Americas.



BYRON ROSENGARTEN

ATL spent approximately \$770,000 for the system initially, including four inspection cases and eight crew cases. The ATL Maintenance Department uses one inspection case and two crew cases; the rest are used by Brooks Berry Haynie & Associates. Both teams received training for the new system and tools. From ADB SAFEGATE, a standard implementation with the first-year subscription and two torque wrench kits costs approximately \$100,000. After that, the subscription is \$15,000 per year, which includes cloud data storage as well as support of the system.

Grant Holland of Brooks Berry Haynie & Associates says that ADB SAFEGATE worked with ATL and his firm to get the system dialed in and resolved all implementation issues in person and via remote tech support.

ADB SAFEGATE also worked with the airport to improve its dashboard and exporting options. The company’s Power BI dashboard allows users to export data from ALIS into a templated Excel format for review and analysis. Rosengarten notes that the Excel export template is usually well suited to users’ needs but can be customized for individual airports. Often, changes made for specific clients are rolled out to all ALIS users. In fact, the Excel template was initially developed for ATL, but ADB SAFEGATE later made it available to all customers.

## Streamlining Processes

Technicians working at ATL can walk up to any fixture on the airfield, and the system instantly recognizes their location and displays data about that particular fixture on a mobile device. They can then begin torquing, and the system automatically records the torque value, ensuring each bolt is tightened to the specified level. This prevents over-torquing, which can lead to broken bolts,

extra labor and potentially dangerous foreign object debris on the airfield.

The system also tracks how far a bolt rotates to reach the required torque. If a bolt needs to rotate significantly, that indicates it was loose and not providing adequate clamping force, which could also pose a safety risk. By checking torque values regularly, maintenance teams can determine if bolts remained tight or have loosened since the last check. This data allows airports to work with their FAA inspectors to potentially extend the time between required torquing.

At ATL, new intervals have reduced the labor hours needed to check and maintain its 72,000 airfield lighting bolts. “It’s obviously a massive undertaking to torque that many bolts,” Rosengarten comments. Since 2021, crews at ATL have torqued more than 750,000 bolts—and Rosengarten knows that with a quick glance at data in the ALIS system.

In addition to tracking what service is performed and who performed it, the system also provides alerts about upcoming maintenance or repairs. Whenever ATL maintenance personnel need to replace a light fixture, they have the ALIS equipment to tighten bolts back in place.

But not all of ATL’s airfield maintenance systems are so high-tech. It uses a decidedly low-tech system to clearly indicate which crew installed each bolt on any given light fixture. The ATL maintenance team uses red-coated bolts, while Brooks Berry Haynie & Associates uses blue-coated bolts.

## Leading the Way

Because ATL was the first U.S. airport to deploy the ALIS system, ADB SAFEGATE worked closely with it to smooth out early issues. “In the beginning, there were some connectivity and range issues; however, with the updated and upgraded system, those problems have been resolved,” remarks Steve Woods, area manager with Brooks Berry Haynie & Associates.



STEVE WOODS

The airport continues to benefit from the ability to update its assets within the ALIS program. “Being the busiest airport in the world, the airport is constantly growing and changing, so keeping up with and updating the system poses the biggest challenge,” comments Nick Bius, superintendent with Brooks Berry Haynie & Associates. “One of the greatest opportunities of the system is the ability to make these changes in real time.”



NICK BIUS

Taxiways recently added to ATL’s airfield are currently being added to the system dashboard.

Dallas Fort Worth International Airport (DFW), another ALIS customer, uses the system to help manage contractors working on airfield projects. Previously, crews did not always document bolt torque information when installing light fixtures on runways, taxiways and aprons. Now, DFW requires contractors to use a wrench that is compatible with ALIS to properly torque all bolts, and associated information is automatically recorded.

Using the ALIS dashboard, the airport can also verify work performed by outside contractors. The dashboard provides a detailed view of each fixture’s status, including how many have been properly torqued out of the total number for a project—giving the airport a real-time glimpse of each contractor’s progress. This allows ATL to address issues before the final project sign-off.

## Continuous Improvement

Technology within the wrenches themselves has improved since ALIS was initially added at ATL in 2021. Previously, the wrenches had to connect to a power-train control module, which was wireless but required power from a truck to function. The power-train control module would then connect to an iPad, which connected via Bluetooth to technicians’ phones. Wrenches therefore needed to stay close to a power-train control module, and loss of connection was common.

ADB SAFEGATE has since integrated Bluetooth chips directly into the wrenches, eliminating the need for a power-train control module. The wrenches pair directly with technicians’ phones via Bluetooth and can work offline without a cellular connection. This simplifies the system, reduces the risk of losing connections and removes the need to keep a truck nearby. ADB SAFEGATE has upgraded all the wrenches at U.S. airports to this new system, retrofitting existing tools to ensure everyone benefits from the streamlined setup, says Rosengarten.

Looking ahead, the company is beginning to deploy smart fixtures at some airports. These fixtures have advanced capabilities, such as detecting LED outages, verifying alignment and monitoring temperature and pressure. The pressure readings are particularly valuable, as they can help identify leaks in sealed fixtures. Data from the smart fixtures is integrated into ALIS, where users can receive alerts about specific issues, such as fixture leaks. This allows proactive maintenance and early replacement of faulty components before more significant, costlier issues arise.

## Beyond Bolts

Although it was initially developed for bolt torquing, the ALIS system has evolved to track and record maintenance for other assets, such as regulators and airfield signage. Essentially, it acts as an electronic logbook that allows airports to review and analyze data over time. Maintenance teams can use the system to schedule replacements or set up preventive maintenance tasks, such as checking signage for faded panels once or twice a year.

Similarly, ALIS can document and help manage fixed assets. For instance, users can log the location and details of each manhole, including photos. When field technicians need to access a manhole, they have all necessary information readily available.

## Integration With Other Systems

Rosengarten notes that the ALIS system is not meant to replace or compete with airport-wide asset management systems such as Maximo or Cityworks. Instead, it is designed to complement them by focusing specifically on airside maintenance.

Because ALIS has an open application programming interface, it can integrate with

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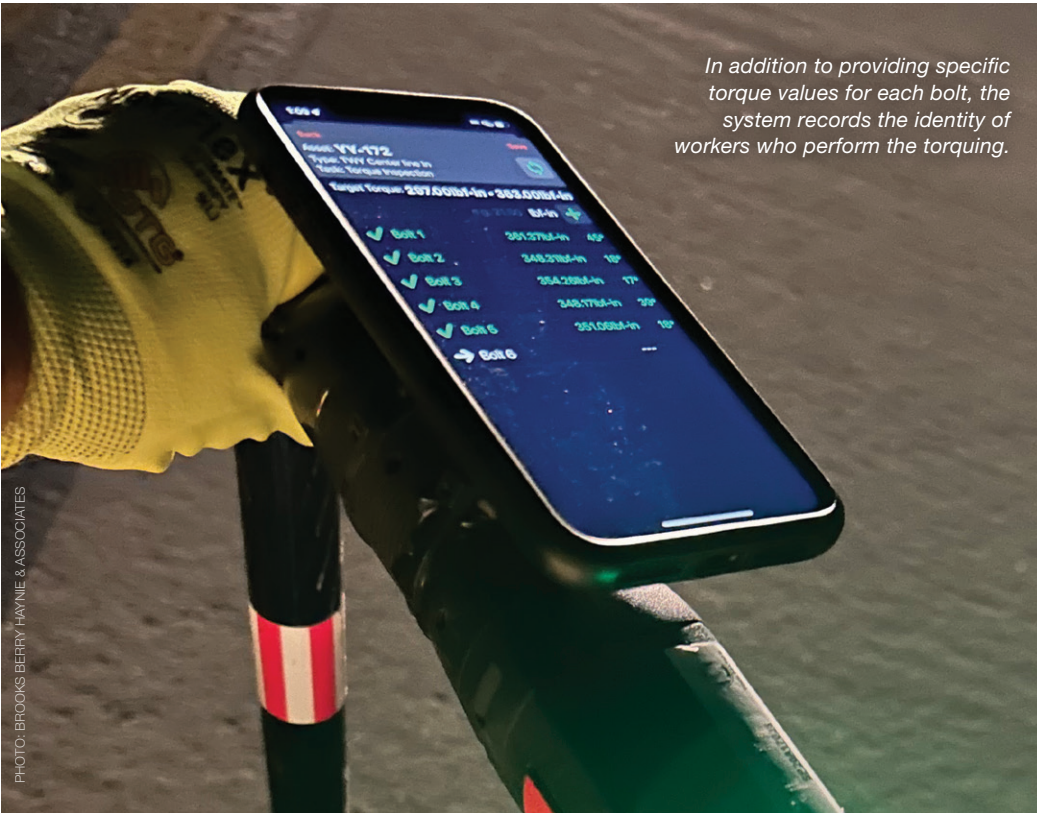
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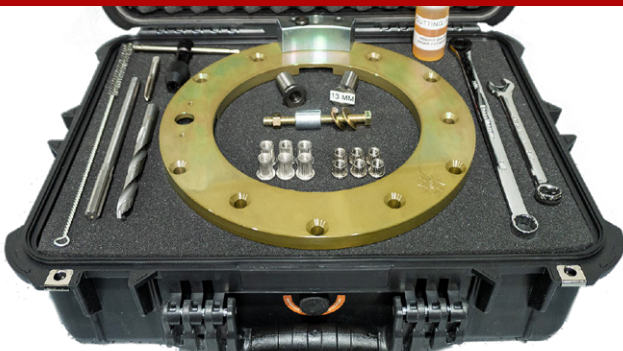
*In addition to providing specific torque values for each bolt, the system records the identity of workers who perform the torquing.*

### Other Torque Technology Users

The ALIS (Airside Location-based Inspection and Service) system from ADB SAFEGATE is currently in use at 60 airports internationally and 10 in the United States:

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- Birmingham-Shuttlesworth International
- Charlotte Douglas International Airport
- Chicago O'Hare International
- Cleveland Hopkins International
- Dallas Fort Worth International
- Des Moines International
- Harry Reid International
- Hartsfield-Jackson Atlanta International
- Nashville International

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other asset management systems. This is the case at Harry Reid International Airport (LAS) in Las Vegas, which uses ALIS and Maximo in concert. “We connected the systems together, so when they create a work order in Maximo, it automatically creates a work order in ALIS,” Rosengarten explains. When technicians at LAS perform and complete airfield work in ALIS, it then updates and closes the work orders in Maximo. This allows office staff to continue using Maximo, while technicians use ALIS out on the airfield.

**Advice for Others**

Woods describes the ALIS system as an invaluable tool but emphasizes the importance of proper planning for effective implementation and use. “For an airport the size of [ATL], it can take years of surveying and planning to have the proper information to input into the database for the system to work properly and identify assets correctly,” he says. “Having the ability for recordkeeping and all members of an airport staff to see the same information in real-time from any location is one of the most valuable functions of the ALIS system.”

Rosengarten highlights the safety implications of bolt-torquing technology. “That should always be No. 1 when you’re working with airplanes and on an airfield—safety for the team and the passengers that are onboard these planes,” he stresses. “So first and foremost, you’re ensuring that you’re complying with all safety regulations.”

Moreover, complying with FAA requirements helps avoid operational disruptions, such as runway closures. Rosengarten notes that airports can use data from ALIS to proactively evaluate their maintenance schedules with FAA inspectors.

Click understands that other airports, depending on their size and available funding, may be reluctant to make the initial investment for bolt-torquing technology that ATL made. “But I think just in the efficiency, the accountability, the tracking and the historical information—I think you’re definitely rewarded in the long run,” she remarks. “We have zero regrets.”

**Airside Updates**

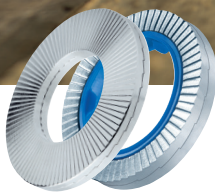
Like usual, ATL has several improvement projects in the works. It is currently in the midst of a \$1.4 billion project to widen Concourse D using modular design and construction. The massive undertaking will expand the concourse by 60% to increase capacity and accommodate larger airplanes. (For more details, see the July/August 2024 issue of *Airport Improvement*.)

In 2026, the airport will replace its longest runway (9L-27R, measuring 12,390 feet) and several associated taxiways. The project will update select areas to meet current FAA standards, which includes removing and changing the geometry of certain taxiways.

