Thrive MSP 2040

TRANSPORTATION POLICY PLAN

Chapter 9:
Aviation Investment Direction and Plan

2040

TRANSPORTATION POLICY PLAN

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Chapter 9: Aviation Investment and Direction

Aviation Investment Direction and Plan

Overview

Aviation connects the Twin Cities region to the rest of the nation and the world beyond. Although federal law does not require that a region's long-range transportation plan include an aviation element, state law defines aviation as a metropolitan system and requires the Council to prepare an aviation system plan.

Minnesota Statutes (473.145) directs the Council to prepare a metropolitan development guide that addresses "… the necessity for and location of airports…" More specifically, Minnesota Statutes 473.146, subd. 3.8 requires the 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."

The Twin Cities Regional Aviation System is a well developed aviation system that requires continued protection, maintenance, and enhancements to support the Twin Cities economy and transportation infrastructure. The Twin Cities region is served by one major airport with commercial air service – Minneapolis-Saint Paul International Airport – and seven reliever airports for general aviation, business and recreational users. Also parts of the system are two seaplane bases and a turf runway airport. The airports are classified according to their role within the regional aviation system as a Major, Intermediate, Minor or Special Purpose facility. Most of the system airports are part of the National Plan of Integrated Airports (NPIAS), which makes them eligible for federal and state funding.

Minneapolis-Saint Paul International Airport, as a hub serving the Upper Midwest, handled over 33 million passengers, 425,000 aircraft operations and 198,000 metric tons of cargo in 2012. The relievers handled approximately 340,000 aircraft operations in 2013. The regional airports are working reasonably well; long-term comprehensive plans for all of the individual airports are updated periodically to detail specific needs for preservation and expansion. These plans need to be consistent with system policies and plans, but they also inform future system planning.

Roles and Responsibilities

Aviation roles and responsibilities vary amoung various levels of government. Federal, state, regional and local units include the Federal Aviation Administration (FAA) of the U.S. Department of Transportation (US DOT), MnDOT's Office of Aeronautics, the Metropolitan Council, Metropolitan Airports Commission (which owns most of the system airports) and other airport owners/operators, such as the cities of South Saint Paul and Forest Lake. The role of the federal government in aviation is especially worth noting, as it is significantly different from the federal role in other transportation modes like transit and highways, where it is primarily the funder of facilities owned and operated by others.

- **Federal Aviation Administration** – a division of U.S. DOT
  - 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.

- **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/rules and coordination with the Federal Aviation Administration.
- **Metropolitan 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 MAC's airport, environmental and capital plans/programs
  - Reviews community plans and public/private projects for compatibility with regional airports and aviation policies
  - Provides coordination, funding and technical assistance for planning activities.
- **Metropolitan Airports Commission**
  - Promotes aviation
  - Owns the major airport and most reliever airports in metro area
  - Operates those airports on a day-to-day basis
  - Prepares plans and implements projects for individual airports under its jurisdiction

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 Metropolitan Council in 1967. Minnesota Statutes Chapter 473 contain further detail on roles for both Metropolitan Council and Metropolitan Airports Commission.

Other airport owners/operators – Forest Lake and South Saint Paul also own and operate reliever airports in the region. South Saint Paul is a long-established municipal airport, while the Forest Lake facility was started as a private airport with turf runways, but is now owned by the city. Two private special-purpose airports (private seaplane bases) remain in the region.

Airport Classifications, System Role, and Function

All airports are subject to the rules of airspace sovereignty and federal government controls. 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. The role and function of an airport within the overall system is an important policy and technical step in the aviation planning process.

While a region typically has only one or two commercial service airports, a series of reliever airports geographically distributed around the region is needed to provide facilities that "relieve" demand for smaller planes to use the larger commercial airports. General aviation users are encouraged to use the reliever airports, and facilities at those airports are intended to attract these users away from Minneapolis-Saint Paul International Airport.

Airports in the Twin Cities Regional Airport System are classified by a number of different methods. Table 1 summarizes the roles of the various airports in the region under each system.

- At a national level, many of these airports are classified in the FAA's National Plan of Integrated Airport Systems (NPIAS).
- Minnesota has a state level classification method, applied to all system airports in the state, as defined in Commissioner's Order Number 605, Order Amending the Airport System of the State of Minnesota, October 30, 2003. State plans usually include more airports than the national plan.
- The Metropolitan 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.

Table 1: Airport Classifications

Airport	Federal NPIAS	State	Regional
MSP International	Commercial Service - Primary	Key	Major
Saint Paul Downtown	Reliever	Key	Intermediate
Flying Cloud	Reliever	Key	Minor
Anoka County-Blaine	Reliever	Key	Minor
Crystal	Reliever	Intermediate	Minor
Lake Elmo	Reliever	Intermediate	Minor
Airlake	Reliever	Intermediate	Minor
South Saint Paul	Reliever	Intermediate	Minor
Forest Lake	N/A	Landing Strip	Minor

Source: Met Council, 2014

Periodic re-evaluation is necessary to see if the system has the right type of airports, in locations providing the right type and level of services in a cost-effective and compatible manner.

