

## FAA, MnSASP, and Aviation Industry Trends

Rapid expansion of General Aviation (GA) throughout the middle of the twentieth century has led to a plateau in GA activity over the last 40 years as the cost of aviation for recreation has greatly increased. Conversely, commercial passenger airline operations have continued to grow, outpacing the flight training and aircraft mechanic industries. Federal and State aviation regulation and oversight can play a major role in the advancement, vitality, and evolution of the aviation industry. The FAA and state DOTs must try to balance strident concerns for safety while promoting and building resiliency into the industry. Regulatory inertia can exacerbate negative market forces that constrain the economic strength of the aviation industry.

Recent efforts by regulatory agencies and various stakeholders in aviation have been undertaken to expand participation in GA and enhance commercial flight training by examining regulatory barriers with the goal of lowering the cost of pilot training, purchasing an aircraft, or becoming an airline pilot. Changes in technology have allowed for advancements in safety, flight planning, and operations counting. What follows is an examination of recent changes made by regulatory agencies and technological developments that are impacting the aviation industry.

### FAA Reauthorization

The Federal Aviation Administration (FAA) is the highest authority over the nation's airspace. This authority is renewed in five-year increments. In May of 2024, the Securing Growth and Robust Leadership in American Aviation Act was passed, reauthorizing the FAA through 2028. For the first time, this act included a stand-alone section pertaining to GA, highlighting its importance to the overall aviation system.<sup>1</sup> Commonly known as the FAA Reauthorization Act of 2024<sup>2</sup>, the act included changes and updates to federal oversight and funding priorities, including:

- Aviation Funding - The legislation increases the amount of funding devoted to the Airport Improvement Program (AIP). GA airports will see an increase from \$670 million to \$1 billion annually. The extent this 50% increase in total funding will make for airports within the Twins Cities region will become clear as future project grants are awarded.
- Measures to prevent the closure of grant-obligated airports.
- Create a "Runway Safety Council" with the goal of studying and eliminating runway incursions, near misses, and surface safety risks.
- Establish the "Bessie Coleman Women in Aviation Advisory Committee" to advise the FAA and DOT on policies aimed at promoting aviation through education and training while recruiting and retaining women in aviation careers.
- Expansion of BasicMed and development of an "Airmen's Medical Bill of Rights".
- Provide pilot training to veterans who were not military aviators.
- Elimination of aircraft registration backlog.
- Require airports that sold 100LL (Low Lead) aviation gasoline in 2022 to continue to offer the sale of 100LL until 2030 or the date FAA certifies an unleaded alternative for purchase.
- Requires FAA to issue a final rule on MOSAIC. FAA is reviewing more than 1,300 comments and is expected to issue a final rule in 2025.

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<sup>1</sup> [Congress Passes FAA Reauthorization](#), Aircraft Owners and Pilots Association (AOPA), May 15, 2024

<sup>2</sup> [Securing Growth and Robust Leadership in American Aviation Act](#), H.R.3935 – 118<sup>th</sup> Congress (2024)

- National coordination and oversight of Designated Pilot Examiners (DPE).
- Study ADS-B adoption, how many aircraft remain without equipment, for what reasons.
- Rulemaking related to the re-integration of supersonic aircraft into the national airspace system.

Some of the topics listed above are discussed in more detail in dedicated white papers.

## **MnSASP**

The Minnesota Department of Transportation (MnDOT), Aeronautics division conducts aviation activity forecasting and system planning, and releases the Minnesota State Aviation System Plan (MnSASP) every ten years. The most recent plan was drafted in 2022 and adopted in 2023. Those areas of the study that pertain to aviation trends include Through-the-Fence (TTF) operations, last mile connectivity, and aircraft hangar availability.

TTF operations refers to both commercial and private access to an airport's airside facilities, namely runways, taxiways, and aprons, from lands adjacent and off airport property.<sup>3</sup> These could be commercial enterprises, private aviation residences, or other governmental agencies. As mentioned in the MnSASP, South St. Paul Municipal Airport (SGS) is listed as having TTF operations on the field, that are not specifically indicated as such on the SGS ALP. TTF operators may provide an economic boost to GA airports. If not properly managed, however, TTF operations can create issues with existing airport tenants. In addition, the FAA requires any airport that receives federal funding to maintain control over airport property and facilities. To facilitate safe and orderly access while preserving control over airport property, the 2022 MnSASP includes guidance in reviewing existing and potential TTF agreements, drafting TTF access agreements that meet MnDOT TTF standards for agency approval, and execute the agreement and include on Airport Layout Plan (ALP) planning documents. Proper land use planning around airports with existing open space and agricultural fields will also contribute to potential orderly future TTF operations should they arise.