All these projects, and more in the future, will benefit from the bolt-torquing system ATL already has in place. ✈️



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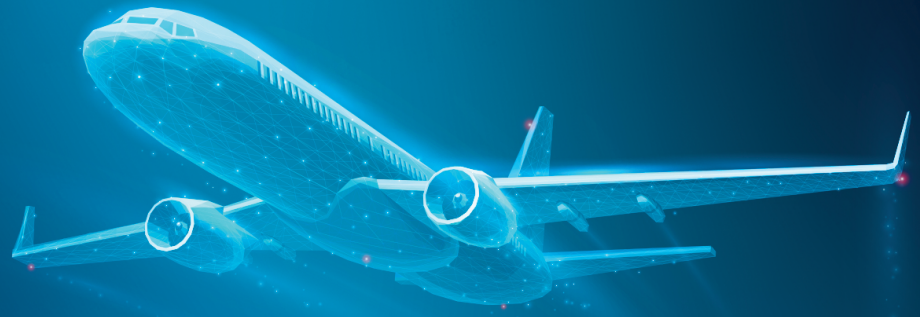


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# Phoenix-Mesa Gateway Boosts Onsite Fuel Storage

BY CHRIS JONES

## FACTS&FIGURES

**Project:** Fuel Farm Expansion

**Location:** Phoenix-Mesa Gateway Airport, in AZ

**Size:** 3 above-ground tanks, each with 50,000-gal. capacity

**Cost:** \$4.5 million

**Funding:** Airport

**Design:** Spring 2022

**Construction/Installation:** May-November 2023

**New Tanks Online:** Fall 2023

**Construction Manager at Risk:** KEAR Civil Corp.

**Master Plan Civil Engineering:** Kimley Horn & Associates

**Master Plan Mechanical Engineering:** Swanson Rink


**Expansion Civil & Mechanical Engineering:** KEAR Civil Corp.

**Tank Management System:** TMS4000, by Pneumercator

**Airport Profile:** Active general aviation traffic; nonstop commercial service to 45 U.S. markets by Allegiant Air & Sun Country Airlines

**2023 Passenger Volume:** Nearly 1.92 million

**Key Benefits:** Increasing onsite fuel reserves by 60%—enough to support standard flight operations for 7-8 days; providing insurance against disruptions elsewhere in supply chain

 There's a simple axiom that applies to airport operators everywhere: *If your fuel tanks run dry, the planes don't fly.*

Driven by a powerful desire to never find itself or its customers in that predicament, Phoenix-Mesa Gateway Airport (AZA) recently invested \$4.5 million to increase onsite fuel reserves by up to 60%.

Last fall, the growing Arizona airport brought three new 50,000-gallon, above-ground fuel tanks online. The project increased its Jet A reserve capacity from 250,000 gallons—enough for three and a half days of normal operations—up to 400,000 gallons. With this added storage, the busy Allegiant Air hub can now support its standard mix of flights for seven to eight days.

"If there are disruptions, we're not worried that we're going to run out of fuel," says J. Brian O'Neill, the airport's executive director and chief executive officer.



J. BRIAN O'NEILL

"It gives the airport and our tenants a higher degree of peace of mind."

Concerns over fuel shortages aren't unwarranted. In the past three years alone, U.S. airports have experienced significant disruptions to their supply lines, with causes ranging from mudslides and pipeline leaks to ransomware attacks and a lack of qualified drivers for fuel trucks. In addition, seasonal spikes in air traffic drove greater-than-expected demand for Jet A and avgas.

The Phoenix metro area receives nearly all of its fuel from two pipelines operated by the Houston-based Kinder Morgan Company. One connects to refineries in Colton, CA; the other originates near El Paso, TX. These pipelines carry aircraft fuel, as well as unleaded and diesel fuel for cars and trucks, into a bustling depot in West Phoenix near Interstate 10 and State Highway 202.

Phoenix Sky Harbor International Airport (PHX), the region's primary commercial airport, receives its fuel through a smaller, separate pipeline that links the busy aviation hub to the depot in West Phoenix. But adding a similar underground connection is



cost-prohibitive for AZA, which serves less than 2 million annual passengers (vs. nearly 50 million per year at PHX). Instead, the smaller airport receives its fuel from West Phoenix via truck, with tankers making the 70-mile roundtrip 10 to 16 times each day.

If the depot in West Phoenix goes offline, Plan B is trucking in fuel from Southern California via Interstate 10, which is known for its traffic congestion. Given the multiple points for potential failure, the benefits of boosting onsite storage at AZA were compelling.

“There have been pipeline disruptions from California to Phoenix. There were closures of the depot in West Phoenix, and there have been disruptions to the trucking of the fuel caused by driver shortages,” O’Neill says. “There were times where we were getting low on Jet A, and it put us in a precarious situation.”

**Local Solution**

In addition to its active general aviation traffic, AZA has scheduled flights from two leisure-oriented airlines, Allegiant and Sun

Country. Last year, the airport served close to 1.9 million passengers with nonstop commercial service to more than 40 U.S. destinations.

Gateway Aviation Services, an airport-owned FBO, provides all fuel for commercial airliners, corporate jets, general aviation operators and military aircraft. Overall, it pumps 17 million to 20 million gallons of Jet A and 100 Low-Lead Avgas annually.

The fuel farm at AZA sits off the south ramp and previously included two 50,000-gallon tanks and a half-dozen smaller ones. Kimley Horn and Swanson Rink had designed the master plan for the fuel farm facility. Airport leaders later chose to expand the existing site by adding three new tanks, a less costly but more complicated option compared to building a new facility. KEAR Civil Corporation, a Phoenix-based business with decades of related experience and expertise, was the airport’s key project partner.

“We were selected on qualifications and price,” says KEAR Civil President Mike Fossett. “And we were able to work with the owner through design and construction. That doesn’t typically happen on design/bid/build projects, but this approach allowed us to bring a lot of efficiencies in scope.”



MIKE FOSSETT

KEAR used the Construction Manager at Risk delivery method to expedite the project and purchased components from various vendors. It also handled the civil work, mechanical work and project management. One could say KEAR was born for the job because it was founded in 2001 and performed its first commercial fueling project at PHX, just 20 miles from AZA, soon after.

Over the ensuing decades, KEAR Civil built specialized fueling systems at U.S. military bases and commercial airfields coast to coast. Airport clients include Los Angeles International (LAX), Nashville International (BNA), Salt Lake City International (SLC) and San Diego International (SAN). It has also completed dozens of municipal water infrastructure

jobs across the country.

Gary Leach, a senior project manager with KEAR Civil, was involved with the AZA project from its design stage in spring 2022 through the start of construction in May 2023. He and two other full-time KEAR personnel oversaw multiple subcontractors, with up to 30 skilled trade workers at peak. Leach says minimizing operational disruptions and security concerns made the project at AZA challenging but fun.



GARY LEACH

“You’re trying to integrate to give them the most bang for their buck,” he explains. “I enjoyed the extra challenge of, ‘How in the world are we going to get this tied in without shutting them down for too long?’”

Ultimately, the answer was isolating up to two tanks from operational rotation while tying new components into the pipes and infrastructure. Changing the existing tank management system—hardware and software—presented a larger challenge because it required an even higher level of coordination.

“There were some key folks on the owner’s team who were very familiar with the old system, which was a huge benefit to the integration of new controls and getting that system integrated while keeping everything up and running as much as possible,” Leach says. It took some long days to minimize the impact of onsite work, he adds.

Project designers upgraded AZA’s tank management system to the TMS4000, from Pneumercator. The new system is reportedly much easier for the airport-owned FBO to maintain because it allows individual tanks to come offline for cleaning, fuel transfers or general repairs while other tanks remain in operation.

“That’s a bonus to us,” says Matthew Nebgen, director of Gateway Aviation Services.



MATTHEW NEBGEN



The airport now has enough storage capacity to maintain operations for seven to eight days if fuel delivery is disrupted.

### Growth Story


In 2022, AZA completed a multiyear project to replace an outdated air traffic control tower that had been in place since its days as Williams Air Force Base, a training site for World War II pilots. Earlier this year, a five-gate, 30,000-square-foot terminal improvement project was completed, replacing four smaller gates the airport had long since outgrown. At the same time, AZA also unveiled a 4,000-square-foot terminal connector between ticketing and its TSA checkpoint. What was once outdoor space is now enclosed for a better customer experience and indoor queuing.

With the west side of its airfield effectively complete, AZA's leadership will next focus on developing SkyBridge Arizona, a 360-acre master-planned development, and the 273-acre Gateway East commercial real estate project. Once those sites are built out with a mix of aviation and non-aeronautical businesses, the Phoenix-Mesa Gateway Airport Authority plans to bond against those long-term lease revenues to finance a wholly new commercial terminal complex on 250 acres it has reserved on the east side of AZA's airfield. That expansion is still at least a decade away, however.

"We're really being very strategic," O'Neill says of planning for the airport's nearly 3,000-acre campus. Beyond commercial service, AZA is home to robust general aviation community including separate flight schools run by ATP and a partnership between Arizona's Chandler-Gilbert Community College and the University of North Dakota. As the Phoenix area expands, AZA is also attracting much more corporate aviation business.

The recently expanded fuel farm was designed to accommodate another 50,000-gallon tank if needed. "The way the piping was installed and the foundations were laid, it's ready for a fourth that would be very, very easy to integrate into the system," says Leach.

But Nebgen is eyeing another potential option: acquiring larger storage tanks that would be located at the West Phoenix depot. It's never too soon to plan for the future, he adds.

"We need to continually monitor the needs of the airport," Nebgen summarizes. "Having seven or more days in reserve offers much more breathing room, but I'm already thinking about the next expansion and what we need to do to meet upcoming demand." 

*Phoenix-Mesa Gateway Airport Fuel Farm CMAR 2023-2024*



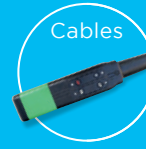

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# Seattle-Tacoma Int'l Fans the Flames of Innovation With Transition to PFAS-Free Firefighting Foam

BY JENNIFER DAACK WOOLSON

## FACTS & FIGURES

**Project:** Cleaning Residual PFAS from Firefighting Vehicles

**Component of:** Transition to Fluorine-Free Firefighting Foam

**Location:** Seattle-Tacoma Int'l Airport, in WA

**Distinction:** 1<sup>st</sup> U.S. airport to use soap-based PFAS removal process

**Cost:** \$50,000-\$70,000/vehicle

**Budget:** \$600,000

**Funding:** Airport; potential FAA grant reimbursement

**Timeline:** June–August 2024

**Product Used:** PerfluorAd

**Provider:** TRS Group

**ARFF Vehicles:** 2 Oshkosh Striker 3000s, 2 Rosenbauer Panther 6x6s, 1 Oshkosh Striker 4500HRET

**Water Testing:** Analysis of PFAS in first rinse water, final rinse water & treated rinse water discharged to sewer

**Waste Disposal:** Treated rinse water is discharged to sanitary sewer; solid waste (PFAS sludge) from treatment process is sent to non-hazardous landfill or hazardous waste incineration facility, per test results

**Key Benefits:** Reducing PFAS exposure risk for firefighters, airport personnel & general public; minimizing release of harmful PFAS to the environment



In 2018, Washington state mandated the phased elimination of per- and polyfluoroalkyl substances (PFAS) in firefighting foam for anything other than emergency response. That ruled out its use by airport crews for training or equipment testing. PFAS, which have long been used in firefighting foam because of their effectiveness, are also now known for their harmful effects on people, wildlife and the environment.

The new state legislation presented a challenge for Randy Krause, Port of Seattle Fire Department chief, because at that time FAA required airports to use fluorine-containing foams.



RANDY KRAUSE

That changed in October 2023 when the U.S. Department of Defense approved a fluorine-free foam that met FAA's rigorous standards, previously achievable only with aqueous film-forming foams (AFFF), which contain PFAS. That cleared the way for

airports like Seattle-Tacoma International Airport (SEA), which the Port of Seattle operates, to transition to a safer and more environmentally friendly fluorine-free alternative.

Aviation Senior Environmental Program Manager Megan King, who manages the Port's aviation-related contaminated sites program and partnered with Krause in the transition



MEGAN KING

process, underscores the benefits of this important milestone. "The primary benefit to us is removing a potential point of exposure to people who work here at the fire department, people who work more broadly at the airport and also the traveling public," she says. "The second benefit is the environmental benefit of not putting this toxic material into the environment where it can contaminate soil, groundwater and surface water runoff that could potentially migrate away from our property."



## Here's the Hitch

Before SEA could start using the new fluorine-free foam, the airport needed to clean its five aircraft rescue and firefighting (ARFF) vehicles to eliminate any residual product that contained PFAS. That process involved several critical steps. The first was determining “How clean is clean?”

The answer was elusive, given a prevailing lack of industry standards or mandated benchmarks. “We didn’t really have any criteria,” King explains. “We were trying to do this work without having a specific end goal.”

So, SEA personnel asked cleaning solution providers to tell them what was possible, and then evaluated the various options based on effectiveness, waste generation and process length.

From Krause’s perspective, the top two priorities were getting the ARFF vehicles as clean as possible and generating the least amount of waste. Although six of

the seven U.S. airports that have already transitioned to fluorine-free foam used a water-only rinse process, Krause wasn’t convinced that was enough. He offers the analogy of washing dirty dishes. A rinse with cold water will get the dishes somewhat clean, but you wouldn’t want to eat off them. Rinsing with hot water is a bit better. But hot water and soap do the job right. In this case, the “soap” SEA selected is PerfluorAd, a biodegradable plant-based solution provided by TRS Group, founded in Washington state.

Krause expresses confidence in the choice based on his team’s research and documented performance at European airports and in other industries. “We’re very happy with the data for this product,” he says. “It’s in the realm of 99% effective on most of the PFAS chemicals that were evaluated. In the testing we’ve done so far, we’re at 99% clean in our trucks, plus or minus a little bit.”