The advent of the very light business jets, in addition to the growth of the existing larger-scale corporate business aircraft fleet and increasing fractional ownership, is the main driver of growth in general aviation. Thus, plans and investments have gone forward at Saint Paul Downtown, Anoka County-Blaine, and Flying Cloud airports that upgrade capabilities for the business users. Continued emphasis on business jet aircraft at these minor/intermediate airports is recognized in the airport's designated role and investment needs.

In 2009 a regional aviation system technical report was completed that included aviation forecasts and a review of all categories, including a peer review of the role and number of reliever airports in this region against similar metropolitan areas. The analysis concluded that no changes are necessary to regional airport classifications or system roles. Table 9-2 summarizes the characteristics of the various airports in the regional system.

Table 9-2: Existing Functional and Operational Characteristics/Classification of Metro Region Airport System Facilities

Facility Classification	Functional Characteristics			Operational Characteristics		Airport Compatibility Area *
	System Role	Users Accommodated	Air - Service Access Provided	Primary Runway Length	Instrumentation Capability	Compatibility Considerations
Major Airport						
MSP International	Commercial Air Service Hub	Scheduled Passenger & Cargo, Charter, Air Taxi, Corporate, G.A., Military	International, National, Multi-State, Regional	8,001 - 12,000 ft, Paved	Precision	• Airport Compatibility Area requirements for airport system functioning: • Regional Airspace Protection • Airport Airspace and land use safety zoning • Land Use Guidelines for Aircraft Noise • Local Infrastructure and Services • Sewer Service • Water Service • Storm Water • Road Access • Police-Fire • Non-Aviation Uses
Intermediate Airport						
Saint Paul Downtown	Business Jet Reliever	Air Charter, Air Taxi, Business Jet , Military, G.A.	International, National, Multi-State, Regional	5,001 - 8,000 ft, Paved	Precision	
Minor Airport						
Anoka Co. -Blaine	Business Jet Reliever	Air Taxi, Business Jet	Nat'l./Multi-State	5,000 ft, Paved	Precision	
Flying Cloud	Business Jet Reliever	Air Taxi, Business Jet	Nat'l./Multi-State	5,000 ft, Paved	Precision	
Airlake	G.A. Reliever	Rec./Training/Business	Multi-State/State	4,098 ft, Paved	Precision	
South Saint Paul	G.A. Reliever	Rec./Training/Business	Multi-State/State	4,001 ft, Paved	Non-Precision	
Crystal	G.A. Reliever	Rec./Training/Business	Multi-State/State	3,263 ft, Paved	Non-Precision	
Lake Elmo	G.A. Reliever	Rec./Training/Business	Multi-State/State	2,850 ft, Paved	Non-Precision	
Forest Lake	Recreational/ Business	Recreational/Training	State, Regional	2,650 ft. Turf	Visual	

Table 9-2: Existing Functional and Operational Characteristics/Classification of Metro Region Airport System Facilities

Facility Classification	Functional Characteristics			Operational Characteristics		Airport Compatibility Area *
	System Role	Users Accommodated	Air - Service Access Provided	Primary Runway Length	Instrumentation Capability	Compatibility Considerations
Special Purpose						
Surfside Seaplane Base	Recreational/ Business	Rec./Training/Per. Bus.	Multi-State/State	6,500 ft Water	Visual	Variable by Facility
Wipline Seaplane Base	Recreational/ Business	Training/Business	Nat'l/Multi-State	8,000 ft Water	Visual	
Hospital Heliports	Emergency Services	Business	State, Regional	Variable by facility	Variable by facility	

*Airport Compatibility Area is defined as a radius area 3 nautical miles and 6 nautical miles off the ends of the existing and planned runways of the nearest system airport; within 3 nautical miles it addresses general land use compatibility issues, and out to 6nm it also addresses sanitary landfills, and wind-generation facilities.