Travelling by aircraft rarely ends once the airplane is parked and the occupants disembark. Last mile connectivity refers to the need to connect that final leg between airport and ultimate destination, be it an office, factory, or individual residence. Commercial passenger serving airports likely have rental cars, taxi or rideshare service, and/or multimodal public transportation options. Smaller GA airports struggle to supply these services, and pilots may choose an airport destination on availability of last mile connectivity, resulting in lost traffic and economic capture for the airport.<sup>4</sup> Fortunately, South St. Paul, Crystal, and St. Paul Downtown airports are near Metro Transit public transportation services, and all of them are accessible by transportation network companies (TNCs) like Uber and Lyft or airport courtesy cars to borrow. All regional system airports however lack adequate pedestrian accessibility. With the advent and potential proliferation of eVTOL Advance Air Mobility (AAM) aircraft, wide-scale adoption will likely depend on the ability to operate near business centers and public event spaces requiring last mile connectivity. Regional multi-modal transportation planning should continue to monitor and augment transit networks and other facilities to better integrate airports and future vertiports.

Due to the widely variable nature of weather in Minnesota, most aircraft and airports within the state are stored in hangars. The 2022 MnSASP reviewed the existing need for additional hangar

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<sup>3</sup> [Through-the-Fence Operations Introduction and MnDOT Guidance](#), MnSASP Plan Phase II, MN Department of Transportation, Aeronautics, Aug. 22, 2024

<sup>4</sup> [Last-mile Connectivity and Courtesy Car Evaluation and Recommendations](#), MnSASP Plan Phase II, MnDOT, Aeronautics, Aug. 22, 2024

space and found a definite need for additional hangars and identified instances where existing hangars are being underutilized for aeronautical uses.<sup>5</sup> The study highlights potential funding source for new hangar construction and planning techniques to use existing space better. A shortage of hangar space has the potential to limit airport vitality. Continued demand for new hangars may also require additional land acquisition at those airports that are not currently surrounded by development.

In addition, the SASP introduced updated classifications for state airports that better reflect airport operations with more detailed and nuanced criteria. The updates to state classifications, the connection to and discussion on regional classifications is covered under a separate trend paper.

## Aviation Industry Trends

The FAA Reauthorization Act provisions and MnSASP recommendations are in response to industry changes, technology advancement, and the successes and failures of previous regulatory initiatives. Some of the changes are aimed at increasing participation in GA, while others are meant to support the growth in commercial and passenger aviation.

### BasicMed & Airmen's Medical Bill of Rights

Beginning in 2017, the FAA added an additional method of obtaining medical approval to operate aircraft above the Light Sport Aircraft (LSA) category. Previously, a pilot holding a Private Pilot, Commercial Pilot, or Air Transport Pilot certificate, and operating aircraft above LSAs, were required to obtain Third, Second, or First-class medical certificates, respectively, each with increasingly stringent medical requirements evaluated by designated Aviation Medical Examiners (AME).

With the introduction of BasicMed, pilots having held a third-class or higher medical certificate since 2006, would be allowed to fly small aircraft larger than LSAs under the less rigorous medical provisions of a valid driver's license by submitting a form stating the pilot is fit to fly. A 2023 report to Congress on the effects of BasicMed for the first three years of implementation (2017-2019), the FAA reported that there was no increase in the accident rate between BasicMed and third-class medical airmen. During that time, more than 80,000 pilots have qualified for BasicMed, enjoying the privileges of a third-class medical without the same medical certification requirements.<sup>6</sup> The report also concluded that any operational increases due to BasicMed were modest.<sup>7</sup>

With hopes of further enhancing BasicMed to contribute a greater increase in operations, the 2024 FAA reauthorization included the following provisions:

- Raises the Maximum Certified Takeoff Weight (MTOW) of certified aircraft from 6,000 pounds to 12,500 pounds.
- Raises the number of allowable passengers from 5 to 6.
- Raises the number of seats from 6 to 7.
- Includes provision to allow Designated Pilot Examiners (DPE) to operate under BasicMed.