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### Separating the Sludge

David Fleming, founder of TRS Group, elaborates about the chemistry that drives the product: “PerfluorAd is a surfactant, an oleic acid, plant-based soap. It is a positively charged molecule, and the PFAS is a negatively charged molecule. When those two come into contact, they form particles through a weak but stable ionic bond that can be sedimentated.”



DAVID FLEMING

The cleaning process begins by removing PFAS-containing concentrate from vehicles, followed by a rinse with cold potable water. The rinsate is captured and tested to evaluate the baseline concentration of what remains in the trucks. Next, PerfluorAd concentrate is mixed with potable water heated to 110 to 120 degrees Fahrenheit. TRS personnel flush the solution through the firefighting vehicle three to five times. When there’s no more visible foam formation, they conduct a final potable water rinse and analyze the captured rinsate.

Technicians from TRS worked with airport staff to devise a special process for cleaning the complicated inner systems of the ARFF vehicles. They created a flow path that accessed the various

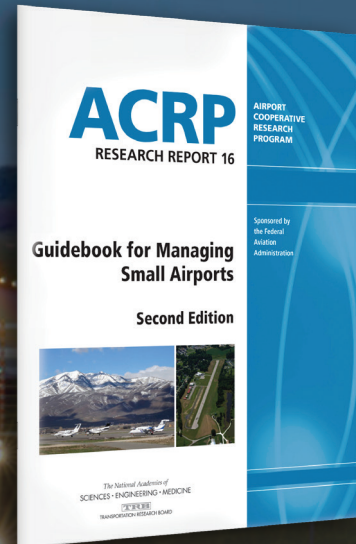
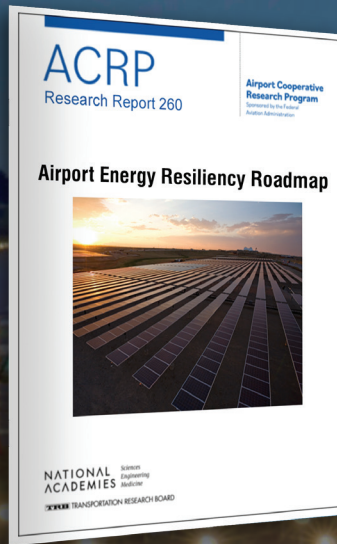
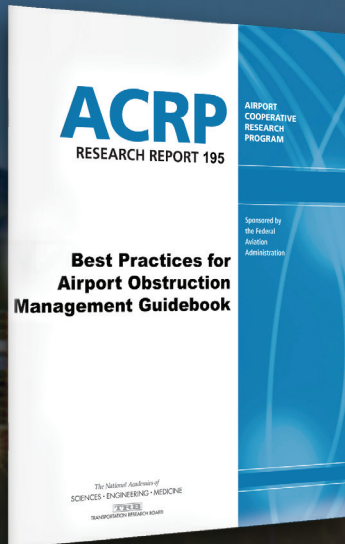
channels and piping that feed the hoses, lines, turrets and nozzles. “David [Fleming]’s team on the ground worked with my mechanics to manipulate and trick the vehicles to create the flow path they wanted to take advantage of that processing,” says Krause.

The process uses flocculation, sedimentation and filtration to remove particles from the water. The remaining sludge is disposed off-site, and the water continues to be filtered until it’s clean enough to be discharged on site into the sewer. Fleming says it’s a new application for a process that’s been used for decades in the municipal wastewater treatment industry.

In general, cleaning ARFF vehicles requires large volumes of water, and airports that rely on water-only rinses have to deal with that contaminated water. Krause considers it a huge advantage that the PerfluorAd process also cleans the wastewater. “We probably would have had 70,000 to 90,000 gallons of wastewater that we would have had to pay to dispose of if we couldn’t discharge on site,” he says, estimating disposal fees of more than \$5 per gallon. “This process really pays for itself with the waste mitigation.”

The airport chose to clean its ARFF vehicles at a cost of \$50,000 to \$70,000 each rather than purchase new ones for \$1.2 or \$1.3 million each. The project team secured \$300,000 for cleaning and another \$300,000 for the new fluorine-free foam

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product through SEA's internal budget process. King hopes the expenses qualify for some reimbursement from the FAA Reauthorization Bill recently approved by Congress, once that funding is appropriated.

**Blazing a New Trail Together**

Krause set this change in motion back in 2018 when he stood up in front of 400 people at a conference and announced SEA would be the first U.S. airport to transition to fluorine-free firefighting foam. "I did it to throw down the marker," he says. "But I've followed up with that, asking to be invited to the table. We are the first to transition [using a cleaning technology], as I had always thought it should be. I'm very proud and confident of that."

King largely attributes the airport's smooth transition to strong collaboration with the Port of Seattle, TRS Group and



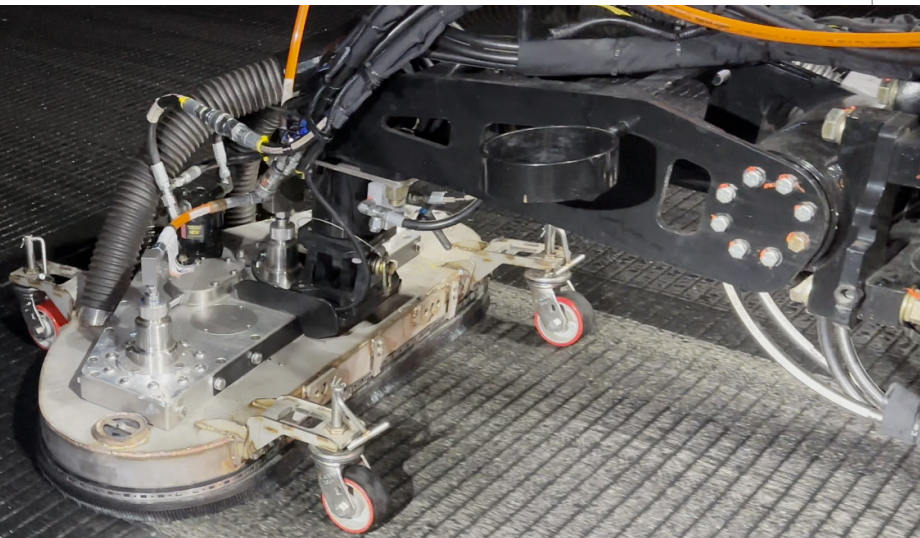
*Extra precautions are taken to capture stray rinsate while vehicles are being cleaned.*

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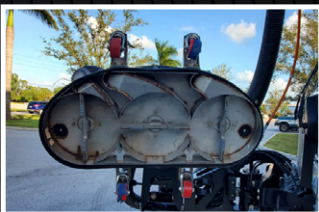


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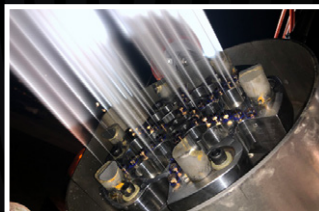
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various industry stakeholders. “I think the reason we were able to be successful is that we had a good meld of personalities who were not going to take no for an answer—plus having support from our leadership. We really never faced resistance,” she comments.

Fleming also praises the partnership, and refers to Krause, King, SEA and the Port as leading forces for fluorine-free foam. “They are the visionaries bringing this forward and doing everything they said they would do,” he says. “I just find it inspiring, frankly, to be part of this team and to have the opportunity to work with them.”

King acknowledges the industry backing SEA received, especially the environmental and firefighting communities. “We’ve had a lot of input, a lot of support and a lot of really good guidance from other people in our same situation at other places,” she explains. To enhance what they have learned and help other airports transition from PFAS products, King and Krause are involved with industry groups. King works with the American Association of Airport Executives (AAAE) Environmental Services Committee, and Krause sits on the FAA Advisory Committee. Both contribute to the PFAS working group of Airports Council International.

Looking ahead, Krause notes that SEA has plans for ongoing monitoring and evaluation to help ensure the long-term success of its transition to fluorine-free foam. One potential issue is the persistent nature of PFAS. “It gets into all the nooks and crannies, so there’s a concern about it “rebounding,” meaning that whatever traces were left on the walls or piping could leach into the new foam product,” he explains. To enhance confidence, King’s team will run tests after the fluorine-free foam has been in SEA’s trucks for two months, and those results will help determine the frequency of subsequent testing.

The airport also is preparing to share its findings and experiences with the broader aviation community, serving as a “been-there-done-that” resource for other airports navigating their own transitions.

To that end, Krause and King offer valuable advice about their process. Krause emphasizes the importance of prioritizing safety. “Eliminating a potential exposure for my firefighters is my No. 1 priority, and the best way to do that is to use cleaning technology that will get it as clean as possible. It’s as simple as that.”

King advocates taking a proactive approach: “Don’t be scared to do it. Talk to people who’ve been there.” She also encourages airport leaders to adopt a big-picture mindset. “Think longer term about what kind of risks you still carry if you don’t do the best that you can [to eliminate PFAS]. The less you spend now, the more risk you’re carrying with you into the future for things that will end up costing you way more.”



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# Manitowish Waters Airport Adds Hangars to Satisfy COVID-Related Demand

BY RONNIE WENDT

## FACTS & FIGURES

**Project:** Adding Hangar Space

**Location:** Manitowish Waters Airport, in WI

**Current Options:** 7 privately owned box hangars housing 7+ aircraft; 35 privately owned nested T hangars housing 35+ aircraft; 1 airport-owned hangar with 5 50'x50' units housing 5+ aircraft

**In Process:** 4 more standalone hangars; 10 nested T hangars for 35 aircraft

**Site Development Costs:** \$575,000 (grading, utilities connections, stormwater drainage, taxiway access)

**Funding:** State & federal grants; local funds

**Frequently Used Contractor:** Walters Buildings

**Of Note:** Demand for hangars spiked when visitors used vacation homes or purchased homes during the COVID-19 pandemic to work remotely from the popular vacation area



Manitowish Waters Airport (D25) in northern Wisconsin is more than just a place for planes to land. It's a testament to visionary thinking back in 1945.

Town founders established the airport even though Manitowish Waters only had 250 residents at the time. After World War II, the airport helped transform the area known for its lush forests, crystal clear lakes and legendary fishing into a thriving tourist destination.

The small town and its airfield have since flourished, but the COVID-19 pandemic recently introduced a new challenge for Airport Manager and Town

Chairman John Hanson. Hangar space was suddenly in high demand when an influx of people with private planes used or purchased secondary homes in the area and started telecommuting from the picturesque vacation spot.

"The pandemic made working remotely practical and accepted," says Jerry Wilke, chairman of the Airport Committee. "Employees and companies have embraced the change!"

Visitors who previously came to Manitowish Waters for weekend getaways now stay for weeks at a time, and many want shelter for the aircraft that shuttle them in and out.





"We've got tremendous interest in new hangars," reports Wilke.

The sudden surge of demand set airfield improvements in motion. At the end of this summer, projects were underway to add as many as 18 new hangars over the next few years. Those plans began with a wait list of over 20 prospective tenants vested in the progress.

## Hangar History

For decades, Manitowish Waters Airport operated with a single 3,000-foot-long, 120-foot-wide grass runway. In the 1980s, it added a 3,500-foot paved runway that intersects the original turf strip and includes overrun areas at both ends.

"When we added that second runway, the need for hangar space started growing," Hanson explains. "That's when a group of guys got together and formed a corporation to construct the airport's first nested T-hangar."

Today, that and three other T hangars provide shelter for 35 airplanes, and there are seven other standalone hangars, each 60-feet square. All are privately owned, with long-term leases for the airport property they occupy.

In 2010, the airport built an "all-in-one hangar" with five 50'x50' bays that hold up to 10 aircraft. At the time, that was the only airport-owned hangar on the field, but that is changing.

Two years ago, airport leaders began the process to add the 18 more hangars mentioned. They secured FAA funding as well as a block grant for public airports from the Wisconsin Bureau Aeronautics. Part of their appeal for funding was a long list of people from Milwaukee, Chicago, Rockford, Madison and Minneapolis who want T hangar space at the 500-acre Northwoods airport.

A tract of land about the size of three football fields has been graded and improved with stormwater drainage, utility services and taxiway access for eight private and the airport-owned T hangars.

"Four private hangars are already built, and one additional plot has just been leased," Hanson reported in July. "The airport will also construct and lease a series of approximately 10 nested T-hangars."

As part of a previous project, the airport replaced its non-directional beacon with GPS approaches to improve airfield operations during inclement weather. "Now [pilots] can get in and out on a regular basis," Hanson says. "The practical side of things just got better."

The price tag for recent land improvements totaled \$575,000, and the pending T-hangar project is out for bid. "We will know the cost for that soon," Hanson said in July. "It is planned to be built next spring". Only 5% of the T hangar investment will be provided by local tax revenue, he adds. Fully 95% will be covered by government funding and

private investors will fund all of the box hangars.

"The local and federal funds come out of the fuel tax, which is paid by those who actually use airports like ours," Hanson notes.

## Lots of Choices, Less Red Tape

Wilke highlights variety and flexibility as major benefits of the airport's array of hangars and tie-down options.