Source: Met Council, 2014

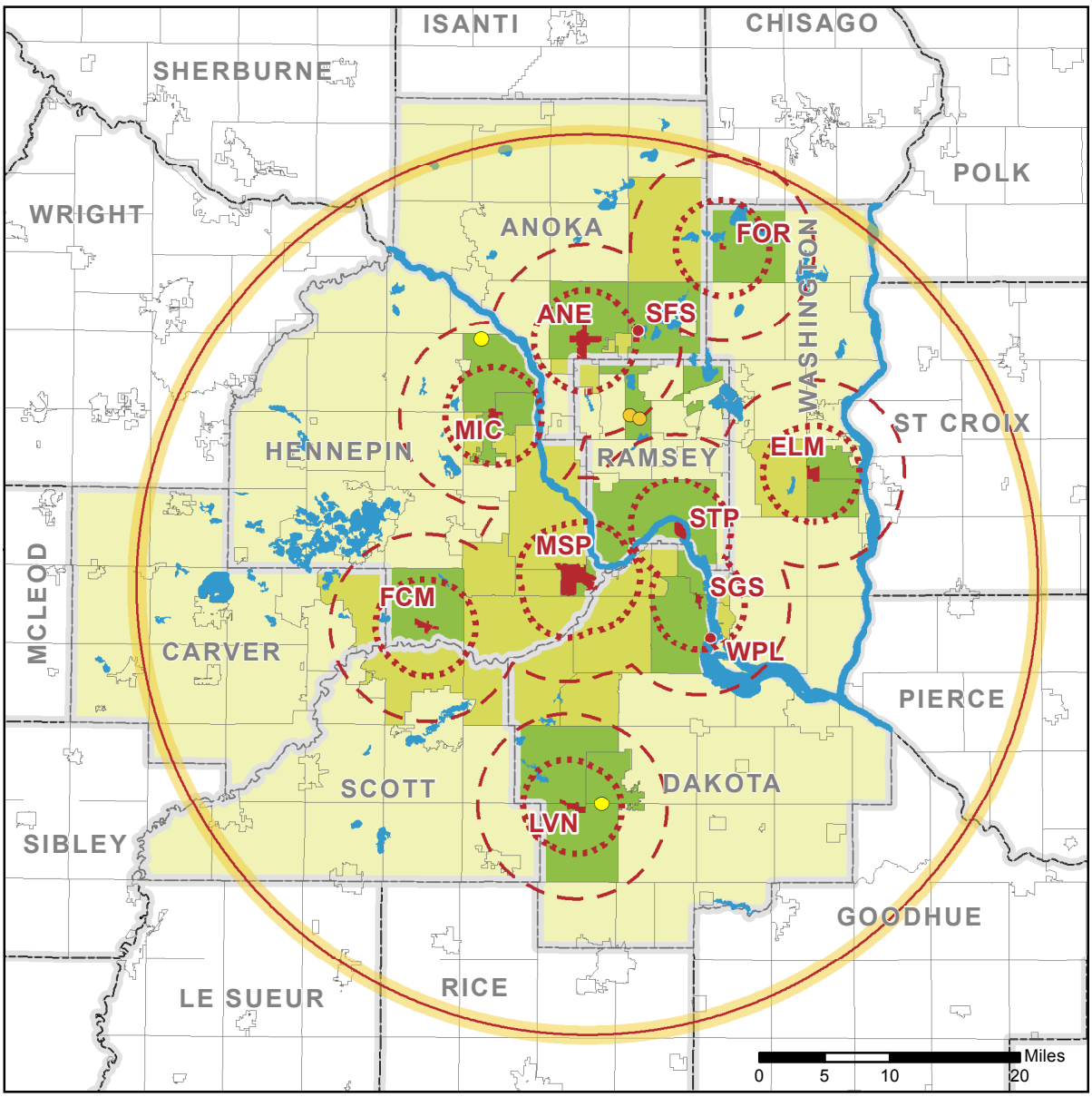
Airport Service Areas

Accessibility, both by air and ground access to the airport, is important to efficient use of air transportation. While the region has only one major commercial airport, the regional system of minor airports reflects the region's geographic distribution of urban development, population and employment patterns to maximize economic benefits.

Thrive MSP 2040 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 service areas have been identified for the Major, Intermediate and minor system airports, shown in Figure 9-1. These service areas are based upon a three nautical mile radius from the airport for noise, zoning and infrastructure land use compatibility. The six nautical mile radius is to prohibit new landfills, and wind tower. Based on Thrive forecasts, no new general aviation airports are proposed. Public airports in the counties beyond the seven-county region would provide future capacity for growing areas on the edge of the region.

Figure 9-1: Airport Service Areas

Airport Service Areas



Public Owned Public Use Airport

Airport Compatibility Area
(3 NM's – Noise, Zoning, Infrastructure)
(6 NM's – Landfills, Wind Towers)

MSP Minneapolis – St. Paul International Airport *(Wold-Chamberlain Field)*

STP St. Paul Downtown Airport *(Holman Field)*

ANE Anoka County – Blaine Airport *(Janes Field)*

FCM Flying Cloud Airport

MIC Crystal Airpot

SGS South St. Paul Airport *(Fleming Field)*

ELM Lake Elmo Airport

LVN Airlake Airport

FOR Forest Lake Airport

Privately Owned Public Use Airport

SFS Surf-Side Seaplane Base *(Rice Lake)*

WPL Wipline Seaplane Base *(Miss. River)*

Minneapolis Class-B Airspace Boundary

Permitted Seaplane Surface Waters *(within 7 County Area only)*

VOR Protection Zone

Tall Tower Areas

Aviation Facility Located in Community

Community Directly Affected by Facility(s)

General Airspace Notification/Protection

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. Airside capacity is determined by various factors including prevailing wind, orientation of runways to the winds and to each other if 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 (ASV) that takes these variables into account for each particular airport. The ASV for a given airport is the annual level of aircraft operations that can be accommodated with minimal delay. For airports with operations below the ASV, delay is minimal, usually less than four minutes per operation. Delay levels above four minutes can result in rapidly increased congestion, operating costs and increased operational complexities.

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

Current long-term comprehensive plans for the reliever airports indicate airside capacity in those airports is adequate. At Crystal airport, two of the four runways are planned to be closed; however, the airport itself is still needed as it contributes to overall system capacity and geographic balance among the reliever airport service areas.

Landside Capacity

The capacity of an airport's landside 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/tie-down spaces at the other minor airports.

