AVIATION SYSTEM PLAN

IMAGINE 20 50
transportation policy plan

Regional vision

A prosperous, equitable, and resilient region with abundant opportunities for all to live, work, play, and thrive.

Regional core values

Equity | Leadership | Accountability | Stewardship

Regional goals

Our region is equitable and inclusive
Racial inequities and injustices experienced by historically marginalized communities have been eliminated; and all residents and newcomers feel welcome, included, and empowered.

Our communities are healthy and safe
All our region's residents live healthy, productive, and rewarding lives with a sense of dignity and wellbeing.

Our region is dynamic and resilient
Our region meets the opportunities and challenges faced by our communities and economy including issues of choice, access, and affordability.

We lead on addressing climate change
We have mitigated greenhouse gas emissions and have adapted to ensure our communities and systems are resilient to climate impacts.

We protect and restore natural systems
We protect, integrate, and restore natural systems to protect habitat and ensure a high quality of life for the people of our region.

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Cover photo provided by the Metropolitan Airports Commission.

Introduction

Aviation has become an integral part of the Twin Cities regional transportation system, connecting the region's people and goods to the nation and the world. Additionally, aviation provides recreation, commercial activity, health, and safety benefits for residents of the Twin Cities region. The aviation system is unique in the regional planning realm since most of the users are primarily going to, or coming from, destinations outside of the metropolitan region. Additionally, aviation training tends to be conducted locally at an airport and does not require more than the infrastructure of what the airport provides. It is not considered an element of the region's surface transportation system. Air transportation provides a national and global reach for quickly moving people and time-sensitive freight, offering significant advantages for long-distance travel and transport.

Although federal law does not require that a region's long-range transportation plan include aviation, state law defines aviation as a metropolitan system and requires the Met Council to prepare an aviation system plan. Minnesota Statutes 473.145 directs the Met Council to prepare a metropolitan development guide that addresses "… the necessity for and location of airports…" More specifically, Minnesota Statutes section 473.146, subd. 3.8 requires the Met Council to adopt a long-range comprehensive transportation policy plan that includes "a long-range assessment of air transportation trends and factors that may affect airport development in the metropolitan area and policies and strategies that will ensure a comprehensive, coordinated, and timely investigation and evaluation of alternatives for airport development."

Imagine 2050 Transportation Policy Plan' Aviation System Plan is anticipated to receive a more thorough update that will take place in 2024. Due to timing, the update found in this plan will only receive an update of data and base considerations to meet the overall policy plan deadlines. The Met Council has retained the services of a consultant to aid in the update of the technical basis of the regional aviation system plan during 2024. This update to the technical analysis, last completed in 2009, will inform a more encompassing update of this plan and be amended into the Imagine 2050 Transportation Policy Plan in 2025. During the technical analysis, Met Council staff will be establishing a team of regional stakeholders to review existing policies and actions, identify potential gaps and establish updated policies and actions for the regional aviation system to guide investments in the future.

Roles and Responsibilities of Aviation Partners

Aviation roles and responsibilities vary between various levels of government. Federal, state, regional, and local units including: the Federal Aviation Administration (FAA) of the U.S. Department of Transportation: Minnesota Department of Transportation's Office of Aeronautics; the Met Council; Metropolitan Airports Commission; and other airport owners and operators like the Cities of South St. Paul and Forest Lake. The role of the federal government in aviation is significantly different from the federal role in other transportation modes like transit and highways. For aviation, it is primarily the funder of facilities owned and operated by others.

Agency Partners

Federal Aviation Administration
- Provides design standards for all public airports developed with federal funds.
- Prioritizes planning and investments funded under the Airport Improvement Program.
- Regulates civil aviation activities within national airspace, including navigation and air traffic control.
- Prepares national airports and airspace plans.
- Licenses pilots.
- Certifies aircraft.

- Approves airport plans and environmental mitigation programs.
- Designs and administers regulations on aviation industries including unmanned aircraft systems.

MnDOT Office of Aeronautics
- Plans and supports a statewide system of airports and navigational aids.
- Registers aircraft and licenses airports and aviation businesses.
- Constructs and operates airport system and infrastructure improvements including maintenance of ground-based navigation aids and weather observations systems.
- Manages state and federal grants for construction, improvement, maintenance, and operations of public airports.
- Trains and educates pilots, airport personnel, aviation professionals and the public.
- Provides financial resources and technical assistance to local units of government for compliance with state and federal laws and rules and coordination with the Federal Aviation Administration.
- Reviews all plans for compatibility with the state aviation system.
- Reviews airport safety zoning ordinances for the commissioner's approval.

Met Council
- Prepares a guide for the orderly and economic development, private and public, of the Twin Cities area.
- Prepares and maintains a regional aviation system plan.
- Reviews Metropolitan Airports Commission's airport, environmental, and capital plans and programs.
- Reviews community plans and public and private projects for compatibility with regional airports and aviation policies.
- Provides coordination, funding, and technical assistance for planning activities.

Metropolitan Airports Commission and municipal airport operators
- Promotes aviation.
- Owns the major and reliever airports in metro area.
  - The airport commission owns MSP and six reliever airports.
  - Forest Lake and South St. Paul own municipal airports.
- Operates those airports on a day-to-day basis.
- Prepares plans and implements projects for individual airports under its jurisdiction.
- Produces airport long-term comprehensive plans to outline expected airport activity, preferred alternative for airport improvements and expected capital expenditures for a 20-year period. These plans are incorporated into the regional planning documents like the Imagine 2050 Transportation Policy Plan's Aviation System Plan and local comprehensive plans.

The Metropolitan Airports Commission was established by the state to operate the region's airports in the 1940's, long before the establishment of the Met Council in 1967. Minnesota Statutes Chapter 473 contain further detail on roles for both Met Council and Metropolitan Airports Commission.

Other airport owners and operators
Forest Lake and South St. Paul also own and operate reliever airports in the region. South St. Paul is a long-established municipal airport and has operated as a reliever in the regional system for decades. Forest Lake airport was started as a private airport with a turf runway and has been a public airport since 1998. This runway was paved in 2016 along with a new taxiway in the airport's effort to be included in the National Plan of Integrated Airport Systems. The airport has not been added to the

federal system, it may not be likely that the airport is added to the federal system, however efforts continue. Two private special-purpose airports (private seaplane bases) operate in the region in addition to multiple private turf runways for agricultural and recreation activities.

Industry and Agencies Emerging Considerations and Trends

Rapid expansion of General Aviation (GA) throughout the middle of the twentieth century following the Second World War plateaued over the last 40 years, largely due to steadily increasing costs. Conversely, commercial passenger airline demand has continued to grow, outpacing flight training and aircraft mechanic availability. Commercial and passenger flights have returned to pre-pandemic levels, with growth expected to continue through the beginning of the next decade.

This has led to concerns over a shortage of pilots, mechanics, and air traffic controllers. The airlines have responded by heavily recruiting within flight schools, guaranteed employment upon graduation, and offering sizable signing bonuses. The resulting increase in pilot certification levels seem to be meeting the existing pilot replacement demand in the near-term. Concern has shifted toward future pilot staffing needs and long-term sustainability in the employment pipeline. A more immediate problem is the existing and expected decline in Aircraft Maintenance Technicians (AMT) and Air Traffic Controllers (ATC).

One are of focus around staffing shortfalls has been demographic challenges. The aviation industry suffers from long-term demographic challenges. Namely, the industry is predominantly male and white. Industry insiders have begun to focus on initiatives to promote aviation careers to a wider audience, including curriculum, job shadowing, and internship programs for middle and high schoolers.

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. Inversely, regulatory inertia can exacerbate negative market forces, constraining the economic strength of the aviation industry. Recent efforts by regulatory agencies and various stakeholders in aviation have been undertaken or expanded to enhance participation in aviation.

In 2004, the FAA established a new class of aircraft and certification, Light Sport Aircraft (LSA) and accompanying Light Sport Certificate. The goal was to create small, cheap aircraft for recreation and training with reduced certification standards for pilots to fly them. As this was new territory for the FAA, a conservative approach was taken. The resulting regulations resulted in a relatively small LSA fleet that consisted primarily of new aircraft designed and built to satisfy the category, while the vast majority of the GA fleet did not qualify. As a result, the available LSA aircraft did not differ substantially in price from other new aircraft and were more expensive than many older used aircraft. The Modification of Special Airworthiness Certification (MOSAIC) program has developed new regulations to expand the aircraft size and performance envelope certified as Light Sport aircraft and available to Light Sport Pilots. The program opens the LSA fleet to 70% of single-engine piston GA legacy aircraft, previously available to holders of a Private Pilot certificate only.

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. Enhancements to BasicMed to include an increase in size and weight of aircraft and passenger load.

For their part, recent FAA rulemaking changes and aspects of the 2024 FAA reauthorization included provisions designed to address pilot, mechanic, and ATC controller shortfalls:

- 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 Dedicated Pilot Examiner (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.

Regional Goals, Transportation Objectives, and Aviation Policies

While aviation has very different requirements and realities than the surface transportation system in the region, it is important that the regional aviation system reflects the values and wider goals of the region. Through the 2050 planning process, the region has established goals to meet its overarching vision for 2050. Those goals are as follows:

1. Our region is equitable and inclusive
2. Our communities are healthy and safe
3. Our region is dynamic and resilient
4. We lead on addressing climate change
5. We protect and restore natural systems

These goals are intended to set a vision for the region as we look to the future. Beyond that, the transportation system further sets objectives to move the region toward meeting these goals. Not every objective in this policy plan will be relevant to aviation or be achievable within the regional system, but it is important to align regional aviation policies with as many of these regional objectives as possible. Transportation Policy Plan objectives are listed below. However, the seven aviation policies and supporting actions will not be able to meet each objective outlined for the region. The aviation system is unique from surface transportation. Its role serves very specific purposes and is less present in everyday life. The regional aviation system complements the broader transportation system and supports the overarching regional objectives both directly and through this support role. The following will first list the regional transportation objectives and then the supporting regional aviation policies. For the full list of regional policies and their corresponding actions, see the Aviation Supporting Information document.

- **Our region is equitable and inclusive.**
  - Historically disadvantaged communities are better connected to jobs, education, and other opportunities.
  - We repair and eliminate disparate and unjust impacts and harms to Black people, Indigenous people, and people of color.
  - We better meet the transportation needs of people who have disabilities or limited mobility.
- **Our communities are healthy and safe.**
  - People do not die or face life-changing injuries when using any form of transportation.
  - People feel safer, more comfortable, and more welcome when using any form of transportation.
  - We mitigate and avoid harm to people caused by nearby transportation infrastructure and use (for example air quality, noise, light).
  - People are better connected to community and cultural resources that support their physical, emotional, and mental well-being.
  - People can increase physical activity with more opportunities to walk, roll, or bike.
- **Our region is dynamic and resilient.**
  - People and businesses trust that transportation infrastructure and services will withstand and recover quickly from natural and human-caused disruptions.
  - People can better meet their daily needs with timely, reliable, direct, and affordable options beyond driving alone.
  - People experience more predictable travel times without experiencing excessive delays when traveling on highways.
  - People and businesses can rely on predictable and cost-effective movement of freight and goods.
- **We lead on addressing climate change.**
  - The region's transportation system minimizes its greenhouse gas emissions.
  - People have more reliable access to zero emissions vehicle infrastructure.
  - By 2050, the region reduces vehicle miles traveled by 20% per capita below 2019 levels.
- **We protect and restore to natural systems.**
  - The region's transportation system protects, restores, and enhances natural systems (for example air, water, vegetation, and habitat quality).

Policy 1: Prepare long-term comprehensive plans for MAC owned airports or expanded aviation elements of local comprehensive plans for each airport following FAA requirements and guidance in the Aviation System Plan based on an airport's classification. Airport safety standards should be maintained and improved where possible by addressing land use compatibility and air safety requirements in airport and local policies and plans.

- Action 1: Local governments should minimize potential general airspace hazards by adopting federal and state regulations regarding airspace. Developers should be notified of the need to submit Federal Aviation Administration (FAA) form 7460-1 regarding structure height near an airport or when constructing a structure of more than 200 feet from ground level.
- Action 2: Local governments located near all the region's airports should address land use compatibility and air safety requirements in their comprehensive plans.
- Action 3: Regional airports should coordinate with local communities to adopt and maintain airport safety zoning ordinances according to the standards in Minnesota Statutes Chapter 360.61-74.

Policy 2: Conduct public engagement activities in a way which promotes public participation and awareness of aviation issues in the region and promotes opportunities in the regional

aviation industry.Conduct planning, development, and operation of regional airports to minimize the impact to adjacent communities. Ongoing impacts from aviation activities should be mitigated through local land use compatibility policies and other mitigation efforts.

- Action 1: Communities affected by aircraft noise should incorporate the Land Use Compatibility Guidelines for Aircraft Noise into their local comprehensive plans and ordinances.
- Action 2: The Metropolitan Airports Commission should periodically evaluate the air quality impacts of Minneapolis-Saint Paul (MSP) International Airport operations and report to the Met Council on air quality problems or issues through the airport commission annual environmental review of the capital improvement program.
- Action 3: The FAA and the airports commission should coordinate flight activity at MSP airport to limit noise impacts to surrounding communities.

Policy 3: Maintain and improve, as feasible, airport safety standards that meet FAA and MnDOT standards by addressing safety requirements and land use compatibility with local ordinances, policies and planning.

Coordinate planning and pursuing transportation investments that strengthen connections to other Minnesota regions, the nation, and world through air service at the region's primary and reliever airports.

- Action 1: Airport sponsors should maintain and enhance existing facilities to their maximum capability, consistent with the development framework, prior to investing in new facilities.

- Action 2: Airport sponsors and air-service providers should establish airport business plans and agreements to deliver high-quality services at affordable prices to users.

- **Action 3: Airport sponsors should** provide **facilities that are safe and secure, affordable, and technologically current for all parts of the aviation industry.**

Policy 4: Conduct planning, development, and operation of regional airports to minimize impacts to adjacent communities. Local land use compatibility standards should be reviewed and updated as warranted to reflect the latest guidance to mitigate noise and other environmental impacts to residents from aviation activities.

Coordinate the provision of adequate local access to the region's airports considering local context and role in the system.

- Action 1: Regional partners should collaborate to achieve high-quality, ground accessibility through multiple mode choices, appropriate to the airport's role and function, to all portions of each airport's service area.

Policy 5: Work to reduce emissions from aviation activities that negatively impact air quality for adjacent communities.

Prepare long-term comprehensive plans for Metropolitan Airports Commission-owned airports or local comprehensive plans for each airport following FAA requirements and submit it to the

Met Council for review to ensure that plans for preservation, management, and improvement of infrastructure at each airport are consistent with the regional aviation system plan.

- Action 1: Airport operators should prepare long-term comprehensive plans for each regional airport at least every 10 years but may update or amend as needed. The scope and content of these plans are defined for different types of operators of facilities in this policy plan.
- Action 2: Airport sponsors should operate within a long-term financial plan that stresses maximizing non-regional funding sources, avoiding or minimizing financial impacts on regional taxpayers and maintaining a high bond rating for aviation improvements.
- Action 3: Public investments in air transportation facilities should respond to forecast needs and to the region's ability to support the investments over time.

Policy 6: Maintain and improve connections between the region's aviation facilities and the surface transportation system while taking into account local context. Plan for multimodal options to be available for regional airports as necessary and provided according to each airport's role in the system.

Promote public participation and awareness of aviation issues including involvement of historically underserved and disadvantaged populations, system users, and individuals.

- Action 1: Regional aviation partners should use a variety of media and technologies to bring aviation planning into the mainstream of public decision-making, so all interested people have an opportunity to participate in the process and become acquainted with major development proposals.
- Action 2: Regional partners should provide accessible meeting opportunities for residents and support equitable engagement with translation, virtual options, and other services.

Policy 7: Coordinate planning and investments that continue to promote aviation access to the state, nation and world from the Twin Cities metro. Ensure regional airports continue to support local economies and businesses.

Protect, enhance, and mitigate impacts on natural resources when planning, constructing, and operating the region's aviation system. This will include management of air and water quality and identification of priority natural resources through the Natural Resources Inventory developed by the Met Council and Minnesota Department of Natural Resources.

- Action 1: Airport long-term comprehensive plans should include a plan for surface water management that contains provisions to protect surface and groundwater. This comp plan must be consistent with plans of watershed management organizations and the state wetland regulations. The water management plan should also include provisions to mitigate impacts from construction and include the pretreatment of runoff prior to being discharged to surface waters.
- Action 2: Airport long-term comprehensive plans shall include a management strategy to protect groundwater quality that indicates proposed policies, criteria, and procedures for preventing, detecting, and responding to the spill or release of contaminants on the site. The plans should identify the location, design, and age of individual, group, and central sewer systems on-site and all well location sites and evaluate system deficiencies and pollution problems.
- Action 3: Airport operators should include sustainability efforts in planning, operations, and project design for airport facilities.

Policy 8: Regularly review and update regional aviation system information to maintain consistency with state and federal planning.

Policy 9: Consider and plan for land use implications from aviation facilities which are not located within a regional airport or aviation activity which does not originate from a regional airport. This includes existing facilities like helipads and private air facilities in addition to Unmanned Aerial Systems, Advanced Air Mobility and any other emerging aviation technologies.

Policy 10: Implement policies, programs and plans which protect and mitigate impacts on the region's natural resources from the ongoing operation of the region's aviation system.