Some pilots prefer to park their aircraft outside all summer, but many want basic shelter, so an uninsulated hangar will do. Others opt for an insulated building with a bathroom and in-floor heat. Those who want even more amenities choose units with an office, satellite connections, Internet, room for a vehicle and more.

"It all depends on what their needs are and what they want to spend," says Wilke.

While many features are up to the building owners, airport leadership established design standards for building sizes, shapes, rooflines, materials, heights and exterior colors.

"Too many airports end up with what looks like a shanty town because the hangars are all different shapes, colors and quality...some with dirt floors," he says. "That's not what we wanted here. The Manitowish Waters community is built and maintained to a very high standard, and we wanted our airport to be consistent with that standard!"

Generally, owners have wide latitude when developing their spaces.

"They are able to walk through an existing hangar and then imagine their own space and customize it to their preferences," Wilke says. "Residences are not allowed, but many interiors are arranged to accommodate flight planning, Zoom calls, meetings, entertainment and 'hangar-flying' of all types!"

From a process standpoint, the airport and local government work closely together to accommodate aircraft operators looking for hangar space. Customers don't suffer bureaucratic delays that are common elsewhere because Hanson serves as town chairman *and* handles hangar leases as the airport manager.

Airport Committee Chairman Jerry Wilke helps provide free introductory airplane rides to children.



"He's made the process easy because he's already done it with others," Wilke relates. "They sign the lease, and then we put them in touch with our recommended builder, though they can use their own."

The airport recommends Walters Buildings of Allenton, WI, because its product meets the airport's requirements for quality, efficiency and appearance. Most customers take the airport's recommendation and are pleased with the process and results, says Wilke. "They show customers what they did

for the last person and ask if that's what they would like or if they have adjustments," he explains. "They come back a week or so later with changes, and boom, they are ready to go."

Although Walters Buildings is based in southern Wisconsin, it typically hires local electricians, plumbers, and concrete companies as subcontractors.

### Giving Back

Wilke emphasizes that the airport needs to be a good community partner if it wants to continue growing.

"Too many [airport operators] wonder why they get complaints. It's because people do not understand the airport's benefits," he explains. "They feel like they've been kept on the other side of the fence. That is a mistake."

Manitowish Waters Airport fosters goodwill within its community by hosting events that draw the public inside the fence.


One example is the Experimental Aircraft Association's Young Eagles program, which provides free introductory airplane rides to children ages 8 to 17. "They get their first ride, a logbook and a signed certificate," Wilke says. "Some kids come back year after year, and it's a spectacular event for them and their families."

The airport also hosts an annual Hamburger Fly-In Social in August, always on a Thursday. Planes come from near and far, and the entire community is invited for food, music and aircraft tours.

The airport also conducts training for volunteer firefighters, local police and other first responders. The sessions help familiarize emergency personnel with the airport layout and operations. Such preparation could prove crucial if a Flight for Life aircraft needs to operate from the airport or an incident occurs at the airfield.

Hanson notes that recent and ongoing hangar development is just one aspect of long-term development at the airport. The next step is creating a master plan to detail future development. That process is expected to cost \$250,000 and will be funded by the FAA.

No matter what the master plan eventually contains, Hanson stresses that continued development would not be possible without community support and close cooperation between town leaders and the Airport Committee.

"Having that connection with the town government, the support of the community and the understanding of why the airport is important in the first place is what gets things done," he concludes. 

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## FACTS&FIGURES

**Project:** Airfield Safety Enhancement Program

**Location:** Tucson International Airport (TUS), Tucson, AZ

**Operator:** Tucson Airport Authority

**Main Components:** Demolishing, relocating, and constructing Runway 12R-30L (runway numbers shifted with the MAGVAR changes); constructing new taxiways and connectors; installing aircraft guidance systems; modernizing airfield geometry to meet current FAA standards

**Cost:** \$400 million

**Funding:** TAA, FAA, ADOT, Military (through MCCA process)

**Project Timeline:** Preliminary needs assessment in 2010; master plan update in 2015; EIS in 2017, groundbreaking in 2019; completion expected by 2028/2029

**Program Manager:** WSP

**Construction Manager at Risk and Design-Bid-Build 1 Construction:** Granite Construction

**Design-Bid-Build 1 Prime Contractors:** Jacobs; Dibble

**Design-Bid-Build 2 Prime Contractor:** Garver

**Design-Bid-Build 3 Prime Contractor:** Reynolds, Smith & Hills

**Construction Manager at Risk Design:** HDR Inc.

**Environmental Impact Statement Consultant:** Landrum & Brown

**Phase 1 & 2 Studies and Master Plan Update:** HNTB

**Safety Risk Management Panel Facilitator:** Jacobsen Daniels

**Jet Blast Deflector:** Blast Deflectors, Inc.

**Key Benefits:** Modernizing the airfield to current FAA standards; enhancing safety; providing operational redundancy with parallel runway

# Tucson International Leverages Partnerships and Federal Funding to Enhance Airfield Safety

BY JODI RICHARDS



Tucson International Airport (TUS), operated by the Tucson Airport Authority (TAA), an independent organization enabled by state legislation in 1948, is currently 14+ years into its Airfield Safety Enhancement Program (ASE); the last four years being under construction of the comprehensive airfield safety initiative. The multi-project program, estimated at \$400 million, is designed to update Arizona's second-busiest airport to current federal standards and usher in a new era of safety for TUS. One major component is to eliminate a parallel runway only used by general aviation aircraft, relocate it, and construct a new runway that mirrors the primary runway to support all operators. The new parallel runway will also provide operational redundancy and support future growth, which will serve the region for decades.

Described as the airport's largest project to date, the ASE Program is about 14+ years in the making. From identifying specific needs and completing planning and environmental studies to securing funding and establishing construction phasing, TAA leaders and their project partners have worked together to plan and coordinate complex enabling

projects and phases. Construction is slated for completion by 2028/2029, and Danette Bewley, President/CEO of Tucson Airport Authority (TAA) expects the changes to be amazing.



DANETTE BEWLEY

"Having the runways separated for safety and redundancy will be a game changer for us," says Bewley.

Per the program, the TAA demolished Runway 11R-29L (8,803 feet long x 75 feet wide) and will replace it with a new parallel runway that is 11,000 feet long x 150 feet wide, which mirrors the primary runway. Rich Bauer, lead aviation designer with program manager WSP, notes that other crucial elements include new taxiways and connector taxiways, installation of aircraft guidance systems and modernization



RICH BAUER

of airfield geometry to meet current FAA standards. Additionally, a MAGVAR change was required, and last November the TAA changed the parallel runways at TUS from 11-29 to 12-30 and the crosswind runway from 03-21 to 04-22.

To minimize airfield disruption, manage TAA cash flow and maximize grant funding, construction was divided into four major pieces:

The new Runway 12R-30L and Connector Taxiways Project includes:

- a new electrical vault (completed in 2021)
- construction of an end-around taxiway and modifications to existing taxiways (completed in 2024)
- demolition of the existing general aviation runway (completed in 2024)
- Underway
  - relocation and construction of new commercial service runway,
  - constructing a center taxiway between the existing and new parallel commercial runways,
  - constructing an outer taxiway and new connector taxiways,
  - installing a new barrier arresting kit system for the Arizona Air National Guard (paid through Military Construction Cooperative Agreement), and
  - performing sound attenuation at homes identified in the 2017 environmental impact study.

In addition to the airfield aspects of the program, the TAA engaged in complex land negotiations that involved a land swap between the United States Air Force (USAF) and the TAA. The TAA needed a parcel owned by the USAF for the safety area for the new runway, and the USAF needed a parcel owned by the TAA to construct a new storage facility. Before the TAA can commission the new runway, it must pay for the construction of the new storage facility for Raytheon Technologies Corporation followed by the removal of the 12 Earth Covered Magazines presently used by Raytheon to store its products.

The Earth-Covered Magazine Demolition and Fencing Project includes demolishing

and replacing 12 earth-covered magazines and expanding the airport safety area.

The Runway 12R-30L Connector Taxiways Project will modify connectors and taxiways to commercial runway standards and relocate aircraft guidance systems.

The airport chose to use the construction manager at risk delivery method for the Runway 12R-30L and Connector Taxiways Project. The other three phases are design-bid-build projects.

### Unwanted Distinction

When FAA amended its reporting requirements and expanded the definition of airfield incursion in 2007, TUS led the U.S. for reported airfield incursions in 2008. “That’s not a good list to be at the top of,” Bewley laments.

The airport’s previous configuration of parallel runways was problematic. “Pilots confused Taxiway Alpha as Runway 29R, and Runway 29L for Runway 29R. Wrong surface landings and runway incursions were all too common at TUS,” she explains.

A study of needed airfield safety improvements performed in 2010 identified four hot spots. “We resolved two without any major construction, but the two that remained were runway issues that could not be resolved until we reconstructed and realigned the airfield geometry,” Bewley explains.

An airfield safety enhancement study, completed in 2012, reviewed the airfield geometry with the goal of reducing incursions and improving overall safety. The study used a modified safety management system/safety risk management approach to evaluate and prioritize potential airfield enhancements. The findings yielded recommendations for near-term operational and safety-enhancing airfield geometry improvements, as well as longer-term airfield redevelopment.

Recommendations include airfield geometry mitigation strategies designed to:

- minimize or eliminate aircraft from accessing Runway 11R-29L by crossing Runway 11L-29R,

- minimize the potential for pilots approaching from the south to misidentify the left and right parallel runways, and
- enhance awareness of the interaction between Taxiway Delta and Runways 11R and 11L.

Recommended changes included aligning the end of Runway 29L with Runway 29R to address runway misidentification issues and adding a center parallel taxiway to provide a place for aircraft to turn off Runway 11R-29L before proceeding across Runway 11L-29R.

A Master Plan Update that validates the need for airfield safety enhancements and includes an implementation plan was completed in 2015. The preferred runway program—relocating Runway 11R-29L and constructing a center parallel taxiway—incorporated the runway and taxiway safety elements identified in the airfield safety enhancement study as well as additional safety elements developed through the master planning process.

Although the project team presented a few alternatives that leveraged airport-owned land, the TAA selected a plan that

required the TAA to acquire additional property. From there, TAA and the United States Air Force entered a Memorandum of Understanding that outlined property transactions among the entities. “We coordinated with neighboring jurisdictions to swap land under mutually beneficial agreements,” Bewley explains. “They got something they needed, and we got something we needed.”

“It really was a win-win for all parties,” she adds. “For instance, the Air Force has an opportunity to use the land we swapped with them to relocate the storage facilities away from the airport to a different location, and the land we received on our side of the swap will become our safety area. We both got what we needed.”

After the TAA completed a series of scoping meetings, an Environmental Impact Statement and a public hearing workshop, FAA gave its approval for the airfield improvement program to proceed in 2017. The first shovel hit the ground in 2019 for an enabling project to construct an electrical lighting vault. “It doesn’t sound exciting, but you have to start somewhere,” quips Bewley. Plus, the south airfield electrical lighting vault was needed for subsequent phases of the program.

Runway 11R-29L was demolished because at 8,803 feet long and 75 feet wide, it could only support small general aviation aircraft. Now that it is cleared away, that space is being prepared for the new runway with drainage and earth compaction. Concrete paving is slated to start in summer 2025.

The latest project milestone was achieved this June, when crews finished installing an end-around taxiway and the largest F-16 Arm/De-Arm Pad in the country. This \$25.7 million enabling project was a collaborative effort between the TAA and Arizona Air National Guard — 162d Fighter Wing to significantly boost flexibility and efficiency to support their mission. The Arizona Air National Guard is the training base for allied nations using the F-16 and has 75 based F-16s at TUS. In addition, it is a vital component of the nations’ “Enduring Freedom” operation. The Arm/De-Arm Pad provides 14 aircraft positions on the apron for simultaneous pre- and post-flight actions. The new end-around taxiway allows military aircraft efficient access to and from the airfield and around active runways. Other significant project elements include a barrier arresting kit on Runway 4-22, construction of new taxiways F, G and D3, and a Gate B entrance. This aspect was funded by grants from the FAA, Arizona Air National Guard and Arizona Department of Transportation.

As that project ended, construction simultaneously began on the outboard Taxiway C and other work on the south side of the airfield.

### Planning and Partnerships

Bewley notes that this project benefits from deep involvement of the TAA, FAA, USAF, Arizona Air National Guard, Raytheon Technologies, the city of Tucson and Pima County. Working group meetings allowed the parties to come together and rally around this important airfield project, she adds.

Investing the necessary time and energy for planning is key to a program like this, Bewley emphasizes, particularly because of the extended timeline, numerous stakeholders

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and various funding sources that are involved. “We didn’t go into this without a really good plan,” she advises. “And just like we planned for various elements of the Airfield Safety Enhancement Program, we also planned how we would manage it through a number of consultants that are excellent in their field, and how we would fund it.” To date, the TAA has leveraged TAA financial resources to fund the Program, offset by grant reimbursements.