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/operational requirements, and effects of the Minnesota seasons. The most current estimates of existing hangar spaces and percent of capacity utilized are presented in Table 9-3. Existing hangar spaces are generally adequate and with current economic conditions, additional space is available, especially in T-hangars. Future hangar capacity conditions have been improved with development of new building areas at Anoka County-Blaine, Flying Cloud, and South Saint Paul airports. Provision for additional

building area development has been included in the long-term comprehensive plans for Lake Elmo and Airlake airports, with some possibility of building area redevelopment at Crystal Airport. 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.

Table 9-3: Estimated Utilization of General Aviation Landside Capacity

Airport	Hangar Spaces1	Based Aircraft2	Percent of Capacity
MSP International	29	29	100%
Anoka Co. - Blaine	510	433	85%
Crystal	382	219	57%
Flying Cloud	508	403	79%
South Saint Paul	N/A	241	N/A
Forest Lake	22	26	100+
Saint Paul Downtown	159	79	50%
Airlake	160	147	92%
Lake Elmo	256	229	89%

1. Hangar Spaces - Current LTCPs
2. Based Aircraft - HNTB 2013 Reliever Airports Activity Forecasts - Technical Report (2012 base year)
Note: Based aircraft data excludes military at MSP and Downtown Saint Paul Airport
Source: MAC, 2014

Maintaining the airport system infrastructure will be a continuing challenge for the region. Impacts and opportunities at individual airports have been assessed in updates of each airport's long-term comprehensive plan through 2030. Growth in flight activity for general aviation is essentially flat as depicted in Table 9-4, but growth is projected to continue for commercial activity through 2030.

Table 9-4: Summary of Regional System Based Aircraft and Forecasted 2030 Activity

Activity	2012	2015	2020	2030	Average Annual Growth
Total G.A. Based Aircraft	1,539	1,562	1,549	1,542	0.01%
Total G.A. Operations	368,401	335,505	337,358	355,477	-0.20%
MSP Enplaned Passengers (Base Case Forecast)	16,020,038	17,639,241	20,178,920	26,411,706	2.82%
MSP Aircraft Operations	424,928	441,932	484,879	567,396	1.62%

Sources: MAC, 2014
Total GA Based Aircraft - HNTB 2013 Reliever Airports Activity Forecasts - Technical Report (2012 base year)
Total GA Operations - HNTB 2013 Reliever Airports Activity Forecasts
Technical Report for MIC, LVN, 21D; FAA Draft 2014 TAF for STP, FCM, ANE; 2020 Improvements EA/EAW for MSP
MSP Enplaned Passengers - 2020 Improvements EA/EAW
MSP Aircraft Operations - 2020 Improvements EA/EAW

Long Term Comprehensive Plans

Airport sponsors are required to prepare a 20-year long-term comprehensive plan (LTCP) for each airport in the system. The LTCP 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 environs. 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 an LTCP are described in Appendix K.

Plans should be reassessed every five years and updated according to the schedule outlined in Table 9-5. The reassessment involves reviewing the new forecasts against prior forecasts and actual airport activity, checking the progress of implementation efforts (for example, individual project planning, environmental evaluations, and capital program), and identifying any other issues or changes that may warrant continued monitoring, interim action or establish a need for a plan update. The LTCP does not replace any other planning or reporting requirements of another governmental unit.

If a change to the plan cannot be accommodated during its scheduled update, the LTCP, or parts of it, should be amended. Airlake, Crystal and Lake Elmo airports were delayed in their scheduled updates due to scheduling and funding. Those airports are on schedule to be completed with their LTCP in 2015. An amendment should be prepared and reviewed by the Council prior to project inclusion in the corresponding year's capital improvement program.

Table 9-5: Update Schedule for Long-Term Comprehensive Plans

Metro Area Public Use Airports	Plan Status	5-year Update
Minneapolis-Saint Paul Int'l.	2030 LTCP Approved June 2010	2015
Saint Paul Downtown	2030 LTCP Approved April 2010	2015
Anoka County-Blaine	2030 LTCP Approved April 2010	2015
Flying Cloud	2030 LTCP Approved April 2010	2015
Airlake	2025 LTCP Approved October 2008	2014
Crystal	2025 LTCP Approved October 2008	2014
Lake Elmo	2025 LTCP Approved October 2008	2014
South Saint Paul Municipal	Community CPU Approved 2009	2019
Forest Lake Municipal	Community CPU Approved 2009	2018
Lino Lakes Seaplane Base	Community CPU Approved 2009	2018
Wipline Seaplane Base	Community CPU Approved 2009	2018

Environmental Compatibility

The planning, development and operation of the region's aviation facilities should be conducted to minimize impacts upon the cultural and natural environment, regional systems and airport communities. Airport sponsors should have a surface water management plan, which is 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/central sewer systems on-site and all well location sites. The airport sponsors should also provide sanitary sewer to system airports when such service is available. All airports in the system, except Airlake and Lake Elmo, are within the MUSA and currently have sewer service.

In areas around an airport, or other system facilities, land uses should be compatible with the role and function of the facility.