Existing Conditions

The Twin Cities region boasts a well-developed and mature aviation system that does not require continued expansion, but rather requires ongoing protection, maintenance, and limited enhancements to continue to support the Twin Cities economy and transportation infrastructure. The region is served by one major commercial air service airport, Minneapolis-Saint Paul International Airport (MSP), and its six reliever airports (Flying Cloud Airport "FCM," Saint Paul Airport "STP," Anoka Airport "ANE," Airlake Airport "ANE," Crystal Airport "MIC," and Lake Elmo Airport "21D") for general aviation, business, and recreation spread out across the region. There are two other airports in the region including South St. Paul (SGS) and Forest Lake (25D) that are not true relievers to the MSP airport but provide additional general aviation activity to the metropolitan region. Additionally, there are two designated seaplane bases, many bodies of water that can support seaplane operations, and multiple private turf runways in the region. MSP airport and the six of the reliever airports are owned and operated by the Metropolitan Airports Commission, and the other two regional airports are owned and operated by municipal governments. The seaplane bases and turf runways are privately owned. All airport commission-owned airports are part of the National Plan of Integrated Airports, in addition to South St. Paul Municipal Airport. Forest Lake Municipal Airport is not part of the National Plan of Integrated Airports; however, while there is still interest in inclusion in the national plan, inclusion is not likely due to proximity to other National Plan of Integrated Airports in the region and nearby.

Figure 1. The regional aviation system and surrounding airports

Map legend:

Neighboring Airports ▲

Regional Aviation System Classification
- ■ Major
- ● Intermediate
- ▲ Minor
- ✚ Special Purpose

Map labels:
- St. Cloud
- Princeton
- Cambridge
- Osceola
- Forest Lake
- Buffalo
- Anoka Co.-Blaine
- Surf-Side SPB
- Crystal
- Lake Elmo
- St. Paul Downtown
- MSP International
- South St. Paul
- Wipline SPB
- Flying Cloud
- Airlake
- Le Sueur
- Faribault

Scale: 0 — 5 — 10 — 20 Miles
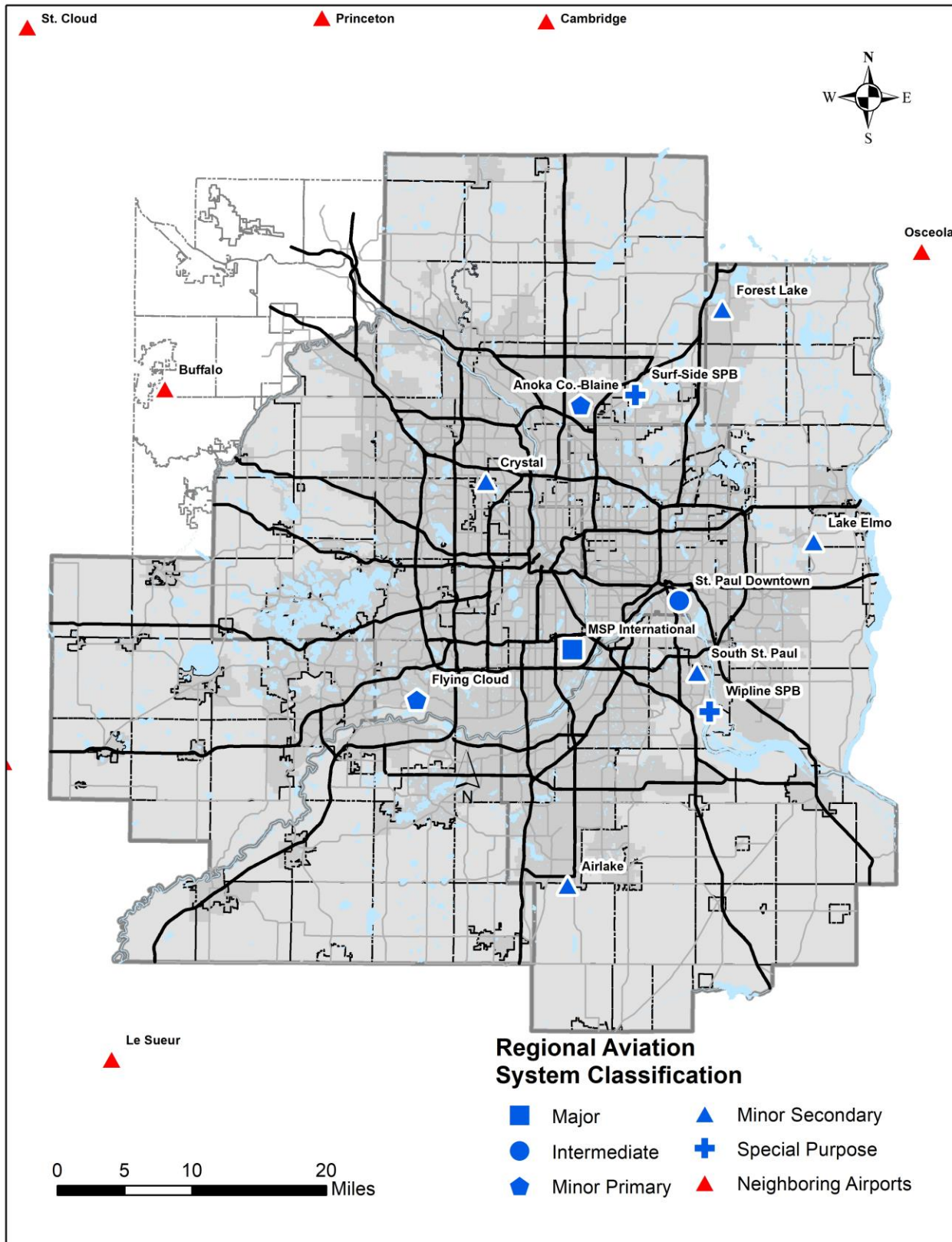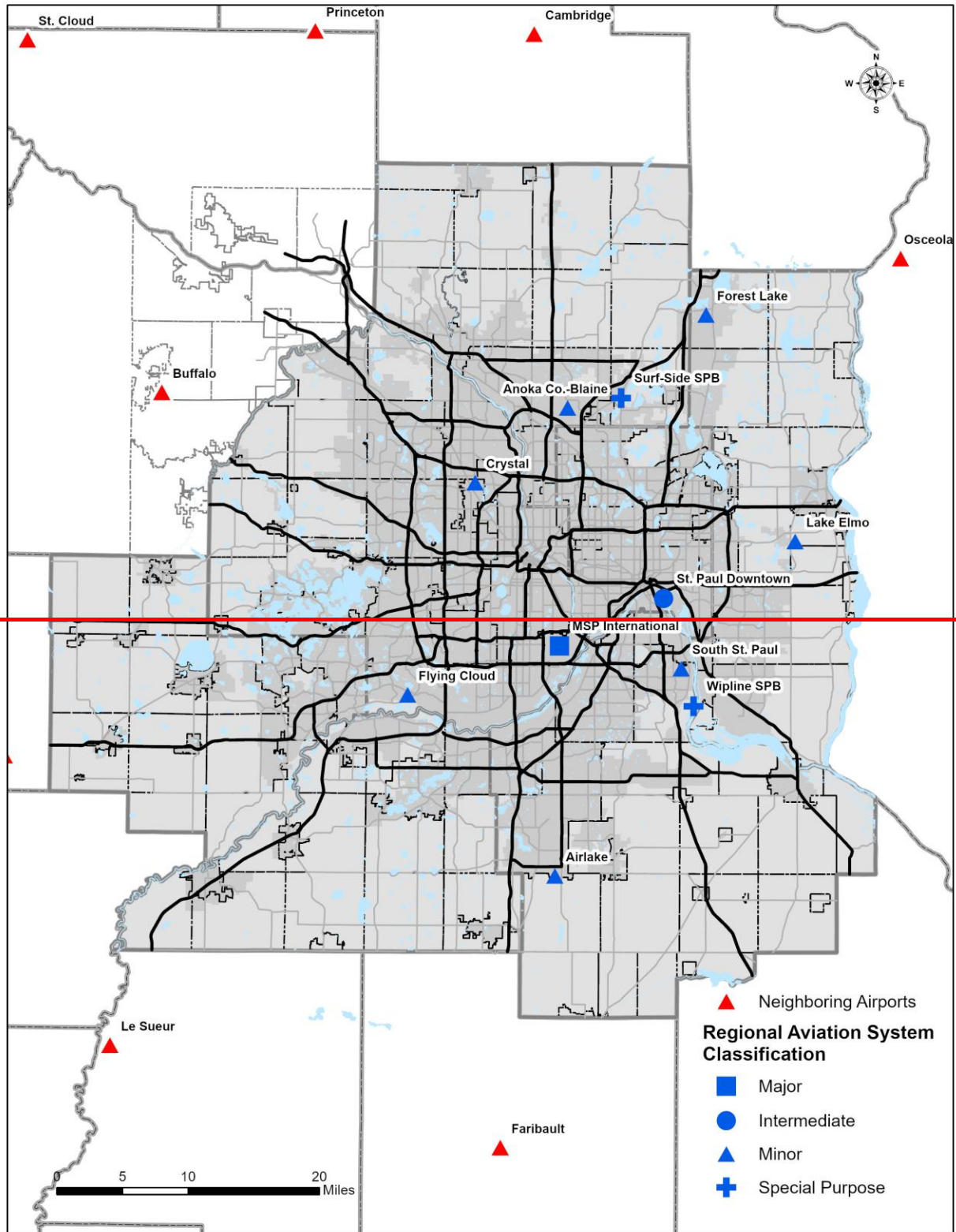
Passenger and cargo aviation activity

Prior to the pandemic in 2020, MSP airport reached a new record for passenger enplanements at 19.8 million with more than 36 million total passengers in 2019. These record numbers of passengers were moved in the fewest number of aircraft operations since 1992, a year which saw only 10 million passenger enplanements. In addition to passenger activity, MSP airport saw 239,544 metric tons of cargo moved through the airport in 2019. Unlike passenger activity, dedicated cargo activity saw a modest increase at the MSP airport during the pandemic due in part to the pandemic driving more online sales with retailers like Amazon. These retailers continue to show growth in air cargo and delivery operations. Overall, however, freight tonnage fell in 2020 as scheduled passenger service and related belly cargo declined significantly. Cargo activity also occurs at reliever airports as well, however that activity is limited and not tracked in detail as is done at the MSP airport.

MSP airport and the regional airport system provide significant economic activity for the region, while serving as a gateway to the region for visitors from across the world. The most recent economic impact study the airport commission conducted in 2017 indicates that MSP airport provides 21,000 jobs, and $7.1 billion in direct economic impacts annually to the region. The airport commission-owned reliever system complements MSP airport in services and economic impact. In 2018, the Metropolitan Airports Commission estimated the total regional economic impact from the relievers to be $756 million.

Regional airport activity has seen major fluctuations caused by the COVID-19 pandemic that nearly halted all commercial aviation in 2020. However, the impacts were not as evenly felt as in air cargo and general aviation and did not see the same significant declines from the pandemic. Figure 2 summarizes the regional system activity over the previous five years to display this impact disparity from the pandemic. The aviation industry expects that Ccommercial passenger activity will has recovered quickly from the pandemic., and that the iIncreased air cargo activity will has continued to grow industry wide, however cargo growth has stalled in the region with MSP seeing cargo tonnage dropping from pandemic era peaks in 2021 and 2022. It is not yet known if the recent pandemic era revival in general aviation will continue or if longer term slowly declining trends will return.

The regional system has expanded airside capacity over the previous decade with the construction of an expanded new runway at Lake Elmo Airport and Forest Lake Airport completing paving of the previous turf runway. Work continues for planning of a runway extension at Airlake Airport for near term implementation.

Figure 2. Aviation activity over past five years[1]

Activity (aircraft operations)	20192018	20202019	20212020	20222021	20232022
St Paul Downtown (STP)	31,92741,301	18,79640,484	28,76229,492	36,86333,289	33,50341,955
Flying Cloud (FCM)	102,81691,060	70,53296,238	136,777119,710	162,188133,217	140,383123,117
Anoka-Blaine (ANE)	42,16973,200	35,71473,221	49,22869,954	58,48874,140	67,88463,462

[1] Aircraft operations: Metropolitan Airports Commission (MACNOMS - MAC Airports),FAA 2023 Terminal Area Forecast (TAF - SGS); Forest Lake (25D) is not included in TAF data.

Airlake (LVN)	20,44736,109	18,99834,174	30,53634,714	38,26834,714	38,67834,143
South St. Paul (SGS)	51,00069,120	51,00051,000	51,00051,000	51,84251,000	51,86051,842
Crystal (MIC)	32,25737,211	33,68940,770	34,90338,044	40,32336,312	43,48841,209
Lake Elmo (21D)	21,38826,948	18,07926,948	27,10626,948	32,18926,948	41,59326,531
Forest Lake (25D)	N/AN/A	N/AN/A	N/AN/A	N/AN/A	N/AN/A
Total general aviation operations	302,004374,949	246,808362,835	358,312369,862	420,161389,620	417,389382,259
Total MSP operations	404,644409,982	279,768404,644	288,979279,768	315,152288,979	342,140315,152
Total MSP enplanements	19,783,38019,007,719	7,418,64819,783,380	12,581,41227,418,648	15,614,084412,581,412	17,375,590415,614,084
Total MSP cargo (metric tons)	228,964239,546	203,697228,964	234,747203,697	237,430234,747	203,643237,430

Ground connections to the aviation system

Ground access to MSP

Accessibility, both by air and ground, is important for air transportation efficiency. MSP is the major commercial airport of the region and, as previously stated, is a major concentration of employment, with more than 20,000 employees on site during any single day. These types of jobs range across every income and skill level. It is important that equitable access is provided to MSP airport. Access to MSP airport via multiple modes should continue to be improved to serve all employees and users of the airport with low-cost alternatives to single occupant vehicles.

Ground access to MSP airport is mainly provided from limited access highways. Minnesota Trunk Highways 5 and, 77, and Interstate 494 have served as the main means of access to the airport for many decades and will continue to serve this role with strategic capacity improvements ongoing. For the past two decades, Ttransit access hasis provided primarily from the METRO Blue Line that runs between downtown Minneapolis and the Mall of America in Bloomington, and the Route 54 bus that runs from downtown Saint Paul to MSP airport. Both routes run at high frequencies and provide opportunities for numerous transfers; however, direct transit access does not reach significant portions of the region. Transit access has been expanding to cover additional areas of the metro to connect directly with MSP. Metro Transit is expanding direct access to eastern communities with plans to start running Route 354 to Woodbury, the Minnesota Valley Transit Agency (MVTA) runs route 495 to connect MSP to communities south of the Minnesota River like Shakopee and Savage, Southwest Transit began service between Eden Prairie and MSP with Route 686 that began service in 2025. For further-reaching transit access, the Land-to-Air Express service connects MSP airport to various cities and towns in southern and southeast Minnesota through daily, regularly scheduled shuttle service.

Employees at MSP airport have additional options for getting to the airport through dial-a-ride service which the Metropolitan Council offers through its Airport Dial-a-Ride Service. The service began in 2016 and is expected to continue into the future. The program has been successful at connecting new immigrants primarily in St. Paul, south Minneapolis and south metro suburbs. Planned transit improvements will further connect the region to MSP airport, but major gaps will persist, and private

motor vehicles will likely remain the dominant form of access to the airport for both employees and users.

Currently, there is some non-motorized access to MSP airport via a sidewalk on 34th Avenue from Bloomington to Terminal 2. People including bicyclists may use the sidewalk space or roadway along 34th Ave to access Terminal 2, however the options are limited, and do not provide safe or comfortable space for people walking, biking, or rolling. Additionally, there is a need for end of trip facilities like bike racks and other parking options for users once they arrive at the terminal. The MAC, as part of their reconstruction of Post Road in 2024 added bicycle facilities to a stretch of this corridor. This improvement serves as a key first step to connecting the airport to the larger regional bicycle network and should be continued as other roadways are reconstructed throughout the airport to eventually connect both terminals to the system.

There still remains a need to improve non-motorized connections and end of trip facilities at both Terminals. There currently is no direct access to Terminal 1 for people who walk, bike or roll. During the daytime hours, light rail service can be an alternative to accessing Terminal 1. However, the METRO Blue Line runs every 15 minutes during the day and much less frequently overnight, causing increased delays for Terminal 1 users and airport staff.

Hennepin County completed a non-motorized access study to both terminals in 2016. This study recommended that non-motorized access should be provided to Terminal 1 by Post Road and Northwest Drive. This route would provide direct and higher quality walking and bicycling access to both terminals and would offer employees and users additional options to reach MSP airport. This planning effort influenced the Regional Bicycle Transportation Network, which was created by the Met Council in 2014 to identify key alignments in the region which would best serve bicycle transportation. The RBTN includes identified key routes to access both terminals at MSP. These routes are along Post Road, 34th Avenue and connecting to Terminal 1. Identified RBTN routes are eligible for federal funding through the Regional Solicitation to support implementation of this network. Additionally, the Met Council has identified Post Road as a Tier 2 Regional Bicycle Transportation Network route. The MSP 2040 Long-Term Comprehensive Plan has identified the Post Road and Minnesota Highway 5 interchange for future reconstruction. This project provides the opportunity to include non-motorized improvements, and the potential connection should be further examined for future implementation as the project moves through the project development process with MnDOT.

Ground access to reliever airports

The regional system of reliever airports is geographically spaced throughout the region to conveniently serve urban development, population and employment patterns, and maximize economic benefits. Ground access from the regional roadway system to the reliever airports in the system is adequate currently. There remain gaps in other means to access the regional airports. However, due to the lack of commercial service at the reliever airports, transit and non-motorized access to these facilities is not a high priority and is limited. Airport report cards found below include a more detailed accounting of ground access to each regional airport.