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<sup>5</sup> [Hangar Availability Evaluation and State Funding Recommendations](#), MnSASP Plan Phase II, MnDOT, Aeronautics, Aug. 22, 2024

<sup>6</sup> [FAA Report Validates BasicMed Safety](#), Aircraft Owners and Pilots Association (AOPA), Mar. 24, 2023

<sup>7</sup> [Effects of Regulatory Changes to Medical Certification if Certain Small Aircraft Pilots](#), FAA Aviation Safety, Federal Aviation Administration (FAA), Mar. 10, 2023

The act also directs the FAA to develop of an Airmen's Medical Bill of Rights that details the rights of pilots before, during, and after a medical examination conducted by an AME and an accompanying document that explains procedures performed during a medical examination. The goal of enhancing BasicMed is to expand the available fleet to include the vast majority of "Light" (maximum takeoff weight of 12,500 pounds or less) piston powered GA aircraft.

### **Light Sport/MOSAIC**

In 2004, the FAA released new regulations establishing a new class of aircraft and certification, Light Sport Aircraft (LSA) and accompanying Light Sport Certificate, with the goal of creating small, cheap aircraft for recreation and training, and reduced certification standards for pilots to fly them. In essence, a small 2-seat, simple aircraft operated in daylight hours wouldn't require as much pilot training, reducing the cost of entering and expanding GA aviation participation.

As this was new territory for the FAA, a conservative approach was taken. Factory built LSA aircraft are certified as Special Light Sport Aircraft (S-LSA) and amateur kit built LSAs are designated Experimental (E-LSA). Existing regulations stipulate the following.<sup>8</sup>

- Maximum of two occupants including the pilot in aircraft with a maximum of two seats
- Maximum speed of 120 knots
- Maximum stall speed of 45 knots
- Maximum gross weight of 1,320 lbs.
- Single-engine, fixed pitch propellor, and fixed landing gear

Despite some success in lowering the cost barriers to entry in recreational GA, industry and aviation advocacy groups have pushed for further changes to Light Sport. An initial concern in developing light sport aircraft was the potential for a higher accident rate. Analysis of Light Sport accidents has shown the category is roughly similar to significantly older primary category aircraft. This has been attributed to newer aircraft designs, construction materials, engines, and wide adoption of advanced avionics equipment that have allowed a lower pilot workload than traditional primary category aircraft.

The Modification of Special Airworthiness Certification (MOSAIC) program has been developing new regulations to expand the aircraft size and performance envelope certified as Light Sport aircraft and available to Light Sport Pilots. It is hoped that this expansion brings FAA regulation in line with those of European standards, allowing many additional aircraft already in production there to be flown in the U.S. Proposed MOSAIC changes would also allow access to legacy aircraft previously available to holders of a Private Pilot certificate only, further enlarging the fleet of potential aircraft. It is hoped that these changes lead to an expansion in GA activity.

### **Commercial and Passenger Aviation Growth**

Commercial and passenger flight operations are returning to pre-pandemic levels. Six of the top ten largest airlines made a profit in 2023, and all but one increased their operating revenue.<sup>9</sup> The global airline fleet is forecast to grow by 3.3% annually through 2033, 25% of which is destined for North American carriers.

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<sup>8</sup> [About The Aircraft](#), Experimental Aircraft Association (EAA), Aug. 21, 2024

<sup>9</sup> [Commercial Aviation Set for Steady Growth in Decade Ahead](#), Aviation Week, Feb. 29, 2024

With the return of Aer Lingus service to Ireland, all pre-pandemic international destinations are once again being served through Minneapolis-St. Paul International Airport (MSP).<sup>10</sup> Additionally, German flag-carrier Lufthansa began the first-ever service from MSP in June 2024.<sup>11</sup> Minnesota based Sun Country Airlines has been expanding passenger flights out of MSP, and recently announced a new agreement with Amazon to expand existing cargo operations from 12 to 20 freighters beginning in late 2025.<sup>12</sup> Other airlines are expanding operations out of the Twin Cities. Indeed, the 2040 Long-Term Comprehensive Plan for MSP highlights a forecast increase in operations from 369,000 in 2018 to 473,000 in 2040 carrying 18 million to 28 million enplaned passengers respectively.

