

Briefings

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Special Double Issue: This issue of AirTAP Briefings features highlights of the 2019 Minnesota Airports Conference held April 24–26 in Willmar.

Conference highlights excellence, best practices for Minnesota airports

Airport and aviation professionals turned out from across the state for the 2019 Minnesota Airports Conference, which featured experts sharing experiences and knowledge, technical and safety presentations, an industry trade show, and an awards and recognition program.

On the conference's first day, attendees toured the Fagen Fighters WWII Museum at the Granite Falls Airport. The museum houses a pristine collection of fully operational WWII aircraft and vehicles along with art and interactive

multimedia displays honoring the men and women of the "Greatest Generation." Minnesota Vikings safety Harrison Smith accompanied attendees on the tour prior to the conference's opening luncheon, for which he was the keynote speaker. Smith talked about overcoming his fear of flying by becoming a pilot, as well as how what he learned helped him on the football field. Among other things, flying has helped him think more critically, and faster, in "big-time situations," he said.

Other sessions during the three-day

event covered airport concurrent uses and land releases, drones, tips for new airport managers, capital improvement planning, renewable energy, sustainable design, snow and ice control plans, last-mile connections, and airfield tornado recovery—in addition to the sessions highlighted in this issue of AirTAP Briefings. Check out more photos and conference presentations at airtap.umn.edu/events/airportsconference/2019/index.html.



A conference group toured the Fagen Fighters WWII Museum, escorted by Minnesota Vikings football player Harrison Smith (right).

From Final Four to endless winter, MSP weathers challenges

Snowfalls last winter—and spring—challenged facilities across the state, and the Minneapolis–St. Paul International Airport (MSP) was no exception. Brian Ryks, executive director of the Metropolitan Airports Commission (MAC), said the airport received almost 40 inches of snow in February alone, and crews worked more than 30,000 hours of overtime that month—nearly twice as many as in February 2018. The airport spent more than \$2.7 million on deicing chemicals, salt, sand, and similar materials, and \$1.1 million on contract snow removal.

With spring came a multitude of basketball fans landing in the Twin Cities for the Final Four in April. On the day of the championship game, 344 private jets were parked at MSP, and 46,905 passengers were screened at the airport on the day after. Ryks gave kudos to MSP staff, volunteers, and the TSA. Among the successes: The longest wait in standard security lines was only 16 minutes.

Ryks said MSP has seen record growth in air service over the last three years. Eleven airlines have added a total of 45 additional routes from MSP since January 1, 2017.



Brian Ryks

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Airport resilience: Design for a changing world

More frequent heat waves, heavier rainfall, flooding, extreme storms—many communities are already feeling the various effects of climate change. How can airports prepare to be more resilient? Darren Christopher of RS&H and Matt Dubbe of Mead & Hunt shared ideas on what airports should consider to meet the anticipated challenges.

Resilience as it relates to airports is the capacity to cope with a hazardous event or trend by responding or adapting in order to maintain essential functions. Significant trends are driving a focus on resiliency, Christopher said. Since 1970, Minnesota's winters have warmed 13 times faster than summers. Precipitation depth and intensity is increasing, and temperatures are rising and projected to continue to rise.

Impacts need not be catastrophic—for instance, an airport could experience a mold issue in its terminal after flooding, or damage to underground tanks from ground heave, he said. In northern Minnesota, airports that previously experienced only dry snow now have wet, heavy snowfalls requiring deicing. And climate change could alter bird—and people—migration patterns.

Threats to resiliency can come from places other than climate and weather events, Dubbe added. For example, threats might be security disasters such as 9/11. Financial crises, population growth, and the IT explosion could also have a profound effect on

the aviation system's resiliency, he added. Airports need to consider how different elements will play a role in resiliency in terms of infrastructure, operations, public safety, financial impacts, emergency response, and system-wide effects.

The Airports Council International passed a resolution in June encouraging airports to take action in considering resilient design in their master plans. "On an international level, they're saying airports need to take note of this because it's going to affect everyone in the next 40 to 50 years," Christopher said.