Airport Classifications, System Role and Function

All airports in the United States are subject to the rules of airspace sovereignty and federal government controls. Most, but not all, airports in the metropolitan and state system are part of the National Plan of Integrated Airport Systems and are classified according to their role and function in the particular system. Each level of government maintains classifications for each airport in the region. Each level of system planning categorizes the airports in different ways to address the agency purpose and goals for that particular system. Policy, design, operations, facility use, and funding are tied to these facility designations. Figure 3 summarizes the roles of the regional airports within each classification system.

- At a national level, many of these airports are classified in the FAA's National Plan of Integrated Airport Systems.
- Minnesota has a state-level classification method applied to all system airports in the state. That method is defined in Commissioner's Order Number 605, Order Amending the Airport System of the State of Minnesota, Dec. 5, 2012. The most recent State Aviation Plan (2023) updated classifications to better differentiate airports by function and to conform with Minnesota Administrative Rules Chapter 8800, which requires runways 4,900 feet or longer to be considered "other than utility runway." State plans usually include more airports than the national plan.
- The Met Council uses a separate system in this Regional Aviation System Plan to reflect metropolitan region airport considerations, and certain state laws reflect this regional classification terminology. The Regional classification system has been updated to better reflect airports' current roles in the regional aviation system by splitting Minor airports into two categories: Minor – Primary, and Minor – Secondary. Figure 3, below, shows the new classification framework based on activity and service objectives. See airport report cards for the full facility considerations for airport classification. These report cards will be updated and examined periodically to ensure classifications reflect airport functions and role in the regional system.

Figure 3. Regional airport classifications

Airport (code)	Federal plan designation	State	Regional
Minneapolis-Saint Paul International (MSP)	Commercial Service - Primary	Key Commercial Service	Major
St Paul Downtown (STP)	National - Reliever	Key General Aviation	Intermediate
Flying Cloud (FCM)	National - Reliever	Key General Aviation	Minor - Primary
Anoka-Blaine (ANE)	National - Reliever	Key General Aviation	Minor - Primary
Airlake (LVN)	Regional~~National~~ - Reliever	Intermediate - Large	Minor - Secondary
South St. Paul (SGS)	Regional - Reliever	Intermediate - Large	Minor - Secondary
Crystal (MIC)	Regional - Reliever	Intermediate - Small	Minor - Secondary
Lake Elmo (21D)	Regional - Reliever	Intermediate - Small	Minor - Secondary
Forest Lake (25D)	N/A	Intermediate - Small	Minor - Secondary

For the 2050 Regional Aviation System Plan, ~~R~~regional classifications have been updated to better differentiate airports classified as Minor in the regional system. This is being done to more closely align with federal and state classifications and to better define the system roles of the regional airports based on existing site conditions and aircraft activity while continuing to adhere to state laws restricting ~~are based on system function and~~ runway length at regional Minor airports. As the primary factor determining Minor airports is runway length per state law, and the majority of regional airports fall within this classification, it is important to differentiate Minor Airports to establish greater system level understanding to communicate with regional partners existing activity at these airports. As the main commercial service airport for the state, and one of the most with the largest operating aircraft and the most aircraft operations, MSP airport is classified as a major airport. Downtown Saint Paul is classified as an intermediate airport. It is one of the major relievers for MSP airport and has the longest runway lengths outside of the MSP airport. This allows it to accommodate larger aircraft than the other relievers, which are limited to 5,000 feet runways. ~~and are classified as minor~~. Due to Minnesota Statute 473.641, the remaining relievers in the system are limited to 5,000 feet and are classified as minor as they can only accommodate certain types of aircraft. Minor Primary airports, Flying Cloud and

Anoka-Blaine, have 5,000-foot runways and see a large share of regional business jet operations which relieve demand at MSP and have airport facilities to handle this activity. Minor Secondary airports are the remaining Minor classified airports which may see limited jet activity at times but primarily are used for smaller piston powered aircraft for recreational and training purposes. For the full table of updated classification considerations, see the Aviation Supporting Information document. See Airport Classification trend paper for a full report on the regional system classifications.

In 2023, MnDOT's aeronautics office completed an update to the Statewide Aviation System Plan. This plan included a white paper reviewing and outlining updates for the state classification system. The new classification is meant to better define roles of various statewide airports. Key airports were divided into Key Commercial Service and Key General Aviation. Intermediate airports were reclassified into small and large by runway length. These changes are not anticipated to impact regional airports and will not result in changes to regional classifications.

Emerging Issues and Trends

COVID-19
The COVID-19 pandemic in 2020 resulted in considerable disruptions in daily life for people around the world. Commercial air traffic in turn was severely impacted by various travel restrictions and other measures taken to combat the spread of the disease. The airline industry is still recovering from these impacts. The Metropolitan Airports Commission recently released the 2040 Long-Term Comprehensive Plan for the MSP airport, which indicates that air operations are forecasted to fully recover to pre-pandemic levels in by 2025. The long-term impacts from the pandemic are still being understood, however barring further setbacks in recovery efforts, airplane traffic is expected to continue along a similar growth trajectory once immediate impacts are settled.

Aside from commercial airline impacts, the pandemic has had different impacts on different areas of the aviation industry. Air freight traffic did not take as serious of a hit. Air cargo capacity was initially reduced from the drop in commercial passenger traffic as the cargo holds of passenger aircraft are used for cargo purposes. The demand for air freight, however, increased significantly during the pandemic as e-commerce activity hit new highs. This led to air freight surpassing pre-pandemic levels by the end of 2020. The quick recovery was driven by an increase in the amount of dedicated freight aircraft.

Labor shortages
From front desk employees and aircraft mechanics to pilots and in-flight personnel, the aviation industry is facing increasing challenges to fill vital roles in a growing industry. At a time when workforce challenges were already beginning to become a major issue, the pandemic hit the aviation industry severely and made those issues worse. As air travel recovers from the depths of the pandemic, airlines are struggling to staff ticketing counters, support crews, maintenance teams, and flight crews, resulting in service cancelations and delays.[2]

Pilot shortages have led airlines to cancel flights and reduce service coverage. This shortage has hit regional airports the hardest with reduced or sometimes eliminated service. These shortages have slowed the recovery of the industry as a whole and are impacting service at MSP airport where 2023 service was still below 90% pre-pandemic levels. Prior to the pandemic, the pilot labor issue was already driving an ongoing trend of regional carriers retiring smaller regional aircraft and replacing them with larger aircraft which allows them to run fewer flights to regional destinations while maintaining

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[2] Aviation Workforce: Current and Future Availability of Airline Pilots and Aircraft Mechanics | U.S. GAO

capacity with fewer flight hours.[2] This trend has been hastened by the pandemic. Regional jets comprised 40% of MSP airport operations prior to the pandemic, with narrowbody aircraft at about 55%. The most recent data shows that now under 30% of operations are from regional jets and nearly 70% for narrowbody aircraft. This trend will lead to fewer gates needed for regional jets at MSP airport and much fewer total operations than what has been previously forecasted to move greater numbers of passengers. Gate space is projected to increase by 10% at MSP airport, while passenger volumes are estimated to increase by 40% through 2040.[3]

Sustainable aviation

As the challenges of climate change become more pronounced, the issue of carbon emissions becomes more of a pressing concern. The aviation industry is responsible for 2.5% of global emissions from all sources, accounting for over 1 billion metric tons of carbon dioxide in 2018, doubling in 30 years with a growth rate of 4% to 5% per year.[4] This huge impact from a relatively small share of transportation calls for a rapid transition to a more sustainable business model for airlines, and more sustainable aviation facilities to support this transition.

In 2023, the Minnesota legislature passed a tax credit for sustainable aviation fuel that is produced or blended in Minnesota and used in planes departing the state. This credit, which has the support of Delta Airlines, the major commercial operator at MSP airport, will aid the carrier in transitioning its flights out of MSP airport to a more sustainable and less carbon intensive fuel source. Delta has stated that their goal is to have 35% of all flights using sustainable aviation fuel by 2035, with a higher share of flights out of MSP airport, up to 50%, utilizing sustainable aviation fuel. Delta has recently announced a partnership with Greater MSP and other regional firms to establish MSP airport as a global hub for future sustainable aviation fuel innovation and use.[5] It is expected that this new fuel and hub will establish the region as a global innovator in alternative forms of aviation fuels and sustainability efforts in the aviation industry, driving economic growth for the state and the region while reducing aircraft emissions.

Sustainable aviation fuel is expected to support Delta and the wider aviation industry in transitioning to a carbon neutral future as sustainable aviation fuel has the potential to reduce carbon emissions by up to 85% from jet engines. Sustainable aviation fuels have the potential to become a major component of getting aviation to carbon neutral and to position Minnesota to be an industry leader for the emerging technology.

Unmanned aircraft systems, advanced air mobility

Advanced air mobility is an umbrella term for aircraft that are likely highly automated, electric, and operate within or between regional destinations. These aircraft are often referred to as air taxis or electric Vertical Takeoff and Landing aircraft. Advanced air mobility aircraft could have a number of uses, like transporting cargo or passengers around the region, aiding in firefighting efforts, moving time constrained medical equipment or personnel quickly, and providing search and rescue operations, among many other applications. Advanced air mobility also has the potential to connect underserved and rural communities better to employment and activity centers in the state and region.

If advanced air mobility is used at growing levels in the nation and region, it could potentially impact regional aviation activities. That would include the airspace regulatory environment, potential noise and other environmental impacts from aviation activities, and regional reliever airport operations. In 2023,

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[3] MSP 2040 Long Term Comprehensive Plan
[4] https://ourworldindata.org/global-aviation-emissions
[5] Minnesota Sustainable Aviation Fuel Hub - Minneapolis Saint Paul Economic Development | Greater MSP

~~the Federal Aviation Administration stated that they are working on establishing conceptual operational policies and regulations for advanced air mobility, in addition to working with private parties in developing the new technologies.[6] Other state departments of transportation, like Caltrans in California, are beginning to study opportunities and potential drawbacks of advance air mobility for regional aviation activity, with other states already putting together plans for system implementation.[7] Advanced and urban air mobility is still an emerging topic in the aviation industry and should be monitored and anticipated to serve a larger role in the aviation and transportation sector over the next 25 years.~~

Aviation Planning

Planning process

The federal government controls the national airspace for both civil and military use, therefore preempting and proscribing many operational, development, design, funding, and planning parameters for airports. Airport systems of the states and metropolitan areas make up the National Plan of Integrated Airports. In Minnesota there is a state airport system plan, a Twin Cities Regional Aviation System Plan defined in the Imagine 2050 Transportation Policy Plan, and individual airport long-term comprehensive plans that provide the basis for defining airport roles, development, funding, and environmental mitigation. **Error! Reference source not found.** shows the feedback process. The metropolitan portion is highlighted. The review process for the capital improvement plan is detailed in the Aviation Supporting Information document.

This continuous planning process ensures that the system plans provide guidance appropriate to expected needs and implementation priorities. The regional system plan is based upon a 20-year planning horizon and updated every four years. Each long-term comprehensive plan is based on a 20-year planning horizon and ~~periodically~~ updated by the airport operator. Interim updates or special studies are conducted if warranted. Airport layout plans are also required to be updated on a regular cycle. Typically, these happen with the update of new long-term comprehensive plans, but they may be updated more frequently. These updates occur on cycles based on state classifications and are required to be approved by the state and federal government prior to any new projects can occur. State and metro systems plans include aviation facilities of local importance. Entry criteria are established for inclusion in the National Plan of Integrated Airport Systems, a prime requisite for federal funding.

Aviation systems statements are prepared by the Met Council after adoption of each aviation system plan. The statements describe what specific system elements are to be included and considered in updating or amending a local plan. Two~~hree~~ types of aviation statements are given to communities:

- Communities with only general airspace protection and notification to FAA for proposed tall structures.
- Communities with general airspace protection considerations and are also directly affected by aircraft and adjacent airport facility operations.
- ~~Communities with general airspace protection, but also an aviation facility located within its corporate limits~~

The planning process and local plan requirements are further defined in the Local Planning Handbook.

~~[6] Urban Air Mobility (UAM) Concept of Operations | Federal Aviation Administration (faa.gov)~~
~~7 Flying buses in California skies? | University of California~~

Figure 4. The regional airport planning process

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│ guidelines, criteria and│          │  (annual and 7-Year)    │
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│  MAC and other airport  │          │ Environmental reviews   │
│  sponsors, prepare and  │ ┈┈┈┈┈▷  │ for identified projects │
│  implement long-term    │          │ (EA, EAW, EIS, AUAR)    │
│  comprehensive plan     │          └─────────────────────────┘
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Long-term comprehensive plans

Airport sponsors are required to prepare a 20-year long-term comprehensive plan for each airport in the system as directed by Minnesota Statute 473.165. The comprehensive plan is intended to integrate all information pertinent to planning, developing and operating an airport in a manner that reflects its system role and compatibility with its surrounding environment. The details on scope and emphasis of a long-term comprehensive airport plan should reflect the airport's system role and the objectives for each plan content category. Full requirements for these plans are described in the Aviation Supporting Information document.

While plans should be reassessed regularly and updated at least regularlyevery ten years, the impact of the COVID-19 pandemic has pushed back the schedule of these plan updates. The MSP airport 2040 long-term comprehensive plan, which updates the 2030 plan adopted in 2010 is anticipated to be approved and implemented in early 2024was developed and adopted in 2024, plan contents have been incorporated into this Plan. with Flying Cloud Airport's plan was developed following the MSP Plan, this plan was approved by the Council and adopted in 2025. The MAC is now in the process of updating the Downtown Saint Paul and Anoka-Blaine Airports to followwith expected completion in 2026 and 2027. The five-year timeline for reassessments reflected previous best practice guidelines. After a reassessment of this policy with regional partners, it is recommended that airport long term comprehensive plans be updated in a similar schedule to community comprehensive plans, every ten years. This is due to the nature of airport planning, which includes multiple steps with outside engagement elements as described in Figure 4. For plan updates, the process to identify planned projects, conduct environmental reviews and state mandated capital planning and review before projects are constructed often takes more than 5 years. Additionally, each of these steps in the planning process includes outside engagement and public review opportunities. For the MAC, there is also limited staff capacity to update plans following FAA requirements for all seven airports within the previous five-year requirement. This also moves the MAC owned airports in-line with community owned airports which update their planning documents alongside their community comprehensive plans every ten years. As the Metropolitan Airports Commission continues to work through the COVID-19 induced backlog of plans, this five-year schedule should be reassessed to confirm if it reasonable for the future. If a change to the plan cannot be accommodated during its scheduled update, the airport sponsor should consider amending a long-term comprehensive plan, or parts of it, if deemed reasonable. Airport sponsors should consider verifying and validating adopted plans on an interim basis to ensure that forecasts and identified improvements estimates are still valid with real activity levels.

The reassessment verification and validation process involves:

- RReviewing the new forecasts against prior forecasts toand actual airport activity.
- Reviewing Checking the progress of implementation efforts outlined in the LTCP (for example, individual project planning, environmental evaluations, and capital program)
- Identifying any other issues or changes that may warrant continued monitoring, interim action or establish a need for a plan update earlier than scheduled.
- Updating DNL noise contours if new activity forecasts are needed based on above considerations (for Intermediate and Minor Airports)

The long-term comprehensive plan does not replace any other planning or reporting requirements of another governmental unit.

Figure 5. Update schedule for long-term comprehensive plans

Metro-area public use airports	Plan status	Recommended 5-Year Validation	Plan Update
Minneapolis-Saint Paul International Airport	2040 plan approved March 2024	202930	2034
Saint Paul Downtown	2025 plan approved April 2010 **2045 plan under development**	203125	2036
Anoka County-Blaine	2025 plan approved April 2010 **2045 plan under development**	203226	2037
Flying Cloud	2025 plan approved April 2010 **2040 plan under review**	20254	2035
Airlake	2035 plan approved March 2018	2029N/A	2030
Crystal	2035 plan approved September 2017	2028N/A	2029
Lake Elmo	2035 plan approved July 2016	2029N/A	2028
South St. Paul municipal	Community comprehensive plan update approved 2019	2028N/A	2028
Forest Lake municipal	Community comprehensive plan update approved 2019; airport master plan approved 2021	2028N/A	2028
Lino Lakes Seaplane base	Community comprehensive plan update approved 2019	2028N/A	2028
Wipline Seaplane base	Community comprehensive plan update approved 2019	2028N/A	2028

Environmental impact considerations compatibility planning

The planning, development and operation of the region's aviation facilities must evaluate and should minimize impacts on the cultural and natural environment, regional systems, and airport impacted communities. The Aviation System Supporting Information document identifies plan development guidance. This guidance and considerations could be included in a number of points during the planning process outlined in Figure 4. In addition to plan guidance, the following will outline emerging technology and other trends which could improve environmental impacts from ongoing aviation activity and is something the Council is monitoring for future aviation planning considerations.

Airport sponsors should have a surface water management plan that ismaintain or develop plans that are consistent with plans of the applicable watershed management organizations and the state wetland regulations. Airport sponsors should also protect groundwater quality and should identify the location, design, and age of individual, group and/or central sewer systems onsite and all well location sites. The airport sponsors should also provide sanitary sewers to system airports when such service is available. All airports in the system are now within the Municipal Urban Service Area boundary and currently have sewer service or can connect when needed.

Greenhouse Gas Emissions

In 2023, the state legislature passed a new law requiring the tracking and target setting to reduce greenhouse gas emissions for the transportation sector. These reduction targets are split between surface transportation which includes emissions from on-road and off-highway motor vehicles and non-surface transportation which includes aviation among other sources (marine, railroad and natural gas

pipelines). Non-surface emission reduction targets are measured statewide with aviation accounting for approximately half of these emissions. Emission reduction targets total 15.8 million metric tons of CO2e by 2050. The Met Council, with support from the MAC, will track and publish aviation emissions through the Twin Cities MSA Greenhouse Gas Inventory to aid in this effort. As MSP airport accounts for a majority of statewide emissions, efforts in the region will be key to meet these statewide targets. A key means to meet these targets will be fueling and powering aircraft in new ways, such as electric aviation and more sustainable sources of fuels.