This forecast of sustained growth in commercial aviation has only exacerbated fear of a shortage in pilots, mechanics, and air traffic controllers. within an industry facing an aging workforce. The massive downturn in aviation demand during Covid caused the airlines to pursue mass early retirements. The airlines are still working their way through the post-Covid upheaval in commercial aviation. The strong resurgence in passenger demand caused airlines to open new routes that they then had difficulty filling. As airlines reevaluate which routes to serve and passenger aircraft manufacturers work to increase production to supply new more efficient aircraft to replace the aging inefficient parts of the fleet, existing pilot certification levels are meeting the existing pilot replacement demand in the near-term.<sup>13</sup> Concern has shifted toward future pilot staffing needs. Government estimates put the need for new pilots at 18,500 annually through 2033.<sup>14</sup> A more immediate problem that could significantly constrain the forecast growth in aviation, is the existing and expected decline in Aircraft Maintenance Technicians (AMT), requiring 13,400 new workers annually,<sup>15</sup> and the existing 3,000 Air Traffic Controller (ATC) shortage.<sup>16</sup>

Some airlines are subsidizing the cost of mechanic tuition with agreements guaranteeing a student employment with the airline upon graduation.<sup>17</sup> Additionally, many airlines have tuition reimbursement and signing bonuses available to pilots once they receive their necessary certificates and ratings. These initiatives, however, have not alleviated these shortages. The aviation industry suffers from long-term demographic challenges. Male pilots and mechanics make up 94.7% and 96.8% of the respective workforces.<sup>18</sup> Additionally, 93% of pilots and 89% of mechanics are white. This has led industry insiders to focus on initiatives to promote aviation industry careers to a wider audience. This could include programs to present aviation careers to middle and high schoolers through curriculum, job shadowing, and internship programs.<sup>19</sup> Also, once recruited into aviation careers, it is important to improve retention programs to maintain employment growth. For their part, recent FAA rulemaking changes and aspects of the FAA reauthorization included provisions designed to address pilot, mechanic, and ATC controller shortfalls:

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<sup>10</sup> [Resumption of Aer Lingus' Service Restores All Pre-Pandemic International Destinations](#), Metropolitan Airports Commission (MAC), Apr. 30, 2024

<sup>11</sup> [Inaugural Service Connects Twins Cities with Frankfurt](#), MAC, Jun. 4, 2024

<sup>12</sup> [Sun Country Airlines Will Operate 8 Additional Boeing 737-800 Freighters Through Revised Agreement with Amazon](#), Jun. 21, 2024

<sup>13</sup> [Washington Sets Aside \\$240 Million for Pilot Shortages As Busy Summer Travel Season Starts](#), May, 26, 2024

<sup>14</sup> [Job Outlook, Airline and Commercial Pilots](#), U.S. Bureau of Labor Statistics, Sept. 11, 2024

<sup>15</sup> [Job Outlook, Aircraft and Avionics Equipment Mechanics and Technicians](#), U.S. Bureau of Labor Statistics, Sept. 11, 2024

<sup>16</sup> [New ATC Curriculum Rolled Out](#), AVweb, Feb. 14, 2024

<sup>17</sup> [Aviation Maintenance Technician Shortage Threatens Post-Covid Rebound](#), *Avionics International*, March/April 2023

<sup>18</sup> [Women and Minorities in Commercial Aviation: A Quantitative Analysis of Data from the United States Bureau of Labor Statistics](#), *International Journal of Aviation, Aeronautics, and Aerospace*, Vol. 10, Issue 2, Embry-Riddle Aeronautical University, 2023

<sup>19</sup> [Not Enough Aviation Mechanics](#), OliverWyman, 2023

- Update 50-year-old AMT curriculum requirements to align with current industry and technology needs and emphasize proficiency over time-based training.
- Requires the FAA to analyze the DPE Reforms Working Group recommendations in the oversight and coordination of DPEs with the goal of reducing shortage of examiners and shorten pilot certification wait times.
- A study of high school aviation maintenance training programs that offer hands-on learning; how many exist and what is the success rate and the extent to which they align with FAA mechanic certification standards.
- The addition of an Enhanced Qualification Program (EQP) for Restricted Airline Transport Pilot (ATP) certificate would allow for 250 hours of the required 1,500 hours of flight time to be replaced by an FAA approved airline developed training curriculum.
- FAA enhancements to the Air Traffic-Collegiate Training Initiative (AT-CTI) that would allow graduates from eligible college programs to immediately begin working at an air traffic control facility without first attending the FAA's training facility in Oklahoma City.