One important logistic plan was coordinating with TSA and installing a fence that placed the project site outside of the Air Operations Area (AOA). At any given time, there can be up to hundreds of crewmembers working, so badging and controlling access to the site would have added more challenges and slowed down the progress, Bewley explains.

About five miles of temporary security fencing was installed to separate the project site from the AOA. Work inside that fence is coordinated carefully with Airside Operations personnel and the air traffic control tower.

Program phasing relied heavily on the sequence of funding TAA secured for the project, notes WSP Project Manager Sterling Stewart. “The TAA received several grants that allowed us to move forward to a certain point.”



STERLING STEWART


“If you have a GMP contractor out there, your worst nightmare is to get to the point where they run out of work, and you have no funding to move to the next phase. Then, we must pay to bring him back,” Stewart relates. “It’s challenging.”

Some of the transactions for land acquisition have been slower than anticipated because they include aspects that are out of the TAA’s control. As a result, the project team relied on using dirt from the new parcel, but when the transaction did not match up to the “dirt need,” the TAA had to find an alternate source of dirt. “As funny as that sounds, it adds cost where we are trying to be efficient and effective,” says Bewley.

Although the main goals of the Airfield Safety Enhancement Program are improving safety and conforming to current aircraft separation standards, increasing capacity will be an added benefit.

The program provides the airport much-needed flexibility to serve a mix of traffic that ranges from fighter jets and commercial airlines to small general aviation aircraft,

business jets and cargo planes. “It really takes this airport into the future for decades,” adds Bewley.

As projects continue, losing the smaller parallel runway 11R-29L meant working with the general aviation community to use the TAA’s other reliever airport Ryan Airfield (RYN) to minimize delays. In fact, one aspect of the project was for the TAA to relocate a flight school from TUS to RYN. “As much as you think you are communicating and coordinating, you have to do even more, because there are so many moving pieces and so many players involved in different phases and layers.” 

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# Airfield is Open at New General Aviation Airport in Kentucky

BY MICHELLE GARDNER

## FACTS&FIGURES

**Project:** New General Aviation Airfield

**Name:** Gallatin County Regional Airport

**Location:** Gallatin County, KY

**Managed by:** Gallatin County Airport Board

**Footprint:** About 650 acres

**Cost:** \$44 million

**Current Infrastructure:** 5,000-ft. x 75-ft. concrete runway; 35-ft. wide full-length parallel taxiway; 500-ft. x 350-ft. aircraft apron

**Project Timeline:** Early planning started in 2008 & accelerated as land purchases began around 2007; airfield construction started in 2020; runway opened in June 2023; terminal building, fuel farm & hangars currently in various stages of development

**Airport Planner & Engineer:** Goodwyn Mills Cawood

**Airfield Excavation & Grading Subcontractor:** Bizzack Construction LLC

**Paving Subcontractor:** The Harper Company

**Notable Features:** Only general aviation airport in KY with direct access to I-71; fills previous air service gap in business & industrial corridor between Cincinnati & Louisville



“A mile of road will take you a mile, but a mile of *runway* will take you anywhere,” sums up the conception and construction of Gallatin County Regional Airport (8GK) in northeastern Kentucky. When officials cut the ribbon on its runway last summer, the state’s 58th general aviation airport was officially open for business, even though the terminal and other key facilities are still in the works.

With a population of less than 8,800 and only 101 square miles of land, Gallatin County, KY, may seem like an unlikely candidate for a completely new airport. But it’s situated in the “Golden Triangle” between Cincinnati, OH; Louisville, KY; and Lexington, KY. It had also been on the radar of federal and state aviation agencies for nearly three decades as a good location to add a much-needed airfield for corporate and other general aviation traffic.

Goodwyn Mills Cawood is the airport planner and engineering consultant that helped make that idea a reality, and Mark Paslick, now the firm’s aviation manager, has been working on the project from

its conceptual start back in 1998. Paslick explains that the Kentucky Division of Aeronautics (later renamed the Kentucky Department of Aviation) wanted an airport to fill a service gap near Interstate 71 to serve industry along the Ohio River, including steel plants such as North American Stainless and Nucor Steel, as well as other large corporations like Dow Chemical. Eventually, 8GK was developed as a potential reliever airport for corporate aircraft operating out of Cincinnati/Northern Kentucky International Airport (CVG) and Louisville International Airport (SDF).

John “Spike” Wright has been involved with the 8GK project since 2003—first as Gallatin County Attorney, and now as a member of the Airport Board. “Once it



MARK PASLICK



JOHN ‘SPIKE’ WRIGHT





was determined to build the airport where it is, the location was secured and there was excitement," he recalls. "But when it came to money, the excitement died. Then it got revived, then died."

In 2008, Paslick and his team felt it was an opportune time to revitalize the project. "There was still a hole in the Kentucky Aviation System, along an important economic corridor (Interstate 71 between Louisville and Cincinnati) that was being underserved by aviation," he explains. "The businesses and industries along River Road and the Belterra Casino continued to show significant economic growth, and there were a large number of registered aircraft owners within a two-county radius of Gallatin County."

Jim Hansen, Planning and Zoning administrator for Gallatin County, offers a tongue-in-cheek explanation of the final outcome: "In reality, it was a game of musical chairs. This [airport] project bounced up and down I-71, and we happened to be in the right location when the music stopped."

## Negotiation, Not Condemnation

Gallatin County is a rural community filled with family farms. So acquiring more than 650 acres needed for the airport project was an extended process.

"We had five landowners involved, and it took over a year to finalize purchase of property. But it was nine years (2008 to 2017) from the push to revitalize, in 2008, to closing on the land," Paslick recalls.

Wright, who was Gallatin County Attorney from 2003 to 2022, assisted Paslick and other Goodwyn Mills Cawood personnel in the land acquisition.

Paul Steely, the firm's aviation leader in Kentucky, notes that it is generally difficult for airport boards to understand how long these projects take and to sustain the necessary enthusiasm.



PAUL STEELY

"You may be looking at 20 years. If building an airport was easy, every county would build one," he relates. "Gallatin County Fiscal Court appoints at least six board members, and you hope that they stay together for many years."

Steely also brought perspective to the project as the state's previous Aviation Commissioner and former Kentucky Aviation Association president.

Paslick notes that working with the state of Kentucky to issue bonds in the county's name was a complex undertaking. "To make 8GK work, all landowners had to come together to agree. And they did."

Acquiring the land through negotiation was much preferred to condemnation, the legal process governments can use to take private property for public use. Steely was glad for the successful outcome, saying, "General aviation is not really known for condemnation. It is much better to negotiate with landowners." The acquisition of property was not only a significant step toward the airport's development, but also demonstrated the commitment of the state and Gallatin County to the success of the project.

Negotiations for property that gives the airport direct access to I-71 were particularly crucial. "There is so much upside for this airport with this location and excellent access," says Paslick.

## Funding

The price tag to date for 8GK is about \$44 million. Federal funding provided \$25.5

million, the state contributed \$18 million and Gallatin County paid \$55,500.

County representatives and Goodwyn Mills Cawood worked together to secure funding for each phase of development. To qualify for FAA funds, a new airport site must be identified on the National Plan of Integrated Airport Systems (NPIAS), and building a new general aviation airport typically spans at least three construction seasons. Goodwyn Mills Cawood helped the county apply for FAA Airport Improvement Program funding for each year of development. The first application for federal grants occurred in the 2018-2019 funding period, and subsequent submissions of federal and state funding applications for eligible projects is ongoing.

The main sources of revenue for the airport will be land leases, rental income and fuel sales.

## Current and Future Construction

When it finally came time to break ground, airfield infrastructure was the top priority. Site prep and installation of the 5,000-foot runway, parallel taxiway and 500-by-350-foot aircraft apron began in 2020. Bizzack Construction from Lexington performed excavation and grading work, with crews moving 1.53 million cubic yards of earth from rolling hills on the site.

Having such a long concrete runway and full-length taxiway is noteworthy for a general aviation airport like 8GK. Because airfield work began during the COVID-19 pandemic, bids for concrete and asphalt pavement were very close; so the county and its project team opted for longer-lasting concrete. The Harper Company of Hebron, KY, processed, poured and paved 85,857 square yards of concrete, 10 inches thick to create the mission-critical surfaces.

Since the June 2023 ribbon-cutting ceremony for the airfield, plans for a fuel farm, terminal building and 10-unit T hangar are moving toward construction on various timetables.

Hansen reports that funding for the fuel farm was released this summer, and excavation work for the terminal area and fuel pad has been completed. The system will have two 12,000-gallon tanks (one for Jet A, one for low-lead avgas), but



*Acquiring the 650 acres needed for the new airfield required negotiations with five separate landowners.*

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fuel won't be flowing anytime soon due to long lead times for various components. Naturally, this frustrates the airport and project team, given the vital nature of fuel sales.

In other developments, excavation for the future ramp area was completed in July, and the winning bid for a 10-unit T hangar has been selected and awarded. A construction date is contingent upon the release of a federal grant for the hangar this fall, but Hansen anticipates the airport's first hangar will be ready by late next summer.

In Kentucky, hangar space is currently in short supply. As a result, 8GK already has a waiting list of more than 30 interested parties.

"The real challenge is that hangars for smaller aircraft come in a common configuration that accommodates 10 aircraft and costs between \$750,000 and \$1 million," Hansen says.

Although hangars are typically not a high priority for federal Airport Improvement Program grants, there is an asterisk in FAA literature noting that they may be conditionally eligible at non-primary airports. So there is hope for 8GK. That said, long lead times for building materials and associated construction delays are likely, which means the airport will have to wait to begin collecting lease payments.

Design work on the terminal building is entering the final stages. Hansen hopes it will be out for bid by year-end and operational by fall 2025.

### Local Management

Jon Ryan Morris is airport manager at 8GK. The role coincides with his duties as judge-executive of Gallatin County—an elected four-year position that is essentially chief executive officer of the county, without judicial powers despite how the title sounds. Morris, who suspended his service as a local police officer after being elected, is the fifth county judge-executive affiliated with the airport. There is no limit to how many times a candidate can be re-elected to the position.



JON RYAN MORRIS

“Airports are economic magnets. It’s going to grow in ways we can’t comprehend now,” adds Steely. “8GK is ideally located for growth that filled a hole that was identified many years ago. This will be a strong general aviation airport.”

Morris agrees: “We are in the right location at the right time. We have so much here—waterway traffic, interstate, rail and now air.”

By adding another key transportation option, the new airport’s “mile of runway” could cement a path to prosperity for Gallatin County. Stay tuned for news about the terminal and other facilities as they are completed. ✈️

For now, Morris’ day-to-day duties at the airport are relatively limited since the runway is the only major infrastructure in place. But traffic is growing, and the airfield already logs 60 to 70 operations per month despite its lack of terminal facilities and fuel.

Hansen notes that the airport board may consider an FBO or other hybrid management arrangement as the terminal, fuel farm and other crucial assets come online. The size and function of the management team will depend on how quickly the airport grows, he adds.

### Education and Job Creation

Early on, community leaders recognized that the airport could be a tremendous resource for local youth. Morris is particularly excited about the educational and employment opportunities it will offer the county and wider region.

Conversations with the local school revealed similar enthusiasm, and committees were formed to develop aviation-related curriculum and technical training. New content might be incorporated as soon as this school year.

Morris notes that jobs associated with 8GK could help Gallatin County retain citizens who might otherwise move away for such similar opportunities.

To that end, flight schools, aircraft maintenance providers and the military have approached county leaders about possibly establishing a presence at the new airport. Hansen reports that military operations could include personnel and materials associated with C-130 aircraft.

### Optimism Soars

Dovetailing on the educational and economic benefits, Wright is open to considering vertical lift operations such as industrial drones and air taxis. “Being in the center of the Triangle, we would be foolish to not consider these,” he says.



Photo courtesy of Meridian Regional Airport

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# Bismarck Airport Adds New Snow Removal Equipment Facility

BY MIKE SCHWANZ



## FACTS & FIGURES

**Project:** New Snow Removal Equipment Building

**Location:** Bismarck Airport, in ND

**Size:** 40,000 sq. ft.

**Cost:** \$19 million (\$10.5 million for building; \$8.5 million for site improvements)

**Funding:** FAA grants; CARES Act disbursements; ND Aeronautics Commission state funds; airport funds

**Project Timeline:** Architect & engineer hired in Feb. & March 2022; construction bids issued & received Aug. 2022; construction April 2023-Feb. 2024

**Architectural Design:** Übl Design Group

**Consulting Engineer:** KLJ Engineering

**Prime General Contractor:** Northern Improvement

**Building Contractor:** Capital City Construction

**Prime Electrical Contractor:** Edling Electric

**Prime Mechanical Contractor:** Cofell Plumbing & Heating

**Steel Manufacturer:** Nucor

**Benefits:** Larger facility can store all snow removal equipment in same building, with room for maintenance & wash areas; new site provides maintenance personnel better view of airfield to evaluate snow conditions



Amid the angst, upheaval and tragedy that COVID-19 unleashed, there were also isolated slivers of opportunity. One of those rare instances occurred at Bismarck Airport (BIS) in North Dakota.