One preventative 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 hazard to air navigation. 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 state statute and in the appendices of this plan, the ability to enact an airport zoning ordinance, an airport sponsor typically invites nearby communities to participate in a Joint Airport Zoning Board (JAZB). These boards work in a collaborative fashion to accommodate both community and airport needs in the zoning process. Further information on JAZB's and the zoning process can be found in Appendix L.

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 (LTCPs). Both the airport and community plans should be structured around an overall scheme of preventive and corrective measures. Appendix L discusses, in greater detail, the current land use measures and status of the noise compatibility program. For additional noise related information, refer to the individual airport LTCP for noise modeling and operational documentation, the 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.

Aviation Investment Plan

For airports in the regional aviation system to meet their facility and service objectives, performance and function, continued investment in system airports will be needed over the 20-year planning period. This section gives an overview of the airport facility, airport issues and planned investments for each regional system airport as found in the long-term comprehensive plans. In addition, it is important to understand the funding process and sources available to airports to implement recommendations and airport 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 Council reviews the MAC capital improvement plan (CIP) for consistency with regional systems and policy. This review also provides oversight of the improvement program, and the Council approves specific projects that meet dollar thresholds. The review process for the capital improvement plan is defined in Appendix J.

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 are shrinking. Maintaining historical levels of funding is vital to the airports that support the economy of the metropolitan region.

Federal

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 (NPIAS). For Minneapolis-Saint Paul International Airport, the grant covers 75 percent 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 way bills, international departure fees, general aviation fuel, and aviation jet fuel. The FAA uses these funds to provide 95% 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 (AIP) Handbook.” In general, the handbook states that:

- An airport must be in the currently approved National Plan of Integrated Airport Systems (NPIAS)
- With the exception of the two Special Purpose Airports and Forest Lake Airport, all of the Twin Cities metro system airports qualify as NPIAS airports and are eligible for AIP 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 (F&E) 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, a non-primary entitlement program was authorized. This program provided up to $150,000 in FAA grant funds each year to general aviation airports that were listed in the NPIAS and were not a primary airport providing airline service for passengers. Under this program, the FAA pays 95% of all engineering, inspection, testing, land acquisition, administrative, and construction costs for projects that are eligible. The sponsor or state pays a local 5%

match. When this program was last renewed, certain revenue-producing items of work, such as T-hangars and fuel facilities, could be funded by this program once all safety-related improvements had been completed.

State

Minnesota's state-funded aeronautics system consists of 135 airports throughout the state. By law, revenues from aviation fuel, aircraft registration, and airline flight property 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 Construction 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 NPIAS are eligible for federal funding. State funding participation at NPIAS airports is 80% of eligible costs. State funding at non-NPIAS airports is 90% of eligible costs. Projects that have revenue-generating potential are funded at 80% and 90% at NPIAS and non-NPIAS, respectively. This program also funds airport maintenance equipment at a two-third state/one-third local participation rate.
- **Airport Maintenance and Operation Program:** The State Airport Maintenance and Operation Grant Program provides two-thirds 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 10 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 is 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, and similar incomes, or from the local governing body. Sources of sponsor funding largely depend upon which of three types 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, such as municipal bond revenues and municipal taxes. Municipal airports in the Twin Cities airport system are Forest Lake and South Saint 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 (MAC)** – Airports owned by the MAC can be funded by revenues generated at any of the MAC-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, MAC philosophy has shifted toward a more self-sufficient system for the reliever airports. The MAC also has the authority to issue bonds to support the funding of airport projects.

Other Funding

A 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 recently used for an fixed base operator building at Anoka County-Blaine airport.

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

Planned Investments

Minneapolis-Saint Paul International Airport

Based on existing conditions and the capacity demands placed on the facility as passenger numbers grow, development activities are needed that focus enhancing the arrival curb, passenger processing facilities, parking and international arrival facilities at Terminal 1, and gate capacity at Terminal 2 to accommodate existing seasonal demand and new carrier entrants at Minneapolis-Saint Paul International Airport. In general, the terminal environment at Minneapolis-Saint Paul International Airport will also need enhancement in the form of gates, ticket counters, passenger check-in areas, security screening checkpoints, and baggage claim areas.

Environmental analyses associated with the Minneapolis-Saint Paul International Airport 2020 improvements were conducted in compliance with both the National Environmental Policy Act (NEPA) and the Minnesota Environmental Policy Act (MEPA). Guidance was provided by the FAA's policies and procedures for considering environmental impacts: FAA Order 5050.4B, "NEPA Implementing Instructions for Airport Actions" and FAA Order 1050.1E, "Environmental Impacts, Policies and Procedures" and MEPA's Minnesota Environmental Review Program.

Preparation of a federal Environmental Assessment and state Environmental Assessment Worksheet began in September 2010 and was concluded in March 2013 with a Finding of No Significant Impact by the FAA and in April 2013 with a Negative Declaration on the need for an EIS by the MAC.

Reliever Airport Investments

In general the development programs at the reliever airports focus on rehabilitation of pavement in aircraft operational areas (runways, taxiways, aprons). Projects vary from year to year, depending on available funding and airport needs. In 2013, pavement rehabilitation was completed at Anoka County - Blaine Airport, Airlake Airport and Lake Elmo Airport The following list shows other general projects that are being considered at the reliever airports.