Aviation Fuels and Alternative Power Sources
The aviation industry, historically dependent on fossil fuels such as Jet-A and Avgas (100LL), is undergoing significant changes to meet growing environmental and sustainability demands. While jet fuel consumption is expected to increase with commercial operations, general aviation fuel use remains steady. Aircraft fuel usage is categorized by Federal Aviation Regulations, with Part 91 covering general aviation, Part 135 covering non-scheduled commercial, and Part 121 overseeing scheduled airline operations. In response to environmental concerns, there is a shift toward Sustainable Aviation Fuel (SAF), which can reduce lifecycle CO_2 emissions by up to 94%. The U.S. government has launched the SAF Grand Challenge to expand SAF use to 35 billion gallons by 2050. Companies like Delta and fuel producers such as Gevo are investing in SAF use and production hubs in Minnesota, with tax credits and infrastructure support from state and national partners aiming to address supply, cost, and distribution challenges. Regional partners like GreaterMSP are spearheading such efforts in Minnesota with the goal of turning Minnesota into a global leader and supplier for SAF.

In general aviation, the transition away from leaded Avgas (100LL) is gaining traction. Legacy piston aircraft engines require high-octane fuel, which has historically included toxic lead additives. Although progress has been slow due to fleet size and certification complexity, FAA-approved unleaded alternatives like G100UL are now available. Efforts by the FAA, EPA, and local governments are advancing fuel transitions through subsidies and incentives, though price remains a concern for widespread adoption. The FAA is requiring the use of leaded fuel until at least 2030, multiple jurisdictions are considering bans or other limitations on the fuel following this date.

Electrification and hybrid propulsion are also being explored, especially for smaller GA aircraft and pilot training. Although current battery limitations restrict range and payload, the technology shows promise. There are currently many different types of electric propulsion aircraft in development and approaching certification from the FAA. Hybrid-electric and hydrogen-based systems are being tested for commercial aviation, offering fuel savings and emissions reductions. Infrastructure for charging and hydrogen storage, however, is currently lacking and requires substantial investment. MnDOT Aeronautics is currently developing the Minnesota Electric Aircraft Network (MEAN) which will identify airports in the state which are most conducive toward electrification efforts for aircraft in the state.

While SAF and unleaded fuels are immediate steps toward sustainability, long-term transformation will depend on overcoming technical and infrastructure barriers associated with emerging electric and hydrogen propulsion technologies. The Council does not directly fund aviation facilities to aid with transitions to alternative fuels but opportunities for partnerships exist with regional partners working on establishing new technologies or protecting the health and safety of aviation users and residents. For more information on this topic, please see the Aviation Fuels and Alternative Power Sources trend assessment.

Aircraft noise
Aircraft noise, defined as unwanted sound from aircraft operations, is a significant environmental concern, especially near airports. It disrupts sleep, causes public annoyance, and has been linked to increased cardiovascular health risks. In response to growing public concern, Congress passed the

Aviation Safety and Noise Abatement Act of 1979, which required standardized noise measurement systems and compatibility planning to mitigate community impacts.

The FAA implemented Advisory Circular (AC) 150/5020-1 in 1983 to provide guidance on noise control and compatibility planning. This included developing Noise Exposure Maps (NEMs) and Noise Compatibility Programs (NCPs) using the Day-Night Average Sound Level (DNL) metric to assess 24-hour noise exposure. Recently, the FAA has proposed updates to this guidance and is reviewing its noise policies, including the effectiveness of DNL as the sole metric, health and economic impacts of noise, and noise compatibility standards.

Locally, the Metropolitan Airports Commission (MAC) established the MSP Airport Noise Mitigation Program in 1992, which includes flight tracking and the MACNOMS system for public access to noise data and complaint filing. The Metropolitan Council also published a Builder's Guide in 2006 to support noise-compatible residential construction, though updates are pending changes to FAA policy and technology. At MSP, the share of older, noisier regional jets has declined, contributing to a decrease in noise complaints. Additionally, FAA rules now ban non-compliant aircraft under 75,000 pounds, and instrument flight procedures have been updated to better distribute flight paths and reduce concentrated noise impacts.

Overall, continued federal and regional efforts aim to mitigate aircraft noise while balancing growth in air travel with the health and well-being of local communities. Airport noise programs, and the application of land use compatibility guidelines for aircraft noise, are developed within the context of both local community comprehensive plans and individual airport long-term comprehensive plans. Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. The Aviation Supporting Information document discusses, in greater detail, the current land use measures and status of the noise compatibility program, including noise impact contours and existing land use in surrounding airport communities. For additional noise related information, refer to the individual airport long-term comprehensive plans for noise modeling and operational documentation, the Met Council's Local Planning Handbook for communities and the builder's guide for acoustic requirements concerning construction of new single-family detached housing in noise policy areas. For a full overview of noise impacts and mitigation efforts, see the Aircraft Noise tend paper.

Land use

In areas around an airport, or other system facilities, land use should be compatible with the role and function of the facility. One preventive measure that communities should use in promoting compatible land use is to create an airport zoning ordinance.
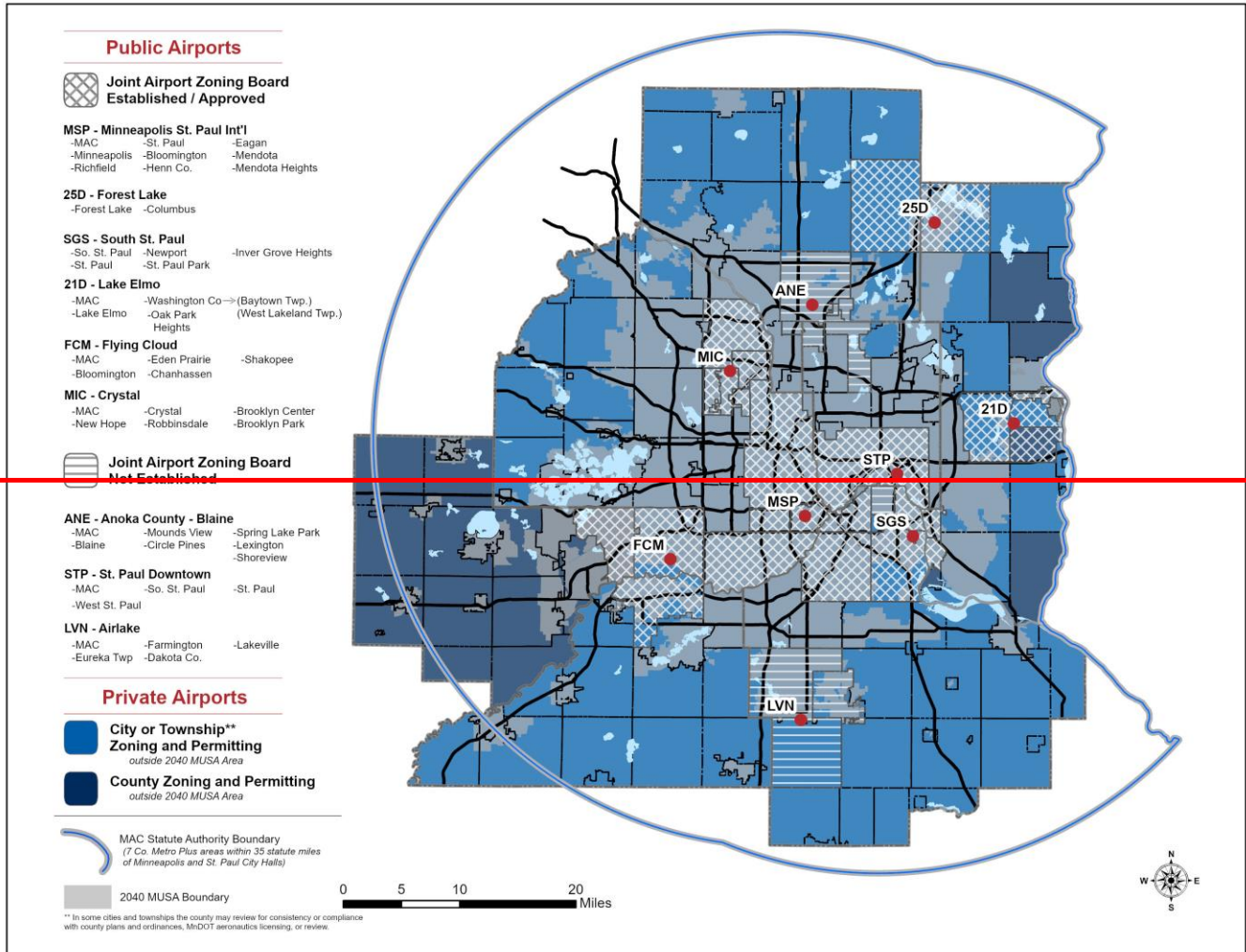
An airport zoning ordinance protects a community's investment in the airport by limiting structural hazards that could be a danger to air navigation. It also minimizes any risk to those on the ground in the event of an emergency at or near an airport. An airport zoning ordinance also protects people and property in the vicinity of the airport by acting as a buffer between the airports and other lands uses.

MnDOT's Office of Aeronautics is currently reviewing the statutes and rules relating to airport zoning ordinances from a state system perspective to ensure an appropriate balance of public safety and airport compatible development opportunities near and around airports.

- As noted in Minnesota Statute 360.063 and in the aviation supporting information document, an airport sponsor typically invites nearby communities to participate in a Joint Airport Zoning Board to enact zoning ordinances to ensure airport safety and surrounding land use compatibility with an airport. These boards work in a collaborative fashion to accommodate both

community and airport needs in the zoning process. Further information on Joint Airport Zoning Boards and the zoning process can be found in the Aviation Supporting Information document. Zoning jurisdictions and the status of boards across the region can be seen in Figure 6.

Figure 6. Zoning jurisdictions and status of joint airport zoning boards

Airports should own the land designated for runway clear zones to ensure that safety is maximized in surrounding communities MnDOT tracks the status of land ownership of clear zones following the adoption of the latest state aviation plan. Multiple regional airports do not own all clear zone land outright due to existing surrounding land uses that were present prior to clear zone expectations being established. Regional airports have other means to ensure meeting clear zone guidance, however, many regional airports may not be able to meet MnDOT guidance of 100% fee-simple ownership. Following the adoption of the 2023 Statewide Aviation System Plan, MnDOT aeronautics now requires airports which do not own their clear zone entirely in fee-simple to develop a clear zone acquisition plan which can identify obstacles to ownership and alternative methods of land use control. If opportunities become available to attain this land, airport owners should pursue options to meet this guidance or establish alternative means of land use control.

Aircraft noise

~~Airport noise programs, and the application of land use compatibility guidelines for aircraft noise, are developed within the context of both local community comprehensive plans and individual airport long-term comprehensive plans. Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. The Aviation Supporting Information document discusses, in greater detail, the current land use measures and status of the noise compatibility program, including noise impact contours and existing land use in surrounding airport communities. For additional noise related information, refer to the individual airport long-term comprehensive plans for noise modeling and operational documentation, the Met Council's Local Planning Handbook for communities and the builder's guide for acoustic requirements concerning construction of new single-family detached housing in noise policy areas.~~

Non-airport-based aviation activity

In addition to fixed locations where aviation activity takes place at the region's airports, there are many other aviation activity areas. In the region, there are also heliports, private-turf airfields and seaplane bases, totaling more than 40 other facilities that see at least periodic aviation activity.
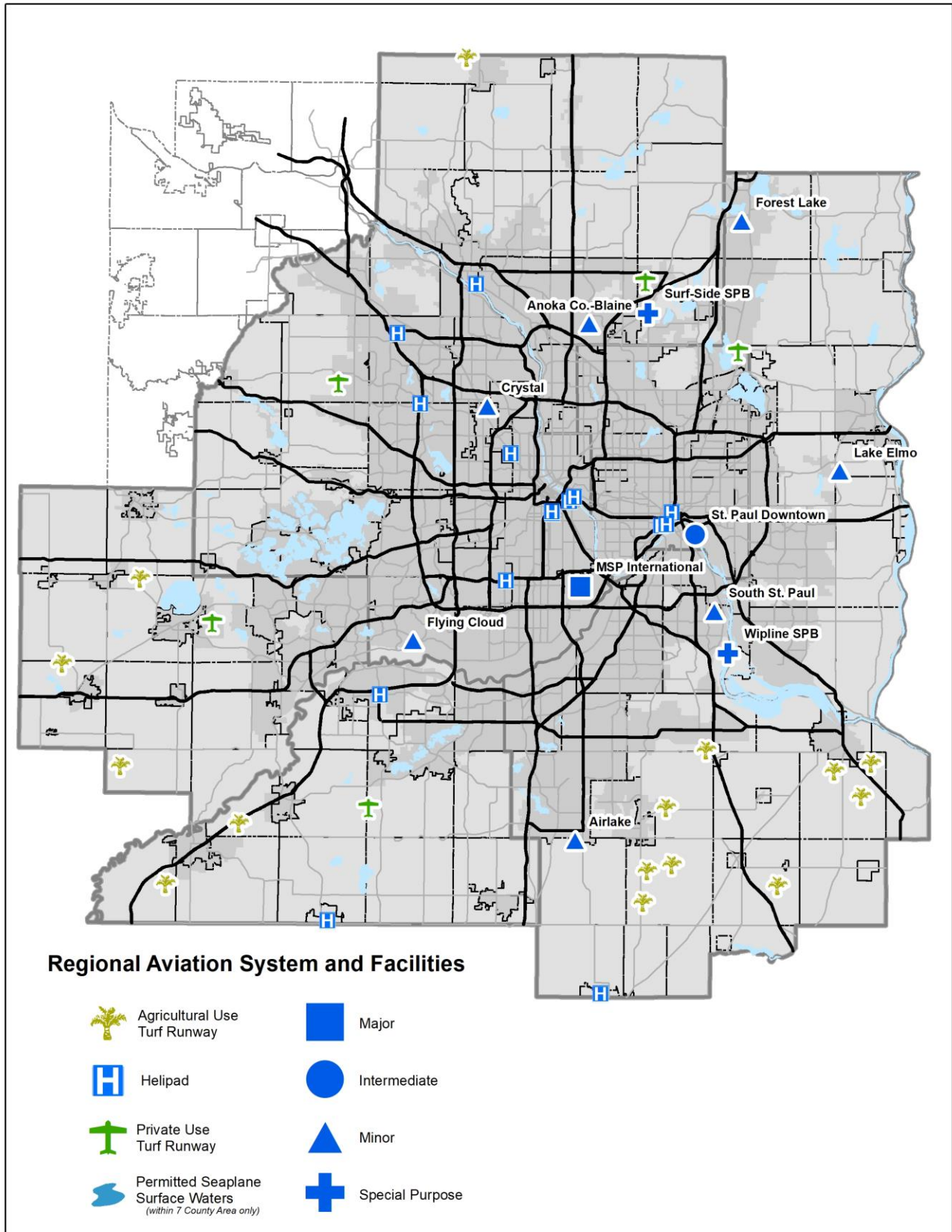
- **Heliports** are located at area hospitals, which provide a vital life support system for the most critically sick and injured patients. Airports are also used for helicopter activity and support occasional military, police, and recreation flights in the region.
- **Seaplane bases** provide additional general aviation and recreational capacity through identified space on area waterbodies. In addition to identified seaplane bases, there are multiple lakes in the region with registered seaplane access.
- **Private-turf fields** serve both recreational purposes and agricultural purposes.

Activity at these facilities is much less regular and more intermittent and does not require the additional planning needed for regional airports as impacts on surrounding land use are much more limited. Figure 6 displays all locations in the region where aviation activity occurs as collected by MnDOT Aeronautics Department and confirmed by Met Council staff.

The listed facilities are existing locations where aircraft may arrive or depart from, but Figure 7 only shows fixed and designated locations where helicopters or other private aircraft operate. Unmanned Aerial Systems (UAM) or more commonly referred to as drones, can take off or land from most areas in the region with limited operating restrictions found near towered airports and some other designated areas. As this type of aircraft becomes more common for commercial activities, it is anticipated that the areas that see more regular aircraft operating will increase. Additionally, a new form of aerial mobility, known as Urban Air Mobility (UAM), is rapidly approaching commercial use. This type of aircraft will be capable of landing at existing heliports, but may also drive new types of facilities, known as vertiports, to be developed around the region in the future. These two emerging types of aviation activities are described in more detail in the following sections.

Figure 6. All regional aviation facility locations

Regional Aviation System and Facilities

Symbol	Description		Symbol	Description
🌴	Agricultural Use Turf Runway		◼	Major
H	Helipad		●	Intermediate
✈	Private Use Turf Runway		▲	Minor
~	Permitted Seaplane Surface Waters (within 7 County Area only)		✚	Special Purpose

Unmanned Aerial Systems

Over the last two decades, drones have rapidly evolved from military tools to commonplace devices used in commercial and personal applications across the U.S. This growth has been fueled by advances in battery life, smartphone integration, and camera technology. Drones now represent the fastest-growing segment of aviation, primarily used in industries such as construction, agriculture, filmmaking, and emergency response. As drone technology improves, particularly in terms of longer flight capabilities and operations beyond visual line of sight (BVLOS), sectors like logistics, shipping, and energy are expected to drive the next phase of growth.

The Twin Cities metro area is well-positioned to benefit from increased drone usage, both in urban services like drone delivery and rural applications like agriculture monitoring and natural resource mapping. However, the widespread adoption of drones poses numerous challenges. These include public concerns over privacy and data security, risks of collisions with people or manned aircraft, and the need for new infrastructure like charging stations and air traffic communication networks. A strong regulatory framework and technological solutions will be essential for safe integration.