Fortunately, many resources are available in the form of documentation and manuals to help airports plan and build resiliency into their structures, Christopher said. Airports can also prepare through tools such as their strategic plans, master/capital plans, asset management systems, and emergency response plans. He also outlined general steps to take for resiliency assessing and planning:

1. Identify expected climate change impacts
2. Inventory infrastructure at potential risk
3. Inventory operations at potential risk
4. Evaluate the risks
5. Conduct detailed vulnerability assessment
6. Identify potential mitigation measures
7. Develop implementation plan

As an incentive to preparation, Christopher cited a recent PEW Research Center study that found that one dollar spent in proactive planning or upgrades saves four to six dollars in response or rebuilding costs.

For more information:

- *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*, <http://resources.ca.gov/climate/climate-safe-infrastructure-working-group/>
- *Using Existing Airport Management Systems to Manage Climate Risk* (ACRP Report 188), <http://www.trb.org/Publications/Blurbs/178312.aspx>
- *Climate Change Adaptation Planning: Risk Assessment for Airports* (ACRP Report 147), <http://www.trb.org/Publications/Blurbs/173554.aspx>
- Airports Council International Resolution No. 3: https://aci.aero/Media/c4c7ab75-62b2-457e-b0fe-7d349b6f2d29/2-bOkw/About%20ACI/Overview/ACI%20World%20Resolutions/Brussels,%20Belgium,%202018/57WGB-BRU18-13.c%20Res_Environment.pdf



The deployable floodwall during installation in March 2019 at the St. Paul Downtown Airport. (Photo courtesy of the Metropolitan Airports Commission.)

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Clearing obstructions from your airport

Airport obstructions can interfere with aircraft flight, contribute to turbulence, and attract wildlife—all valid reasons to remove them. An obstruction is any object that penetrates an imaginary surface (FAR Part 77 surfaces that extend out beyond an airport's runway) or a terminal obstacle clearance area, explained Matt Wagner with Mead & Hunt. These include trees, buildings, cell towers, terrain such as drainage ditches, crops, and construction cranes. With so many potential obstructions, it's no surprise that most Minnesota airports have had them at some point, Wagner said.

Airport manager Bill Towle shared his experience dealing with obstructions at St. Cloud Regional Airport—specifically, trees. The airport had a professional survey conducted to precisely identify the area,



its size, and any environmental concerns (which in this case involved long-eared bat habitat). Towle also engaged the neighboring landowner, and together, they came up with a “win-win” plan, identifying trees that they would take out and others they would only top, he said.

Towle emphasized the importance of daily airport self-inspections as a first step in identifying obstructions. “This is really where it starts...where you should see these things coming, like construction on or near the airport, vegetation, or trees,” he said.

Kathy Vesely (presenting on behalf of Rick Braunig) of MnDOT Aeronautics described the different levels of surveys for identifying obstructions. The ALP survey is the most thorough and accurate, but it's expensive. An Airport Obstruction Management Plan survey is effective at identifying close-in, recurring obstructions such as brush or volunteering trees off the ends or sides of the runways. Most consultants would be able to assist with this type of survey, as would agencies with survey capabilities, she said.

A 5010 airport inspection (named for FAA Order 5010, which created the Airport Safety Data Program) is conducted by



MnDOT every three years to verify that airports meet federal safety standards and Minnesota airport licensing standards. The goal of the 5010 inspection is to find no obstructions, Vesely said. If the inspection does find obstructions, they will only be the nearest or tallest objects. “So once you remove one obstruction, there's probably another one behind it, and another one behind that,” she said. For that reason, airports shouldn't rely on the 5010 inspection to identify all their obstructions.