- Obstruction removal
- Land acquisition
- Arrival/departure building
- Perimeter fencing
- Install automated weather observation system
- Runway pavement and taxiway
- Hangar development

Table 9-6 shows the cost of the planned investments at the regional airports. The table is in 2010 dollars and will be updated for current year (2014) costs.

Table 9-6: Planned Investments at Regional Airports

Airport	2015	2016-2020	2021-2030	2031-2040
MSP International CIP	$132,925,000	$1,297,000,000	~$50-$100 million annually for MSP	~$50-$100 million annually for MSP
Saint Paul Downtown	$1,550,000	$11,000,000 ($5 million Annually for the Regional System		
Anoka County-Blaine	$750,000	$5,000,000 ~$5 million Annually for the Regional System		
Flying Cloud	$850,000	$8,000,000 ~$5 million Annually for the Regional System		
Crystal	$300,000	$4,000,000 ~$5 million Annually for the Regional System		
Lake Elmo	$1,550,000	$19,000,000		
Airlake	$50,000	$18,000,000		
South Saint Paul	$3,813,123	negligible		
Forest Lake	$5,869,800	Short-term funding needs likely to shift into out years unless federal funding under NPIAS		

Sources: MAC, 2014
Preliminary 2015-2021 MAC Capital Improvement Program (8/21/14 Version)

Individual Airport Investments

Minneapolis-Saint Paul International Airport

Figure 9-2: Minneapolis-Saint Paul International Airport

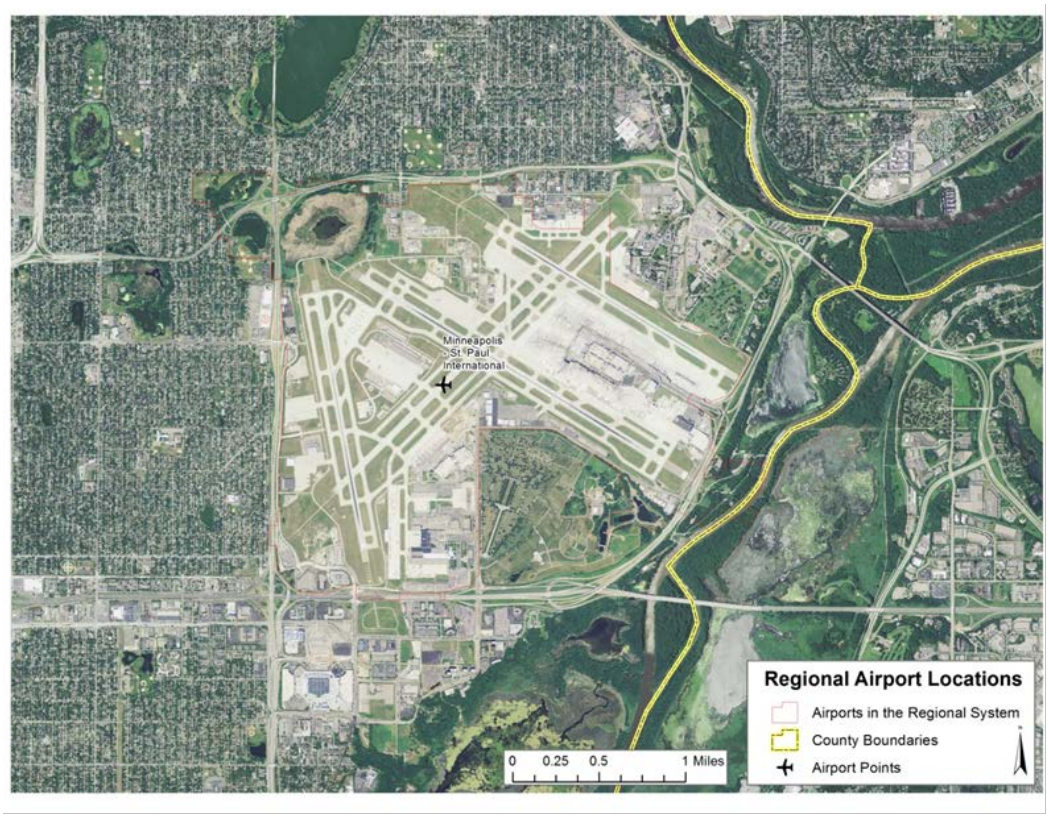


Table 9-7: MSP Data

	Existing (2012)	2020	2025	2030
Based Aircraft	29	29	29	29
Operations	424,928	484,879	526,040	567,396
Land Area	2,930 Acres			

Source: MAC, 2014

MSP Discussion:

The aviation industry is volatile and the MAC needs to be flexible to continue to provide state of the art facilities. Recently, airlines have consolidated, shifted strategies with their aircraft fleet, adopted new security protocols and implemented new technologies for more efficient operations. Monitoring and planning for these changes as well as technology upgrades and variations in growth rates for different aviation activities will be needed.