The Federal Aviation Administration (FAA) has played a central role in regulating drone use, beginning with the 2016 Part 107 rules which simplified certification for commercial operators. This contributed to explosive growth in the number of registered drones and certified pilots with over 382,000 certified operators and 782,000 registered drones as of May 2024. The FAA has continued to evolve its regulations, including rules for night operations, flights over people, and the 2023 Remote ID mandate for drone identification and tracking. Another important system developed is the Low Altitude Authorization and Notification Capability (LAANC) system. LAANC provides drone pilots with an automated system to request and receive approval in the field to fly in controlled airspace at designated altitudes around airports with controlled airspace. Airports with controlled airspace are those with air traffic control towers. The nature of these airports requires flight restrictions to ensure safe airport operations. The aviation supporting information document includes maps which identify the locations in the region where this system is in place.

Several ongoing and future initiatives are shaping drone integration:

- **Beyond Visual Line Of Sight Operations**: Enabled by the 2024 FAA Reauthorization Act, these operations will support advanced applications like delivery and public safety but require reliable detection, avoidance, and communication systems.

- **Advanced and Urban Air Mobility (AAM/UAM)**: These electric vertical take-off and landing aircraft systems promise new transportation methods, especially in underserved communities, requiring integration with existing transportation and infrastructure.

- **Drone Delivery**: With companies like Amazon already operating in limited areas, drone delivery holds the potential to reduce emissions and improve service accessibility. However, it demands expanded infrastructure and regulatory clarity on land use and traffic control.

- **Unmanned Aircraft System Traffic Management (UTM)**: A collaborative effort between FAA, NASA, and private industry, UTM will allow real-time coordination and airspace safety through automated communication systems.

- **Counter-Drone Systems**: As drone activity increases, counter-drone technologies will be essential for security, especially around airports and public gatherings. Tools like geofencing are already in use to restrict unauthorized flights.

- **Education and Workforce Development**: The FAA has launched training initiatives through partnerships with schools and colleges to support the growing demand for drone-related careers in operations, data analysis, and engineering.

As drone integration into the National Airspace System continues to grow, regulatory agencies and regional planners like the Metropolitan Council must balance technological opportunity with safety, equity, and environmental sustainability. Planning for infrastructure, public education, and workforce development will be critical to ensure drones contribute positively to communities across the Twin Cities and beyond. For more information on this topic, please see the Unmanned Aerial Systems trend assessment.

Advanced and Urban Air Mobility

Advanced Air Mobility (AAM) is an emerging aviation sector aimed at addressing increasing urban congestion by offering electric or hydrogen-powered aerial transportation solutions. With over 80% of Americans living in urban areas, cities like the Twin Cities are experiencing infrastructure strain, prompting the need for new mobility solutions. AAM, and specifically Urban Air Mobility (UAM), focuses on short-distance, point-to-point passenger and freight travel using Vertical Takeoff and Landing (VTOL) aircraft—commonly referred to as eVTOLs when powered by electric or hydrogen propulsion. These aircraft, which include multicopters and powered-lift designs like lift-and-cruise and vectored thrust types, promise reduced greenhouse gas emissions and lower operational costs compared to traditional helicopters.

The FAA Reauthorization Act of 2024 reflects the growing importance of AAM by mandating development of certification standards, vertiport infrastructure, and coordination with the U.S. Air Force's Agility Prime program. Vertiports—small-scale, runway-free facilities—will be central to AAM integration, requiring careful planning to ensure compatibility with surrounding land uses and existing airspace. Urban areas, where infrastructure and land use are dense, present both opportunities and challenges for AAM deployment, including noise, safety, and zoning concerns.

While eVTOL aircraft are still in development, with cost estimates for passenger travel ranging widely, they offer potential as more sustainable and cost-effective alternatives to helicopters. Vertiports, such as those already in place in Chicago and Dallas, showcase how AAM operations can be integrated into existing urban environments. Several states and cities, including Ohio and Orlando, are taking early steps to plan for AAM integration, but successful implementation will require close coordination among federal, state, and local agencies. The Minnesota Department of Transportation is similarly exploring how to incorporate AAM into its transportation planning.

Ultimately, the promise of AAM lies in its potential to alleviate congestion, support emergency services, and create faster connections across urban regions—if its regulatory, infrastructure, and social integration challenges can be addressed. The Council can play a key role in any future integration of UAM technologies and networks into the regional transportation system in way which maximizes opportunities and minimizes impacts to residents in the region. For more information on this topic, please see the Advanced and Urban Air Mobility trend assessment.

Airport Compatibility and Service Areas

Access to the airport, both by air and ground, is important to the efficient use of air transportation. While the region has only one major commercial airport, the regional system of minor airports reflects the geographic distribution of urban development, population, and employment patterns to maximize economic benefits. These reliever airports are spread across the region, roughly evenly, to ensure that there are no areas of the region that are far removed from an airfield.

In addition to the region's airports, there are several nearby airports found in surrounding counties that provide aviation access for parts of the seven-county region that are not nearby a regional airport. While these airports are not within the regional system today, they do provide additional coverage and access for residents within the seven-county region. When considered with the regional system, together they will provide adequate coverage for regional residents through 2050.

Imagine 2050 provides forecasts for when and where growth is likely to occur, including type and density of development. The region is well served by a geographically dispersed pattern of long-established minor airports. Airport influence areas have been identified for the major, intermediate, and minor system airports, shown in figure 7. These influence areas are based upon a three nautical mile radius from the airport for noise, zoning, and infrastructure, and land use compatibility. This three nautical mile area encompasses most of the 14 CFR Part 77 imaginary surfaces associated with an airport's runway. The six nautical mile radius is to prohibit new landfills and wind towers per federal guidance. Based on Met Council forecasts, and the locations of existing regional airports and facilities outside the region, no new general aviation airports are proposed. As identified above and shown in figure 1, public airports in the surrounding counties would provide sufficient future capacity for growing areas on the edge of the seven-county region.

Figure 7. Airport service and influence areas
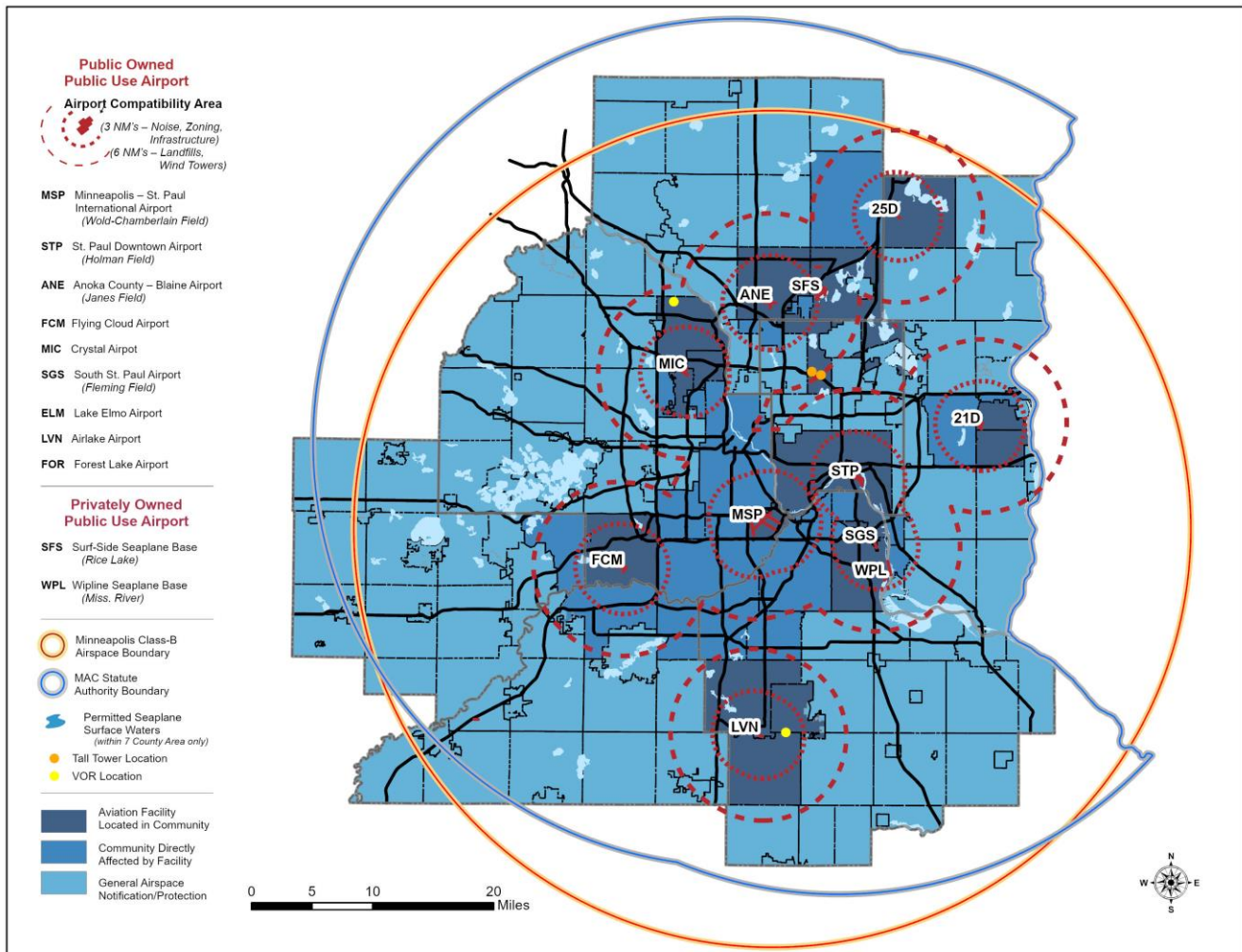
Airspace and Airport Safety Protection

Protection of the region's airspace and airport safety is accomplished by focusing on four areas that need to be addressed in land use planning:

- Notification (concerning proposals for potential obstructions)
- General airspace
- Airport airspace and land-use zoning
- Aviation facilities located off airport

Notification

All metro-area communities are required to include a notification (using FAA form 7460) in their comprehensive plans as defined in the Local Planning Handbook.

This notification is for structures more than 200 feet above ground level at the site. Within specified distances and locations surrounding airports, greater height restrictions may apply to ensure safety thresholds are maintained. It is used by the FAA for review of structure height and structure transmitting frequency and power, in coordination with the Federal Communications Commission. Notification is also used by MnDOT aeronautics for permits for height of non-transmitting structures, including wind generators, as defined in their tall towers webpage, and to coordinate with the Minnesota Pollution Control Agency. The metro region is one of the less productive wind resource locations in the state; however, due to energy costs and promotion of renewable energy sources, a number of communities and institutions in the region are establishing wind generators and related local zoning ordinances. The airport compatibility area, along with the other policy framework areas, is used for review and monitoring of proposals affecting the region's airspace.

Airport airspace

This airspace is defined as including the FAA Federal Aviation Regulation Part 77, imaginary surfaces, Minnesota Statute Chapter 360, Minnesota Rules 8800. Minnesota Rules 8800.1200 further defines airspace surfaces. MnDOT's Land Use Compatibility Manual defines land use safety rules for land surrounding the state's airports. Airport safety zoning, as adopted in local airport zoning districts, provides height and other land use restrictions to protect airspace. The airport airspace basically covers all potential obstructions from ground level to about 200-feet above ground level, in Class C airspace. This covers to 150 feet and 350 feet for Part 77.

Facilities off-airport

Airspace for off-airport aviation facilities is to be reflected in local community plans and protected from physical or electronic interference (receiving or transmitting) from near ground surface at the site and within certain distances and heights. This includes navigation aids, landing aids, and radar facilities. All off-airport facilities can be found on MnDOT's aviation data hub for Weather Stations and Navigational Aids Dashboard.

General airspace

All airspace in the seven-county region that is not within an airport airspace zoning ordinance area is considered to be general airspace for potential and existing hazards to air navigation. Protection of this airspace is concerned primarily with:

- Potential airspace structures that could cause channeling or compression of low altitude operations occurring under the MSP airport Class B airspace
- Affect existing or potential extended approach surfaces for instrument landing system runways
- Affect airport published approach procedures

- Generally increase the complexity of the airspace structure or inter-airport flight operations

Structures 500 feet or more in height should be clustered in a way to take advantage of shadowing effects of existing structures where feasible. Structures more than 1,000 feet above ground level should either be co-located with similar existing structures or located outside the of Class B airspace as depicted in the Aviation Supporting Information document on Figures 2 and 3.

Land use and airport zoning
In areas around an airport, or other system facilities, land use and official controls like zoning should be compatible with the role and function of the facility. One preventive measure that communities should use in promoting compatible land use is to create an airport zoning ordinance.

An airport zoning ordinance protects a community's investment in the airport by limiting structural hazards that could be a danger to air navigation. It also minimizes any risk to those on the ground in the event of an emergency at or near an airport. An airport zoning ordinance also protects people and property in the vicinity of the airport by acting as a buffer between the airports and other lands uses. As seen in Figure 8, not every community which is directly impacted by airports currently has a zoning ordinance in place, these airports should begin the process of establishing a zoning ordinance as soon as practicable.

- As noted in Minnesota Statute 360.063 and in the aviation supporting information document, an airport sponsor typically invites nearby communities to participate in a Joint Airport Zoning Board to enact zoning ordinances to ensure airport safety and surrounding land use compatibility with an airport. These boards work in a collaborative fashion to accommodate both community and airport needs in the zoning process. Further information on Joint Airport Zoning Boards and the zoning process can be found in the Aviation Supporting Information document. Zoning jurisdictions and the status of boards across the region can be seen in .

Figure 8. Zoning jurisdictions and status of joint airport zoning boards
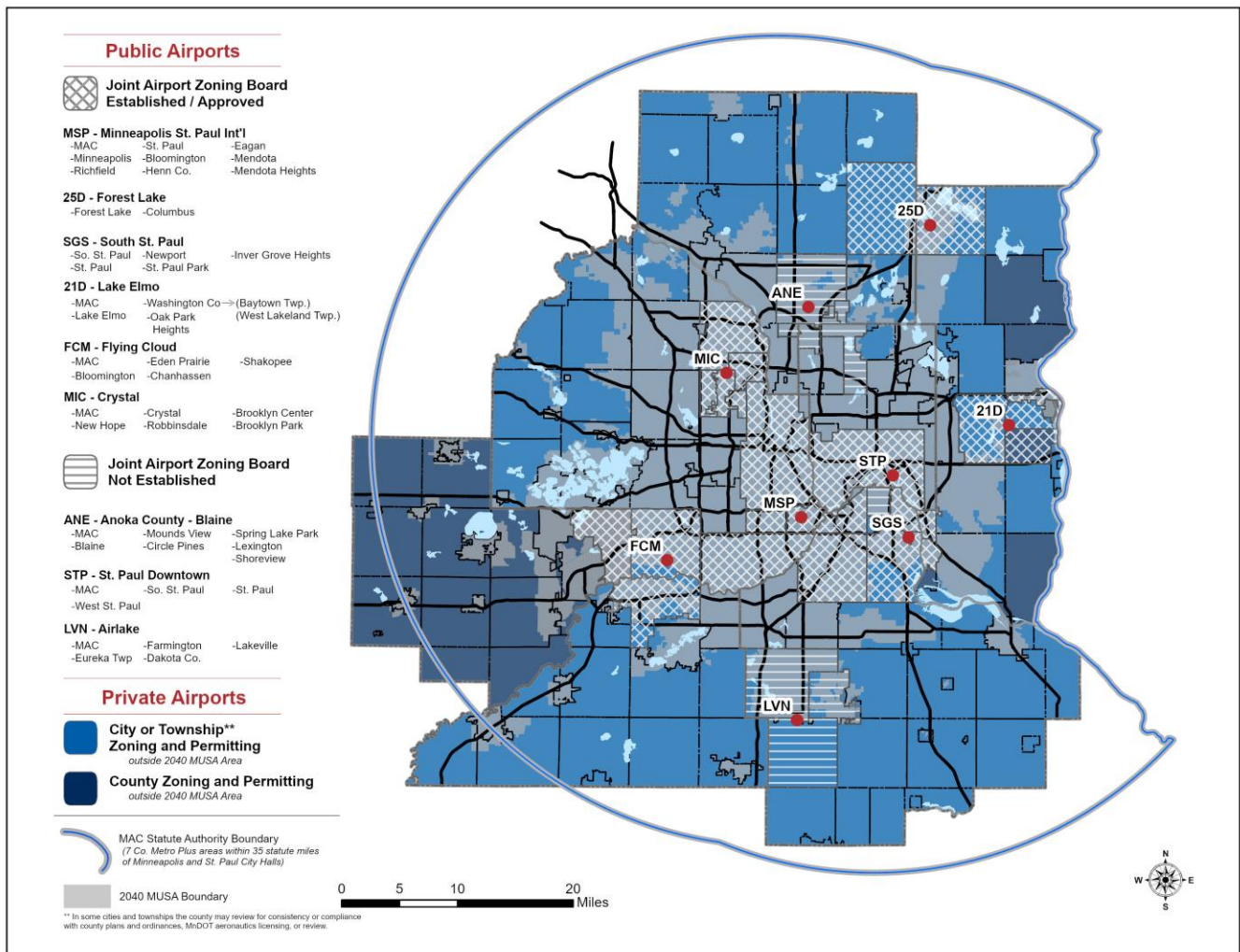
According to state standards, airports should own the land designated for runway clear zones to ensure that safety is maximized in surrounding communities MnDOT tracks the status of land ownership of clear zones following the adoption of the latest state aviation plan. Multiple regional airports do not own all clear zone land outright due to existing surrounding land uses that were present prior to clear zone expectations being established. Regional airports have other means to ensure meeting clear zone guidance, however, many regional airports may not be able to meet MnDOT guidance of 100% fee-simple ownership. Following the adoption of the 2023 Statewide Aviation System Plan, MnDOT aeronautics now requires airports which do not own their clear zone entirely in fee-simple to develop a clear zone acquisition plan which can identify obstacles to ownership and alternative methods of land use control. If opportunities become available to attain this land, airport owners should pursue options to meet this guidance or establish alternative means of land use control.