A NPIAS airport with obstructions is at risk of violating its grant assurances, but non-NPIAS airports may still have licensing concerns with obstructions, Vesely said. Obstructions listed on 5010 inspection

Obstructions continued on page 5

Bringing airport lighting, nav aids up to date

Minnesota has the most state-owned navigation aids of any state—215 (the next highest is Texas, with 182). That means a lot of ongoing maintenance, said Mike Hartell, MnDOT Aeronautics' new navigation systems coordinator. MnDOT uses both staff and independent contractors (currently numbering four) for this work, but with anticipated retirements, the office is actively seeking new bidders and new students to enter the field.

John Schroeder, airport lighting and principal engineer with MnDOT Aeronautics, is part of MnDOT's navigation systems team and known as the “MacGyver” of the

office. With more than 30 years of experience working on airport systems, Schroeder knows what to do when the lights go out. But before that happens, airports should prepare. Schroeder recommended airports establish a protocol sheet for system outages, considering how things will be fixed if the key person is on vacation, who will be called if the issue is beyond the ability of the city or county staff, and who will be responsible for posting a NOTAM. He also suggested consulting as-built plans (which may be stored in the airport's electrical vault or the city's office) to identify where cables are buried and any conduit that exists for rout-



John Schroeder

ing wires for quicker repairs. And airports should determine which systems require FAA-certified technicians to maintain; if an airport contracts with an outside vendor, it should ensure the vendor is licensed and certified to perform the work, he added.

MnDOT can help airports maintain their lighting systems by providing technical advice, sourcing parts and equipment for repairs, and possibly providing funding assistance for repairs. (If repairs are large, a state grant may be requested through the airport's development engineer.) Schroeder

Nav aids continued on page 5

An Airport's Story: Fillmore County Airport

Fillmore County Airport (FKA) is located among the rolling hills and farmland of southeastern Minnesota near the Iowa border, about four miles east of the county seat of Preston and five miles west of the town of Spring Valley.

The airport opened in 1970, with a 3,200-ft. turf strip; that runway was paved and lighted in 1975, then extended to 4,000 feet in 1989. A parallel taxiway was added in 2005 and a new fuel system was installed

Schroeder has been with the Fillmore County Highway Department for 25 years and took on the assigned role of airport manager in 2006. Highway maintenance supervisor Brent Kohn assists Schroeder with daily maintenance operations such as airside and fuel system inspections, navaid operation, NOTAMs, and similar functions. Schroeder credits Kohn's experience as a pilot in ensuring the safety of other pilots using FKA.

Deters Aviation is the airport's fixed-base operator, providing flight training, inspections, routine maintenance, and parts. If you fly into the airport, you're likely to be greeted by owner Isaac Deters and his dog, Diesel, Schroeder says.

Schroeder says many aircraft owners are moving to smaller airports for a better experience. FKA has seen a number of aircraft requesting to base at FKA and has a current waiting list of 10. These pilots prefer the convenience of a smaller airport that is less busy, allowing them more time in the air.

"Regardless of funding struggles, we continue to keep the airport's airside safety needs satisfied first," Schroeder says. The airport's primary focus over the last few years has been airport development, particularly providing more hangar space. All current hangars on the airport are privately owned and at full capacity. The airport is currently in the final stages of completing a Master Plan and Airport Layout Plan (ALP). "That process has given proof and encouragement to plan for a growing GA airport," she says. She's hopeful that the airport will be able to start developing an eight-unit T-hangar within the next year.

Like many small airports in Minnesota, Fillmore County Airport may not be on the radar of people who live nearby and never use it. However, the community as a whole receives many indirect benefits, Schroeder says.

"The airport is a positive tool providing economic development for various purposes—too many to mention," she says. "Transient and based aircraft provide a boost in our local communities for restaurants, hotels, tourism, real estate sales, industrial contracts/meetings, agricultural uses, and more. People fly in all the time for cattle sales, auctions, fly fishing, biking, and day trips to area attractions, all the while spending money within our community." Finding a way to quantify that economic benefit and spread the word to more people are important goals for Schroeder.