The FAA reauthorization also included provisions to subsidize pilot training for veterans and expand BasicMed to DPEs. It is important to note that most commercial pilots begin flight training in small GA aircraft and work their way up through different certification and larger, more complex aircraft. It is hoped that the increase in funding for GA airport facilities, growth and modernization of the GA fleet, and efforts to reduce initial pilot, mechanic, and ATC training costs, will result in an increase in students working toward a career in aviation.

### **ADS-B Flight Tracking and Operations Counting**

Automatic Dependent Surveillance – Broadcast (ADS-B) is the name given to equipment installed onboard individual aircraft that broadcast the GPS location, speed, and altitude to ground stations and other aircraft to facilitate real time tracking. ADS-B Out refers to the portion of ADS-B equipment that transmits this information and is required to be installed and working in aircraft operating within most controlled airspace, including the 30 nautical mile Mode-C ring radius around MSP. ADS-B In is the other half of the ADS-B equation, receiving information on surrounding aircraft.

As this information is transmitted to ground stations every second, ADS-B information allows for greater accuracy in tracking than legacy radar signals.<sup>20</sup> As such, ADS-B has become the preferred method of tracking aircraft for the purpose of maintaining safe separation between aircraft within the National Airspace System.<sup>21</sup>

This capability to tracking aircraft with greater precision can also be used to count and catalog aircraft and operations to better understand aviation activity at individual airports. The vast majority of GA airports lack Air Traffic Control (ATC) towers and, consequently, accurate data on the types of aircraft and frequency of operations. Only five of the nine airports within the Metropolitan Council Planning area have ATC, and only one, MSP, is open 24 hours. This information is used in planning physical infrastructure from safety area dimensions to runway length to the number of aircraft parking spaces, etc. Lack of accurate information makes responsible airport planning more challenging. This new technology and information can help with future planning efforts for regional airports.

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<sup>20</sup> [Ins and Outs](#), FAA, Feb. 7, 2023

<sup>21</sup> [Automatic Dependent Surveillance – Broadcast](#), FAA, Aug. 30, 2023

Several companies aggregate ADS-B data for public viewing on their websites. Two of the largest include Flightaware and FlightRadar 24. This expansion of aircraft data to the public has fostered greater transparency to help understand aircraft operations. Other companies have developed equipment that when installed at an airport combines local data with ADS-B information to provide operational and aircraft type data for activity forecasting and planning purposes. It is important to note that not all GA aircraft have had ADS-B transmitters installed, especially outside of controlled airspace that require equipment. As such, ADS-B data may underrepresent aircraft operations in these areas.

## Conclusion

Aviation is a significant part of any transportation network and of major importance to local, regional, and state economies. GA airports provide the fastest and most direct connection to other communities and are the centers for most of the pilot training the airlines and freight operators rely on. Conversely, the vast majority of people only directly use large passenger airports for personal and business travel. This creates a critical lack in understanding the important role airports of all sizes play in the national airspace system. Though often viewed as separate entities, a wholistic and systematic approach to aviation, including both larger commercial and smaller GA airports, is required to address the continued growth in passenger, corporate, and freight aviation, and encourage growth in grassroots general aviation.

Areas where Metropolitan Council authority and planning goals intersect with aviation regulatory and industry trends are detailed below:

1. **Region is Equitable and Inclusive** – Work to promote aviation and related careers throughout the region, especially to populations underrepresented in the existing industry to support continuing growth. Connecting underserved areas to regional aviation facilities and training locations can play a role in diversifying the industry and strengthening industry demographics.
2. **Communities are Healthy and Safe** – Integrate new FAA and state policies and programs to ensure regional airports continue safe operations and the regional airports continue to operate as a system. Promote continued stringent policies that include provisions to increase staffing levels across multiple aviation industries to prevent personnel shortages from creating safety risks.
3. **Region is Dynamic and Resilient** – Follow changing federal and state regulations to ensure that they support and do not impair the regional aviation system's growth and continued operations. Promote employment and access initiatives to enhance aviation as a major economic and mobility driver within the region.
4. **Lead on Addressing Climate Change** – With regulatory changes and an industry desire for operational growth, continue to support industry changes that lead to reduced GHG emissions and future electrification and alternative fueling initiatives.

The Metropolitan Council will continue to monitor aviation industry trends in relation to our regional planning goals.