Airport Capacity

Capacity of the regional aviation system is usually determined by several interrelated components: the airspace structure and facilities, airport airside facilities, airport landside facilities, and aircraft mix.

Airside capacity

Airside facilities include runways, taxiways, and aprons for the movement and parking of aircraft. The capacity of an airport's airside facilities usually refers to the number of gates and parking aprons at the major and intermediate airports, and the number of hangar spaces and transient apron and/or tie-down spaces at the other minor airports.

Airside capacity is determined by various factors including prevailing wind, orientation of runways to the winds and to each other if there are multiple runways, number and type of taxiways, mix of aircraft using the airport, operational characteristics of the based aircraft, and weather conditions. The FAA has established a definition of general airport capacity called the annual service volume that takes these variables into account for each airport.

The annual service volume for a given airport is the annual level of aircraft operations that can be accommodated with minimal delay. For airports with operations below the annual service volume, delay is minimal, usually less than four minutes per operation. Delay levels above four minutes can result in rapidly increased congestion and operating costs and increased operational complexities.

FAA recommends that planning for improvements begin when an airport is projected to reach 60% of annual service volume. When an airport's operations reach about 80% of ASV, the airport should initiate project programming and implementation. Airside development capacity additions are likely to come from a combination of runway improvements, air-traffic management procedures and equipment, and aircraft on-board technology improvements under the FAA NextGen airport capacity program.

Minneapolis-St Paul International Airport

At MSP airport, airfield capacity is considered adequate for projected operations through the 2050 planning horizon. The Metropolitan Airports Commission completed the fourth runway at MSP airport in 2005 to handle additional projected aircraft operations at a time when Northwest Airlines used MSP airport as their main service hub. After the merger of Northwest Airlines and Delta, MSP airport has since had significantly less connecting traffic and has seen operations decline from their 2004 peak of 541,000 operations. The MSP airport long-term comprehensive plan projects operations through 2040 that do not eclipse the peak seen in 2004.

FAA forecasts, which run to 2050, do project operations to exceed that previous peak, at 597,000 operations. However, the MSP airport plan states that up to 656,000 total operations can be accommodated with the existing airside facilities with current technologies and air traffic control procedures. This indicates that airside capacity at MSP airport is adequate through the planning horizon and further investments are not needed, nor anticipated, for expansion.

MSP airport was significantly impacted by the pandemic, with total operations falling 40% and boarded passengers falling by nearly 50% in 2020. However, even with the major impacts, the Metropolitan Airports Commission has still pushed ahead with plans to expand landside capacity at MSP airport. Most notably, at Terminal 2, two new gates will be constructed in 2024 with 11 total gates planned to be constructed in the near term. Full build outs for the MSP terminals in the long-term comprehensive plan look to add 12 new gates at the airport. That totals an envisioned 95 gates at Terminal 1 and 35 gates at Terminal 2, for a total of 130 gates. Terminal 1 gates will be reduced and reworked to support larger aircraft mixes. As was previously discussed, regional air traffic is increasingly using larger aircraft on fewer flights which maintains seat capacity but reduces operations and gate needs. Terminal 2 will see significant expansion from continued expected growth of international and other airlines at MSP airport and the addition of a potential federal inspection station at the terminal.

MSP airport also contains a limited amount of hangar space for both commercial operators (Delta and Sun Country) and for the fixed-based operator Signature Air. The commercial hangars are used primarily for maintenance of aircraft and not for long term storage and do not drive or dictate aviation activity at the airport. In the latest long-term comprehensive plan, there are plans to relocate the fixed-based operator and connected hangar space from the existing location north of Terminal 2 to a new location north of runway 30L-12R to make space for additional Terminal 2 gates. This project is considered a long-term plan and details remain to be determined.

Reliever airports

Each reliever airport serves a unique role in the system and as such has different roles. Saint Paul has the longest runways outside of MSP airport and can accommodate larger aircraft, including larger business jets and infrequent larger air traffic. Flying Cloud is quickly becoming the reliever of choice for corporate and business jet traffic due to its proximity to many large corporate headquarters in the southwest metro. Flying Cloud currently sees the most operations of any reliever airport in the region. Anoka-Blaine, like Flying Cloud and Downtown St Paul, serves as another business jet reliever for MSP airport. The other relievers primarily serve roles as relievers for recreational general aviation and pilot training purposes. Crystal, Lake Elmo and Airlake are home to a variety of aircraft operations, but are primarily focused on piston and turboprop aircraft. is home to many pilot operations. These other relievers serve other functions, and all operateing as a regional system. The most recent airside capacity enhancements were done at Lake Elmo where the main runway was reconstructed and extended in 2021.

Current long-term comprehensive plans for the reliever airports indicate airside capacity in those airports is adequate through their planning horizons. The Flying Cloud Airport LTCP was approved in 2025 and indicates future needs for hanger space and additional taxiways to accommodate a growing share of regional business jet traffic at the airport, but does not project the need for major capacity enhancements ot the airport. The Metropolitan Airports Commission will be working on updating multiple long-term comprehensive plans for reliever airports through the end of the decadethrough 2026, including Flying Cloud, Anoka-Blaine, and Downtown St Paul. This section may be updated as if these plans indicate future airside capacity needs.

Hangar capacity in the region

Landside capacity at most of the system's general aviation airports is defined by the availability of aircraft storage hangars. Hangar storage is necessary because of security concerns, aircraft ownership and/or operational requirements, and effects of the Minnesota seasons. In addition, the significantly larger influx of itinerant aircraft operations within the metro area, as compared to most GA airports in greater Minnesota, requires a greater focus on providing transient storage options. Hangars are usually privately owned and maintained on land leased from the airport operators, so provision of adequate space for hangars is an airport responsibility, while maintenance of the hangars themselves is not an airport responsibility. The most current estimates of existing hangar spaces and percentage of capacity utilized are presented in figure 9. Existing hangar spaces are generally adequate with current economic conditions. Additional hangar space is available, especially in T-hangars. However, MnDOT's latest State Aviation System Plan notes that there is significant interest and waiting for new hangar space at Forest Lake. Future hangar capacity conditions have been improved with development of new building areas at Flying Cloud, Airlake, and South Saint Paul airports. With the planned relocation of the aircraft control tower at Flying Cloud, additional land area for future hanger space will be opened up with reduced visual conflicts for the tower. It is anticipated that the south hanger area in Flying Cloud will see increased interest as business jet needs continue to grow at the airport. Provision for additional building area development has been included in the long-term comprehensive plans for Anoka-Blaine and Lake Elmo, with some possibility of building area redevelopment at Crystal airport. Of note, the large number of based aircraft at MSP airport and relatively small corresponding hangar count relates

to the nature of rapid turnaround commercial air carrier service. Many of the aircraft based at the airport are used for commercial passenger service and do not require hangar storage. Many of the hangars at MSP airport are large enough to house several larger general aviation and business jet aircraft.

Figure 9. Estimated utilization of general aviation landside capacity[8]

Airport	Hangar spaces	Based aircraft*	Percent of capacity
MSP airport	29	162162	100%+100%+
Anoka - Blaine	510	359345	70%68%
Crystal	356	102163	29%46%
Flying Cloud	508350	333343	95%68%
South St. Paul	261	230221	88%85%
Forest Lake	28	3737	100%+100%+
Saint Paul Downtown	159	6288	39%55%
Airlake	151	91133	60%88%
Lake Elmo	257	169172	66%67%

Landside capacity
While the annual airside capacity at the region's airports is generally adequate, landside issues involve the needs for more services at the reliever airports along with handling continued expected passenger growth at MSP and improvements to support the smooth flow of passengers to and through the airport facilities.

Minneapolis-St Paul International Airport
Landside improvements planned for MSP include new and reconstructed parking ramps, and improved circulation for pickup and drop off at terminal 2. The MSP Plan indicates a need for additional land side capacity in the form of improved operations at both terminal facilities, expanded curbside access to both terminals, expanded parking facilities and reconstructed interchange at Trunk Highway 5 and reconstructed intersection at 34th Avenue to improve regional access to Terminal 2. These improvements will coincide with capacity enhancements at Terminal 2 to improve access and curbside operations. Parking facilities will also be expanded on the MSP campus to support additional parking capacity on site. These expansions will be needed to replace parking lost off-site which has slowly been redeveloped, and expected to continue to be, in both Bloomington and St Paul. The additional capacity at MSP will aid in those cities' efforts to continue to redevelop the existing large surface parking lots.

Maintaining the airport system infrastructure will be a continuing objective for the region. Impacts and opportunities at individual airports have been assessed in updates of each airport's long-term comprehensive plan through 2030; however, many reliever airports will need to reassess capacity and projected demand with updates to these plans soon. Trends in flight activity for general aviation has decreased over the past decade but a rebound in activity following the impacts of the pandemic gave general aviation a temporary boost., Based on FAA projections, slow growth is expected to return for long term projections. Commercial activity has nearly fully recovered from the deepest impacts of the

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[8] Metropolitan Airports Commission long term comprehensive plans and FAA 20243 terminal area forecasts; hangar spaces: current long-term comprehensive plans; based aircraft: FAA terminal area forecast data for 20240, updated per long-term comprehensive plans depending on date of plans. Based aircraft data excludes military at MSP and Downtown Saint Paul airports.

pandemic and is expected to continue to pre-pandemic growth levels following 2024 through the planning horizon of 2050.

2050 Aviation Forecasts

Forecasts of commercial and general aviation activity estimate the level of activity expected at airports in the seven-county Twin Cities region. These projections help verify the roles of individual airports and estimate future levels of activity to determine whether there are any outstanding capacity issues that the regional plan should address. The general aviation forecasts include nine airports, and the commercial forecasts are for MSP. Forecasts use 2020 as a base year and extend out to 2050. The forecasts are derived from individual airport long-term comprehensive plans and supplemented to 2050 by FAA terminal area forecasts.

MSP forecasts

The COVID-19 pandemic initially created great uncertainties in air travel as fast travel between and within countries across the world was significantly restricted. The pandemic impacted every aspect of aviation, differing for commercial, cargo, and general aviation. While the pandemic pressures have eased on aviation over time, volatility in the industry could linger and may lead to outcomes beyond traditional forecasting ranges.

The Metropolitan Airports Commission recently completed the long-term comprehensive plan for MSP airport, this plan was delayed due to the impacts of COVID-19. New forecasts were run to understand the trends that could impact recovery and future growth of commercial air traffic following the worst of the pandemic impacts. The updated forecasts consider different scenarios, both an aggressive operational recovery and a smoother recovery. Due to the sharp and relatively short-term impact of the pandemic, longer term trends will become the dominant influence on aviation activity again, and long-term forecasts will be comparable with those made prior to the pandemic.

Aircraft operations, however, have more variability than passenger trends. Even as passenger activity has increased at MSP airport, aircraft operations have not in turn increased due in part to using fewer and larger aircraft for shorter regional flights, and a growth in international or longer haul flights as a share of total operations.

The impact of the pandemic accelerated many airlines aircraft retirement timelines and hastened the transition for regional flights to be fewer with larger aircraft, something that is seen in the revised operations forecast.

Figure 10. Forecast enplanements scenarios for MSP airport[9]

Enplanements	2020	2025	2030	2035	2040	2050
Original	20,000,000	22,500,000	24,400,000	26,300,000	28,100,000	32,300,000 N/A
Revised	7,400,000	21,600,000	24,100,000	26,100,000	28,100,000	32,300,000 N/A
Revised (aggressive recovery)	7,400,000	22,300,000	24,100,000	26,100,000	28,100,000	32,300,000 N/A

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[9] Data to 2040 MACMSP LTCP, 2050 derived from FAA Tterminal aArea fForecasts (TAF)

Figure 11. Forecast operations scenarios for MSP Airport[10]

Operations	2020	2025	2030	2035	2040	2050
Original	411,300	433,000	462,400	490,600	517,200	597,800566,417
Revised	245,900	409,800	450,100	479,600	509,800	597,800N/A

Air cargo activity

The 2024 MSP Air Cargo Demand Study was conducted to examine the nature of the air freight industry and assess MSP's cargo services to determine future required facility improvements. The study found that MSP's catchment area for international cargo includes Minnesota, North and South Dakota, and parts of western Wisconsin and northern Iowa. Only 5-10% of all cargo requires a dedicated freighter aircraft, the rest is considered "belly cargo" and can be shipped on passenger aircraft, which is typically the lower cost option.

The surrounding Twins Cities metro area is home to major MedTech manufacturers that use air freight for inbound raw materials and outbound finished goods. This is in combination with lower cost ground and rail freight transportation. Air cargo is processed through multiple on-airport facilities. FedEX, UPS, DHL, Delta, and Southwest have their own facilities. Amazon's warehouse is operated by WFS and a general use facility is used by other passenger airlines. Only DHL has plans to expand their existing facility.

Delta Airlines, and SkyTeam partners Air France-KLM, use Delta's dedicated freight facility to process are large amount of international cargo. This facility was determined to adequately serve the demand of these airlines. Amazon's cargo operations support its eight fulfillment centers in the region. MSP based Sun Country Airlines operates these flights. It was determined, however, that any growth in Amazon's activity at the airport will be driven by regional demand and not by this local partnership.

A 2021 MSP Air Cargo study suggested a need to expand the cargo facilities at the airport. Based on freight market analysis and existing cargo operators at MSP, the updated forecasts (Figure 12) show 2040 total cargo levels 38% lower than previous forecasts. The size and potential growth in freight operations at MSP is constrained by the close proximity to the international air freight gateway at Chicago O'Hare International Airport (ORD)[11], the largest in the country, with its expansive cargo facilities and long established rail, trucking, and warehousing networks. As such, there does not appear to be immediate demand for expansion, though any future development would likely occur within the last remaining open parcel on the west side of the airport.

The study highlights the potential for "niche" cargo services, focused on individual industries, serving international markets as an avenue for growth outside the institutionalized general freight network. Continued monitoring, assessment, and study of air freight in general, and the existing cargo system at MSP, were recommended to improve handling efficiencies, accommodate novel freight operations, and ensure the existing system continues to function successfully.

MSP airport ranked 34th in tonnage of air cargo moved in the United States in 2021. This ranking has declined each year for the past five years, even with a rise in tonnage moved over that time. This dynamic has more to do with online retail, type of flights carrying air cargo, and other airports seeing larger increases in cargo tonnage. This trend is something to pay attention to going forward. Generally, the cargo moved to and from MSP airport is within the belly hold of commercial aircraft, with more limited dedicated cargo freighters. This dynamic saw the MSP airport handle less cargo in the first

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[10] Data to 2040 MACMSP LTCP, 2050 derived from FAA Terminal Area Forecasts (TAF)terminal area forecasts
[11] International Freight Gateways, Bureau of Transportation Statistics

pandemic year of 2020 than the year prior, while other airports, specifically large international hubs and cargo specific hubs, saw large increases in cargo traffic due to the surge in online retail activity and medical supply shipping. For the region to have more of a draw to local and international air freight, dedicated air freight facilities would need to be increased.

Amazon has quickly become a major air cargo handler, with both dedicated freighters within their fleet and contracted third-party carriers for the retailer. Sun Country Airlines, which is based at MSP airport, became a contract carrier for Amazon in 2019 and this relationship remains in place. Amazon bought a stake in the carrier to use its 737-800 fleet and for the carrier to operate some of the retailer's 737 freighter fleet.

Recognizing this growing relationship and the increase in Amazon freight activity at the MSP airport, the airport's long-term comprehensive plan envisions constructing a new Amazon cargo center at the airport in the mid-term of the plan, likely in the 2030s. The new facility would be constructed at a location with adequate freight access to the regional highway system. This would allow for continued growth of cargo activity for Amazon and would open opportunities for the retailer to designate MSP airport as a potential regional cargo hub in the future.

Figure 12. Forecast air cargo activity for MSP Airport[12]

Measure	2020	2025	2030	2035	2040	2050
Cargo operations	16,000	16,700	17,400	18,100	18,600	N/A
Cargo volume (pounds)	449,075,000	431,770,000	475,616,000	521,845,000	570,282,000	449,075,000

Reliever airport forecasts

Unlike MSP airport, general aviation activity was not as impacted by the onset of the pandemic. In fact, general aviation activity saw a notable increase in 2021 in the region, and industry-wide had recovered to pre-pandemic numbers by the end of 2020. This rebound in general aviation was bolstered by an increase in pilot training, more access to recreational opportunities, and an aversion to commercial travel. These trends are not expected to continue, however. It is expected that slow growth should continue and buck the recent trend of declining activity at the region's reliever airports. Reliever airport forecasts are established through airport long-term comprehensive plans. Due to the pandemic, updating to these plans have been delayed. Forecasts for operations will mostly follow FAA operations data and forecasts as multiple reliever long-term comprehensive plans are more than a decade old, and forecasts can no longer be considered reliable.

Reliever airport plans are slated to be updated by the Metropolitan Airports Commission following the completion of the MSP plan. The Flying Cloud LTCP has updated forecasts to 2040 with the 2025 adoption of the plan. These forecasts project that Flying Cloud will continue to grow in importance for regional business jet activity increasing the share of regional operations for business jets to 45% by 2040. This growth in jet activity is due in part to FCM's location in the region. Eden Prairie and the SW metro have become a hub for major corporations and industrial activity and this concertation of business activity has made FCM the first option for many executives and other business flying needs to locate there. There are no anticipated capacity issues identified with the existing runways at FCM through the planning horizon, however this trend should continue to be monitored in the future.