What has made FKA successful, Schroeder says, is the people and policymakers surrounding it—an active group of pilots, the FBO, airport committee members, and a supportive county board. "In talking with other cities and county sponsors, we all agree the success of an airport is provided by the support of commissions and boards," she adds.



in 2013. The airport's arrival/departures building is dedicated to Bernard Pietsenpol (1901–1984), a designer of homebuilt aircraft who lived most of his life in nearby Cherry Grove, Minnesota, and who was inducted into the Minnesota Aviation Hall of Fame in 1991.

The airport's operations consist of general aviation aircraft, with roughly 70 percent for leisure and 30 percent for business purposes, says airport manager Pam Schroeder. With its runway and full parallel taxiway, the airport can accommodate jet and large turbo-prop aircraft for area businesses. Local ethanol plant Poet, for example, conducts weekly, and sometimes more frequent, flights, Schroeder says. Recreational opportunities in the area include major trout streams and the Preston Trout Center, bike trails, cave tours, the Preston Veteran Cemetery, and Forestville State Park. And the airport's wide-open and somewhat remote location makes it desirable for pilots practicing takeoffs and landings, she says.

Holding a degree in business management but lacking aviation experience, Schroeder embarked on a "self-taught adventure" in learning to manage the budget and hangar leases, oversee maintenance operations and grant administration, and work with county board members to develop the airport.

"The similarities between highway and airport are intriguing," she says. "However, the aviation aspect has a number of added details always popping up that are not something a non-career aviation manager would necessarily know. Those details encouraged me to learn more as I go and utilize it to benefit the tenants, transient pilots, the county, and all others involved with FKA."

Schroeder credits relationships with her consultant, MnDOT, the FAA, MCOA, and AirTAP for helping her learn the ropes and feel supported. "They are a huge voice for aviation and funding and support the success of airports," she says.

also offered help from his “aviation junkyard,” a stash of miscellaneous equipment he’s squirreled away over the years. And MnDOT Aeronautics staff can provide on-site technical support when their schedules permit.

Preventive maintenance can go a long way in saving an airport from some headaches, Schroeder noted. Sun, water, critters—all can damage equipment that isn’t adequately protected by proper sealing and tight connections.

“Many projects impact nav aids. When you’re thinking about new A/D or hangar buildings, it’s a great time to think about the telecommunications needs inside those buildings.”

—Mike Hartell

But most critical when performing maintenance is safety, he said. Unless maintenance workers are qualified for more advanced issues, call an electrician. At larger airports, lighting uses a constant current but voltage can vary; many variables can affect voltage, such as damaged wires that result in a fault. Always disable power when replacing lamps. “You save time by working on [them] hot, but once you’re dead time doesn’t mean anything anymore,” Schroeder said. Workers need to put safeguards in place, especially to prevent disabled power from being turned back on prematurely. “In

the electrical vault, turn the breakers off to the regulator you’re working on, pull out the cutout...and take the plug with you in the truck. You may want to put a note on the panel or the door, then lock the door,” he said.

“People have been killed working on this,” he said. “You have to have a routine.”

Hartell described the inventory of all navigation systems in the state that MnDOT will be conducting in the summer of 2019. The inventory will capture the type of system at the component level, the make/model/vintage of the system, the condition, the number of phone lines and data cabling, and whether documentation is in place and up to date. The collected data will be used to inform the State Aviation System Plan (SASP) team and determine what the state coverage should be, Hartell said.

The FAA is in the process of reducing the number of ground-based navigational aids as it transitions to performance-based navigation, Hartell noted. The FAA’s 2018 Navigation Programs Strategy calls for non-directional beacons (NDBs) to be gradually phased out of the National Airspace System, reducing the current network of Very High-Frequency Omnidirectional Range (VOR) stations to a Minimum Operational Network by eliminating approximately 30 percent of the facilities.

In Minnesota, MnDOT is planning to downsize the number of navigational aids, especially NDBs that aren’t working but are still connected to phone lines and hence,



costing money. Hartell explained that the process for decommissioning nav aids includes publishing a public notice; posting a paper notification at the airport where the decommissioning is going to occur and at surrounding airports; publishing a notice in the local newspaper; spreading the word on MnDOT’s social media; and e-mailing a notice to various MnDOT listserv subscribers. MnDOT will provide a 30-day comment period for each decommissioning site, followed by a decision to proceed, delay, or perpetuate the nav aid.