Airport Director Greg Haug knew his staff needed a bigger building for its snow removal equipment. At the time, vehicles and attachments were housed in three separate facilities, and the airfield maintenance department was still running out of room. But the airport had other capital improvement priorities.

“For example, we were getting ready to expand our terminal in 2020 when the pandemic hit,” Haug says. “After experiencing a dramatic drop in passenger traffic, we shelved the terminal expansion, and proceeded to make plans to build a new snow removal equipment storage building.”

The new 40,000-square-foot building has enough room to store all of the airport’s snow removal equipment under one roof (see list on Page 55), and also includes a maintenance station and separate vehicle wash area.



GREG HAUG

Funding for the \$19 million project included: 2½ years of Bipartisan Infrastructure Law (BIL) funding from 2022 to 2024; Coronavirus Aid, Relief and Economic Security Act (CARES) funds; a grant from the ND Aeronautics Commission; and airport funds. “The BIL and CARES Act funds really made the project possible. We were very fortunate how all the funding came together,” Haug says.

Once funding was in place, the airport executed its architect’s contract in February 2022 and its engineering firm’s contract in March 2022. Construction bids were then sent out and received in August 2022.

## Division of Duties

Because the airport hired Übl Design Group and KLJ Engineering to work on the project simultaneously, it was imperative that their responsibilities were clearly defined. Each company already had a five-year contract with BIS, and both are currently in the middle of those contracts.

“This was the first project in which we collaborated, so when we started planning, we decided right away the boundaries and scope for each company. A line was drawn dividing up the responsibilities,” states Jeff Übl, president of Übl Design Group. “From 7 feet away from the building perimeter, KLJ was



responsible. From 7 feet in, our company was in charge. Basically, Übl had architectural oversight of the whole building, while KLJ handled site improvements, including utilities, apron, new access roads, parking, fencing and security.”

The firms worked together on some assignments, such as electrical design, creating bid documents and site selection. They also collaborated on change orders, although KLJ had final responsibility to submit those to the FAA for approval. Because KLJ specializes in the aviation industry, it was also responsible for overall program and grant management, including all interactions with the FAA.

The need for a new storage facility was getting more and more obvious, says Tom Neigum, a senior project manager with KLJ Engineering. “The old building was too small; it had already been updated several times. The doors were undersized. In fact, the airport maintenance people sometimes had to remove attachments to get some of the plows into the existing building,” he explains.

The new facility has room for all of the airport’s snow removal equipment, with six storage bays. Each has a door on opposite ends, so vehicles can enter through one and exit through the other.

All of the deicing equipment, plus liquid runway deicer and sand inventory, can fit inside the new building. In the past, liquid deicer and some other materials had to be stored outside, subject to the elements.

The location of the previous building also was not ideal. “It was tucked back, away from the taxiways and runways,” Neigum explains. “The new building is located at the west side of the airfield right off the taxiways, and provides the maintenance crew with a better line of sight of the conditions on the airfield.”



TOM NEIGUM

When researching the new location, KLJ performed an airspace line-of-sight study for the FAA. It helped determine that the building could be 28 feet high and not obstruct the view of air traffic controllers.

Übl describes the structure of the building itself as relatively straightforward. “We laid out the footprint, covering the location and sizes of the doors, and included specifications for the roof materials, thickness of the walls, colors and other items.”

The main component of the building was pre-engineered steel from Nucor, cut to the architects’ specifications. “We basically ordered a kit of parts,” says Übl. “The only drawback was that we had to wait for all of the parts to be delivered so we could start on the shell of the building.”

### Better Crew Quarters

The new snow removal equipment building includes improved accommodations for airfield maintenance workers. There are five beds, so they can take a break at the airport and get some sleep during longer snow events.

The break room includes a microwave, refrigerator and kitchen table. “Everything is self-contained,” says Haug. There are showers in the men’s and women’s bathrooms.

### Challenges Overcome

Harsh weather delayed construction because Bismarck received near-record amounts of snow during winter 2022/2023. The area also had the longest period with at least 8 inches of snow on the ground and broke several other weather records. By mid-April 2023, a significant amount of snow still covered the jobsite, so the contractor used bulldozers to push snow out of the way.

“Fortunately, the weather in fall 2023 was much better, and the main shell of the building was done before the winter of 2023/2024,” says Neigum. “We had a tight schedule; we had to send two close-out reports to the FAA by early May 2024 in order to get the grant money. We were able to finish those by April—a month early.”

Procurement issues caused another slight hiccup. “Getting a few electrical components held us up a bit toward the end of the project. They came in well after the shell was completed. We were able to work around that to stay on schedule,” Übl affirms.

Meetings were held throughout the project to inform stakeholders about the status of construction. Attendees usually included representatives from KLJ, Übl, the airport, air traffic control, FAA local office, North Dakota Aeronautics Commission and the local Fire Department.

### Ready for Winter

The impending 2024/2025 winter seems less intimidating with the new snow removal equipment building complete. By design, it will increase the airport’s efficiency to tackle the snowy, icy weather that invariably comes through Bismarck.

“It will be nice to have all of our equipment under one roof,” Haug declares. “There is now room to store even larger snowplows. We



The new equipment facility also includes improved quarters for maintenance crews.



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**The Industry Standard for Airport Snow Removal Equipment**

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recently purchased a 30-foot-wide Henke box plow and loader combo. Until now, we only had 22- and 24-foot blades. We plan to use the new box plow to clear snow from the large apron used by commercial airlines. We expect it to work great.”

With the building’s new location, there is also space for future expansion. “We have room to build another storage building just east of our new one, but that will be several years down the road. Based on the FAA snow removal equipment calculation sheet, we are eligible for up to 27 pieces of various equipment. We only have 12 right now,” Haug explains.

“This SRE [snow removal equipment] building is really important to us,” he concludes. “We have a dedicated staff that works hard to keep the airport open during all kinds of winter weather, and this building will make their jobs easier and more efficient.” ✈️

## What’s Inside

The new 40,000-square-foot snow removal equipment building at Bismarck Airport (BIS) stores an array of vehicles and accessories:

- Case skid steer with attachments
- Caterpillar front end loader
- Challenger tractor with snow bucket
- Clark 290 24-foot plow\*
- John Deere 644 front end loader with 14-foot plow
- John Deere 744 with 30-foot box plow and auxiliary snow blower
- MB4 snow blower
- MB3 Series truck with 18-foot broom
- MB3 Series truck with 24-foot plow
- 2 Oshkosh H-Series trucks with 24-foot plows
- Oshkosh 18-foot broom
- Oshkosh P-Series truck with 22-foot plow
- Ford truck-mounted 1,600-gallon deice tank with 27-foot boom (for airside use)
- GMC truck with 1,000-gallon deice tank (for landside use)
- International truck-mounted sander and pre-wet system

*\* This unique piece is a Vietnam-era tank retrieval unit with a plow self-fabricated by BIS maintenance staff. Several years ago, the airport had two other similar units—one with bullet holes in the cab. Both have since broken down, but the 24-footer is still a workhorse for the airport.* ✈️



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# New Taxiway Paves the Way for Rapid Commercial Development at Pryor Field

BY KEN WYSOCKY

## FACTS & FIGURES

**Projects:** New Taxiway; Access Road

**Location:** Pryor Field Regional Airport, in Tanner, AL

**Approx. Cost:** \$2.6 million

**Funding:** \$1.3 million FAA grant; \$73,000 grant funding from AL Dept. of Transportation's Aeronautics Bureau; \$1.2 million bond issue

**Taxiway:** 563 ft. long, 35 ft. wide

**Purpose:** Provide access to developable land on northwest side of airport

**Access Road:** 700 ft.

**Engineering Consultant:** Goodwin Mills Cawood (GMC)


**Concrete Work:** Wiregrass Construction Co. Inc.

**Construction:** Fall 2023-Aug. 2024

**Key Benefits:** Enables development of 25 acres on northwest side of airfield, including a proposed 188,000-sq.-ft. ramp & hangars for on-demand cargo operations; enhances airport's reputation & role as regional economic engine

**Associated Project:** 700-ft. access road

**Follow-up Projects:** Sewer line & 1,100-ft. taxiway to serve 85 acres on southwest side for development by maintenance, repair & overhaul companies

 A new taxiway completed late this summer at Pryor Field Regional Airport (DCU) marks the first step in an aggressive expansion program to help the northern Alabama airport keep pace with dramatic regional economic growth.

The 563-foot taxiway provides access to 25 acres of land on the northwest side of the airfield that is slated for development as a center for cargo operations. The airport's master plan envisions a 188,000-square-foot ramp and ample room for hangars that will house corporate aviation facilities and companies that support on-demand cargo operations via chartered airlines.

Airport Director Adam Fox reports that the Pryor Field Airport Authority already has four letters of intent from companies that want to build facilities on the site.

The new taxiway, along with a 700-foot access road that runs perpendicular to its west end, enabled construction of a nearly 13,100-square-foot corporate hangar with classroom space for a flight school. That

facility is located just north of the airport terminal.

Together, the taxiway and access road cost \$2.6 million. Funding was provided by a \$1.3 million FAA grant, a \$73,000 grant from the Alabama Department of Transportation's Aeronautics Bureau and issuing \$1.2 million in bonds.

## More Development on Tap

Additional commercial development is planned on the southeast side of DCU. Construction of an approximately 1,100-foot taxiway is slated to begin in September 2024. When complete, the \$3.2 million project will open up 85 more acres of land for commercial development. A sewer line to service the area will be added at a cost of \$2.4 million.

Development on the southeast side will center on maintenance, repair and overhaul facilities. The airport master plan includes space for more than a dozen hangars.

Earlier this year, the airport authority board approved a 25-year lease with a 10-year optional extension for Acquisition Integration. The company plans to build a roughly \$25 million, 50,000-square-foot hangar that will



ADAM FOX





help it serve commercial and military clients in the aerospace and vehicle industries, Fox notes.

The airport also has a letter of intent from another company to build a roughly 36,000-square-foot hangar and office facility in its southeast sector.

“We’re soaring to new heights as an airport,” says Fox. “Pryor Field is getting on the map.”

“We may not be hiring a bunch of people, but we impact thousands of jobs by supporting operations for companies outside the fence.”

## Responding to Demand

Why all the development at DCU? Rapid economic growth in Limestone County, which includes the cities of Decatur and Athens, and in Huntsville, an aerospace center just a few miles away that is known as “Rocket City.”

“Limestone County is the fastest-growing county in Alabama,” Fox reports. “And Huntsville is ranked as one of the best places to live in the United States.”

Northern Alabama—Huntsville, in particular—is home to many major companies, including a joint Mazda Toyota manufacturing facility; the George C. Marshall Space Flight Center, a rocketry and spacecraft propulsion research center operated by NASA; and Polaris, which builds off-road and recreational vehicles.

In addition, United Launch Alliance—a joint venture between Lockheed Martin Space and Boeing Defense, Space and Security—is based in Decatur.

“These companies are among 15 to 20 major businesses that do a lot of shipping [through DCU],” Fox says. “We also provide support for United States Army fulfillment and weapons testing.

“Businesses are moving operations to our airport, so we needed to get in front of these opportunities by laying down the infrastructure needed to build more facilities here.”

## Period of Transition

The master plan developed by Goodwyn Mills Cawood reflects DCU’s rapid and ongoing transition from a light general aviation airport to one that accommodates corporations and on-demand cargo. Matt Thomason, an aviation planning leader with the firm, explains that a plan for developing the northwest zone already was in place, but it no longer suited the airport’s evolving customer base. And there was no plan for developing the southeast zone when the airport hired Goodwyn Mills Cawood in 2022 to create the master plan.



MATT THOMASON

“It was important to look at the different customer bases and figure out how the airport can serve all of those needs,” says Thomason, who is project manager for the northwest and southeast development zones.

Planners separated cargo, general aviation and maintenance, repair and overhaul operations because each has different needs and design requirements. The southeast development zone, which used to include a grass airstrip, was attractive for development because of its ample available land. It also is far away from other aviation operations, Thomason notes.

“For a number of reasons, including safety, security concerns and customer needs, we really took care to not mix and match aviation activities,” he advises. “Ideally, you don’t promote industrial aviation mixing with corporate business aviation, nor do you want cargo comingling with recreational activities.

“By separating all of these activities, you fulfill the airport’s true mission to provide the best services for the flying public,” Thomason continues. “The only place where commonality is critical is at the main terminal ramp and fixed base operations area.”



### Right Place, Right Time

The airport is positioning itself to fill a market niche and claim a spot among the three main airports in northern Alabama. While Huntsville International Airport serves as an commercial airline and intermodal cargo hub, Executive Flight Center (formerly known as Madison County Executive Airport) caters to private and corporate aviation. Leaders at DCU are capitalizing on the need for more small, specialized cargo operations.

“Pryor Field serves a unique role in aviation for northern Alabama,” says Thomason.

Airfield assets that help it do so include available land, a 6,107-foot runway and an instrument landing system. The airport also benefits from a strong regional workforce that helps drive economic growth, Thomason adds.

“It’s a right-place-at-the-right-time scenario—a unique combination of factors, including a high concentration of high-tech, government and industrial operations,” he says. “The airport is attuned to these opportunities and poised to take advantage of them.”