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[12] Metropolitan Airports Commission

Figure 13. Forecast reliver airport based aircraft and operations[13]

Activity	2025	2030	2035	2040	2045	2050
Total general aviation-based aircraft	1,437	1,505	1,522	1,549	1,580	1,580
St Paul Downtown (STP)	41,892	43,870	44,035	44,200	44,366	44,532
Flying Cloud (FCM)	131,540	134,599	137,867	141,368	145,135	149,195
Anoka-Blaine (ANE)	73,398	86,919	92,535	98,264	104,108	110,073
Airlake (LVN)	34,139	34,598	35,139	35,686	36,245	36,826
South St. Paul (SGS)	51,832	56,283	61,157	66,536	72,381	78,736
Crystal (MIC)	43,475	43,927	44,384	44,847	45,313	45,785
Lake Elmo (21D)	26,531	26,699	26,864	27,029	27,194	27,359
Forest Lake (25D)	7,533	7,986	8,433	8,920	N/A	N/A
Total general aviation operations	410,340	434,881	450,414	466,850	474,742	492,506

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[13] FAA terminal area forecasts, Forest Lake data derived from MnDOT Statewide Aviation System Plan

Aviation Investment Plan

For airports in the regional aviation system to meet their facility and service objectives, and performance and function targets, continued investment in system airports will be needed over the 20-year planning period. This section gives an overview of each airport facility, airport issues, and planned investments for each regional system airport as found in their long-term comprehensive plans. In addition, it is important to understand the funding process and sources available to airports to implement recommendations and capital improvement programs, even though the aviation investments reflected in this plan are not required by federal law to be fiscally constrained.

On an annual basis, the Met Council reviews the Metropolitan Airports Commission capital improvement plan for consistency with regional systems and policy. This review also provides oversight of the improvement program, and the Met Council approves specific projects that meet dollar thresholds. The review process for the capital improvement plan is defined in the Aviation Supporting Information document.

Aviation funding sources

Historically, federal, state, and local funding sources all contribute to the support of airports in the Twin Cities Regional Aviation System. Because of changes in both the general aviation and the commercial aviation industries, levels of federal and state funding that historically have been available for airport development have been shrinking over time. However, due to the COVID-19 pandemic, the federal Coronavirus Aid, Relief, and Economic Security (CARES) Act injected $10 billion in new funding for airports to respond to the pandemic. While every airport in the regional system received CARES Act funding, MSP airport received most of the funds, $125 million. This one-time infusion is not considered an alteration to ongoing federal formula and grant funding allocations. Maintaining historic levels of funding is vital to the airports that support the economy of the metropolitan region.

The Infrastructure Investment and Jobs act (IIJA) also known as the Bipartisan Infrastructure Law (BIL) provides $350 billion of federal funding over a five-year period from 2022 through 2026 for transportation related projects, of which the FAA has been allocated $25 billion. The FAA has allocated the funding as follows: The Airport Terminals program has been allocated $1 billion annually for a total of $5 billion, for competitive grants used to fund safe, sustainable, and accessible airport terminal projects. Air traffic facilities have been allocated $1 billion annually for a total of $5 billion, for competitive grants used to fund the needed maintenance, updates, and replacement or construction of new air traffic control facilities for the safe operation of the national airspace system. The Airport Infrastructure program has been allocated roughly $3 billion annually for a total of $15 billion, for use in runway, taxiway, safety and sustainability projects at federally funded airports. Maintaining historic levels of funding is vital to the airports that support the economy of the metropolitan region.

Federal funding

The FAA operates the Airport Improvement Program, which provides grants to public agencies, and in some cases to private owners and entities, for the planning and development of public-use airports that are included in the National Plan of Integrated Airport System. For Minneapolis-Saint Paul International Airport, the grant covers 75% of eligible costs (or 80% for noise program implementation). For all other airports in the regional system, the grant covers a range of 90% to 95% of eligible costs, based on statutory requirements.

The Airport Improvement Program was established by the Airport and Airway Improvement Act of 1982. Funding for this program is generated from a tax on airline tickets, freight waybills, international

departure fees, general aviation fuel, and aviation jet fuel. The FAA uses these funds to provide 90% funding at eligible airports for eligible items under the grant program.

Under the program, funds must be spent on FAA-eligible projects as defined in FAA Order 5100.38, "Airport Improvement Program Handbook." In general, the handbook states that:

- An airport must be in the currently approved National Plan of Integrated Airport Systems.
  - Apart from the two special purpose airports and Forest Lake Airport, all of the Twin Cities metro system airports qualify as National Plan of Integrated Airport System airports and are eligible for Airport Improvement Program funding.
- Most public-use airport improvements such as general aviation terminal buildings, T-hangars, and corporate hangars and other private-use facilities are eligible for 90% federal funding, in certain circumstances.

In addition, revenue-producing items typically are not generally eligible for federal funding, and all eligible projects must be depicted on a FAA-approved airport layout plan. Other sources of FAA funding include facilities and equipment funding for facilities such as air traffic control towers and some runway instrumentation. This funding is separate from the Airport Improvement Program and typically requires no local match. Federal noise funds (Part 150 funds) may also be available for noise mitigation with an 80% federal and a 20% state and/or local share.

In 2001, the FAA authorized a non-primary entitlement program. This program provided up to $150,000 in FAA grant funds each year to general aviation airports that were listed in the National Plan of Integrated Airport System and were not a primary airport providing airline service for passengers. Under this program, the FAA pays 90-95% of all engineering, inspection, testing, land acquisition, administrative, and construction costs for projects that are eligible. The sponsor or state pays for a local 5% match. The state may pay half of the local match but cannot pay the entire amount. This program is not just for airside safety projects. When this program was last renewed, certain revenue-producing items of work, like T-hangars and fuel facilities, could be funded by this program once all safety-related improvements had been completed. According to the law, the FAA must determine if the sponsor has made adequate provision for funding the airport's airside needs before a grant can be issued for the construction of an allowable revenue-producing facility.

State funding

Minnesota's state-funded aeronautics system consists of 133 airports throughout the state. By law, revenues from aviation fuel, aircraft registration, and airline flight property tax are dedicated to the state airports fund, which is the primary state funding source for aeronautics. Money in the fund is appropriated biennially to MnDOT as part of the transportation budget.

Although the airport sponsor is responsible for project design and construction management, many project-related costs, including consultant services, are eligible for state and/or federal aid as described below.

- **Airport Development Grant Program**: The State Construction Grant Program funds most capital improvements at state system airports based on a determination that the improvement is a justifiable benefit to the air-traveling public. Airports that are in the National Plan of Integrated Airport System are eligible for federal funding. Traditionally, state funding participation at national plan airports is 70% of eligible costs. Historically, state funding at non-national plan airports was 80%, this was increased to 95% of eligible costs in 2015, however, this funding amount is not permanent and the eligibility percentage is determined and announced by

MnDOT annually. This program also funds airport maintenance equipment at a two-third state and one-third local participation rate.

- **Airport Maintenance and Operation Program**: The State Airport Maintenance and Operation Grant Program provides two-third state reimbursement to the state system airports for their documented, routine maintenance expenses up to a certain ceiling amount that is categorized by airport infrastructure.

- **Hangar Loan Revolving Account Program**: The State Hangar Loan Revolving Account Program provides an 80% interest-free loan to state system airports for building new hangars. The loans are paid back in equal monthly installments over 20 years. Payment receipts, as they become available, are then loaned out again to other airports needing hangars.

Local and sponsor funding

Local and sponsor funding are used to make up the balance of the grant-eligible project costs after FAA and MnDOT participation. Sponsor funds are generated by the airport from fuel sales, lease fees, hangar rentals and similar incomes, or from the local governing body. Sources of sponsor funding largely depend upon which of the three types of an airport is.

- **Municipal airports** – These airports are owned by counties, cities, or other local municipalities. Sponsor funding includes the sources of revenue from the airport (fuel sales, rents, etc.) as well as any funding external to the airport that the municipality chooses to provide, like municipal bond revenues and municipal taxes. Municipal airports in the Twin Cities airport system are Forest Lake and South St. Paul.
- **Private airports** – These airports can fund projects from their revenue streams (for example, fuel sales, rents). The owners may also be a source of funding, although this typically is more limited. Surfside and Wipline Seaplane Bases are examples of private airports.
- **Metropolitan Airports Commission** – Airports owned by the Metropolitan Airports Commission can be funded by revenues generated at any of the commission-owned airports. This cross-funding helps airports adequately support the system by funding the facilities they need to perform their mission. However, in recent years, airport commission philosophy has shifted toward a more self-sufficient system for reliever airports.

Other funding

Another potential source of funds for airport improvements is from private investors. Private investors may construct needed facilities as part of a lease agreement with the airport that will allow time to amortize their investments. This type of funding is particularly suitable for corporate hangar development and other privately owned projects. These types of projects are not eligible for FAA or state funding. However, this funding source does allow non-municipal sponsors / investors to leverage funding capabilities not available to the airport. This source of funding was used for a fixed base operator building at Anoka County Blaine airport.

The state sells general obligation bonds from which the proceeds are used to fund capital projects which have been approved by the Minnesota Legislature. Request for general obligation bonds must be completed by the airport sponsor and submitted to the Minnesota Legislature.

Finally, airport sponsors are eligible to apply for federal Regional Solicitation funds to support any surface transportation projects which connect to the region's airports. In the past Metropolitan Airports Commission has received funding for projects which have improved access to MSP airport and may

apply for funding for similar projects in the future. The Regional Solicitation is a competitive process which requires projects to compete for limited federal funding.

The combination of these funding sources allows the airports in the regional airport system to maintain and, when justified, enhance their facilities to serve their customers' needs and allow them to be as financially self-sufficient as possible.

Planned investments

Minneapolis-Saint Paul International Airport

The Metropolitan Airports Commission has released the 2040 Long-Term Comprehensive Plan for MSP airport that outlines significant capacity expansion, terminal access and circulation improvements, and airfield improvements. The plan identifies projects for the airport through 2040, splitting envisioned improvements into near, medium, and long term. Most projects identified for near-term implementation have already been reviewed and approved for environmental impacts in the 2013 environmental assessment/environmental assessment worksheet. However, as these analyses were done for projects included in the 2030 Long-Term Comprehensive Plan and are over a decade old, the airports commission is preparing to conduct a new environmental assessment for identified near-term projects in the 2040 plan, this study is anticipated to start in 2024.

Based on existing conditions and the capacity demands placed on the facility as passenger numbers grow, development activities are needed that focus on enhancing the arrival curb, passenger processing facilities, parking, and international arrival facilities at Terminal 1. At Terminal 2, activities are focused on departure and arrivals circulation upgrades, additional parking, and additional gate capacity to accommodate expected demand growth and new carrier entrants at MSP airport. In general, the terminal environment at MSP airport will also need enhancement in the form of gates, ticket counters, passenger check-in areas, security screening checkpoints, and baggage claim areas. Many of these projects are ongoing efforts.

Additional cargo capacity is also anticipated for longer term needs of potential larger players, like Amazon, as discussed previously. Outside the immediate air and land side facilities, the plan identifies projects to improve access to the airport at the Post Road interchange with Minnesota Highway 5, a project that could also include improved non-motorized access to both terminals and reconfiguring the main entrance for Terminal 2.

Reliever airport investments

In general, the development programs at the reliever airports focus on rehabilitation of pavement in aircraft operational areas (runways, taxiways, aprons) and limited capacity or safety enhancements to maximize the usability of the existing airside facilities. Projects vary from year to year, depending on available funding and airport needs. In 2022, pavement rehabilitation and a runway extension were completed at Lake Elmo Airport and in 2025 the crosswind runway was rehabilitated and extended modestly. Airlake Airport also is undertaking the necessary environmental and coordination work before extending the single runway at the airport which is expected to be constructed before 2030. Flying Cloud completed its long-term planning in 2025 and this plan identified safety improvements and taxiway improvements to ensure the existing airfield can maintain service for existing and anticipated users to 2040. The following list shows other general projects that are being considered at the reliever airports.

- Obstruction removal
- Land acquisition
- Arrival and/or departure building

- Perimeter fencing
- Automated weather observation system
- Runway pavement and taxiway
- Hangar development

Figures 14 and 15 shows the cost of the planned investments at the regional airports. The tables areis an estimate based on information from the capital improvement plan from the Metropolitan Airports Commission and LTCPs for MAC owned facilities. and identified needs in airport master plans or the 2040 MSP Long-term Comprehensive Plan. Forest Lake estimates are based on the airport master plan. South St Paul estimates are based on FAA data. Data beyond 2031 is poorly defined for airports that have not updated LTCPs recently and subject to changes.

Figure 14. Planned Investments at MSP Airport [14]

Airport	2025-2031	2032-2035	2036-2040	2041-2050
MSP capital improvement plan and long-term comprehensive plan	$3,390,635,000	$1,400,500,250	$2,225,500,150	$200 million to $300 million annually

Figure 15. Planned investments at other regional airports[1414]

Airport	2025-2031	2032-2050
Saint Paul Downtown	$42,150,000	Funding needs to be understood once long-term plan completed
Anoka County-Blaine	$11,900,000	Funding needs to be understood once long-term plan completed
Flying Cloud	$88,656,803	$45,91884,306
Crystal	$13,200,000	Approximately $700,000
Lake Elmo	$15,100,000	Approximately $4,000,000
Airlake	$13,000,000	Approximately $3,500,000
South St. Paul	$4,149,444	Funding needs beyond 2029 to be understood once long-term plan completed
Forest Lake	$2,432,000	Approximately $6,300,000

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[14] All investments beyond 2031 are long term estimates and subject to change. Data sourced from the 2025-2031 CIP for MAC owned airports, federal NPIAS data for SGS and the Forest Lake Airport Master Plan.

Individual airport investments

Figure 16. MSP airport layout

Minneapolis-St. Paul International (MSP)

Airport Boundaries

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Minneapolis-Saint Paul International Airport

Figure 17. Based aircraft, operations, and land area for Minneapolis-Saint Paul International Airport[15]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	162	N/A183	N/A211	N/A225
Operations	342,140245,900	450,100	509,800	597,800566,417
Land area	2,930 Acres			

MSP airport is the hub airport for the metropolitan region. Located six miles from downtown Minneapolis, MSP airport is the main commercial service airport for the stateMinnesota and neighboring states and the 15th 16th busiest airport in the nation.[16] The airport has four runways, ranging from 8,000 feet to 11,000 feet in length, allowing the airport to serve all types of aircraft,

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[15] Metropolitan Airports Commission, FAA, 2023
[16] Passengers Boarded at the Top 50 U.S. Airports (2024), Bureau of Transportation Statistics

airlines, and international destinations. As a major commercial airport MSP features the highest level of passenger amenities, the longest runways and extensive support facilities, and handles the greatest number of jet aircraft operations. For the full classification metrics report card, see the Aviation Supporting Information document. The airport's classification will continue to be that of:

- The primary commercial service airport in the Metropolitan Airports Commission system
- FAA NPIAS Classification – Primary (Commercial Service) Large Hub airport
- MnDOT Office of Aeronautics – Key Ccommercial Sservice airport
- Regional Aviation System Plan – major Major airport per the Regional Aviation System Plan

MSP airport will continue to compete as a top-of-the-line option for a midcontinent Delta hub. Delta Airlines is, based in Atlanta., Following its acquisition of Northwest Airlines, Delta operates MSP airport as the largest of its multiple regional hubs with seven other airports in the United States. As a Delta hub, Terminal 1 is mostly dominated by Delta flights with most international flights and other large carriers. Sun Country Airlines is based at MSP airport and operates as its hub facility as well. Sun Country runs all its flights out of Terminal 2 with other low-cost airlines and some international airlines.

In the MSP 2040 Long-term Comprehensive Plan, the Metropolitan Airports Commission near-term is facility planning focuses on improving and expanding Terminal 2 significantly, with more gates and amenities to increase its attractiveness for international and other airlines to begin operations at MSP airport or shift operations to Terminal 2 from Terminal 1. Major mid-term and long-term planning shows additional expansion of Terminal 2, replacement of Terminal 1 concourses A, E, and F, expansion of concourse G, additional cargo facilities on the west side of the airport, relocation of GA facilities northwest Terminal 1Future needs include additional expansion of parking, modernization of facilities, expansion of federal inspection services at both terminals, and eventual connection of the terminals behind security. These investments will be key in ensuring continued growth, both domestically and internationally, and keeping MSP airport competitive with peer airports and other Delta hub airports. To see more information regarding the existing conditions for MSP airport, see the supporting information document for the MSP Airport classification report card.