Downtown Saint Paul Airfield

Figure 9-3: Downtown Saint Paul Airfield

Table 9-8: Downtown Saint Paul Airfield Data

	Existing (2012)	2020	2025	2030
Based Aircraft	79	106	112	112
Operations	79,918	65,913	67,367	68,869
Land Area	540 Acres			

Source: MAC, 2014

Airport Discussion

Downtown Saint Paul Airfield (Holman Field) is located across the river from downtown Saint Paul. Opportunities at this airport revolve around land use compatibility and obstructions. The airport has sufficient capacity for future demand. The airport is used as an alternate for Minneapolis-Saint Paul International Airport, in case of capacity/emergency scenarios at Minneapolis-Saint Paul International Airport. The air traffic control tower located at the airport is an FAA tower.

Airlake Airport

Figure 9-4: Airlake Airport

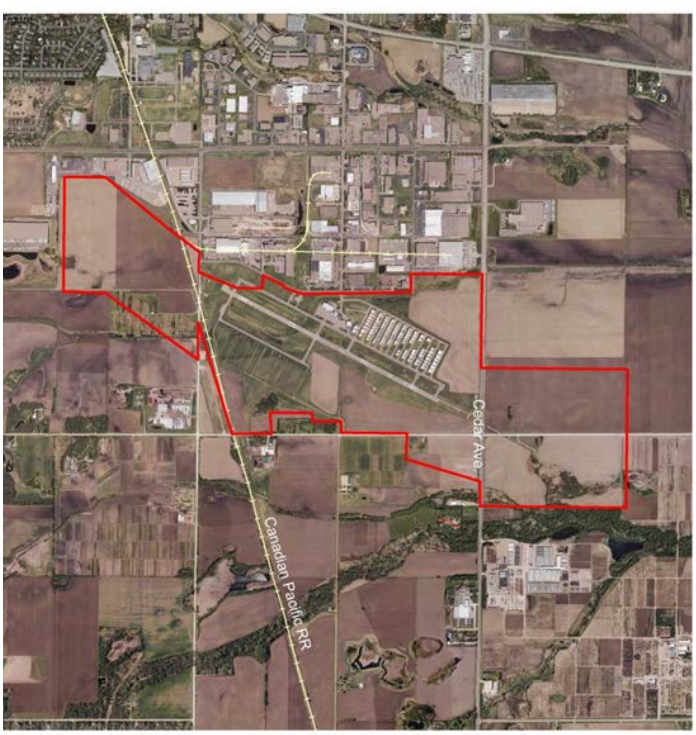


Table 9-9: Airlake Data

	Existing (2012)	2020	2025	2030
Based Aircraft	147	156	154	157
Operations	25,997	26,408	26,955	28,783
Land Area	595 Acres			

Source: MAC, 2014

Airport Discussion:

Airlake Airport is located in Dakota County, approximately 20 miles south of Minneapolis and 16 miles south of Minneapolis-Saint Paul International Airport. The main issues at Airlake Airport include tenant access to municipal systems for sanitary sewer and water. MAC should continue to procure tenant access to sewer and water services. MAC would need to pursue agreements to move Cedar Avenue or the railroad to allow for an extension of the runway, and plan for more landside capacity. This airport does not have an air traffic control tower. MAC should also pursue non-aeronautical revenue opportunities.

Anoka County-Blaine Airport

Figure 9-5: Anoka County - Blaine Airport

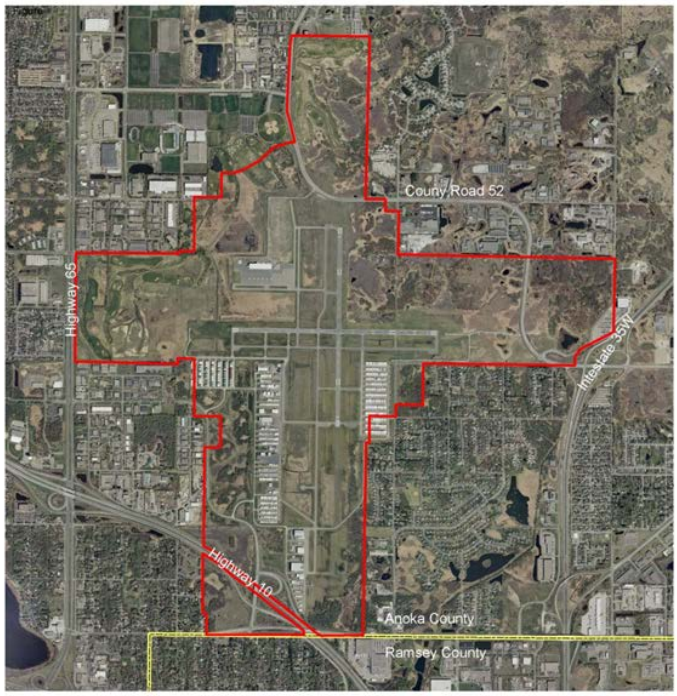


Table 9-10: Anoka County-Blaine Data

	Existing (2012)	2020	2025	2030
Based Aircraft	433	412	404	401
Operations	79,350	72,651	75,172	77,791
Land Area	1,900 Acres			

Source: MAC, 2014

Airport Discussion:

Anoka County- Blaine Airport is located in the southern part of Anoka County and the city of Blaine, approximately 12 miles from downtown Minneapolis and 12 miles from downtown Saint Paul. The air traffic control tower located at the airport is a contract tower and future funding for these towers is not guaranteed. Other opportunities at Anoka-Blaine airport include non-aeronautical land uses.