Airports are urged to add new nav aid items—MALSRS, ILSs, AWOSs, etc.—to their capital improvement programs and to coordinate nav aid requests with other projects. “Realize that many projects impact nav aids. When you’re thinking about projects like new A/D buildings or new hangar buildings, it’s a great time to think about the telecommunications needs inside those buildings,” Hartell said. “Involve navigation systems staff early and often.”

Obstructions continued from page 3

reports are seen by MnDOT engineers and FAA ADO project managers, potentially influencing project funding for the airport. And pilots see this information and may choose to use an alternate airport. “So you could actually lose business because of it,” Vesely noted.

MnDOT expects airports to take prompt action to remove obstructions and will work with airports on a plan to do so. Once obstructions are removed, someone—typically a consulting engineer—needs to certify that action. The information must also be submitted for the Airport Master Record by someone with credentials the FAA recognizes. This can take months, Vesely cautioned.

“The best plan is to remove obstructions before the 5010 inspection,” she said.

No obstructions means less work for inspectors and eliminates the need to hire an engineer to certify that obstructions were properly removed. Addressing obstructions before an inspection also means pilots are never aware that you had a problem.

Trees and brush grow at a predictable rate, Vesely said. MnDOT recommends cutting at least 10 feet below the maximum height to allow three years of growth before re-trimming. And removing trees in the winter is easier, as wet areas may not be accessible in the summer and bats are not an issue.

Obstructions tend to show up in the same locations year after year, Towle added. “You know where your trouble spots are, or which trees grow faster.” But if you’re new to your airport, look at past inspection reports

to see where the trouble areas are, he added. Since MnDOT inspects airports every three years, airports can plan ahead.

For more information:

- FAA order 8260.3D: US Standard for Terminal Instrument Procedures (TERPS), [faa.gov/regulations_policies/orders_notices/index.cfm/go/document/information/documentID/1032731](https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document/information/documentID/1032731)
- MnDOT Agricultural Operations at Minnesota Airports, dot.state.mn.us/aero/operations/documents/airportagriculturalguidelines.pdf
- AC 150/5200-18C: Airport Safety Self-Inspection, [faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document/information/documentID/23179](https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document/information/documentID/23179)

Aviation agencies talk funding, workforce

This conference is always a good way for the aviation community to hear what's happening at their governing agencies, and this year was no exception, as representatives from the FAA and MnDOT offered their insights on national, regional, and local activity.

allocation through the reauthorization. MacPherson said this is notable considering that infrastructure for surface and maritime transportation have not received similar support.

Jim Keefer, deputy director for the FAA's Great Lakes Region Office of Airports,

[is] getting funded... That's the reality of the demand—[it's] 10 times the available funds.”

The five-year reauthorization bill, however, is a positive outcome that will provide a steady funding stream for airports of \$3.5 billion each year, he said. It also authorizes (but not appropriates) an additional billion dollars each year, and the 2019 appropriations bill includes an additional \$500 million. “We're still working on how we're going to administer this,” Keefer said. “There is some specific language tied to that \$500 million as well. But it won't be the same as the supplemental, and it might not be the same as regular AIP. So we're working on that.”

Finally, Andy Peak, manager of the FAA's Dakota/Minnesota Airports District Office, told attendees that \$60 million is authorized and available immediately for airport projects in the state, with grant applications due to the FAA by June 28.

For those airports with older grants that are still open, however, Peak strongly sug-



Rebecca MacPherson

Federal Aviation Administration

In an update on FAA activities, Rebecca MacPherson, regional administrator for the FAA Great Lakes Region, focused on the FAA reauthorization enacted in October 2018—the first significant reauthorization since 2012. MacPherson recounted that a series of short extensions in previous years had negatively impacted the airports community. “So a five-year authorization is awesome news for everybody,” she told attendees, “but in many respects, it affects you most favorably, because you have certainty that at least the authorization for grant funding will be there.”