Thomason compares DCU’s development to an awkward teenager maturing into an adult.

“Pryor Field is a great example of how you get from that inflection point in changing from a historically light general aviation airport to a cargo and industrial aviation powerhouse. They’re doing it right by developing a cohesive and well-thought-out plan, sticking to it and proactively moving the vision forward.”

### All-Out Growth Mode

During the next three years, Fox anticipates more than \$40 million worth of commercial investment in the airport’s northwest and southeast development zones.

“We’re going to keep pushing the ball down the court,” he remarks.

In retrospect, Fox says he is proud of how the airport works with local economic development teams to bring more industry to the airport and northern Alabama, as well as help existing industries succeed.

“We’re not a Podunk airport,” he emphasizes. “We’re a national airport that also handles aircraft on an international basis. People are starting to realize how much we contribute to the northern Alabama economy.

“It’s an exciting time to be an airport director here.” 

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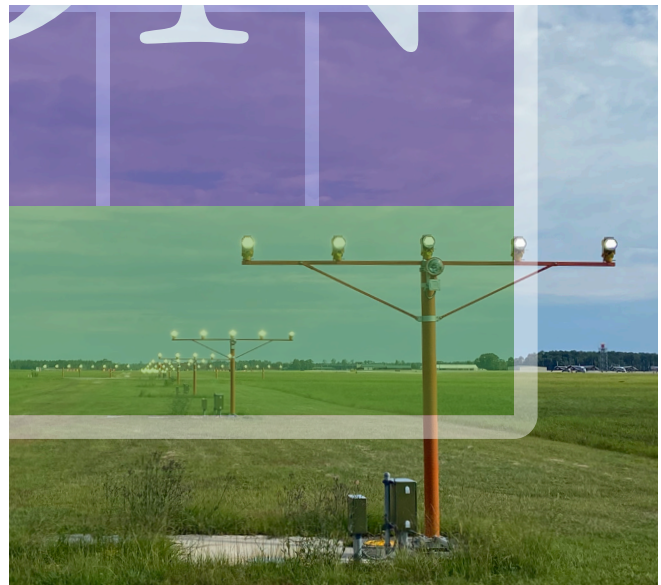
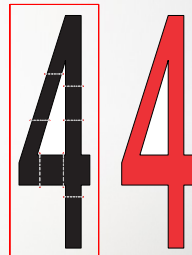
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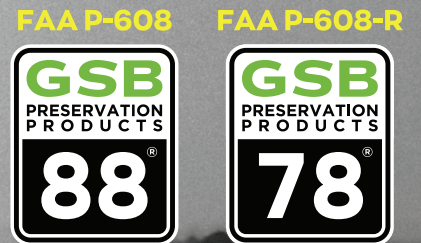
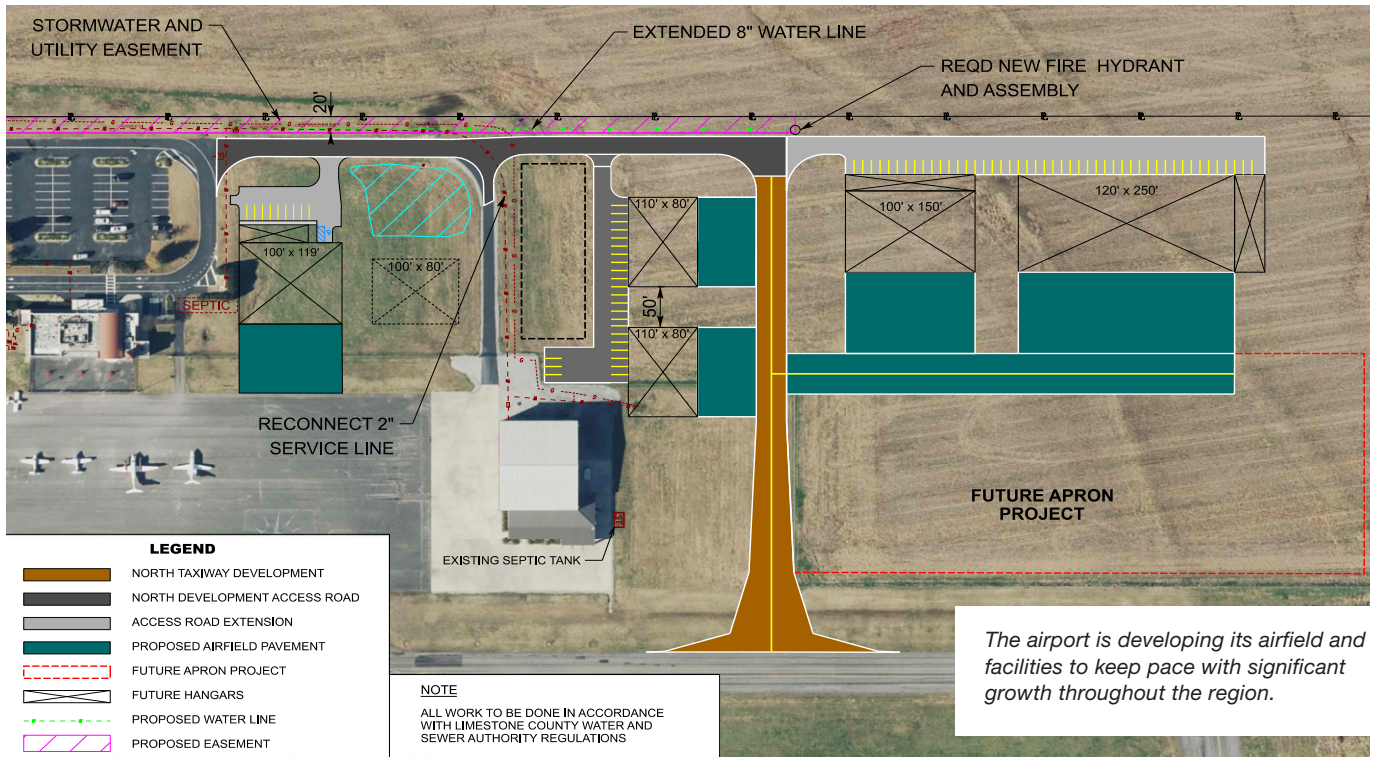
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# Regina Int'l Enhances Runway and Approach Lighting Systems

BY NICOLE NELSON

## FACTS&FIGURES

**Project:** Improving Runway & Approach Lighting System

**Location:** Regina Int'l Airport, in SK

**Airport Governance:** Regina Airport Authority

**Main Objectives:** Simplified short approach lighting system (SSALR) for Runway 31; new edge lighting system for Runway 13-31

**Cost:** \$2.2 million

**Funding:** 50% from federal Airport Critical Infrastructure Program (ACIP); 50% borrowed funds

**Component of:** \$26 million airfield rehabilitation project

**Installation:** April-Oct. 2023

**General Contractor:** PCL Construction Management

**Consultant:** Avia NG Airport Consultants

**Electrical Contractor:** Tristar Electric

**Electrical Design:** Gibbings Consulting

**Lighting System:** ADB SAFEGATE

**Lighting Towers:** Millard Towers Ltd.

Regina International Airport (YQR) in Saskatchewan gets plenty of winter weather events, and James Bogusz says his snow removal crews rank No. 1 when stacked up against other mid-size airports in Canada. Nevertheless, the Regina Airport Authority president and chief executive officer has long realized that excellence in snow removal alone is not enough to help pilots land safely in inclement conditions.



JAMES BOGUSZ

“We know how to deal with snow and ice in this city. We are used to it,” Bogusz says. “However, when clouds are low and it is pounding snow, it doesn’t matter how

much snow we move on the ground. A big part of the ability to approach the runway is really the lighting.”

To increase visibility and decrease diversions, YQR invested \$2.2 million in new runway edge lighting and an upgraded approach lighting system as part of a major \$26 million airfield rehabilitation project this past calendar year. The airport accessed a 50% federal funding allotment through the Airport Critical Infrastructure Program (ACIP) and financed the remaining half with borrowed funds. The guiding objective was to improve overall landing conditions for incoming aircraft.

“Prior to the project initiating, we worked with the airlines for about 18 months planning schedules and doing our best to move all of the traffic to our secondary

runway,” recalls Bogusz. “We obviously had to be mindful of weather and the time of year for the work, as you can’t be doing any paving in the middle of winter in Regina, Saskatchewan.”

Bogusz says the airlines were very gracious and accommodating about the proposed construction window at Canada’s 16th-busiest airport in terms of passenger volume. Work commenced in April 2023 after the worst of the snowy winter season and was completed in October 2023, before winter returned. While crews worked, aircraft used YQR’s 6,200-foot crosswind runway.

## Quick Change

The airport hired general contractor PCL Construction Management to oversee the project. The two main components were installing new edge lighting for the full length of 7,901 feet of Runway 13-31 at a cost of \$1.2 million; and replacing the omnidirectional approach lighting (ODAL) on Runway 31 with an \$1 million simplified short approach lighting system (SSALR).

PCL District Manager Jordan Clouthier notes that the entire project, including new intelligent lighting solutions, was condensed into an impressive timeframe.

“It was originally planned to be a two-year project, but we did it in six months inside one season,” says Clouthier. “We stacked a lot of different tasks on top of each other to get it done in seven months, and it was great that we did.”



JORDAN CLOUTHIER

Doing so drastically mitigated the project’s effect on airfield operations and reduced the accommodations required from the airlines.

In addition to being thankful that work did not stretch across two Canadian winters, Clouthier is grateful for the collaborative approach YQR took on the project.

“The airport allowed us to procure our subcontractors in a manner that was beneficial to them, and to make sure we got the right people on the job,” he says. “That allowed us to make sure we got the right subcontractors on board and everybody performed super well on the job to make it happen in six months.”

Efficiency was achieved by allowing each trade ample room to work, he adds.

“Instead of having the electrical in the same trench as the other site services, we split that apart to make sure that those scopes could go ahead on their own and not interfere with one another,” Clouthier explains.

## State-of-the-Art Electrical

Clouthier commends Avia NG Airport Consultants and electrical contractor Tristar Electric for collaborating to provide the best fixtures and towers for YQR’s runway lighting. ADB SAFEGATE lighting was installed alongside frangible aluminum towers designed by Millard Towers Ltd. to meet Transport Canada guidelines. The runway now has all new edge lights, threshold/end lights, pullpits, conduit and cabling.

Greg Cuneo, senior project manager with Avia NG, says the new runway edge lighting is fully compliant with the latest Aerodromes Standards and Recommended Practices (TP 312), and is also more reliable than the airport’s previous lighting. It is designed to serve traffic at YQR for the next 20 years or more.



GREG CUNEO

The new SSALR on Runway 31 is designed to improve safety by helping incoming pilots align their aircraft with the centerline. The array includes seven towers with 35 steady-burning lights that are used to create a reference plane, as well as five towers with single flashing lights that create a sequential strobe flash pattern rolling toward the runway threshold. In addition, 17 fixed, unidirectional lights glow green in the direction of the approach to the runway and are installed across the threshold.

“This is especially useful in nighttime and reduced visibility conditions,” Cuneo notes.

The new enhanced approach lighting can be used for visual and instrument landings.

“The SSALR system enhances visibility and safety, matching the approach system at the opposite end on Runway 13,” Cuneo summarizes.

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Other airfield upgrades include new circuit interleaving of the existing Runway 13 SSALR system and eight new constant current regulators at the airport Field Electrical Center (FEC).

“The electrical work involved laying about 15,000 meters of airfield lighting cable starting at the FEC and throughout the airfield,” Cuneo says of the expansive system.

### Obvious Improvement

Since the recent upgrades, YQR’s brightly lit airfield can be seen off Lewvan Drive, the main road approaching the airport.

“This lighting system essentially required us to install additional strobe lighting deeper into the community,” Bogusz explains. “This allows pilots to basically have a better visual distance when landing at YQR than they’ve ever had before on the south side of a runway.”

All in all, the cutting-edge combination of lighting upgrades is designed to allow pilots more opportunities to use both sides of YQR’s main runway for landings. This is true in all conditions, but factors in more prevalently when there is inclement weather including snow and wind.

“We get a massive amount of wind in Regina,” says Clouthier of the very flat and gusty airport. “And in the wintertime, we can have



*The airport upgraded its approach lighting system to enhance safety and operational efficiency.*

windstorms that really create havoc for planes that are landing. Having this new lighting system is just a great feature from a safety perspective for the airport.”