Crystal Airport

Figure 9-6: Crystal Airport

Table 9-11: Crystal Data

	Existing (2012)	2020	2025	2030
Based Aircraft	219	205	200	199
Operations	48,220	44,094	44,259	46,159
Land Area	436 Acres			

Source: MAC, 2014

Airport Discussion:

Crystal Airport is located in Hennepin County, approximately seven miles northwest of downtown Minneapolis. The opportunities at this airport include the right sizing of airport facilities and on-going removal of off airport obstructions. The air traffic control tower located at the airport is an FAA tower and currently funding for these towers has been provided, but will need to be re-allocated in the future. Other opportunities at Crystal Airport include compatible and revenue generating land uses around the airport.

Flying Cloud Airport

Figure 9-7: Flying Cloud Airport

Table 9-12: Flying Cloud Data

	Existing (2012)	2020	2025	2030
Based Aircraft	403	423	425	433
Operations	84,773	74,126	76,334	78,634
Land Area	543 Acres			

Source: MAC, 2014

Airport Discussion:

Flying Cloud Airport is located approximately 14 miles from downtown Minneapolis. The airport is considered by the MAC to be a primary reliever airport for Minneapolis-Saint Paul International Airport and the primary runway extension was constructed in 2008. The air traffic control tower located at the airport is an FAA tower. Other opportunities at Flying Cloud Airport include development of non aeronautical land uses to procure additional revenue.

Forest Lake Airport

Figure 9-8: Forest Lake Airport

Figure 9-9: Forest Lake Data

	Existing (2012)*	2020	2025	2030
Based Aircraft	26	26	26	26
Operations	8,000	8,000	8,000	8,000
Land Area	330 Acres	330	330	330

* No Data

Airport Discussion:

Forest Lake Airport is located in northern Washington County. Built as a private airport, it is now owned by the City of Forest Lake. Although this airport was added to the regional system in 2010, it will require significant investment to fully function as a reliever airport. The airport is not currently in the National Plan of Integrated Airport System, but is continuing to work toward inclusion. The City of Forest Lake, along with the airport manager and MnDOT, has developed a project to pave the runway. MnDOT has stated that they will provide a grant with matching funds by the city. The city realizes the opportunity and is currently deciding how to move forward. With the paved runway, this would provide an opportunity for Forest Lake to be included in the NPIAS. This would be a great project for the airport and also serve the flying public in the region as well. The opportunities at Forest Lake Airport include obstruction removal, perimeter fencing, and provision of both airside and landside improvements. As adjacent land is developed, compatibility of land uses must be carefully monitored.

Lake Elmo Airport

Figure 9-10: Lake Elmo Airport

Table 9-13: Lake Elmo Data

	Existing (2012)	2020	2025	2030
Based Aircraft	229	218	209	211
Operations	26,709	24,232	23,908	25,200
Land Area	640 Acres	640	640	640

Source: MAC, 2014

Airport Discussion:

As the City of Lake Elmo continues to grow, there may be land use compatibility issues off the runway end at Lake Elmo Airport. The Long Term Comprehensive Plan update for the airport, anticipated to be completed in 2015, will address the issue of extending or relocating the primary runway. The city and MAC have been working together with each other and MnDOT, to coordinate with regard to planning and land use compatibility issues around the airport.

South Saint Paul Airport

Figure 9-11: South Saint Paul Airport

Table 9-14: South Saint Paul Data

	Existing (2014)	2020	2025	2030
Based Aircraft	274	298	323	351
Operations	64,800	71,520	77,520	84,240
Land Area	270 Acres	270	270	270

Source: South Saint Paul Airport LTCP, 2014

Airport Discussion:

South Saint Paul Airport is located in South Saint Paul/Inver Grove Heights approximately seven miles south of downtown Saint Paul. The airport is owned and operated by the City of South Saint Paul. There is no air traffic control tower and the airport is designated a minor airport in the regional aviation system. The opportunities at South Saint Paul include obstruction removal, runway length, landside development and land use compatibility. The Long Term Comprehensive Plan was completed in 2014. The LTCP analyzed runway length, airspace obstructions, obstruction removal, and conduct a financial feasibility analysis for capital improvement projects in the future. The LTCP also developed a strategic business plan for growth opportunities in the future. The airside analysis showed that there were physical constraints for extending the runway, however, the use of stopways to provide additional takeoff distance for aircraft was possible. The preferred alternative that was selected in the LTCP, is to construct a 300-foot stopway on one end of the runway, and a 120-foot stopway on the other end of the runway. This alternative satisfied the runway length issues at the airport.

An Emerging Issue: Unmanned Aerial Vehicles

Unmanned aerial vehicles (UAVs) are starting to emerge as a new technology for farmers, commercial operators and the general public. At the time of this plan, the FAA is currently in the Notice of Proposed Rule Making for public operation of UAVs. The existing regulations prohibit the general public from operating UAVs in Class B airspace, which is essentially most of the metropolitan area. Unmanned aerial vehicle regulations and legislation will be followed in the near future.