An Airport Improvement Program (AIP) supplemental appropriation will provide \$1 billion in discretionary grants as part of the allocation and an additional \$1 billion

offered some insight on the supplemental funding process, which he said “falls under the category of managing expectations.” The FAA knew there was a huge demand for additional money but was caught off guard by the scope of that demand, he added.

The \$1 billion supplemental appropriation will be spent over three years, with priority consideration given to small and non-hub primary airports. The first grants were awarded for projects ready to go in 2018; 487 requests were received, and 37 grants were issued (none for Minnesota). The deadline for the second round of grants was October 31, 2018, for projects ready to start in 2019 or 2020. The FAA received 2,658 requests totaling just under \$11 billion for the remaining \$790 million. “The bottom line is, a very small fraction of these projects



Jim Keefer

gested taking action to close them. “If we don't have a plan in place to close out a 2015 or older grant from you, I'm not sure we're going to be in a conversation about issuing you a new grant,” he said, noting that there are currently 22 such grants. He added that 48 grants have been inactive for 12 months or longer, and 22 grants from 2018 and 2017 haven't taken a draw yet. “So you have to ask yourself, do we even need this grant? Is that money even working?” he said. “Financial accountability is the one area we think we can improve on.”

Peak alerted attendees to revisions in how the FAA implements the grant program, specifically changes in the AIP handbook. Additionally, the FAA has implemented a program nationwide to update standard operating procedures; the most recent one,



Andy Peak



Cassandra Isackson

regarding consultant fee analysis, went into effect in October 2018.

Minnesota Department of Transportation

New faces will continue to be the norm at the MnDOT Office of Aeronautics due to many long-term staff retiring—a phenomenon not unique to MnDOT, said office director Cassandra Isackson. By 2023, about 98 percent of the aeronautics' staff will have worked there for less than 10 years, Isackson said. While new staff won't necessarily lack experience, there will be a loss of institutional knowledge—"and a lot of knowledge about all of your airports," she told conference attendees.

In the interest of providing training opportunities, the aeronautics office has divided the role of assistant director into two positions: one held by Kathy Vesely, and the other by Praveena Pidaparathi. The latter is a rotating position, with new staff moving into it every eight to nine months for the next two and a half years.

Vesely offered an overview of the state's navigation systems, previewing the following day's session (see related article, p.3). Starting in the summer of 2019, MnDOT will be working to record navigation systems at each airport, build a database of that information, and use that data to analyze the state's needs. Some old systems, such as nondirectional beacons, that no longer work will be taken offline completely, she said, but any decommissioning will involve a public process.

Vesely urged attendees to list navaid projects on their CIPs—which is new. "We want to make sure that when we're planning for a runway, we're thinking about what navigation systems will be needed to get to that runway, and make sure those two project tracks correlate with each other," she said.

The navigation systems office is also facing a workforce challenge resulting from the "Silver Tsunami." The office uses independent contractors for much of its navaid

maintenance, and many of those contractors are nearing retirement. The office is looking for ways to attract more young people and new companies to bid on an upcoming RFP, and Vesely urged attendees to help get the word out to small electric companies or radio telecom companies their airports may work with.

"The goal is to go beyond the numbers. We want to put faces on each airport...and show how airports support the health and welfare and business activities in your communities."
—Praveena Pidaparathi

MnDOT is also using more drones, which improve safety for both its workers and the public through improved data quality and cost efficiency, Vesely said. Drone tasks include inspecting bridges, producing maps, and recording video to show public hazards, such as flooding, on Minnesota's

roadways. The office is in the process of expanding the fleet from 2 qualified pilots to about 30 this year and increasing the number of drones from 2 to 21. In addition to its role ensuring drones are registered and operators licensed, MnDOT Aeronautics is participating in significant outreach efforts such as producing educational videos for new drone owners.