Figure 18. Reliever airport layouts
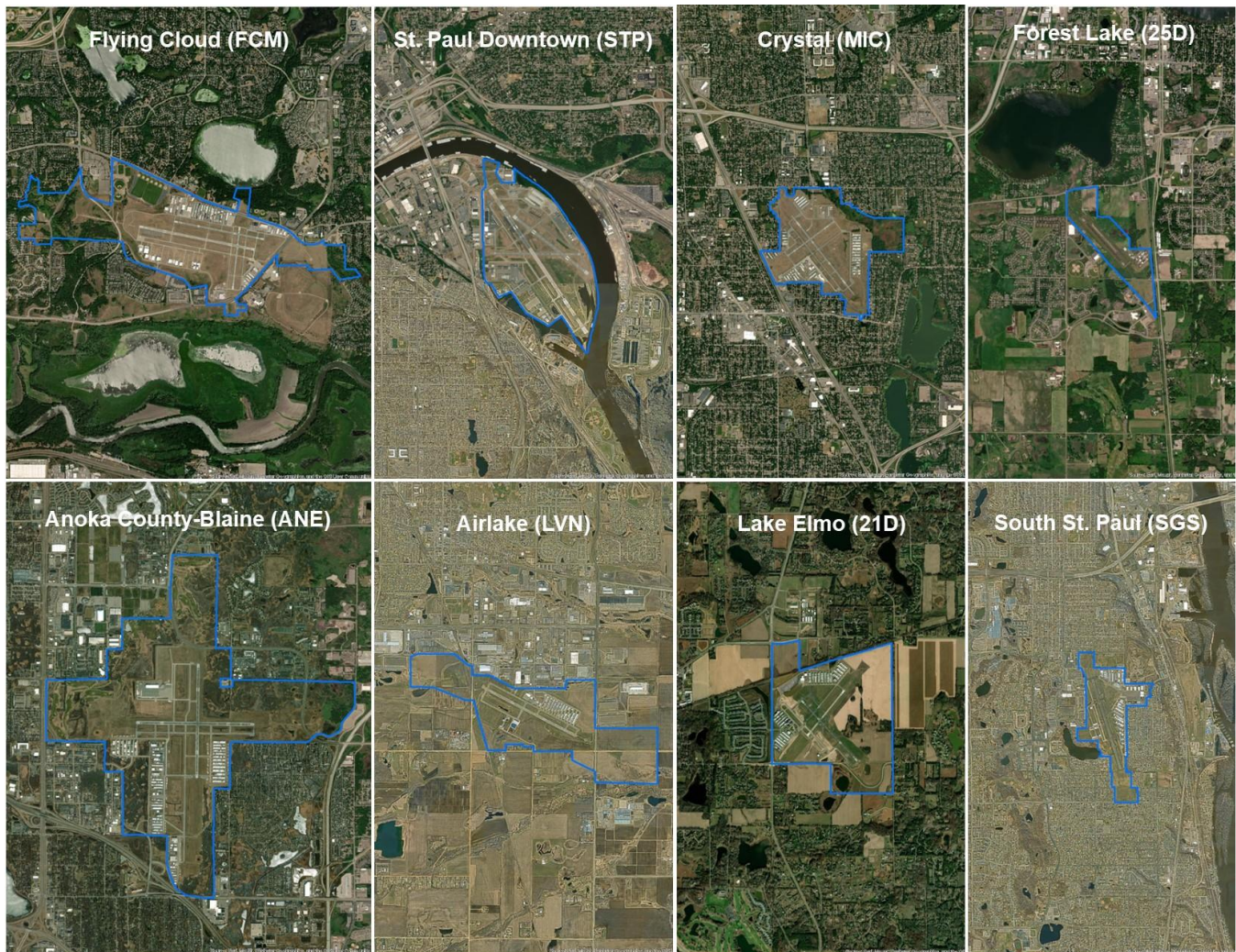
Downtown Saint Paul Airfield

Figure 19. Based aircraft, operations, and land area for Downtown Saint Paul Airfield[17]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	88	96	109	121
Operations	33,50325,418	44,96843,870	44,20045,108	45,25844,532
Land area	540 Acres			

Downtown Saint Paul Airfield (Holman Field) is located across the river from downtown Saint Paul. The airport is the primary reliever for and used as an alternative for MSP airport in case of capacity or emergency scenarios. Additionally, the airport is used by larger private aircraft, military, and police activity as an alternative to MSP airport. Holman Field has the longest runway of any of the regional

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[17] FAA terminal area forecasts, 2023

relievers, with the only runway over 5,000 feet, per state law. The airport's classification will continue to be that of:

- FAA NPIAS Classification – National Reliever
- MnDOT Office of Aeronautics – Key General Aviation airport
- Regional Aviation System Plan – Intermediate airport
- ~~A primary reliever in the Metropolitan Airports Commission system;~~
- ~~A key general aviation airport per MnDOT~~
- ~~A minor airport per the Regional Aviation System Plan~~

Opportunities at this airport revolve around land-use compatibility and obstructions. As of now, the airport anticipates it has sufficient capacity for future demand. The air traffic control tower located at the airport is owned and operated by the FAA. Over the previous decade, operations have declined significantly at the airport and any future growth is likely to be limited. New capacity enhancements are not anticipated. A new customs and border control facility will be constructed at the airport to increase interest in the airport by providing improved international processing and waiting facilities. The Metropolitan Airports Commission is anticipating updating the airport's long-term comprehensive plan in 2026. This plan is anticipated to explore the possibility of making the temporary flood wall permanent and potential impacts to operations and development interest from this. To see more information regarding the existing conditions for STP airport, see the supporting information document for the airport classification report card.

Airlake Airport

Figure 20. Based aircraft, operations, and land area for Airlake Airport[18]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	133	121	141	161
Operations	~~38,678~~34,174	34,598~~34,505~~	35,~~593~~686	~~36,733~~36,826
Land area	595 Acres			

Airlake Airport is in Dakota County, about 20 miles south of Minneapolis and 17 miles south of MSP airport. Airlake is a secondary reliever in the Metropolitan Airports Commission system. Airlake Airport's primary role is to serve personal, recreational, and some business aviation users for the south part of the metropolitan area. The airport's classification will continue to be that of:

- FAA NPIAS Classification – Regional Reliever
- MnDOT Office of Aeronautics – Intermediate Large airport
- Regional Aviation System Plan – Minor Secondary airport
- ~~A complementary reliever in the Metropolitan Airports Commission system;~~
- ~~An intermediate-small airport per MnDOT~~
- ~~A minor airport per the Regional Aviation System Plan~~

The opportunities and needs at this airport include having better capacity for business aircraft as the Lakeville area continues to grow, improving land use compatibility issues, and continuing to update tenant and airfield facilities. The Airlake Long-term Comprehensive Plan focuses on solutions and needed improvements to meet these issues and opportunities. The airport will be expanding its single runway to 4,850 feet to have capacity for additional aircraft types and provide for safer operations.

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[18] FAA terminal area forecasts, 2023

There is no air traffic control tower located at the airport, nor currently any plans to construct one. The airport Long-term Comprehensive Plan is anticipated to be updated in 2029.

The aircraft anticipated to continue to use Airlake Airport will be a family of small, propeller-driven airplanes up to mid-size corporate jets. Anticipated operations are expected to grow slowly over the life of this plan. While the runway reconstruction will extend the runway, the plan does not consider upgrading the role of Airlake Airport to accommodate a larger aircraft family. To see more information regarding the existing conditions for LVN airport, see the supporting information document for the airport classification report card.

Anoka County-Blaine Airport

Figure 21. Based aircraft, operations, and land area for Anoka County-Blaine Airport[19]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	345	379	376	366
Operations	70,85267,844	86,91975,808	79,39998,264	83,286110,073
Land area	1,900 Acres			

Anoka County-Blaine Airport is in the southern part of Anoka County and the City of Blaine, about 12 miles from downtown Minneapolis and 12 miles from downtown Saint Paul. Anoka-Blaine's primary use is as a primary reliever for MSP airport, primarily serving business, recreation, and other piston aircraft. The airport's classification will continue to be that of:

- FAA NPIAS Classification – National Reliever
- MnDOT Office of Aeronautics – Key General Aviation airport
- Regional Aviation System Plan – Minor Primary airport
- A complementary reliever in the Metropolitan Airports Commission system
- A key general aviation airport per MnDOT
- A minor airport per the Regional Aviation System Plan

The air traffic control tower located at the airport is a contract tower and future funding for these towers is not guaranteed. Atlantic Aviation is the largest fixed-based operator currently located at the airport. There have been previous requests to consider a runway extension beyond the statute-limited 5,000 feet and a second parallel runway; however, there has yet to be a demonstrated need for this extension or the parallel runway for formal consideration. Airside capacity is anticipated to be adequate through the planning horizon. Other opportunities at Anoka-Blaine airport include non-aeronautical land uses. The Metropolitan Airports Commission is anticipating updating the airport's Long-term Comprehensive Plan in 2024. To see more information regarding the existing conditions for ANE airport, see the supporting information document for the airport classification report card.

Crystal Airport

Figure 22. Based aircraft, operations, and land area for Crystal Airport[20]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	163	123	115	114
Operations	43,48837,322	43,79343,927	44,210847	45,78544,635

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[19] FAA terminal area forecasts, 2023
[20] FAA terminal area forecasts, 2023

Land area	436 Acres

Crystal Airport is in Hennepin County, about seven miles northwest of downtown Minneapolis. It lies within the City of Crystal, with small portions of airport property overlapping into the cities of Brooklyn Park and Brooklyn Center. Crystal Airport's primary role is to serve personal, recreational, flight training, and some business aviation users in the northwest metropolitan area, including the cities of Crystal, Brooklyn Park, Brooklyn Center, and Minneapolis. The Metropolitan Airports Commission finalized the updated Crystal Airport Long-term Comprehensive Plan in 2017. The airport's classification will continue to be that of:

- FAA NPIAS Classification – Regional Reliever
- MnDOT Office of Aeronautics – Intermediate Small airport
- Regional Aviation System Plan – Minor Secondary airport
- A complementary reliever in the Metropolitan Airports Commission system
- An intermediate-small airport per MnDOT
- A minor airport per the Regional Aviation System Plan

The opportunities at this airport include the rightsizing of airport facilities and ongoing removal of off airport obstructions. The air traffic control tower located at the airport is an FAA tower. The Metropolitan Airports Commission is anticipating updating the airport's Long-term Comprehensive Plan in 2028.

The aircraft mainly anticipated to use Crystal Airport – and that which it is designed for – will continue to be a family of small, propeller-driven airplanes. The proposed plan does not contemplate upgrading the role of Crystal Airport to accommodate a larger aircraft family. To see more information regarding the existing conditions for MIC airport, see the supporting information document for the airport classification report card.

Flying Cloud Airport

Figure 23. Based aircraft, operations, and land area for Flying Cloud Airport[21]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	343	340	350	360
Operations	140,383124,382	134,599125,121	141,368127,424	149,195130,314
Land area	543 Acres			

Flying Cloud Airport is located about 14 miles from downtown Minneapolis. It lies within the city of Eden Prairie. The airport is considered by the Metropolitan Airports Commission to be a secondary reliever airport for MSP airport, primarily serving air taxi, business, recreation, flight training, and other piston aircraft. The Metropolitan Airports Commission last completed a Long-term Comprehensive Plan for the airport in 2010 and is currently updating the plan with anticipated adoption in 2024. The airport's classification will continue to be that of:

- FAA NPIAS Classification – National Reliever
- MnDOT Office of Aeronautics – Key General Aviation airport
- Regional Aviation System Plan – Minor Primary airport
- A primary reliever in the Metropolitan Airports Commission system
- A key general aviation airport per MnDOT

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[21] FAA terminal area forecasts, 2023

- A minor airport per the Regional Aviation System Plan

The primary runway was extended in 2008 to the maximum 5,000 feet under state law. Flying Cloud has become the most active reliever in the regional system with over 100,000 operations in 2022. The air traffic control tower (ATCT) located at the airport is an FAA tower. Airside capacity is anticipated to be adequate through the planning horizon. Current plans envision maintaining runways as they are today but making safety and operational improvements including relocating the air traffic control tower to improve visibility and establishing improved safety measures at the end of runways to allow for the maximum use of the airside facilities. The LTCP anticipated constructing an Engineered Material Arresting System (EMAS) to the airport's main runway to ensure safe operating parameters are maintained as the airport handles an increasing volume of business jets. The LTCP envisions future jet hanger development which will be opened by the relocation of the ATCT. In addition, taxiway development and consolidating fuel facilities will allow the airport to improve airside service while supporting greater air traffic through 2040. The airport is not anticipated to serve an upgraded role within the system. To see more information regarding the existing conditions for FCM airport, see the supporting information document for the airport classification report card.

Lake Elmo Airport

Figure 24. Based aircraft, operations, and land area for Lake Elmo Airport[22]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	172	160	152	142
Operations	41,59326,498	26,69926,798	27,12827,029	27,45827,359
Land area	640 Acres			

Lake Elmo Airport is located approximately 19 miles northeast of downtown Minneapolis. The Metropolitan Airports Commission finalized the Lake Elmo Airport Long-term Comprehensive Plan in 2016. As the city of Lake Elmo continues to grow, there may be land use compatibility issues off the runway ends, particularly with noise impacts from ongoing operations. Noise complaints continue to rise as the land surrounding the airport develops. The Long-Term Comprehensive Plan update for the Airport, which was completed in 2016, addresses the issue of extending or relocating the primary runway, which was completed in 2021. The crosswind runway will also receive a modest extension. Lake Elmo Airport's primary role is not expected to change throughout the foreseeable planning period. The classification of the airport will continue to be that of a:

- FAA NPIAS Classification – Regional Reliever
- MnDOT Office of Aeronautics – Intermediate Small airport
- Regional Aviation System Plan – Minor Secondary airport
- A complementary reliever in the Metropolitan Airports Commission system
- An intermediate-small airport per MnDOT
- A minor airport per the Regional Aviation System Plan

The existing runways at Lake Elmo Airport were short in comparison to the other Metropolitan Airports Commission-owned reliever airports prior to the extension work. The primary runway was extended in 2021, which included the relocation of 30th St. North to accommodate the extended runway protection area. The Metropolitan Airports Commission will also be extending the crosswind runway when the runway is reconstructed. Based on the aviation activity forecasts, the future critical design aircraft for

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[22] FAA terminal area forecasts, 2023

Lake Elmo Airport will continue to be a family of propeller-driven aircraft. The city and Metropolitan Airports Commission have been working together with each other and MnDOT to coordinate and plan for land use compatibility issues around the airport. To see more information regarding the existing conditions for 21D airport, see the supporting information document for the airport classification report card.

South St. Paul Municipal Airport

Figure 25. Based aircraft, operations, and land area for South St. Paul Municipal Airport[23]

Measure	Existing (2023)	2030	2040	2050
Based aircraft	221	228	238	248
Operations	51,00051,860	59,14556,283	69,91566,536	82,73778,736
Land area	270 Acres			

South St. Paul Airport (Fleming Field) is located about 15 miles southeast of downtown Minneapolis and six miles south of Saint Paul, within the cities of South St. Paul and Inver Grove Heights. The airport is owned and operated by the City of South St. Paul and is considered a general aviation facility that operates outside of the Metropolitan Airports Commission system as a regional reliever airport for primarily recreational and business use. The city last completed an airport master plan in 2015 through the 2030 planning horizon and incorporated the plan into their comprehensive plan in 2018. The classification of the airport will continue to be that of a:

- FAA NPIAS Classification – Regional Reliever
- MnDOT Office of Aeronautics – Intermediate Small airport
- Regional Aviation System Plan – Minor Secondary airport
- An intermediate-large airport per MnDOT
- A minor airport per the Regional Aviation System Plan

Fleming Field is surrounded completely by developed land and thus is restricted in airside improvements. The FAA recommends a longer runway for the types of aircraft that are frequently used. However, the space limitations keep the length at the exiting 4,300 feet with additional safety measures to ensure continued safe operations at the airport. Airport improvements are focused on mitigating airspace obstructions and land use incompatibilities, improving runway safety, and continuing to build out hangar space. Wipair Inc. is based at the airport and is identified in the State Aviation System Plan as operating a through the fence operation[24]. The state plan recommends that this operation be depicted on the airport layout plan for Fleming Field. To see more information regarding the existing conditions for SGS airport, see the supporting information document for the airport classification report card.

Forest Lake Airport

Figure 26. Based aircraft, operations, and land area for Forest Lake Airport[25]

Measure	Existing (2020)	2030	2040	2050
Based aircraft	37	58	68	N/A

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[23] FAA terminal area forecasts, 2023
[24] Through the fence operations are broadly defined as aircraft that can access an airport's airside facilities from adjacent land to airport property.
[25] MnDOT Statewide Aviation System Plan

Operations	6,878	7,986	8,920	N/A
Land area	330 Acres			

Forest Lake Airport is located about 24 miles northeast of downtown Minneapolis. Located in northern Washington County, it is entirely within the City of Forest Lake. Built as a private airport, it is now owned and operated by the City of Forest Lake and is considered a general aviation facility that operates outside of the Metropolitan Airports Commission system as a regional reliever airport. Although this airport was added to the regional system in 2010 and has seen improvements including runway paving and addition of new hanger space, it will require continued investment to fully function as a reliever airport. Forest Lake is the only regional airport not within the National Plan of Integrated Airports system. It is unlikely that it will be added to the system, however, the airport is being positioned to be included at a future date, if eligibility is ever extended from the FAA. The city last completed an airport master plan in 2021 through the 2040 planning horizon.

- FAA NPIAS Classification – N/A
- MnDOT Office of Aeronautics – Intermediate Small airport
- Regional Aviation System Plan – Minor Secondary airport
- ~~An intermediate-small airport per MnDOT~~
- ~~A minor airport per the Regional Aviation System Plan~~

Forest Lake is the only airport in the regional system that is not included in the National Plan of Integrated Airports system. Inclusion in this system unlocks federal funding through grants and other formula funds from the FAA. Forest Lake Airport was upgraded with a paved runway and parallel taxiway in 2016. This project was the first major project intended to set the airport on the path to being included in the National Plan of Integrated Airports system, however this now seems unlikely to happen due to federal eligibility requirements. The opportunities for Forest Lake center on continued upgrades to get the airport on the National Plan of Integrated Airports, future runway extension and continued hangar development. The airport is not anticipated to serve an upgraded role within the system. To see more information regarding the existing conditions for 25D airport, see the supporting information document for the airport classification report card.

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