Bogusz concurs: “That is really what this is all about—helping to improve the usability of that main runway. It was good before, and now I would say it is great. Just that extra little bit makes a big difference.” ✈️



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## FACTS&FIGURES

**Project:** Taxiway Realignment

**Location:** Tulsa Riverside Airport, in OK

**Ancillary Work:** LED taxiway lights & signage; new direct access control markings; removed section of pavement & replaced with sod

**Total Cost:** \$7.6 million

**Funding:** \$6.85 million FAA grant; \$381,000 OK Dept. of Aerospace & Aeronautics grant; \$423,928 Tulsa Airports Improvement Trust grant

**Construction:** Spring 2023 & spring 2024

**Engineering Consultant:** Olsson

**Airfield Paving, Lighting, Drainage, Geotechnical, Construction Materials Testing:** Olsson

**Airport Master Plan Consultant:** RS&H

**Prime Contractor:** APAC-Central Inc.

**Airfield Lighting & Signing:** Libra Electric

**Lighting Supplier:** Airport Lighting Systems Inc.

**Safety & Phasing Devices; Pavement Markings:** Advanced Workzone Systems

**Sodding & Erosion Control:** Verdigris Valley Sod Farms

**Geotextile Supplier:** Brownco Mfg. & Sales

**ALCMS Update:** ADB SAFEGATE

# Tulsa Riverside Realigns Taxiways

BY PAUL NOLAN



“Building the plane while flying it” is a colorful sentiment that describes creating a plan while a project is already underway, or starting a complicated new endeavor in the midst of another. Pilots are thankful it is strictly a metaphor, but airport managers aren’t so lucky. They often need to build or renovate while also keeping their existing facilities operational.

Austin Wheeler, manager of Tulsa Riverside Airport (RVS), knows that feeling well. He recently oversaw the realignment, reconstruction and rehabilitation of four connector taxiways at the busy general

aviation airfield in northeast Oklahoma. To minimize disruptions for RVS tenants and users, the project team devised a detailed project strategy—the exact opposite of building a plane while flying it.

“Planning ahead goes a long way,” says Wheeler. “Knowing what the game plan is and communicating that to our tenants and users really made things go smoothly.”

The team scheduled the airfield work in two phases, and each was broken into five sub-phases. “We planned ahead to get as much work as possible completed outside of the runway safety area,” Wheeler explains. “When we did need to get inside the runway safety area, we had everything ready to go; so we kept runways closed for a minimum amount of time.”



AUSTIN WHEELER



## What Changed

The \$7.6 million project removed older, various-angled taxiways and replaced them with new taxiways that meet the airport's runways at right angles and adhere to current FAA design standards. The first phase of the project consisted of rehabilitating one connector taxiway and reconstructing three others, all north of the airport's crosswind runway. That work was initiated and completed in spring 2023.

During the second phase, crews removed two high-speed taxiways south of the crosswind runway and constructed three new right-angle taxiways. Contractors also removed a large triangular area of unused, deteriorating pavement and replaced it with sod. The second phase was initiated in early spring of this year and completed in May.

The new right-angle turnoffs are designed to help prevent faster moving traffic from inadvertently rolling onto the apron—an important improvement because the apron is close to the main runway, 1L-19R.

"The configuration of our runway to the taxiway and to our parking ramp is tight," Wheeler explains. "Having aircraft slow down for the 90-degree turns ensures they are traveling at an appropriate speed leading into that parking area."

Because the project brings the airfield geometry in line with current FAA standards and enhances safety for pilots, it was eligible for \$6.85 million in FAA grants. Oklahoma Department of Aerospace & Aeronautics (ODAA) contributed about \$381,000; and Tulsa Airports Improvement Trust (TAIT), which administers, manages and operates RVS and Tulsa International Airport, contributed \$423,928.

## Minimizing Downtime

Operating as a general aviation airport since 1958, RVS does not have commercial airline flights. Its traffic comes from five flight schools, a steady stream of business jets and miscellaneous general aviation activity. Wheeler notes that updating the airfield's taxiway configurations was especially important to the flight schools, because thousands of pilots who train there every year need to practice on an airfield with standard design parameters. Now, the taxiways at RVS will prepare students for what they'll encounter at most other U.S. airports.

Even without scheduled commercial service, RVS logs about 243,000 aircraft operations per year, making it the busiest airport in Oklahoma and one of the 50 busiest airports in the United States (based on 2023 figures). The airfield is populated with more than 200 commercial and private hangars for upwards of 500 based aircraft.

Given its active traffic profile, the airport worked with Olsson, an engineering and design firm, to develop a project strategy that minimized the amount of time the primary runway would need to close for taxiway work. In total, Runway 1L-19R was effectively closed for a combined five months during both phases of the project.

Throughout the work, flight school airplanes were still able to take off and land at RVS on the shorter parallel runway, 1R-19L. However, they were diverted to nearby airports such as Okmulgee Regional and Sand Springs Pogue Airport for touch-and-to practice. Larger business jets that needed the full length of RVS'

5,102-foot primary runway temporarily operated out of Tulsa International Airport while 1L-19R was closed. And the team at RVS sent weekly construction updates to all tenants.

"When you close the runway for five months, there are going to be pains," Wheeler acknowledges. "We feel that, too. It reduces our operational count, which is a badge we wear with a lot of pride. Even with the closure, we were able to be top five in the Southwest Region, so we're really excited to see what we can be with the airfield open all year."

Brian Coomes, lead engineer at Olsson, credits Wheeler's team for relaying updates to airport tenants and other key stakeholders. "It takes good partners all the way around for good communication," says Coomes.



BRIAN COOMES

Throughout the project, Olsson held weekly progress meetings with the engineering team, contractor and airport staff. "We talked about current problems, schedule updates, any coordination needed," says Coomes. "That really facilitated a lot of partnering along the way."

Crews encountered weather-related delays during the first phase of the project but worked some Saturdays to make up for the lost time and even get ahead of schedule. "Oklahoma weather can be unpredictable, so we carried that lesson into the second phase,"



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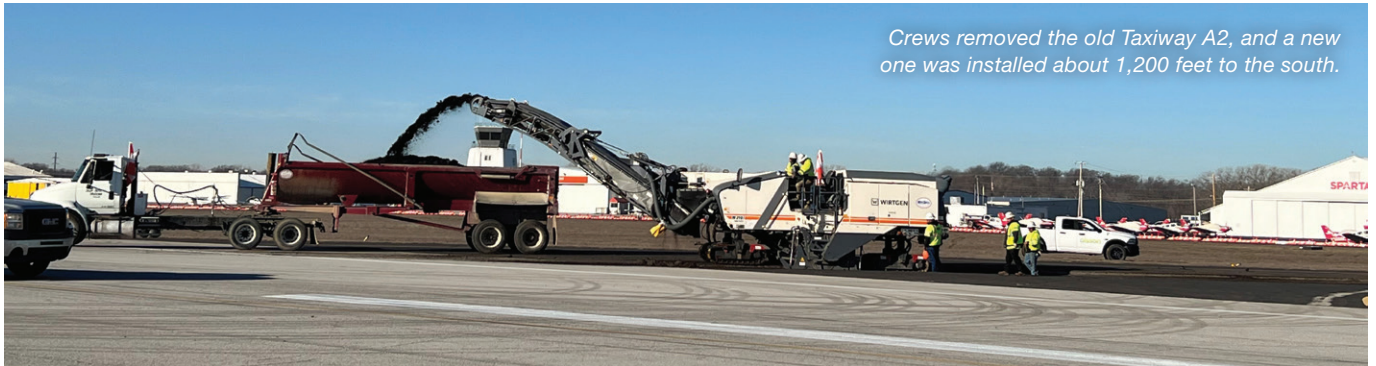
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Crews removed the old Taxiway A2, and a new one was installed about 1,200 feet to the south.

Wheeler notes. “We ended up with only two weather delays on that portion, so we came out ahead of the curve.”

**More Improvements**

In addition to reconfiguring its taxiway geometry, RVS also installed new taxiway edge lighting and new signage. Another step to enhance airfield safety involved adding pavement markings to the three newly constructed taxiways that connect directly to the main aircraft parking apron. Painting “No Taxi Islands” on the apron where it intersects with the new taxiways helps minimize the potential for pilots to be confused about their location and

drive onto the runway thinking they are still on a taxiway, Wheeler explains. Pavement markings guide pilots to take a series of right-angle turns as they approach the runway from the apron.

Later this year, RVS will begin the design process for a project to widen its crosswind runway. Construction is expected to start in late 2025 or early 2026, with an estimated budget of \$1.6 million.

“There’s always some project going on,” Wheeler says. ✈️

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## Ramp Beautification


Like hotels and restaurants, airports have “back of house” areas designed for utility, where decorative visual elements are not a priority. St. Pete-Clearwater International Airport (PIE) proves that even concrete ramp areas laden with industrial ground support equipment don’t have to be aesthetic dead zones.

At PIE, two vibrant murals welcome arriving passengers to Florida’s Gulf Coast. Airport leaders chose to commission artwork for the once-dull airside area because most of PIE’s traffic is ground loaded, so passengers regularly walk right through what airports typically consider a back of house area.

Guests at PIE used to pass plain gray walls to board and deplane on the tarmac. Now, they see a panoply of Florida color, flora and pollinators painted by local artists Laura Spencer and Leo Gomez. Spencer goes by the moniker “Miss Crit” as a nod to the critters she includes in her pieces. Gomez incorporated the airport motto, *Go Easy*, and also convinced the airport to allow him to extend the mural area around the corner, creating even more “front of house” appeal for passengers and airport staff alike.

Gomez and Spencer were selected from 20 local muralists who applied for the project, and each created separate portions of the single, continuous mural. Unbeknownst to the selection committee, the artists were already good friends, which undoubtedly made collaborating on the project easier than if they were strangers.

The airside murals debuted last year, and have since inspired more inside the terminal. There are two large vertical pieces framing the main exit doors near Baggage Claim, and another at the District Pub, a pre-security concession based on the local Warehouse District, which is filled with murals and other public art. St. Petersburg also hosts SHINE, an annual mural festival of international acclaim.

“Our area is one of the mural capitals of the world,” shares PIE Public Relations Director Michele Routh. “It just makes sense for our airport to reflect that.” 



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# Why the Battle for Boulder Airport is So Significant for Our Industry



Leading the airport advocacy portfolio at the National Business Aviation Association (NBAA)

headquarters in Washington, D.C., can feel a bit like being called upon to serve as an aviation superhero. We frequently receive calls from pilots, aircraft operators and airport managers to help protect their airport from villains looking to implement restrictions or to shutter the valuable aviation infrastructure forever. Our superpowers are rooted in the federal statutes such as the Airport Noise and Capacity Act of 1990 (ANCA), the Surplus Property Act of 1944 and the obligations (also known as “assurances”) that become applicable when airports accept federal funds.

The majority of these obligations last for 20 years; however there are some that are perpetual, such as when federal funds are used to purchase land. This is a barrier protecting Boulder Municipal Airport (BDU) in Colorado from closing even after 16 years that currently remain on its grant obligation clock.

In response to these calls for help, we usually can quickly don our capes and goggles and simply remind and educate those locally in charge about the rules and regulations, federal preemption and their limited ability to dictate how the airport may operate; an airport may be named after a city or county, but is part of a federal system of infrastructure. At times, we also rely on the FAA through the Part 13 or Part 16 process, enlisting the Agency’s support to enforce these obligations. Finally, there are times when

we must turn to the men and women wearing black robes sitting behind a bench, leveraging the court system to adjudicate and enforce the laws when all other avenues fail.

These attacks are often centered around circumstances unique to each airport, stemming from local politics and the result of regional and geographic environments. However, most are not isolated to a particular airport and have the precedent-setting potential to harm our entire federal system of airports.

The lawsuit recently filed by the city of Boulder against the FAA, seeking to be released from perpetual obligations attributed to land acquisition, falls in that national precedent-setting category and should be of concern to all of us. It is the kryptonite to one of our superpowers to protect our infrastructure and is a reason many airports have not started on the path to run out their 20-year clock and are still operational today. Unfortunately, in today’s politically charged environment—where a handful of households file the majority of noise complaints and a small vocal minority holds the cards to reelection for those governing over their airport—there are a number of communities closely watching these embattled airports, standing at the ready to adopt their tactics should these beacons of hope fall.

While we at the aviation associations inside the beltway have our airport advocacy capes hanging on the back of our office doors at the ready, at the end



**Alex Gertsen, CAM, C.M., ACE,**

*is senior director of Airport Advocacy and Vertical Infrastructure at NBAA. In addition to*

*protecting airport access and advocating on behalf of business aviation, his portfolio also includes runway and surface safety, Advanced Air Mobility (AAM) as well as aviation noise. With more than 25 years’ experience in the aviation industry, he is an active instrument-rated commercial pilot who regularly relies on his Mooney for air transportation.*

of the day, all of us in the industry are superheroes. It’s up to *all* of us to protect what’s at the core of our ability to take to the skies—aviation infrastructure.

Our airports and heliports enable us to learn how to fly and to keep those perishable skills current; they connect communities and serve as their economic engines; they help save lives when organs are flown in, cancer patients are transported to treatment centers, or when they provide for the ability to bring in critical supplies and to airlift those in need when natural disasters strike. All of us have the responsibility to learn from the battles of the past, assist those fighting for survival today and to engage with the neighboring communities, educate elected officials and to advocate to secure the future of our airports and aviation infrastructure. ✈️

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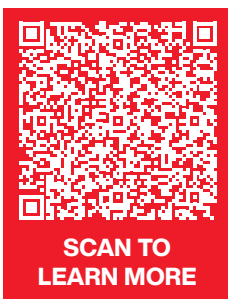
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