Following Vesely, Pidaparathi talked about work in MnDOT's planning and development area. Among those efforts is a statewide airport economic impact study to measure the annual economic impact of Minnesota's airports. "But the goal is to go beyond the numbers," she said. "We want to put faces on each airport. And we want to show how airports support the health and welfare and business activities in your communities." The final report and new economic impact calculator will be completed by December of this year.

Another study under way is the State Aviation System Plan (SASP). The office is moving from a periodic update of the SASP to a more continuous one. Pidaparathi also reported that MnDOT is wrapping up the first round of needs meetings for all the state's airports, a process begun in 2015, and urged the six remaining airports to schedule their meetings with MnDOT.

Join NASAO in Minnesota this September!

The National Association of State Aviation Officials (NASAO)'s 88th Annual Convention & Tradeshow will be held September 7–11 in St. Paul, MN. This year's meeting promises great content, exceptional networking opportunities, and innovative training techniques. The conference agenda will cover the latest issues impacting aviation across America. NASAO and MnDOT Aeronautics are working hard to make this a memorable experience for everyone. Don't miss out! Details and registration are available here: z.umn.edu/4efp

Girls In Aviation Day seeks supporters

Women in Aviation, International is an organization committed to all levels of the aerospace community, and most importantly, the future of aviation. The Stars of the North chapter has partnered with Minnesota's aviation community to provide a platform for girls to learn about career opportunities in STEM and aviation. This year's Girls in Aviation Day will be held September 21, 2019, at Flying Cloud Airport. Those interested in exhibiting or partnering to support this event should visit www.girlsinaviationdayMN.com.

Much of that growth has come from low-cost and ultra-low-cost carriers, which in turn has resulted in an 18 percent reduction in MSP's airfares since 2013, he said. "That air service growth has really been important. That growth through origination and destination traffic is really putting pressure, though, on the land side of the fence," he noted.



MSP welcomes visitors arriving for the Final Four

Recent capital improvements at MSP include the new InterContinental hotel located at the airport that opened in July 2018, the renovation of 80 airport concessions, major remodeling of Terminal 1 ticketing and baggage claim levels (to be

completed in 2022), and construction of the 5,000-space Silver parking ramp with improved auto rental and transit facilities (to be completed in 2020).

The MAC is also investing in the smallest of its seven reliever airports. Lake Elmo Airport's runway 14/32 will be relocated and extended to 3,500 feet, existing runway 14/32 will be converted to a taxiway, and runway 4/22 will be reconstructed and extended to 2,750 feet. Planned improvements at Airlake Airport will extend its runway about 800 feet and will open up a south business development area. Improvements at Crystal Airport are designed to "right-size it" for current and future operations, Ryks said, since operations have dropped substantially there. Changes include taking out one of the parallel runways, shifting the RPZ onto airport property, and shortening the turf runway.

Looking forward, Ryks said MSP is in the process of implementing a parking reservation and yielding management and guidance system for its parking facilities, which will allow customers to reserve and prepay for parking and will help them find their car when they return from a trip. The airport

will also be piloting a park-assist program in the near future.

MnDOT's Highway 5 reconstruction project, which runs through October 2020, is expected to have a significant impact on the airport, Ryks said. The project, which will redeck or repair 12 bridges and resurface Hwy 5 in both directions, will close the highway in each direction for a time. "So to get to the airport you'll be going around and around. And to leave the airport, you'll be going around and around." He jokingly urged managers at outstate airports to take advantage of this opportunity to discourage their local populations from driving to the Twin Cities and instead to fly out of their regional airports.

From an economic standpoint, the total output of MSP is \$15.9 billion; relievers' output is \$756 million, Ryks reported. The reliever airports support nearly 1,030 jobs directly, resulting in \$56 million in wages. "I had the opportunity to sit down with the governor and he really recognizes the asset, not just of [MSP], but of all our airports across the state," Ryks said. "Keep plugging that message because it resonates with this current governor."

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